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TecH BK

CORE DIAMOND DRILLING DATA MANAGEMENT SYSTEM PROPOSAL & QUOTATION

ABSTRACT

Development of a local-first web application for Core Diamond Drilling's operational data management, including comprehensive daily activity tracking, reporting capabilities, and offline functionality. The system will facilitate efficient data collection and reporting across multiple drilling sites and shifts.

Prepared For

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1 Executive Summary

The Core Diamond Drilling Data Management System is designed to provide a robust, local-first solution for tracking and managing drilling operations data across multiple sites. The system will enable efficient data collection, storage, and reporting while maintaining functionality during periods of limited connectivity.

The project aims to deliver a Minimum Viable Product (MVP) that includes:

- ✓ A scalable local-first web application capable of offline operation with synchronization capabilities.
- ✓ Comprehensive data collection forms covering all aspects of drilling operations, from crew transport to operational incidents.
- ✓ Advanced reporting functionality supporting daily, weekly, monthly, and yearly report generation.
- ✓ Export capabilities for both PDF and Excel formats to support various business needs.
- ✓ A foundation for future expansion, including mobile access and multiple user roles.

The system will be built using modern web technologies (NextJS and PostgreSQL) to ensure reliability, scalability, and maintainable code base for future enhancements.

2 Project Objectives

The Core Diamond Drilling Data Management System aims to achieve the following objectives in its first phase of development:

2.1 Implement Reliable Local-First Architecture

Build a robust web application that prioritizes local data storage and offline functionality while ensuring reliable synchronization when connectivity is restored. This ensures uninterrupted data collection across all drilling sites, regardless of internet availability.

2.2 Streamline Operational Data Collection

Create an intuitive interface for capturing comprehensive operational data, including:

- ✓ Crew transport and handover documentation
- ✓ Safety protocols and checks
- ✓ Equipment operations and maintenance
- ✓ Drilling activities and core retrieval
- ✓ Incident reporting and delays
- ✓ Time tracking across shifts

2.3 Enable Comprehensive Reporting

Develop a powerful reporting system that:

- ✓ Generates daily, weekly, monthly, and yearly reports
- ✓ Provides real-time dashboards for operational insights
- ✓ Supports data export in PDF and Excel formats
- ✓ Enables custom date range reporting
- ✓ Visualizes key performance indicators

2.4 Ensure Data Integrity and Accessibility

- ✓ Implement robust data validation to ensure accuracy
- ✓ Provide secure data storage with regular backups
- ✓ Enable efficient search and filtering capabilities
- ✓ Support file attachments for documentation

Interface Mockups

Upon request.

2.5 Future-Proof Architecture

The system will be built on a foundation that anticipates future growth and adaptation. From day one, the architecture will support expansion to mobile access for field workers and the introduction of role-based access control as the user base grows. The modular design will facilitate seamless integration with other systems while maintaining flexibility to incorporate new reporting requirements and regulatory compliance features. This forward-thinking approach ensures that as **Core Diamond Drilling**'s needs evolve, the system can scale and adapt without requiring fundamental restructuring.

3 Scope of Work

The scope of the **Core Diamond Drilling** Data Management System - Phase One project covers the design, development, and deployment of a Minimum Viable Product (MVP). The MVP will deliver core features necessary for operational data collection, management, and reporting across drilling sites.

3.1 Project Deliverables

3.1.1 Local-First Web Application

- ✓ Complete web-based platform with offline functionality
- ✓ Bilingual interface (French/English)
- ✓ Local data storage with synchronization capabilities
- ✓ Support for 15 concurrent users across three role types:
- ✓ Directors/Administrators (3)
- ✓ Supervisors (5)
- ✓ Shift Bosses (7)

3.1.2 Data Collection Forms

Comprehensive digital forms for capturing:

- ✓ Daily Drilling Reports:
- ✓ Hole ID and specifications (AZ, DIP)
- ✓ Operator information
- ✓ Drilling metrics (start/end depth, advancement, recovery)
- ✓ Shift-specific data (Day/Night)
- ✓ Equipment and Safety Forms
- ✓ Crew Transport & Handover
- ✓ Safety Documentation (Toolbox & JHA)
- ✓ Equipment Checklists (Rig, Drill Pad, Pre-start)

- ✓ Operational Activities:
- ✓ Rod Operations (Pull down/up)
- ✓ Mud Mixing
- ✓ Core Retrieval
- ✓ Time Tracking (Drilling hours, breakdown periods, logistics delays, other activities)
- ✓ Maintenance & Breakdowns:
- ✓ Maintenance schedules and logs
- ✓ Incident Reporting (safety concerns, delays, artisanal miner attacks)
- ✓ Environmental Factors:
- ✓ Weather conditions (rain, lightning)
- ✓ Water availability
- ✓ Photo Attachment Capabilities:
- ✓ Support for image uploads
- ✓ Image compression and storage optimization

3.1.3 Reporting System

- ✓ Dashboard:
- ✓ Display key operational metrics
- ✓ Automated Report Generation:
- ✓ Daily Reports (individual shift reports and daily cumulative totals)
- ✓ Weekly Summaries
- ✓ Monthly Analysis (including progress tracking and monthly drilling target tracking of 2000m across 6 rigs)
- ✓ Annual Reviews
- ✓ Project total calculations
- ✓ Key Performance Metrics:
- ✓ Monthly drilling target tracking
- ✓ Hours allocation per shift (12-hour breakdown)
- ✓ Time spent on each activity
- ✓ Recovery rates calculation
- ✓ Export Capabilities:
- ✓ Excel export for data analysis
- ✓ PDF reports
- ✓ Custom date range selection
- ✓ Data Visualization:
- ✓ Visual components to represent operational metrics, progress, and performance metrics

3.1.4 Data Management

- ✓ Secure data storage and backup
- ✓ Photo attachment management
- ✓ Multilingual data handling

- ✓ Historical data search and retrieval

3.1.5 Major Features and Functionalities

Feature Area	Details
User Interface	✓ Intuitive navigation and form layout ✓ Dashboard for operational overview ✓ Mobile-responsive design ✓ Dark mode support for night shift operations
Data Collection	✓ Smart forms with validation ✓ File attachment support ✓ Offline data entry ✓ Auto-save functionality
Reporting	✓ Configurable dashboard views ✓ Multiple export formats ✓ Custom date ranges ✓ Data visualizations
System Administration	✓ Basic user management ✓ Data backup and recovery ✓ System status monitoring ✓ Performance optimization

3.2 Out Of Scope (For the MVP)

- × Mobile application development
- × Advanced user role management
- × Third-party system integrations
- × Advanced analytics and forecasting
- × Custom regulatory compliance reports

3.3 Client Responsibilities

- ✓ Provide existing report templates and formats
- ✓ Supply sample data for testing
- ✓ Participate in user acceptance testing
- ✓ Provide timely feedback during development phases
- ✓ Sign off on key deliverables at project milestones

4 Technology Stack

The **Core Diamond Drilling** Data Management System will be built using modern, reliable technologies that support offline operation while ensuring data integrity and system scalability.

4.1 Core Technologies

4.1.1 Frontend Development

- **NextJS 14+**
    - Latest stable version for optimal performance
    - Server-side rendering for fast initial page loads
    - Built-in routing and API capabilities
    - Excellent developer tooling for rapid development
- **Local-First Architecture**
    - IndexedDB for robust offline data storage
    - Background sync capabilities for reliable data transmission
    - Progressive Web App (PWA) features for offline access
    - Automatic conflict resolution for concurrent updates

4.1.2 Backend Development

- **PostgreSQL Database**
    - Industrial-strength reliability
    - Advanced data integrity features
    - Excellent support for complex queries
    - Built-in backup and recovery tools
- **API Layer**
    - RESTful API endpoints
    - Real-time data synchronization
    - Secure data transmission
    - Rate limiting and request optimization

4.2 System Components

Component	Technology	Benefits
User Interface	Tailwind CSS	▪ Consistent design across all pages

		▪ Dark mode support for night shifts ▪ Responsive layouts for all screen sizes
Forms	React Hook Form	▪ Fast form validation ▪ Excellent offline support ▪ Low bandwidth requirements
Data Sync	Custom Sync Engine	▪ Reliable offline-to-online synchronization ▪ Conflict resolution ▪ Data integrity maintenance
File Storage	Local-First Storage	▪ Efficient photo storage ▪ Automatic compression ▪ Background upload
Reporting	PDF Generation Engine	▪ Custom report templates ▪ Excel export capabilities ▪ Chart generation

4.3 Mobile Responsiveness and Security

The system will implement:

- ✓ Responsive design for tablet and desktop use
- ✓ SSL/TLS encryption for data transmission
- ✓ Secure authentication and session management
- ✓ Regular automated backups
- ✓ Data validation at both client and server levels

4.4 Deployment

Option	Description	Monthly Cost Estimate
Self-Hosted	✓ Complete control over infrastructure ✓ Data stored on-premises ✓ Requires IT maintenance (higher maintenance cost due to in-house upkeep and monitoring)	$27 - $54
Cloud Hosted	✓ Automated scaling ✓ Managed backups ✓ 99.9% uptime guarantee ✓ Recommended for reliability, ease of maintenance, and scalability	$54 - $135
Hybrid	✓ Critical data on-premises	$81 - $162

	✓ Cloud backup and recovery ✓ Best of both worlds	

Note: The self-hosted option incurs higher maintenance costs due to the need for ongoing IT support and infrastructure management. The **Cloud Hosted** option is recommended for its managed services, reliability, and scalability, making it more cost-effective and efficient in the long term.

5 Timeline and Milestones

The development of the **Core Diamond Drilling** Data Management System is structured into clear phases with specific deliverables. The timeline is designed to ensure steady progress while allowing for thorough testing and refinement at each stage.

5.1 Phase Overview

Total Estimated Duration: **90 days**

5.2 Detailed Timeline

5.2.1 Phase 1: Foundation & Core Features (Days 1-30)

Milestone	Deliverables	Timeline
Project Setup	✓ Development environment setup ✓ Database schema design ✓ Basic project structure	Days 1-5
Core Architecture	✓ Local-first infrastructure ✓ Offline capability setup ✓ Basic user authentication	Days 6-15
Basic Forms	✓ Crew transport forms ✓ Safety documentation ✓ Equipment checklists	Days 16-30
First Review Point	✓ Client feedback session ✓ Architecture validation ✓ Form structure approval	Day 30

5.2.2 Phase 2: Advanced Features & Reporting (Days 31-60)

Milestone	Deliverables	Timeline
Drilling Operations	✓ Drilling metrics forms ✓ Time tracking system ✓ Photo attachment functionality	Days 31-45
Reporting System	✓ Daily report generation ✓ Excel/PDF export ✓ Basic dashboard implementation	Days 46-55
Data Visualization	✓ Progress tracking charts ✓ Time allocation views ✓ Monthly target tracking	Days 56-60
Second Review Point	✓ Report format validation ✓ Dashboard review ✓ Performance testing	Day 60

5.2.3 Phase 3: Testing & Deployment (Days 61-90)

Milestone	Deliverables	Timeline
System Testing	✓ Comprehensive testing ✓ Offline functionality validation ✓ Multi-user testing	Days 61-75
User Training	✓ Documentation creation ✓ Training sessions ✓ User guides (Fr/En)	Days 76-85
Deployment	✓ Production environment setup ✓ Data migration if needed ✓ Go-live preparation	Days 86-89
Final Launch	✓ System go-live ✓ Post-launch support ✓ Handover documentation	Day 90

5.3 Project Success Plan

5.3.1 How We Ensure Your System Meets Your Needs

- **Weekly Check-ins (15-30 minutes)**
    - See the system as it develops
    - Catch any issues early
    - Keep the project aligned with your operations
- **Key Decision Points**
    - Review the forms before we build them all

- Verify the reports match your needs
- Test the system with your team before full rollout

This approach allows us to deliver exactly what your team needs, avoid surprises or major changes late in the project, and ensure the system is tailored to work effectively for your specific operations.

5.3.2 After Launch Support

For 30 days after launch, you get:

- Priority response to any issues
- Help for your team as they use the new system
- System performance monitoring
- Quick fixes and adjustments as needed

6 Investment & Value Breakdown

Total Investment: **$2,300 USD**

We believe in transparent pricing and value demonstration. This investment allows you to see your system grow as you progress, ensuring that each dollar contributes directly to enhancing your operations.

6.1 Payment Structure

Our milestone-based payment plan ensures you only pay as you see working results:

Phase	Investment	What You Get	Payment Timing
Initial Setup	$575	✓ System foundation ✓ Basic forms setup ✓ User authentication	Project start (25%)
Core Features	$575	✓ Complete form system ✓ Photo attachments ✓ Offline capability	When testing core features
Reporting System	$575	✓ Automated daily reports ✓ Excel/PDF exports	When reports are ready

		✓ Operations dashboard	
Final Deployment	$575	✓ Staff training ✓ Documentation ✓ System handover	When system is live

6.2 What's Included

Component	What You Get
Operational Forms	✓ All daily drilling forms digitized ✓ Photo attachments for documentation ✓ Offline capability ✓ Available in French and English
Reporting & Analytics	✓ Automated daily reports ✓ Excel exports for analysis ✓ PDF reports matching current format ✓ Real-time dashboard of drilling progress
System Foundation	✓ Secure login for 15 team members ✓ Compatible with existing computers ✓ Local data storage with cloud backup ✓ Fast and reliable performance
Quality & Training	✓ Testing with your team ✓ Training for all staff ✓ Documentation in French and English ✓ 30 days of priority support post-launch

6.3 Monthly Operating Costs

Separate from development costs:

Category	Monthly Cost Estimate (USD)
Hosting & Storage	$50 - $150
Security & Monitoring	$30 - $60

6.4 Cost Flexibility

- **Need it faster?** A 60-day delivery option is available (+40% cost).
- **Extended timeline?** A 120-day timeline can reduce the cost by 10%.

- **Adjustable Features**: We can scale features to fit your budget if a smaller start is preferred.

6.5 Future Growth Options

Your system can expand as your needs evolve:

- ✓ Mobile optimization
- ✓ Additional analysis tools
- ✓ Integration with other systems
- ✓ Extra language support
- ✓ Custom features as needed

6.6 Ongoing Partnership

After the successful handover, we offer continued support:

- IT maintenance and support services
- System enhancements and updates
- Development of additional features
- Technical consultation for future projects

6.7 Value to Your Operation

Benefit	Description
Time Saved	✓ No manual WhatsApp reporting ✓ Faster data collection ✓ Automated report generation
Better Decision Making	✓ Real-time operational view ✓ Easy access to historical data ✓ Clear progress tracking
Reduced Errors	✓ Built-in data validation ✓ No duplicate data entry ✓ Consistent reporting format
Easier Compliance	✓ Secure data storage ✓ Easy audit trails ✓ Professional reports

7 TERMS AND CONDITIONS

7.1 DEFINITIONS

1.1. "Agreement" refers to the entire understanding between the Developer and the Client as outlined in this proposal.

1.2. "System" refers to the data management software being developed for Core Diamond Drilling.

1.3. "Client" refers to Core Diamond Drilling.

1.4. "Developer" refers to the party providing the development services in occurrence TECHBK.

1.5. "Deliverables" refers to all software, documentation, and materials provided under this Agreement.

7.2 SCOPE AND EXECUTION

2.1. Project Commencement

2.1.1. Development begins upon receipt of initial payment.

2.1.2. Each milestone requires written client approval.

2.2. Development Process

2.2.1. Regular progress updates will be provided.

2.2.2. Client feedback will be incorporated throughout development.

2.2.3. Changes to requirements will be managed as per Section 5.

7.3 PAYMENT AND DELIVERABLES

3.1. Payment Structure

3.1.1. Total project cost is $2,300 USD.

3.1.2. Payments are divided into four equal milestones of $575 USD.

3.1.3. Each payment represents 25% of the total project cost.

3.2. Deliverables

3.2.1. Functional data management system

3.2.2. Source code

3.2.3. Documentation in French and English

3.2.4. Staff training materials

7.4 OWNERSHIP AND RIGHTS

4.1. Intellectual Property

4.1.1. Upon final payment, Client receives:

a) Full system ownership

b) Complete source code access

c) Unlimited usage rights

4.1.2. Developer retains right to:

a) Use generic concepts and methodologies

b) Reference project in portfolio (non-confidential aspects only)

4.2. Confidentiality

4.2.1. All Client data remains strictly confidential.

4.2.2. Developer will not disclose operational information.

4.2.3. Secure data handling procedures will be followed.

4.2.4. NDA available upon request.

7.5 MODIFICATIONS AND CHANGES

5.1. Minor Adjustments

5.1.1. Included in project scope

5.1.2. No additional cost

5.2. Major Changes

5.2.1. Require written agreement

5.2.2. May affect timeline and cost

5.2.3. Will be evaluated and quoted separately

7.6 SUPPORT AND WARRANTY

6.1. Initial Support (30 Days)

6.1.1. Bug fixes

6.1.2. System adjustments

6.1.3. Performance monitoring

6.1.4. User support

6.2. Warranty

6.2.1. 30-day warranty on all features

6.2.2. Covers:

a) Programming errors
b) Performance issues
c) Security vulnerabilities

6.3. Ongoing Support

6.3.1. Available through separate agreement

6.3.2. Includes:

a) System maintenance
b) Feature development
c) Technical consultation

7.7 TERMINATION

7.1. Termination Rights

7.1.1. Either party may terminate with 14 days written notice

7.1.2. Payment due for completed milestones

7.1.3. All completed work will be transferred to Client

7.2. Termination Process

7.2.1. Written notice required

7.2.2. Orderly transition of materials

7.2.3. Final payment calculation

7.8 LIMITATION OF LIABILITY

8.1. Maximum liability limited to total project cost

8.2. Excluded Damages

8.2.1. Consequential damages

8.2.2. Lost profits

8.2.3. Data loss due to Client actions

8.3. Force Majeure

8.3.1. Neither party liable for events beyond reasonable control

7.9 ENTIRE AGREEMENT

9.1. This Agreement constitutes the entire understanding between parties.

9.2. Modifications require written agreement from both parties.

8 ACCEPTANCE AND CONFIRMATION

This proposal for the Core Diamond Drilling Data Management System (the "System") is valid for thirty (30) days from the date of submission.

8.1 Project Summary

- **Total Investment**: $2,300 USD
- **Development Timeline**: 90 days
- **Initial Payment**: $575 USD (25%)
- **Start Date**: Upon receipt of initial payment

8.2 Agreement

By signing below, both parties agree to the following:

1. All terms and conditions outlined in this proposal
2. The scope of work and deliverables specified
3. The payment schedule and terms
4. The project timeline and milestones

5. Post-launch support arrangements

8.3 Client Authorization

I, the undersigned, am authorized to approve this project on behalf of Core Diamond Drilling and agree to the terms and conditions specified in this proposal.

Company Name: Core Diamond Drilling

Authorized Representative: _____ (Print Name)

Title: _____

Email: _____

Phone: _____

Signature: _____

Date: _____

8.4 Developer Authorization

Developer Name: _____

Title: _____

Email: _____

Phone: _____

Signature: _____

Date: _____

For Official Use Only:

Contract Number: _____

Project Start Date: _____