GAP Analysis – Cornflow Project

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Project: Cornflow – Data Analytics & BI Platform

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# Objective

To identify the current state vs desired state in terms of data management, analytics, and decision-making, and define clear gaps that the Cornflow project aims to address or still needs improvement on.

# GAP Analysis Matrix

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| --- | --- | --- | --- |
| Area | Current State (Before Cornflow) | Desired State (Post Cornflow) | Gap Identified |
| Data Collection | Fragmented Excel/CSV files, no validation | Centralized, validated data upload system (MySQL + ETL) | ✔ Gap addressed in Phase 1 |
| Data Quality | Missing values, incorrect data types, duplicates | Cleaned, validated, and standardized dataset | ✔ Solved via ETL pipeline |
| Data Storage | No structured data storage (local files) | Relational database (MySQL), backup in place | ✔ Implemented |
| Visualization & Reports | Manual Excel charts, hard to filter | Power BI dashboards with filters and trends | ✔ Implemented |
| Decision Making | Gut-based or static reports | Data-driven, visual insights with district/state segmentation | ✔ Enabled with dashboards + SQL queries |
| Real-time Data | Not available | Real-time data for weather/pricing/inventory | ❌ Still a gap (Planned for Phase 2) |
| Advanced Analytics | No forecasting, no trend analysis | Predictive analytics, ML-based forecasting | ❌ Gap exists – Not yet implemented |
| User Roles & Access | Shared Excel files; no control | Role-based dashboard access (Admin, Analyst, Viewer) | ✔ Implemented |
| Mobile Access | Not available | Power BI mobile dashboards or app | ❌ Phase 2 – Not yet implemented |
| Integration with APIs | None | Weather API, mandi rate API, logistics integration | ❌ Still pending – Requires future scope |
| Support & Maintenance | No system to maintain | Training, documentation, support channel | ✔ Addressed with handover docs + user manual |

# Key Gaps Still to Address

|  |  |  |
| --- | --- | --- |
| Gap | Impact | Recommended Action |
| Real-time API integration | Limits automation, live decision making | Phase 2: Integrate with external data APIs |
| AI/ML Forecasting | Limits predictive capabilities | Add ML models using historical trends |
| Mobile dashboard accessibility | Limits on-field usage | Enable mobile-optimized Power BI or app version |
| IoT/Device integration | No automation from field sensors | Future: Enable hardware integrations |
| Auto-alerts/notifications | Users must manually check dashboards | Add scheduled alerts/email triggers |

# Summary

✅ Gaps Closed: ETL, Storage, Dashboards, SQL Insights, Access Control  
⚠️ Open Gaps: Real-time integration, ML, mobile access, IoT integration  
📈 Phase 2 Roadmap: Focus on automation, scalability, and smarter insights