Data Governance With FORIS

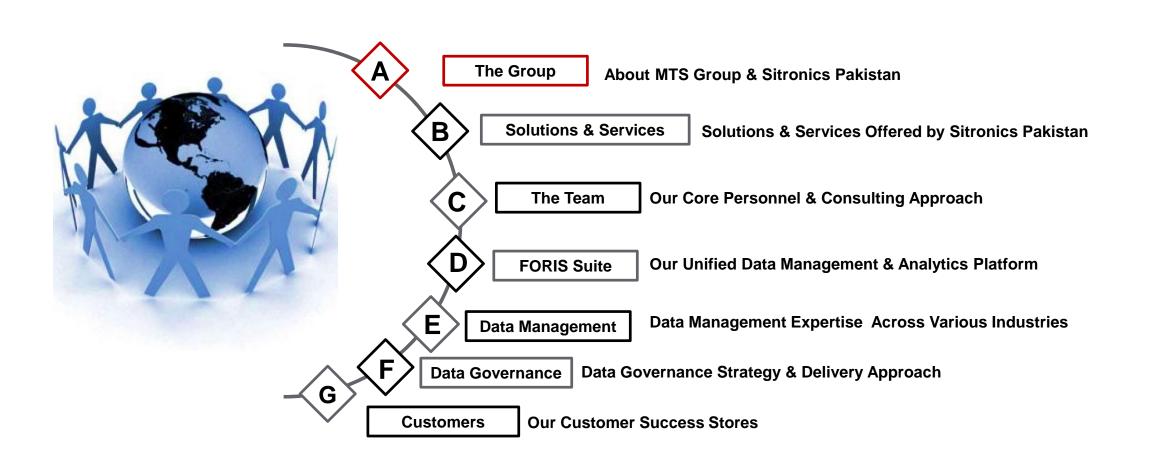
Aftab Ahmed Director

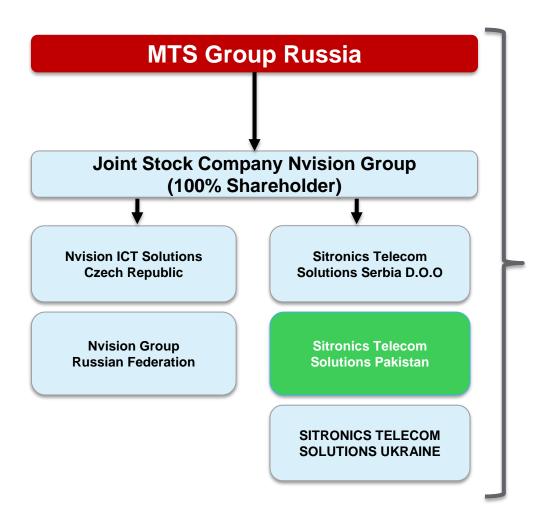






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Organization Chart Sitronics Pakistan













Sitronics Pakistan In History







Global Partnerships















































Group Clients by Sector



















Telecom operators

Financial institutions

Retail

Transport





















Power industry

Manufacturing

Oil Sector

Gas Sector















СПб <mark>ГУТ)))</mark>

Public Sector

Sport infrastructure

Healthcare

Education





Selected Group Customer

• Czech Republic: Vodafone Czech Republic, ČEZ, O2

Slovakia: Slovanet, SWAN

• Germany: Apelby, Callax, 01058 Telecom GmbH, 01077 Telecom GmbH,

• Bosnia & Herzegovina: BH Telecom, Telecom Srpske, T3 Telecom

Serbia: Telekom Serbia, MTS

Ukraine: Vodafone Ukraine

Russian Federation: MTS Group, MGTS

Turkmenistan: TM Cell

Belarus: MTS Belarus

India: MTS India

Pakistan: Warid Telecom, Mobilink, Witribe, UBL, Govt. of KPK

Bangladesh: Warid Telecom, BTRC

Uganda: Warid Telecom

Congo: Warid Telecom































A Number of Pakistan Customer



































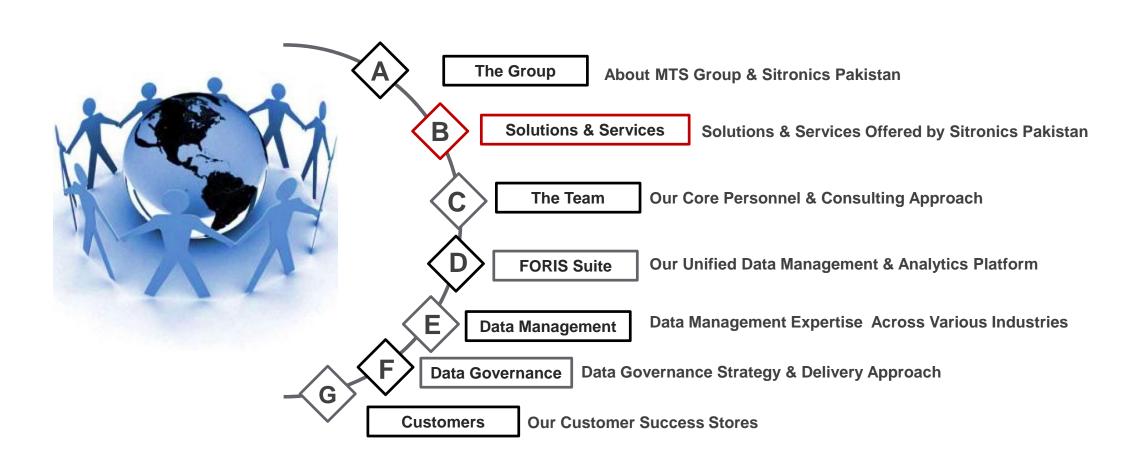








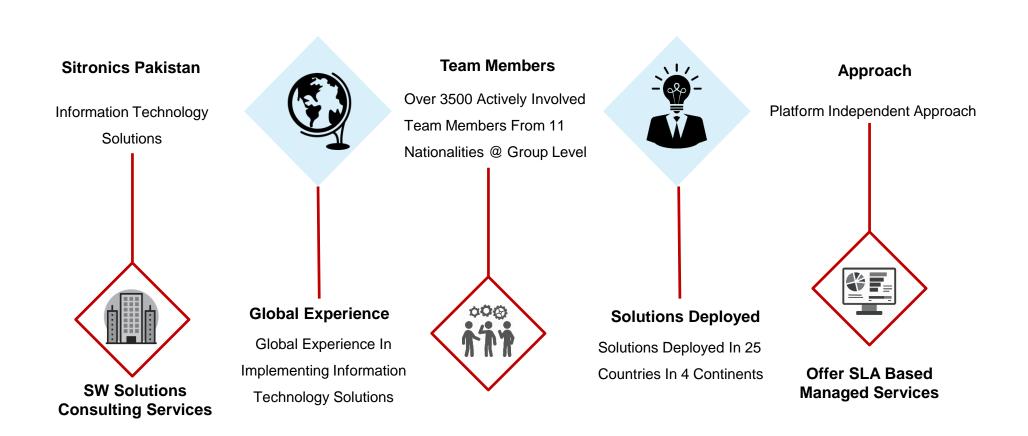
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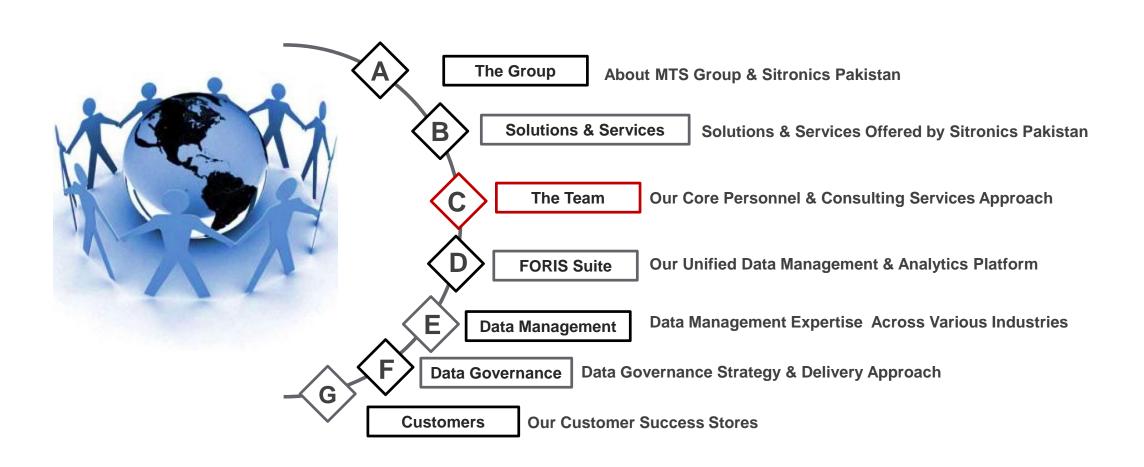
Solution & Services

We offer combined power of best Advice, Consultation and Solutions that shape the future of our clients and help in making great decisions to achieve their ambitions with as much certainty as possible!





Contents





Our Consultants

Our globally experienced team help clients to Discover Unlock Potential of 'Special' Organizational Strengths, the ability to sustain and improve the business performance!

Experienced Professionals

Equipped with strong business skills, as well as in-depth sector knowledge

IT Skills Specialists

Specialist IT skills aligning people, process and technologies

Global Platform

A consistent, integrated global platform the combined resources of MT group advisory network



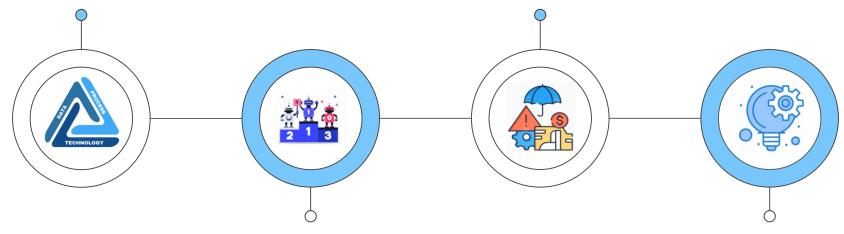


Our Consulting Process

Our consulting process varies depending on the specific needs of our clients and the nature of the IT project. Consultants might have additional steps in the discovery process. Regardless of the specifics a clear and structured process is key to delivering value to our clients and ensuring successful outcomes.

Understand the need to keep pace with technology

Risk Awareness, Mitigation
Planning & Board Level
Responsibility



Taking advantage of the tremendous opportunities offered by technological innovation

Developing innovative solutions that are repeatable and easily distributable





Understanding Business Problems

To understand business problems, it is imperative to have a clear understanding of domain the current state of the business landscape as a whole and the management style. This is achieved through thorough and deep understanding of the client's needs and expectations, as these are constantly evolving due to factors such as digitization, automation and market dynamics.



Integrative framework approach to assess your business problems and to produce results you want



Understand the current ICT investments and TCO and assurance to utilize it along with future plans



Highly skilled, independent and professional advice constructed on our global knowledge networks





Services Focus

We help our clients to
Discover Unlocks
Potential of
'Special'
Organizational
Strengths, the ability to sustain and improve the business performance!

Digital Transformation

Remodeling the business to unite digital technologies to achieve alliance and improve customer satisfaction

IT Risk Management

Design Risk Lessening with a 360 Degree And Business Assurance Approach

Data Governance



Build & Implement Models to meet business needs with a realistic approach to Data Quality & Governance

Dark Data Insights



Ensuring effective use of available structured & unstructured data





Our Digital transformation strategy takes a customerdriven, digital-first approach to all aspects of the business, from business models to customer experiences to processes and operations. Applying Al automation, cloud and other digital technologies to leverage data and drive intelligent workflows, faster and smarter decision-making, and real-time response to market disruptions.

Digital Transformation

Technologies 🛞



Identifying new technologies in digital transformation initiatives focused on new business processes and new product & services

Management



Devising new digital transformation strategies & cross functional integrations. Benchmarking on structure type and influencing the management on decision making

Change Impact



Planning to manage anticipated changes including your organization's culture, structure, workflow, and business processes

Outcomes (a)

Designing Digital Transformation Metrics & KPIs for Measuring Success that track financial and operational efficiency





IT Risk Management

Our IT risk management methodology includes the business risk associated with the use, ownership, operation, involvement, influence and adoption of IT within an enterprise and help organizations to be more diligent than ever to minimize risk while adapting to new challenges of cyber threat landscape.

Study IT strategy, classify associated risk areas and set ways to deal with

Risk Ranking 5

Calculate likelihood and value, score for each risk and allocate to either cost, time or quality

Risk (A) Identification

Potential risks are identified, measured, and monitored

Risk



We analyze size of the risk and compare it with the cost of controlling

Risk Mitigation 何

Prepare plans to minimize the effects of threats faced on business continuity

Risk Monitoring

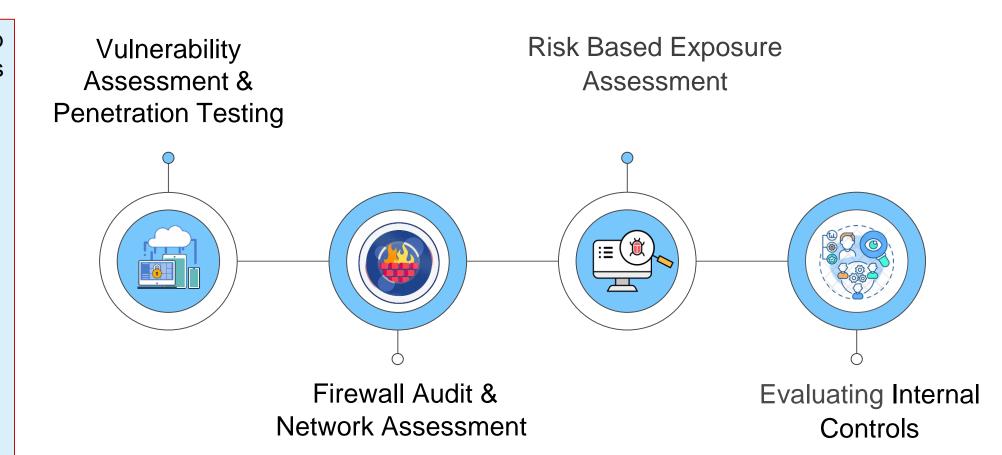
Design Risk Matrices for continuous Risk Monitoring and minimize impact





Risk Analysis Discovery Process

We follow a multi-step Risk Analysis Process aimed at mitigating the impact of risks your business operations. Ensure that all aspects of the business are protected from potential threats. Performing regular risk analysis also minimizes the vulnerability of the business to unexpected events.







We Build models to facilitate businesses to adequately address revenue leakage challenges by implementing a flexible and effective control framework with real time monitoring capabilities. Our approach covers both reasonable and limited assurance frameworks to achieve more and enable our clients.

Business Assurance

Financial Coverage (S)



Applies to persistent financial event coverage for regular & extended time periods using validation services & rules

Risk Identification



Assurance help companies mitigate risks and identify problematic areas and enable a more controlled environment

Data Governance



Build & Implement Models to meet business needs with a realistic approach to Data Quality & Governance

Regulatory Compliance



Compliance with regulations is done by workflow-based modules, guiding employee to perform assigned tasks the right way





Dark Data Insight

We help organizations in understanding their Dark data. The Data that is collected, Stored, but rarely used, processed or analyzed. Dark data is usually unstructured and/or unrefined. We ensure to make majority of the data generated available for our clients, and advise significant usage of the same.

Sources of Dark Data

Data is acquired through various business systems but not used in any manner for decision making because it is hidden or undigested

Meeting The Challenge

Dealing with dark data includes collection in timely manner, retention plan, storage cost, regulatory compliance and data visibility

Putting Your Data To Work

We offer means of translating dark data from one form to another and ingesting it easily into analytics platform and leverage to gain insights



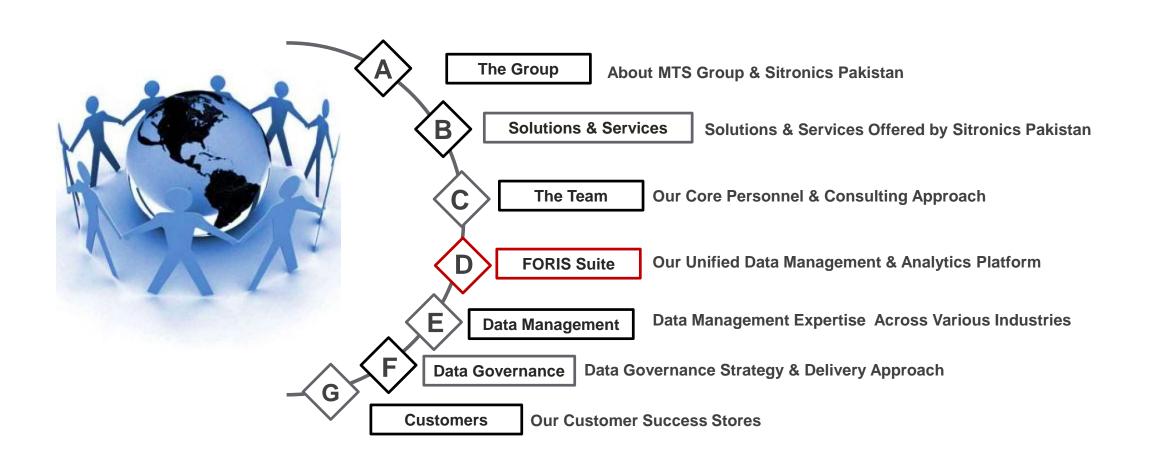
Data Visualization & Analytics



Analytics forms structure into unorganized dark data and visualization deals with information to develop trends and conclusions



Contents





FORIS Solution Suite

Our Solutions are developed with principles of design thinking and a systematic and intentional approach to create solutions that meet specific business objectives to help our clients in achieving their business Goals for a number of industry segments!



FORIS Data Management



Fiber Optic Monitoring System



FORIS NG Billing



Central Bank Reporting System



Medio Online Charging System



FORIS Business Assurance



FORIS Digital Factory

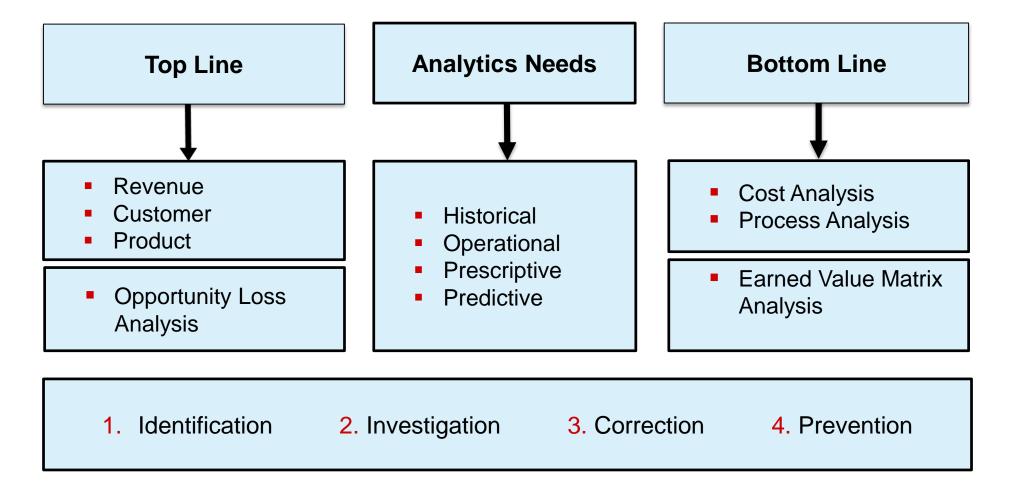


FORIS Telecom BSS





Improving Your Corporate Performance with FORIS







FORIS Unified Data Management Platform

Banking Data Sources

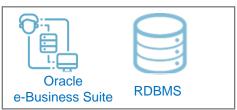
Other Delivery Channels Data



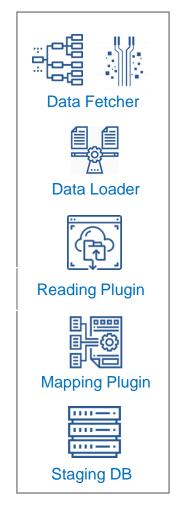




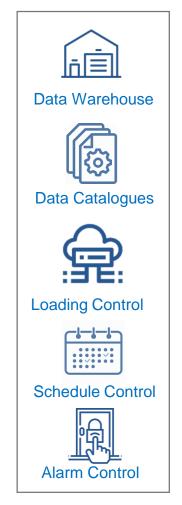
ERP Data



Integration Control Engine



Data Warehouse Utilities



Metadata Layer & Data Marts



User Interface

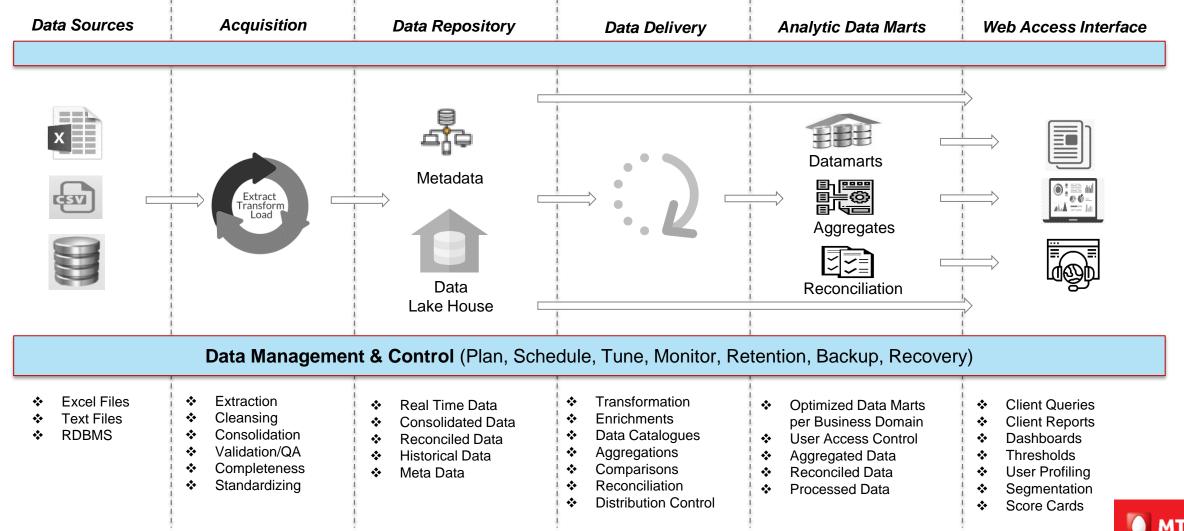








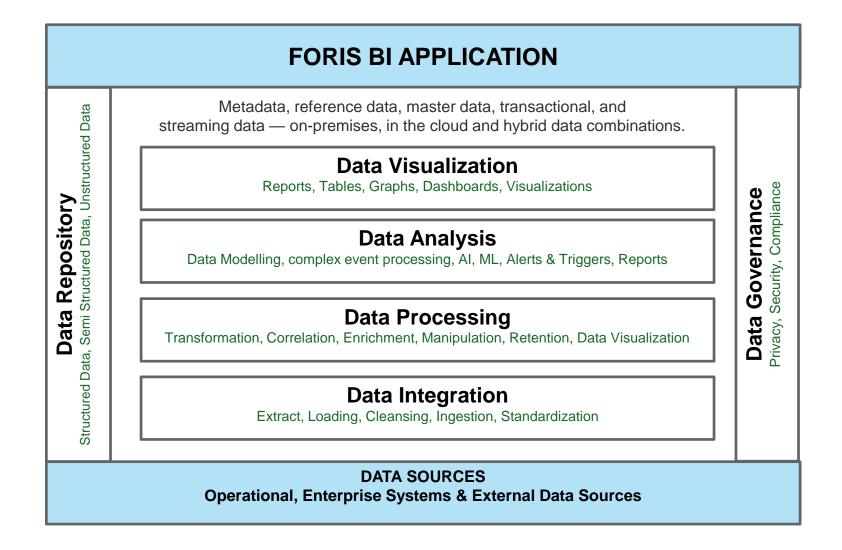
Data Flow Architecture







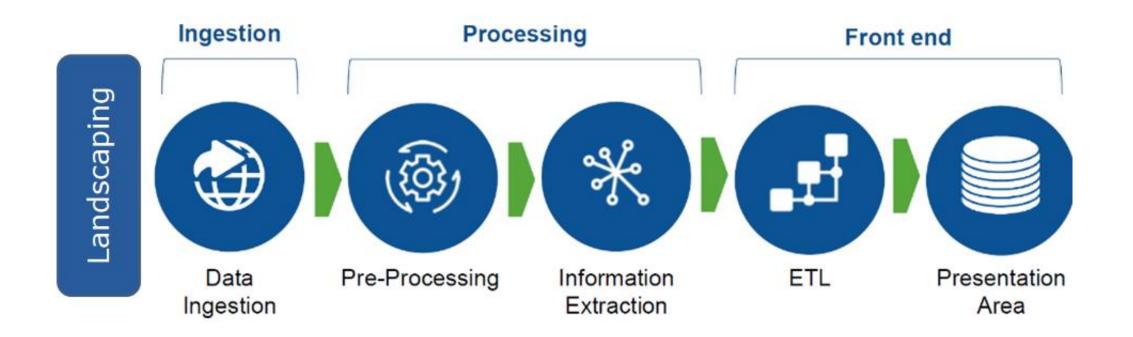
FORIS Unified Data Governance Architecture







Data Pipeline Components







Big Data Platform Features

Data Ingestion

Data Transformation

Data Lake

Data Visualization

ERP, CRM, POS, SCADA, IOT

SQL, NoSQL CSV, HDFS Real Time, Batch, Post Processing

AI, ML, Edge, In Memory Processing Data Marts Subject Areas

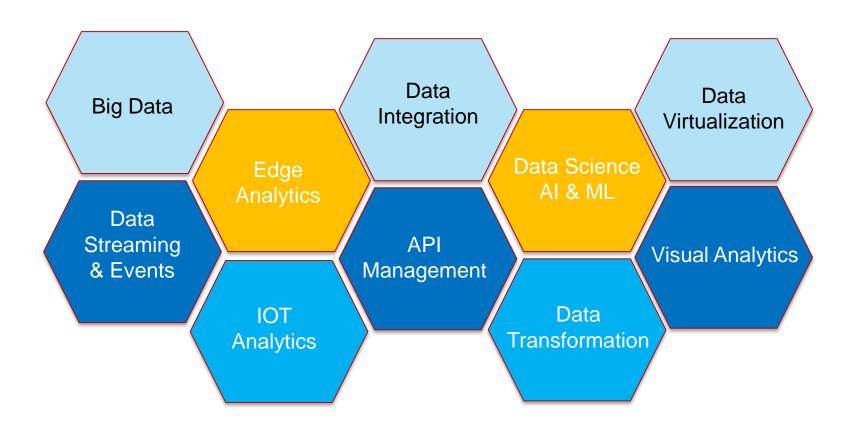
SQL, NoSQL, HIVE Reports, Graphs
Dashboards

Thresholds, Alerts
Case Manager



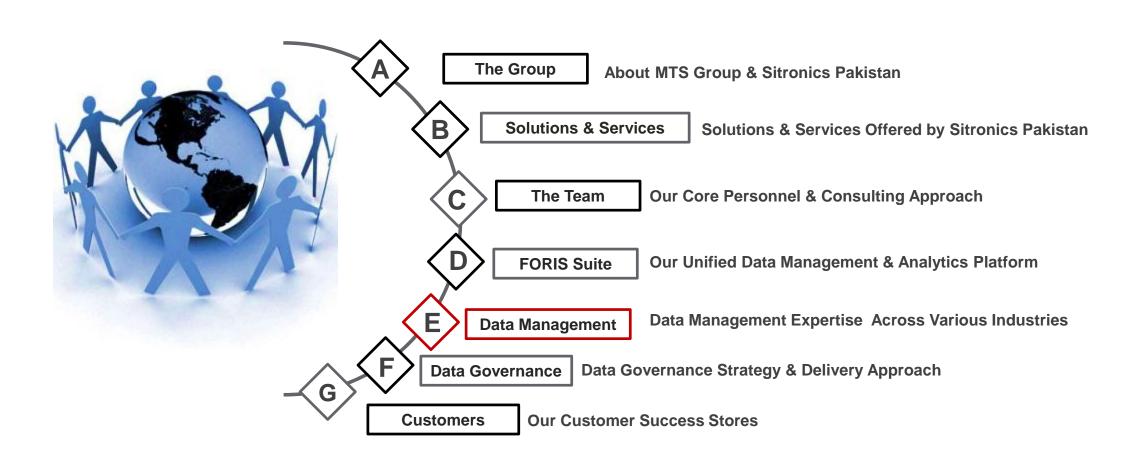


Data Analytics Expertise





Contents





Data Management Services

- Data Consolidation Services from incongruent data sources
- Data Dissemination According to customer's business model
- Offered On Premises and Cloud
- Data Migration to Big Data
- Data Migration to Cloud
- Data Ingestion & ETL Service
- Data Quality Assurance Services
- Customer Data Platform Management
- Data Warehouse Offload

- Data Warehouse
- Business Intelligence
- Big Data Analytics
- Data Lake House
- Data Profiling & Segmentation
- Data Indexing & Archiving
- Web Data Mining
- Social Media Analytics
- Business Ready Analytics
- Data Wrangling
- Dashboards & Alerts





Our Expertise Across Industry Verticals

Telecom Financial Services Health Sciences Retail

- Fraud Detection
- Revenue Assurance
- Customer Profiling
- Churn Management
- Sentiment Analysis
- Calling Behavior
- Product Development
- Price Optimization
- Network Management
- Cell Planning
- Costing

- Risk Management
- Customer Profiling
- One-One Marketing
- Product Development
- Money Laundering
- Fraud Detection
- Compliance Reporting
- Regulatory Reporting
- Customer Value Proposition

- Electronic Medical Records
- Risk Scoring
- Assisted Diagnosis
- Personalized
 Treatment
- Precision Medicine
- Reduce Doctor Visits
- Patient Engagement
- Optimize Staffing
- Campaign Management

- In-Store Experience
- Behavior Analytics
- Operations Analytics
- Supply Chain Analytics
- Market Basket Analysis
- Warranty Analysis
- Price Optimization
- Lifetime Value Prediction
- Sales Promotions
- Customer Segmentation





Typical Telecom KPIs

Customers

- CustomerSegmentation
- Subscription Analysis
- Churn Forecasting
- Top % age Customers
- Service Calls
- Customer Complaints
- Open/Closed Calls
- Mean Time to Resolve
- Work In Progress
- Access To Customer

Business Assurance

- Recover Lost Revenue
- Validate Service Rates
- Root Cause Analysis
- Margin Assurance
- Rating Assurance
- Fraud Management
- Churn Prevention
- Process Evaluation

Network Optimization

- Population Covered %
- Land Covered %
- Call Completion Ratio
- Location Update Rate
- Paging Success Rate
- Average Call Duration
- Down Time Ratio
- Analysis of ASR routes
- Network Congestion
- Idle time on network
- Dropped calls

Financial Reporting

- ARPU
- Subs Acquisition Cost
- Network Operating Cost
- Systems Support Cost
- Sales & Marketing Cost
- Equipment Lifecycle
- Billed Amount
- Revenue Reporting
- Dealers Commissions





Telecom Big Data Case Study

Telecom Operator's Business Challenge

Warid Tel operations became more complex due to swift growth in subscribers base and a great jump in customer data records, hence increasing the inherent risks that processes, systems and audit failures may result into data discrepancies and fraudulent behaviors that may lead to "revenue leaks" at various points across the revenue chain.

Improving Recovery of Lost Revenue By Using FORIS Big Data

Warid Telecom started reaping the benefits soon after completing the implementation. Following is a snap shot of achievements:

Identification of incorrect Event Records, Reference Data, Business Rules and Network Controls.

Identification of incorrect Filtering of CDRs,

Misidentification of Traffic, Record Duplication, Loss of Records, Rating Issues, Incorrect Balance updates and Wrong Customer Identification.





Financial Services KPIs PIs

Risk	Customers	Financials	Reporting
 Operational Risk Credit Portfolio Risk External Market Risk Liquidity Risk Non-Conformance Risk 	 Customer Behavior Customer Engagement Customer Profitability Customer Dormancy Customer Touchpoints Customer Segmentation 	 Income/expense structure analysis Portfolio balance analysis Budgeting and Spending Analytics Financial planning and Forecasting 	 Regulatory Reports Management Reports Marketing Analytics Return On Equity Efficiency Ratio Non-Performing Loans Loan To Deposit Ratio





Banking Big Data Case Study

Banking Business Challenge

One of the leading Pakistani bank faced many challenges in compiling their regulatory reports due to ever-changing compliance requirements. It was required to reach specific GL and Sub Ledger segments by determining their source systems & data formats, apply business rules and map with SBP reporting formats. A number of manual data compilation tasks were performed with dedicated resources to fulfil specific reporting needs.

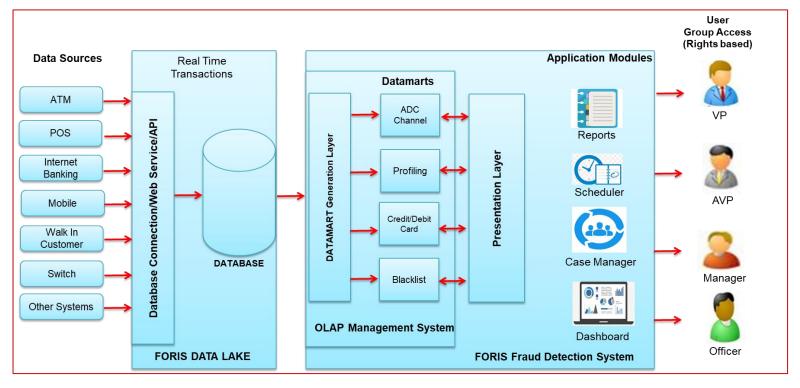
Improving Regulatory Reporting By Using FORIS Big Data

FORIS Big Data Solution enabled the bank to gather, aggregate, enrich, validate and process large amounts of data at any level of granularity across heterogeneous systems and submit reports. Resulted in enhancing their current state bank reporting systems with complete flexibility and transparency allowing to adapt quickly to internal changes and regulatory demands, with complete versioning and audit functionality.





Banking Fraud Detection Use Case



FORIS provides accurate audit reports and better insight into the internal controls framework, and improves the ability to access and manage financial risk.







Behavior Flag







Health Sciences KPIs

Sales Force

- Number of calls
- % of iPad usage during a call
- Target audience coverage
- Details per call
- Coaching
- Average call duration
- CLM Management

Marketing

- Order of product promotion
- Time split on each product
- Slide usage rating
- Co-promotion slide usage

Control

- Location traction (GPS coordinates of calls)
- The start and the end of workday
- Pharma Covigilance

Trade

- No of pharmacies with successful promotion (compliance)
- Pharmacies taking part in a given promotion





Health Sciences Big Data Case Study

Pharma Business Challenge

A multinational pharmaceutical company in Pakistan recognized the need to respond to several unique market challenges by integrating data from its existing operational and commercial systems to support multichannel engagement with HCPs, distributors and pharmacies, and also wanted to ensure that HCP education and engagement regarding the new product attributes and delivery platform were effectively and compliantly delivered by its field teams.

Improve Sales Force Performance By Using FORIS Big Data

The company gained a proven foundation bringing together multichannel CRM, HCP, Sales & external data sources. Resulted in Improved field activities, marketing channel optimization, segregation and targeting of HCP's. Marketing content optimization, Rx trend analysis, lead generation, HCP profiling, sales performance from brick to distributor and real time decision support analytics were also achieved.





Retail KPIs

POS Analytics

- Sale Statistics
- Department Size
- Product Mix
- Store Navigation
- Retail Basket
- Average Transaction
- Conversion Ratio
- Sales Return Ratio
- Store Performance
- Regional Sales

Product & Pricing

- Retail Pricing Strategies
- Resource Planning
- Competitive Analysis
- Product Profitability
- Delivery Cycle
- Inventory Risk
- ROI
- SuppliersPerformance
- Product Quality

Customers

- Consumer Loyalty
- Demographic Faces
- Customer Profiling
- Churn Analysis
- Customer Retention
- Complaints Ratio
- Customer Score Cards

Social Media

- Social Media
 Metrics
- Competitive Intelligence
- Seasonality & External Trends
- Sales Channels
- Marketing Campaign
- Traffic Analysis





Retail Big Data Case Study

Retailers Business Challenge

Latest Fashion Trends
By Using FORIS Big Data

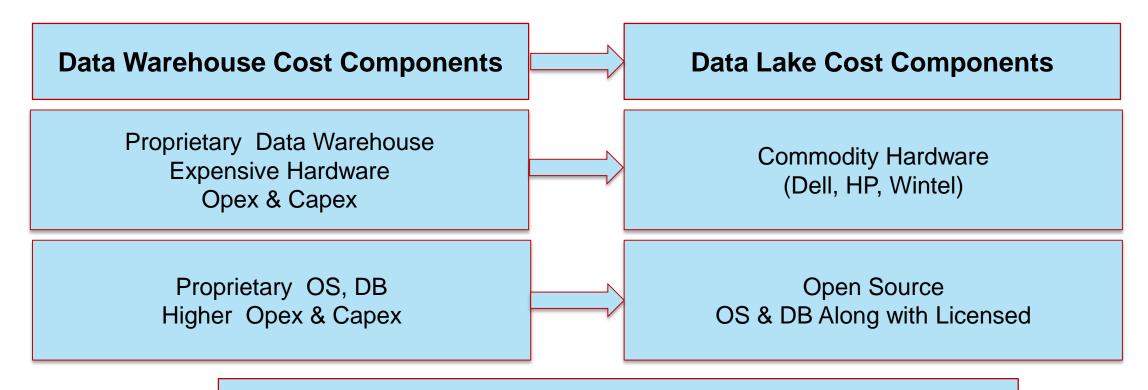
One of the largest retailer in Pakistan with stores in ME were struggling to process extremely large sets of structured and unstructured data, to reveal patterns, associations and analyze, segregate into groups and categories, and then form a definition about the current and future trends and patterns in the highly competitive fashion industry.

The retailer leveraged FORIS Big Data Solution to have good understanding on trends and ideas, which are persisting among their customers. Using such insights, designers are making necessary adjustments in their products, change their marketing strategies, manufacture products and launching their fine collections in the market. Helping the industry leaders in taking the digital fashion industry forward.





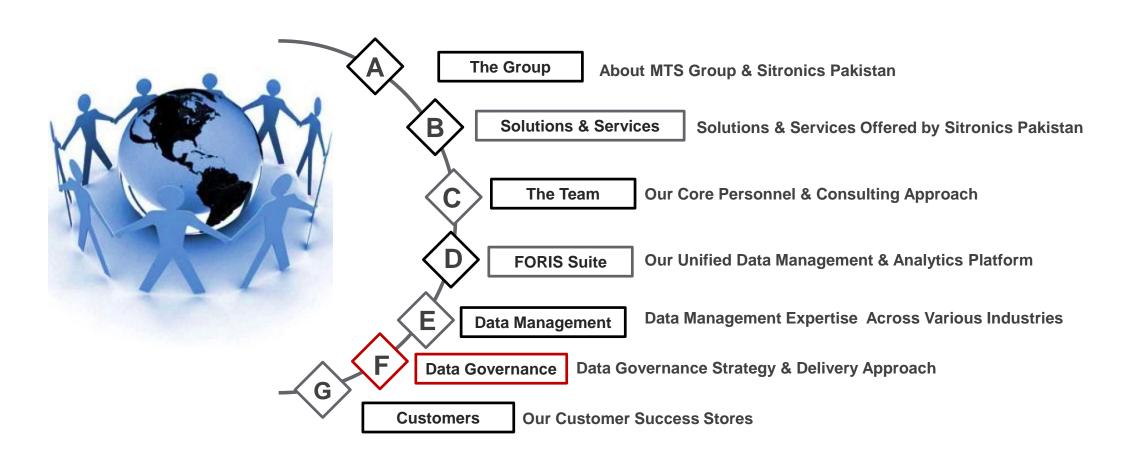
Data Warehouse Offload Business Case



40-50% Cost Reduction Both in Capex & Opex (**Depending Upon Industry, Data Size, IT Infrastructure & Org History)



Contents







Why Data Governance?

BUSINESSES NEED A REALISTIC APPROACH TO DATA QUALITY & GOVERNANCE

To make governance programs effective management need to recognize the value creation potential in data governance. A set of policies and guidance relegated to all business functions executed by IT is imperative, this initiative makes data power effective. Organizations use technology to solve the problem with solutions such as data lakes and data governance platforms.

- Effective data management and governance program, are imperative for efficient enterprises risk management processes
- Increased regulatory and compliance exposure demands proficient control of sensitive data
- understanding the context, requirements, and business value of the data is becoming extremely important
- Facing these challenges requires business accountability and strict governance to deliver accurate, complete, consistent data on time





Data Governance Advantages

ENSURE DATA QUALITY AND CONTROL TO MAXIMIZE BUSINESS VALUE

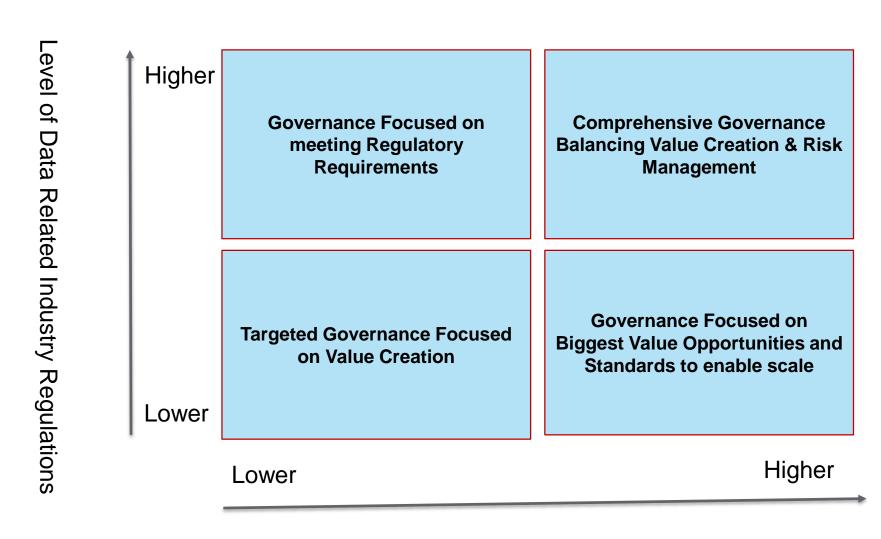
High-quality data ensures that data accurately represents real-world entities and can power reliable insights. Data quality is essential for running operations smoothly, reducing cost and effort wastage, and discovering new opportunities. Make data accessible and reliable. Data often resides in silos, and no one can really guarantee its reliability. Allowing the right people to access the data can help in improving its quality and ensuring its security is crucial.

- Data Governance Framework guides organizations through the collection of massive data sets
- Helps data organization and building modern data management and governance strategy
- Ensures that data is proactively and efficiently managed in a standardized format and can be accessed and used when and where needed
- Minimizing the risk of poor data quality and offers end-to-end
 Data Management & Governance
- Help organizations achieving their data governance goals





Data Governance Archetypes



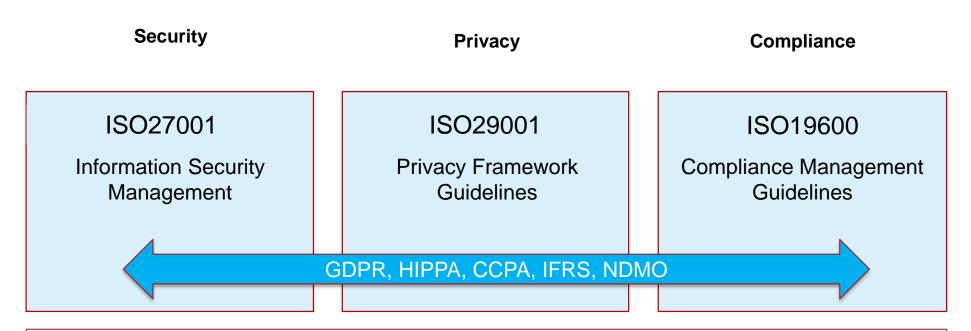
Data Regulations push the minimum bar of governance up by requiring additional controls

Level of Data Complexity Increases with Big Data Volume, Variety, Velocity, Veracity





Our Data Governance Approach



Our framework aims to regulate the collection, processing, storage, and transfer of personal data by public and private organizations. This framework includes all individuals and entities that collect, process, store, or transfer personal data to meet country by country regulatory requirements.





Our Quality Assurance Approach

Availability

Usability

Integrity

Security

Making data easily available, means planning the storage, classification and maintenance of data to keep it accessible. You'll want your data warehouse to have data ready to go for any application where the data is needed.

Formatting data for easy use of all the purposes a firm needs and improve data visibility, such as data maps and views of business entities, as well as a baseline common understanding of data throughout a firm.

Avoiding contamination or corruption of the data. This can be measured in terms of data accuracy and quality, as well as compliance with rules and regulations. Data governance plans should aim to prevent data inconsistencies.

Managing data access and protecting against unauthorized use. Data governance should include designating data stewards who enforce rules about accessing the data and how the data may be shared, and also entitling data security responsibilities covering every step where data was produced and used.







NDMO Compliance Approach

Data Classification

Data Lifecycle

Data Usage

Data Protection

Data is one of the most valuable assets for data-driven groups that use their asset effectively and gain a substantial competitive advantage. We handle all data types and formats, classify and prioritized for protection as per data sensitivity.

Our system manages data through out its life cycle including all data flow processes and procedures from creation through destruction. Data is monitored and controlled from extraction to storage to dissemination.

We ensure effective and efficient use of data assets and enables organizations. Solution workflows provide quality data and security needed across the enterprise. Consistent policies ensure excellent data governance.

We help organizations in implementing Data protection laws and regulations similar to GDPR. Data governance ensures compliance and demonstrate organization's commitment. Regulators are increasing pressure to implement and maintain good data governance to uphold your unique data governance strategy.







Personal Data Protection Compliance Approach

Consent

Privacy Policy

Security

Breach

Volunteer consent is one of the primary legal bases that to collect and process personal data. Data controllers are responsible to demonstrate consent compliance. Data subjects should also be allowed to withdraw their consent anytime.

We develop formal policies and procedures for data collection and processing. Our solution discloses how personal data is being processed through formal transparent privacy policies through audit trail monitoring.

We help implementing PDPL security obligations for data controllers before processing any personal data and ensure data quality is maintained as per protection rules i.e., collection purpose, retention policy etc.,

System strictly monitor data disclosure, acquisition, or access to personal data in unauthorized form and report any data breaches as per PDPL regulations. Data governance policies enhance data breach prevention and response by automating and improving various tasks and processes.







Data Governances Services - 1

End – 2 – End Data Management & Governance Services For Policies Compliance and Standards

DATA OWNERSHIP & ACCESS POLICIES

Define and provide information and actions about the rightful owner of data assets and the acquisition, use, expiry, and distribution of policy implemented

DATA SECURITY & PRESERVATION

Adopt advanced security methods to protect data and digital information from unauthorized access, corruption, or theft throughout the life cycle. Data Privacy & Compliance are aligned during projects

DATA QUALITY CONTROL PROCESSES

Conserve and maintain data at strategic locations and in desired formats to preserve its authenticity, high availability, and existence.

AUDIT TRAIL & RISK BASED ACCESS CONTROL

FORIS offers comprehensive audit trail and risk based access control to manage data access and allows only authorized users and registered machines for right to use the data





Data Governances Services - 2

End – 2 – End Data Management & Governance Services For Policies Compliance and Standards

Master Data Management Build and maintain frameworks for data specific to functional domains and creating their single master record across the global business

Data Lineage and Meta Data Management Utilize modern metadata management tools and techniques to provide visibility about data movement across multiple systems over time and support root cause analysis to track down errors in complex analytical systems

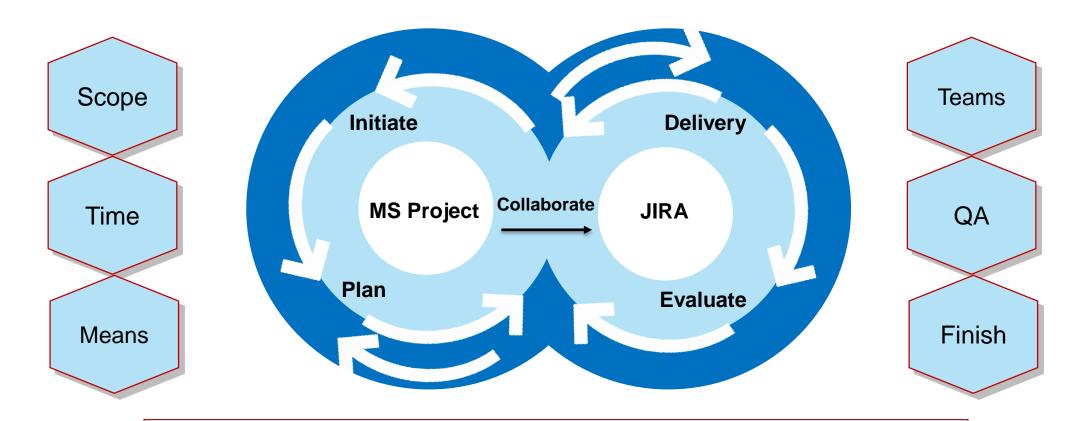
Data Lifecycle Management Provide policies and procedures to effectively manage business data within an organization from creation through retirement

Easier Maintenance of Compliance Standards Data governance services establish policies that governs data management and reduce risk while meeting global privacy and compliance standards for CCPA, CDPA, GDPR, and international reporting and security standards





Project Delivery Approach

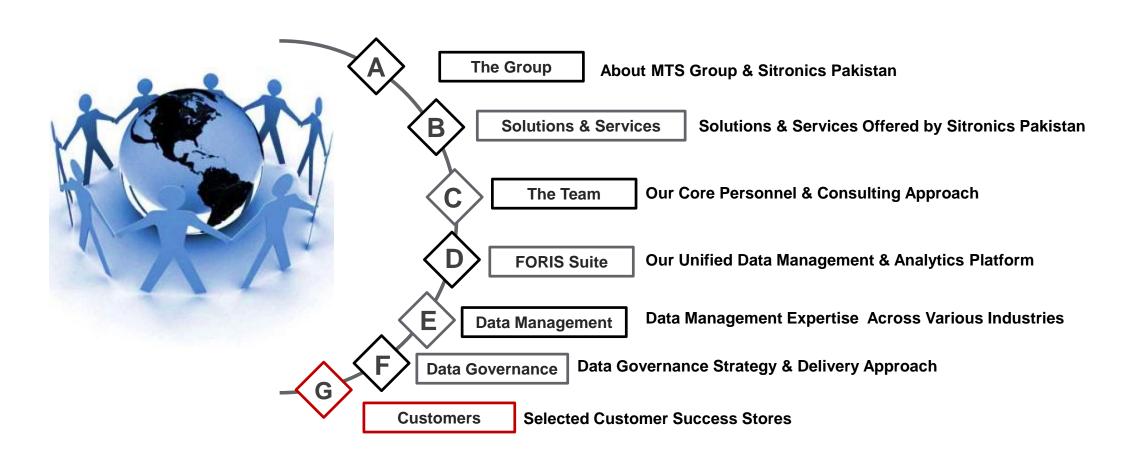


To manage a project efficiently, our project managers use combination of both Agile & DevOps methodologies for the project at hand. Considering strengths and weaknesses of both methods.





Contents







PMCL Jazz Telecom Operator



Consolidation of Business Assurance Platform

Challenges

- Jazz owned by VEON Group decided to acquire Warid Telecom Pakistan
- Consolidation of Business
 Assurance Platform and Network
 Elements Data was required Post
 Merger Directives
- Required Billion+ CDR Processing
- Data Governance & Quality
 Assurance were required on near
 real time basis

- Designed New Architecture & Developed End-2-End consolidation of two heterogeneous System
- All data sources (Network Elements, Billing, Data Warehouse, ERP) were redirected to FORIS Data Warehouse
- 600+ Reports, Reconciliations & Dashboards were successfully developed





UBL Pakistan
Commercial Bank



State Bank of Pakistan Reporting System Automation

Challenges

- SBP Continuously raising bar for meeting compliance requirements
- Data is collected from several systems in variety of format for processing
- Data Governance & Quality Assurance were required for data reconciliations
- Lot of manual/tedious work resulting in errors and lapses need elimination

- Implemented FORIS Data Warehousing Platform along with RCOA Module
- Integrated with multitude of banking application and data sources
- Data Governance framework and Quality Assurance were implemented
- Resulted in elimination of errors, seamless and timely regulatory reporting to SBP





Pakistan Microfinance Investment Company



Data Governance & Quality Assurance Policies

Challenges

- Regulated under SBP & SECP
- Shareholders demanded to conduct Audit of existing ICT Infrastructure
- To develop set of Data Governance & Quality Assurance policies
- To develop a Digital Transformation roadmap

- Conducted comprehensive IT Audit for complete ICT stack
- Created policy and procedures to manage End-2-End Data Governance & Quality Assurance Policies and Procedures
- Developed a complete digital transformation roadmap from KYC to receivable tracking





Electronic Component Manufacturing Company



Industrial
Automation &
Simulation

Challenges

- Company operates several SMT assembly lines on shop floor
- Each assembly line comprises of many machines from different manufacturers producing data in different formats
- Data consolidation with governance & Quality Assurance was required

- Data from critical machines from the SMT lines were consolidated
- Machines data was successfully integrated with the FORIS Data Repository & BI Module
- Machine level, SMT line level and floor level KPIs were calculated, thresholds defined and alerts generated along with data governance





Summary



Our Experience

Our combined experience in Data Management Solutions exceeds xxx years



Diversified Industries

Executed and maintained Data Management Projects for most demanding industries



The Team

Strong experienced team contribute to the overall quality and success



Our Solutions

A complete solution provides great experience that includes service, support, and a string of enhancements



Price Performance

Price – Performance ratio is unsurpassed.
Value based pricing is a business strategy
that primarily relies on customers'
perceived value

