BUSINESS REQUIREMENTS DOCUMENT (BRD)

Platform Layanan Outsourcing Data Science dengan Dashboard Analytics dan Predictive Modeling

1. Executive Summary

1.1. Latar Belakang

- Transformasi layanan konsultasi data science tradisional ke platform digital terintegrasi
- Adopsi best practice modern web design untuk dashboard analytics dan business intelligence
- Integrasi user experience yang intuitif mengikuti standar enterprise business application

1.2. Value Proposition

- **Modern Analytics Interface** - Dashboard contemporary dengan visualisasi data interaktif
- **End-to-End Data Pipeline** - Integrated workflow dari data collection hingga insight generation
- **Enterprise-Grade Security** - Data protection dan compliance dengan business standards
- **Scalable Architecture** - Cloud-native design untuk pertumbuhan bisnis yang sustainable

2. Stakeholder Analysis

Stakeholder	Peran & Tanggung Jawab	Kebutuhan Utama
Client Perusahaan	- Submit data untuk analysis - Review hasil analytics - Approve project deliverables	- Kemudahan upload data - Akses real-time dashboard - Report yang actionable
Data Scientist	- Execute data analysis - Build predictive models - Validate results quality	- Tools analytics terintegrasi - Collaborative environment - Version control untuk model

Stakeholder	Peran & Tanggung Jawab	Kebutuhan Utama
Project Manager	- Manage project timeline - Coordinate client communication - Quality assurance	- Project tracking dashboard - Client communication tools - Reporting automation
Admin Business	- Manage user accounts - Monitor billing & invoices - Business performance tracking	- Admin dashboard comprehensive - Financial reporting - Client management tools

3. Business Objectives

3.1. Objectives Utama

- Mengurangi waktu analisis data dari ±4 minggu menjadi ≤1 minggu per project
- Meningkatkan client retention rate sebesar 40% dalam 6 bulan pertama
- Mengoptimalkan resource utilization data scientist hingga 85%

3.2. Key Performance Indicators (KPIs)

- Average project completion time
- Client satisfaction score (CSAT)
- Data scientist utilization rate
- Monthly recurring revenue (MRR) growth
- Customer acquisition cost (CAC)

4. Scope of Work

4.1. In Scope

- Modul data ingestion dan preprocessing
- Modul exploratory data analysis (EDA)
- Modul predictive modeling dan machine learning

- Modul business intelligence dashboard
- Modul automated reporting dan export
- Modul project management dan collaboration
- Modul user management dan billing

4.2. Out of Scope

- Development hardware infrastructure
- Custom mobile application development
- Advanced AI research dan development
- Offline data processing capabilities

5. UI/UX Design Requirements

5.1. Design System

- **Navigation**: Sidebar navigation dengan hierarchical menu structure
- **Data Visualization**: Consistent chart components dengan interactive capabilities
- **Workspace**: Modular layout untuk multi-tasking analytics environment
- **Notifications**: Toast notifications untuk system alerts dan updates

5.2. Color Palette

```
css
:root {
  --primary: #1a73e8;      /* Trustworthy blue */
  --secondary: #5f6368;    /* Professional gray */
  --success: #34a853;      /* Positive green */
  --danger: #ea4335;       /* Alert red */
  --warning: #f9ab00;      /* Caution orange */
  --info: #4285f4;         /* Information blue */
  --dark: #202124;         /* Text primary */
```

```
  --light: #f8f9fa;       /* Background light */
}
```

5.3. Typography Scale

```
css
:root {
  --font-xs: 0.75rem;     /* 12px - Chart labels */
  --font-sm: 0.875rem;    /* 14px - Body small */
  --font-base: 1rem;      /* 16px - Body text */
  --font-lg: 1.125rem;    /* 18px - Subheadings */
  --font-xl: 1.25rem;     /* 20px - Headings */
  --font-2xl: 1.5rem;     /* 24px - Section titles */
}
```

6. Functional Requirements

6.1. Core Features

Module	Feature	Priority
Data Management	- Multi-format data upload - Automated data validation - Data cleaning tools	High
Analytics Engine	- Exploratory data analysis - Statistical testing - Machine learning modeling	High
Visualization	- Interactive charts - Custom dashboard builder - Real-time data updates	High

Module	Feature	Priority
Collaboration	- Project comments - Version history - Shared workspaces	Medium
Reporting	- Automated report generation - Custom template builder - Multi-format export	Medium

6.2. Security Requirements

- Role-based access control (RBAC)
- End-to-end data encryption
- Audit trail untuk semua activities
- GDPR dan compliance standards

7. Technical Requirements

7.1. Performance

- Dashboard loading time < 3 seconds
- Support untuk datasets hingga 1GB
- Concurrent users support (100+ users)
- 99.5% uptime SLA

7.2. Integration Capabilities

- RESTful API untuk third-party integration
- Cloud storage connectivity (AWS S3, Google Cloud)
- Database connectors (SQL, NoSQL, Data Warehouses)

8. Success Metrics

8.1. Business Metrics

- Monthly active users (MAU) growth
- Customer lifetime value (LTV)
- Net promoter score (NPS)
- Revenue per client

8.2. Technical Metrics

- System response time
- Error rate < 0.1%
- Data processing speed
- API latency

9. Timeline & Milestones

9.1. Phase 1: Foundation (Bulan 1-2)

- Basic data upload dan preprocessing
- Simple analytics dashboard
- User authentication system

9.2. Phase 2: Analytics (Bulan 3-4)

- Advanced machine learning models
- Interactive visualization
- Automated reporting

9.3. Phase 3: Scale (Bulan 5-6)

- Collaboration features
- Advanced security features
- Performance optimization