Discovery Session: Skilling Plan for Microsoft Fabric in Healthcare

Discovery Session Length: 2 Days | Discovery Session Level: 300

Primary Audience

- Healthcare IT Leaders & Decision Makers
- Data Professionals
- Clinicians & Healthcare Operations Managers
- BI & Analytics Professionals
- AI & Machine Learning Practitioners in Healthcare
- Security & Governance Specialists

Key Expectations from the Audience:

- Understanding how Microsoft Fabric can unify fragmented healthcare data.
- Hands-on experience with data integration, analytics, AI, and compliance tools.
- Learn best practices in healthcare data security, governance, and compliance.
- Exploring AI-driven solutions for predictive healthcare and operational efficiency.

Prerequisites or Recommended Reading:

- Basic Understanding of Healthcare Data Systems
  - Familiarity with Electronic Health Records (EHRs), HL7, FHIR, and DICOM standards.
  - Awareness of healthcare compliance requirements (HIPAA, GDPR, HITRUST, etc.).
- Fundamentals of Cloud & Data Platforms
  - Basic knowledge of Microsoft Azure and cloud-based data storage solutions.
  - Understanding of relational and non-relational databases (SQL, NoSQL, Data Lakes).
- Basic Understanding of AI & Machine Learning in Healthcare
  - Awareness of predictive analytics and AI applications in patient care.
  - No prior coding knowledge is required, but familiarity with Python, SQL, or Power BI is helpful.
- Familiarity with Power BI & Business Intelligence Tools
  - Basic experience in using Power BI, dashboards, and data visualization.
- Security & Compliance Awareness
  - Knowledge of data privacy, role-based access control (RBAC), and governance frameworks.

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Discovery Session Modules

Module 1: Introduction to Microsoft Fabric in Healthcare

Goal: Provide a foundational understanding of Microsoft Fabric's capabilities for healthcare.

Topics:

- Overview of Microsoft Fabric in healthcare.
- Addressing fragmented healthcare data and siloed systems.
- Key benefits: unified data, AI integration, and governance.

Activities:

- Interactive presentation.
- Case studies that demonstrate how Fabric resolves real-world healthcare challenges.

Use Case: Reducing patient re-admission rates by integrating hospital, pharmacy, and outpatient care data.

- **Requirements:**
  - Access to historical patient data from multiple care settings.
  - Integration with EHR and pharmacy management systems.
  - AI/ML tools for predictive analytics.
  - Compliance with HIPAA and data governance policies.

Dataset Requirements:

- Historical Patient Data (EHR, outpatient visits, pharmacy records)
- Readmission Rate Data (hospital admission & discharge records)
- Claims & Billing Data (to understand patient readmission cost impact)

Used for:

- Case study on reducing patient re-admission rates
- Demonstration of data fragmentation challenges
- Example of integrating hospital, pharmacy, and outpatient data

Module 2: Building a Unified Healthcare Data Estate

Goal: Guide attendees on integrating siloed healthcare data into a unified, accessible platform using Microsoft Fabric.

Topics:

- Challenges with existing healthcare data estates.
- Using OneLake for centralized storage and Data Factory for ingestion.
- Practical use cases for unified data in clinical and operational settings.

Activities:

- Hands-on activity setting up a sample data pipeline.
- Practical exercises on ingesting and transforming FHIR data.
- Q&A on best practices for data estate management.

Use Case: Integrating Electronic Health Records (EHR) across multiple hospital systems for a comprehensive patient view.

- **Requirements:**
  - Secure API access to disparate EHR systems.
  - Implementation of FHIR data standardization.
  - Data ingestion and transformation capabilities using Data Factory.
  - Governance and compliance adherence (e.g., GDPR, HIPAA).

Dataset Requirements:

- Electronic Health Records (EHR) from multiple hospital systems
- FHIR-formatted clinical data
- Patient Demographics & Medical History
- Operational Data (appointment logs, bed occupancy rates, etc.)

Used for:

- Hands-on activity in setting up a sample data pipeline
- FHIR data ingestion and transformation exercises
- Demonstrating OneLake & Data Factory for centralized storage

Module 3: AI-Driven Insights and Copilot Integration

Goal: Equip attendees with skills to utilize AI and Copilot capabilities in Microsoft Fabric for clinical and operational insights.

Topics:

- AI-driven analytics and Copilot's role in healthcare transformation.
- Persona-based interactions with Fabric Copilot:
  - Data Scientists: Python code generation.
  - Data Engineers: T-SQL script automation.
  - Power BI Users: Automated dashboard creation.
- Predictive analytics for patient outcomes and operational efficiency.

Activities:

- Demonstration of AI-powered tools within Fabric.
- Hands-on session using pre-built datasets for AI-driven analytics.
- Q&A discussion on responsible AI use in healthcare.

Use Case: Predicting patient deterioration in ICU settings using AI-driven trend analysis.

- **Requirements:**
  - Access to real-time ICU patient monitoring data.
  - Machine learning model for predicting deterioration.
  - Integration with hospital alert systems.
  - Data privacy and ethical AI usage compliance.

Dataset Requirements:

- ICU Monitoring Data (real-time vitals, oxygen levels, BP, heart rate)
- Predictive Analytics Data (patient deterioration trends, historical ICU cases)
- EHR + Lab Results (to support AI-driven trend analysis)

Used for:

- AI-driven predictive analysis of patient deterioration
- Demonstration of Copilot for Data Scientists & Power BI Users
- Generating T-SQL automation for data engineers

Module 4: AI for Healthcare-Specific Use Cases

Goal: Teach attendees how to leverage AI tools within Microsoft Fabric to solve healthcare challenges.

Topics:

- Role of AI in healthcare transformation.
- Demonstration of Fabric AI tools for predictive analytics.
- AI applications in clinical and operational scenarios.

Activities:

- Interactive AI session using pre-built datasets.
- Group activity creating AI-driven insights and visualizations in Power BI.
- Discussion on best practices for AI integration in healthcare.

Use Case: AI-powered disease progression modeling for chronic illness management (e.g., diabetes, heart disease).

- **Requirements:**
  - Historical and real-time patient data.
  - AI-driven risk stratification models.
  - Integration with telehealth and care management systems.
  - Compliance with ethical AI and bias mitigation.

Dataset Requirements:

- Chronic Disease Data (Diabetes, Heart Disease, Hypertension)
- Wearable Device Data (glucose monitors, smartwatches, fitness trackers)
- Patient Risk Stratification Data (historical + real-time analytics)

Used for:

- AI-powered disease progression modeling
- Building risk stratification models for chronic illness management
- Telehealth & care management system integration

Module 5: Security, Compliance, and Governance in Healthcare Data

Goal: Ensure comprehensive understanding of data security and regulatory compliance in healthcare environments using Microsoft Fabric.

Topics:

- Fabric's security and compliance framework aligned with Microsoft's Secure Future Initiative (SFI).
- Meeting HIPAA, HITRUST, and other regulatory requirements.
- Best practices for data encryption, access control, and governance.

Activities:

- Security workshop that displays Fabric's compliance capabilities.
- Simulation of regulatory compliance scenarios.
- Discussion on addressing security concerns in a Software-as-a-Service (SaaS) environment.

Use Case: Implementing role-based access controls to ensure compliance with HIPAA regulations.

- **Requirements:**
  - Identity and access management setup.
  - Secure cloud storage with encryption.
  - Role-based authentication and audit logs.
  - Compliance monitoring tools.

Dataset Requirements:

- HIPAA & HITRUST Compliance Logs
- Role-Based Access Control Data
- Audit Logs & Access Logs from Healthcare IT Systems
- Encryption & Security Policies

Used for:

- Security workshops on data access & encryption best practices
- Regulatory compliance simulation (HIPAA, GDPR, HITRUST)
- Role-based access control implementation scenarios

Module 6: Governance, Compliance, and Data Security Deep Dive

Goal: Expand upon regulatory and security best practices specific to healthcare.

Topics:

- Understanding and implementing governance with Microsoft Purview.
- Managing sensitive healthcare data across hybrid cloud environments.
- Handling data security challenges unique to SaaS-based solutions.

Activities:

- Hands-on security implementation exercise.
- Regulatory compliance case study analysis.
- Open discussion on industry challenges in healthcare data protection.

Use Case: Ensuring secure data sharing across healthcare providers while maintaining regulatory compliance.

- **Requirements:**
  - Implementation of Microsoft Purview for governance.
  - Secure access controls and identity verification.
  - Monitoring and auditing tools for compliance tracking.
  - Encryption and data protection mechanisms.

Dataset Requirements:

- Microsoft Purview Governance Data
- Hybrid Cloud Healthcare Data (on-prem & cloud-based systems)
- SaaS Healthcare Security Policies & Compliance Logs

Used for:

- Case study analysis on regulatory compliance
- Hands-on governance exercises with Microsoft Purview
- Data sharing security strategies across multiple providers

Module 7: Self-Service Analytics and Operational Efficiency

Goal: Enable customers to create self-service operational dashboards and analytics with Fabric and Power BI.

Topics:

- Importance of self-service analytics for healthcare organizations.
- Integration of Power BI with Fabric for real-time data visualization.
- Customization of dashboards for different healthcare use cases (e.g., patient wait times, resource utilization, financial performance).

Activities:

- Hands-on workshop building operational dashboards.
- Review and refinement of participant-created dashboards.
- Extended Q&A and Next Steps session (30-60 minutes) to facilitate ideation and feedback.

Use Case: Creating real-time hospital bed occupancy dashboards to optimize resource allocation.

- **Requirements:**
  - Integration with hospital management and EHR systems.
  - Real-time data streaming capabilities.
  - Custom Power BI dashboard configurations.
  - Security and compliance considerations for self-service analytics.

Dataset Requirements:

- Hospital Resource Utilization Data (bed occupancy, staff shifts, supply chain)
- Patient Flow & Appointment Data
- Financial Performance Data (cost efficiency, insurance claims, revenue trends)

Used for:

- Building Power BI dashboards for operational efficiency
- Hands-on real-time hospital bed occupancy dashboards
- Self-service analytics workshop

Module 8: Enhancing Healthcare Operations with Data-Driven Decision Making

Goal: Provide practical knowledge on using analytics for improving operational efficiency.

Topics:

- Power BI integration with Fabric for real-time decision-making.
- Designing operational dashboards for healthcare organizations.
- Measuring and optimizing KPIs for cost efficiency and patient outcomes.

Activities:

- Workshop on developing self-service dashboards.
- Group analysis of key operational metrics.
- Real-world case studies highlighting successful implementations.

Use Case: Optimizing emergency department wait times through real-time data analytics.

- **Requirements:**
  - Integration with emergency department triage systems.
  - Real-time data ingestion from hospital information systems.
  - Power BI dashboard development for wait time visualization.
  - Compliance with patient privacy regulations.

Dataset Requirements:

- Emergency Department Wait Time Data
- Triage System Data (patient severity scoring, admission-to-treatment time)
- Hospital Information System (HIS) Data (staffing levels, room availability)

Used for:

- Real-time decision-making dashboards in Power BI
- Optimizing ED wait times using live streaming data
- Operational KPI tracking for patient outcomes

Module 9: Building a Patient 360 Data Solution

Goal: Help attendees develop a unified and comprehensive view of patient data using Microsoft Fabric.

Topics:

- Creating a Longitudinal Health Record (LHR) for seamless patient data integration.
- Leveraging Fabric for cross-platform patient data harmonization.
- Integrating clinical, social determinants, and engagement data using FHIR-based models.

Activities:

- Group activity designing a simplified Patient 360 solution.
- Exploration of real-world data relationships and visualization techniques.
- Clarification: While this module aligns with an Enterprise Master Patient Index (EMPI) approach, Microsoft does not officially market it as EMPI.

Use Case: Enhancing patient engagement by integrating wearable device data with EHR systems.

- **Requirements:**
  - Secure API integration with wearable device manufacturers.
  - Real-time data ingestion from patient monitoring devices.
  - Data transformation and harmonization with EHR records.
  - Compliance with HIPAA and other healthcare data security standards.
  - AI-driven insights for proactive patient care management.

Dataset Requirements:

- Longitudinal Health Record (LHR) Data (cross-provider EHRs)
- Wearable & Remote Monitoring Device Data (Apple Watch, Fitbit, glucose monitors)
- Social Determinants of Health (SDOH) Data (income level, education, community health metrics)

Used for:

- Designing a comprehensive Patient 360 view
- Harmonizing cross-platform patient data
- Exploring patient engagement trends using AI-driven insights

Best Practices by Discovery Session Module

Module 2: Building a Unified Healthcare Data Estate

Best Practices:

1. Use Standardized Data Formats (FHIR, HL7, DICOM) – Ensures interoperability between different healthcare systems.
2. Implement a Centralized Data Lake (OneLake) – Prevents data silos and improves data accessibility.
3. Automate Data Ingestion & Transformation – Use Microsoft Data Factory for real-time ETL processes.
4. Ensure API Security for EHR Integration – Use OAuth 2.0 and role-based access controls for secure data exchange.
5. Adopt a Governance Framework – Leverage Microsoft Purview for tracking data lineage and compliance.

Module 3: AI-Driven Insights and Copilot Integration

Best Practices:

1. Leverage Pre-Trained AI Models – Reduces time spent on training from scratch and improves accuracy.
2. Ensure Explainability in AI Models – Use Responsible AI frameworks to ensure transparent decision-making.
3. Automate Data Cleaning Before AI Processing – Ensures that AI outputs are based on high-quality data.
4. Monitor AI Model Performance Regularly – Implement continuous model evaluation for accuracy and bias detection.
5. Integrate AI with EHR & Clinical Workflows – Ensures insights are actionable within provider workflows.

Module 5: Security, Compliance, and Governance in Healthcare Data

Best Practices:

1. Implement End-to-End Data Encryption – Use AES-256 encryption for data at rest and in transit.
2. Adopt Zero Trust Security Model – Verify every user and device before granting access.
3. Monitor & Audit Access Logs Continuously – Use Microsoft Defender for real-time security threat detection.

4. Apply Role-Based Access Controls (RBAC) – Limit data access based on job function to prevent misuse.
5. Regular Compliance Audits & Updates – Stay compliant with HIPAA, GDPR, and HITRUST regulations.

Module 7: Self-Service Analytics and Operational Efficiency

Best Practices:

1. Enable Real-Time Data Streaming – Use Azure Event Hubs for continuous data flow in Power BI dashboards.
2. Standardize KPI Dashboards for Different Teams – Ensure different users have relevant insights tailored to their roles.
3. Optimize Power BI Performance – Use DirectQuery and data aggregation techniques to improve performance.
4. Ensure Data Quality Before Visualization – Cleanse data sources to prevent misleading insights.
5. Promote Self-Service Governance – Define who can create and publish dashboards to avoid data inconsistencies.

Module 9: Building a Patient 360 Data Solution

Best Practices:

1. Unify Data from Multiple Sources – Integrate clinical, wearable, and social determinants data for a complete view.
2. Implement Data Normalization & Deduplication – Standardize patient records to avoid duplicate entries.
3. Use AI for Predictive Patient Risk Stratification – Identify high-risk patients for proactive care management.
4. Ensure Secure API Integrations – Maintain HIPAA compliance while integrating patient monitoring devices.
5. Provide Real-Time Patient Insights to Clinicians – Deliver actionable insights within existing EHR workflows.

Case Studies by Discovery Session Module

Module: Module 1 – Introduction to Microsoft Fabric in Healthcare

Focus: Integrating hospital, pharmacy, and outpatient care data to reduce re-admission rates

Case Overview: Reducing Patient R-Admission Rates

A large hospital network faced high patient re-admission rates, primarily among chronic disease patients (e.g., diabetes, heart failure). Disparate EHR, pharmacy, and outpatient records led to missed follow-ups and medication non-adherence.

Solution Using Microsoft Fabric

1. Unified Data Approach:
   - Integrated hospital, pharmacy, and outpatient EHR data using Microsoft Fabric & OneLake.
   - Standardized patient records with FHIR data models.
2. AI-Powered Predictive Analytics:
   - Used Azure AI & Microsoft Fabric to predict patients at high risk of re-admission.
   - Implemented AI-driven alerts for care teams when high-risk patients needed intervention.
3. Improved Coordination & Follow-ups:
   - Automated medication adherence tracking via pharmacy integration.
   - Established follow-up care reminders for discharged patients via AI-driven notifications.

Key Results

- 20% reduction in hospital re-admission rates.
- Improved medication adherence for chronic disease patients.
- Enhanced collaboration across care providers.

Module: Module 2 – Building a Unified Healthcare Data Estate

Focus: Creating a single patient record across multiple hospitals using Microsoft Fabric

Case Overview: Integrating Multi-Hospital HER Systems for Unified Patient View

A large healthcare network with multiple hospitals faced challenges integrating patient records due to incompatible Electronic Health Records (EHR) systems. This fragmentation caused delays in care coordination and redundant tests.

Solution Using Microsoft Fabric & Data Factory

1. Standardized EHR Data using FHIR:
   - Unified multiple EHR formats into FHIR-compatible data models.
   - Used Microsoft Fabric OneLake for centralized data storage.
2. Seamless Data Integration with Data Factory:
   - Automated data ingestion from multiple hospital systems.
   - Applied real-time data transformation to create a comprehensive patient profile.
3. Power BI Dashboard for Clinicians:
   - Built Power BI dashboards to provide a longitudinal patient record view.
   - Enabled real-time patient updates across hospital networks.

Key Results

- 40% improvement in care coordination efficiency.
- Reduced redundant diagnostic tests by 30%, lowering costs.
- Enhanced clinician decision-making with a complete patient history.

Module: Module 3 – AI-Driven Insights and Copilot Integration

Focus: Using AI & real-time ICU patient monitoring data to predict deterioration

Case Overview: Predicting Patient Deterioration in ICU using AI

An academic medical center sought to reduce ICU mortality rates by identifying early signs of patient deterioration. Traditional manual monitoring often led to delayed responses.

1. Solution Using Microsoft Fabric & AI
   - Real-Time ICU Monitoring Data Integration:
   - Connected ICU vitals monitoring systems (BP, oxygen, heart rate) with Microsoft Fabric.
   - Enabled real-time ingestion of vitals data using Azure Event Hubs & OneLake.
2. AI-Driven Predictive Analytics:
   - Deployed machine learning models to detect patterns of deterioration before critical events.
   - Used Copilot & Power BI dashboards to alert clinicians in real time.
3. Automated Alerts & Intervention:
   - Integrated AI alerts into hospital alert systems for faster clinical intervention.
   - Reduced response times for critical ICU events by 40%.

Key Results

- 30% reduction in ICU mortality rates.
- 40% faster clinical response times to patient deterioration.
- Improved clinician confidence in AI-assisted decision-making.

Module: Module 4 – AI for Healthcare-Specific Use Cases

Focus: Using AI to predict chronic disease progression and optimize patient care plans

Case Overview: AI-Powered Disease Progression Modeling for Chronic Illness

A national healthcare provider wanted to use AI to analyze chronic disease progression (e.g., diabetes, heart disease, COPD). Lack of longitudinal patient data integration limited predictive accuracy.

Solution Using Microsoft Fabric & AI

1. Unified Chronic Disease Data Sources:
   - Integrated EHRs, lab test results, and wearable device data.
   - Used Microsoft Fabric AI tools to build risk stratification models.
2. Predictive Analytics for Patient Risk Assessment:
   - Applied machine learning models to detect early warning signs of disease progression.
   - Built AI-powered alerts to recommend personalized treatment plans.
3. Clinical Decision Support for Providers:
   - Created Power BI visualizations to display AI-generated insights for providers.
   - Reduced hospitalizations by enabling early intervention.

Key Results

- 30% improvement in early detection of high-risk patients.
- 25% reduction in hospital readmissions for chronic disease patients.
- Enhanced patient engagement through personalized treatment plans.

Module: Module 5 – Security, Compliance, and Governance in Healthcare Data

Focus: Using Microsoft Fabric to secure healthcare data with role-based access controls (RBAC)

Case Overview: Implementing Role-Based Access Control for HIPAA Compliance

A regional healthcare provider needed to strengthen data security after a HIPAA compliance audit revealed vulnerabilities in patient data access controls.

Solution Using Microsoft Fabric & Purview

1. Role-Based Access Control (RBAC) Implementation:
   - Restricted patient data access based on job roles (e.g., doctors, nurses, billing staff).
   - Used Azure Active Directory (AAD) & Microsoft Fabric's security model.
2. Encryption & Data Access Monitoring:
   - Applied AES-256 encryption for data at rest & in transit.
   - Enabled Microsoft Purview data governance for audit tracking & monitoring.
3. Compliance Automation:
   - Configured automated alerts for policy violations.
   - Integrated compliance tracking dashboards using Power BI.

Key Results

- 100% compliance with HIPAA & HITRUST security standards.
- 90% reduction in unauthorized access incidents.
- Improved security monitoring & reporting efficiency.

Module: Module 6 – Governance, Compliance, and Data Security Deep Dive

Focus: Using Microsoft Fabric and Microsoft Purview to enforce governance and security for data sharing

Case Overview: Ensuring Secure Data Sharing Across Healthcare Providers while Maintaining Regulatory Compliance

A regional healthcare system with multiple hospitals, clinics, and telehealth providers needed a secure and compliant way to share patient data across different entities. Due to data silos, varying compliance policies, and lack of standardized governance, data-sharing inefficiencies led to delayed patient care and increased administrative overhead.

Solution Using Microsoft Fabric & Microsoft Purview

1. Implementation of Microsoft Purview for Data Governance:
   - Established data lineage tracking to monitor who accessed what data and when.
   - Applied sensitive data classification to categorize patient records based on HIPAA and GDPR policies.
2. Secure Data Access Control with Role-Based Permissions:
   - Defined role-based access controls (RBAC) to restrict data access based on user roles (clinicians, admins, researchers, etc.).
   - Implemented least privilege access to ensure minimum data exposure.

3. Encryption & Secure Data Sharing Mechanisms:
    - End-to-end encryption for all patient data exchanges.
    - Federated data-sharing models to allow providers to query patient data securely without physical data transfers.

Key Results

- 30% reduction in unauthorized data access incidents.
- Increased efficiency in cross-organization data sharing without violating compliance policies.
- Improved patient outcomes by reducing delays in data access for emergency cases.

Module: Module 7 – Self-Service Analytics and Operational Efficiency

Focus: Using real-time Power BI dashboards for hospital resource management

Case Overview: Optimizing Hospital Bed Occupancy with Power BI Dashboards

A large hospital system faced inefficiencies in bed management due to manual tracking and data fragmentation across departments. This resulted in delayed admissions and overcrowding.

Solution Using Microsoft Fabric & Power BI

1. Integrated Bed Management Data in OneLake:
    - Unified EHR, hospital management system, and admission logs.
    - Used Microsoft Fabric OneLake for real-time data storage.
2. Self-Service Power BI Dashboards:
    - Created interactive dashboards displaying real-time bed occupancy rates.
    - Enabled automatic updates every 10 minutes for accurate hospital capacity planning.
3. AI-Driven Resource Forecasting:
    - Built predictive models to anticipate ICU & general ward bed demand.
    - Optimized staffing & resource allocation based on forecasted patient volume.

Key Results

- 20% reduction in bed occupancy mismanagement.
- Increased admission efficiency by 30%.
- Better hospital resource planning & staff allocation.

Module: Module 8 – Enhancing Healthcare Operations with Data-Driven Decision Making

Focus: Using Power BI and Microsoft Fabric to optimize ED patient flow and reduce wait times

Case Overview: Reducing Emergency Department (ED) Wait Times with Real-Time Analytics

A large urban hospital struggled with excessive ED wait times, leading to patient dissatisfaction, overcrowding, and resource misallocation. The lack of real-time data on patient flow, triage levels, and staffing availability created inefficiencies in managing emergency cases.

Solution Using Microsoft Fabric & Power BI

1. Real-Time Data Integration:
   - Connected triage system, hospital information system (HIS), and patient check-in data to Microsoft Fabric OneLake.
   - Used Azure Stream Analytics to collect and analyze real-time ED wait times and triage status.
2. AI-Powered Predictive Analytics:
   - Developed machine learning models to predict peak ED congestion hours.
   - Integrated Power BI dashboards displaying live patient wait times, physician availability, and triage severity.
3. Operational Workflow Optimization:
   - Automated resource allocation alerts based on AI-driven patient flow predictions.
   - Suggested staff reallocation in real time to reduce bottlenecks in critical care areas.

Key Results

- 30% reduction in ED patient wait times.
- 20% improvement in emergency resource allocation efficiency.
- Enhanced triage prioritization based on real-time AI insights

Module: Module 9 – Building a Patient 360 Data Solution

Focus: Integrating EHR, wearable device data, and social determinants for a holistic patient view

Case Overview: Creating a Comprehensive Patient 360 Data Solution

A large healthcare network struggled to create a unified view of patient health across primary care, specialists, and remote patient monitoring systems. Patients receiving care from multiple providers had fragmented records, causing gaps in diagnosis and care coordination.

Solution Using Microsoft Fabric & FHIR Standards

1. Unified Longitudinal Patient Record (LHR):
   - Consolidated EHR, wearable data, and social determinants of health (SDOH) data.
   - Used Microsoft Fabric OneLake to build a FHIR-based data repository.
2. AI-Driven Insights for Proactive Care:
   - Integrated real-time data from wearable devices (e.g., Fitbit, Apple Watch, glucose monitors).
   - Used AI models to detect early warning signs for chronic disease deterioration.
3. Patient Engagement & Remote Monitoring:
   - Enabled automated telehealth follow-ups for at-risk patients based on AI risk assessment.
   - Provided clinicians with a single dashboard for a 360-degree view of patient health.

Key Results

- 35% increase in proactive patient interventions, reducing hospital visits.
- 50% improvement in remote patient monitoring effectiveness.
- Enhanced coordination between primary care, specialists, and telehealth providers.