Pawan Aggarwal

Director – Data Engineering (NatWest Bank)
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भारतीय प्रबंध संस्थान बेंगलूर
INDIAN INSTITUTE OF MANAGEMENT BANGALORE

DELHI TECHNOLOGICAL UNIVERSITY
formerly Delhi College of Engineering
(under Delhi Act 6 of 2009, Govt. of NCT of Delhi)

Technical Skills

Technology Leadership – Data Engineering

Big Data Analytics (Spark, Kafka, Hive, Streaming)

Technical Architecture & System Design

Cloud Transformation (GCP, Azure, AWS)

Databases -Oracle, MySQL, PostgreSQL, Teradata, MongoDB, Elasticsearch, OpenSearch, DynamoDB

SQL, PL/SQL, Unix Shell Scripting

ETL/ELT (DataStage, Informatica, Databricks, Azure Data Factory, Synapse, Glue, Redshift)

Creating Low Code Data Engineering Framework

CDC – Kafka – Real Time Streaming

Enterprise Datawarehouse & Data Lake

Data Lakehouse, Data Mesh and Data Fabric

Risk/Stakeholder Management

Geographically Distributed Team Management

DevOps and CI CD – Git, Jenkins, Docker

Microservices and API

Exposure to AI/ML Models including LLMs

19+ years of track record of success in designing and development of enterprise level **Data Platforms and Products** with passion for **resolving business problems using technical innovation** while envisioning the bigger picture.

Big Data Vision and **Hyper Scale Data Analytics**: Vision, strategy and engineering leadership in data engineering, data governance, data security and purpose driven people leadership.

Hands-on Data Engineering professional having experience in multiple technologies ranging from traditional ETL Tools to modern Big Data Technologies (Batch and Streaming)

Good experience in **modernizing Legacy systems** using new Data Tech Stack on AWS and Azure.

Designed and delivered resilient, high-performance data platforms, creating canonical models for real-time processing of **50M+ daily transactions** and a total volume exceeding **7B transactions**—setting industry benchmarks in scalability and efficiency

Experience in leading globally distributed teams with global accountability

Self-driven, hands-on, Agile Mindset & accomplished goal-oriented **Data Engineering Leader with 19+ years** of experience in **Data Engineering/ Big Data Analytics** and Technology Transformation projects with focus on CLOUD transformations (AWS and Azure Tech Stack). Implemented batch and near real time Data Products (Medallion Architecture) using data streams (CDC/Kafka). Experience in modern Data architectures like Lakehouse , Data Mesh and Data Fabric at scale.

Key Result Areas:

- E2E Engineering Responsibility for One Customer View Data Products to support One Bank Vision of the Enterprise. Leading Multiple Feature teams of Data Engineers, Technical Architects and Quality Engineers.

- Global Accountability for Enterprise data products and BI/Analytics/Machine Learning systems on **AWS/GCP (CDC, Kafka, EMR, Spark, Glue, Athena, QuickSight, Mongo and Airflow) and Azure (Kafka, ADF, Databricks, Spark, Scala, Delta Lake, Synapse) with E2E ownership** of delivery and support.

- Working with various business franchises for **aligning product and technical roadmap of our data products**

- **Ensuring Data Security, Governance and various Data Controls** with focus on building resilient and high performant data pipelines

- **Ownership of Technology roadmap** for Data Management and Analytics Landscape including modernization and operational cost reduction.

- **Solution and Design Architecture engagement for complex project** which are starting from scratch and need robust designing and customer centricity.

- Focus on **continuous improvement, Engineering Maturity and automation. Responsible for meeting organization level OKR for Data Products and Engineering.**

- Working on technical solutions for given business problem with Architects, working with Engineers on Low Level Design and while contributing to **code reviews when needed.**

- Enabling **Low/No Code Framework for Data Engineering Team with focus on TDD and Test Automation**.

- Holding **technical review board meetings** and coordinating with other team members for defining best practices for Data Engineering along with talent Development

- Suggesting solutions for **enhancing functional efficiency** and achieving business excellence and managing risks and planning for contingencies to ensure minimal effect on deliverables

Experience Timeline
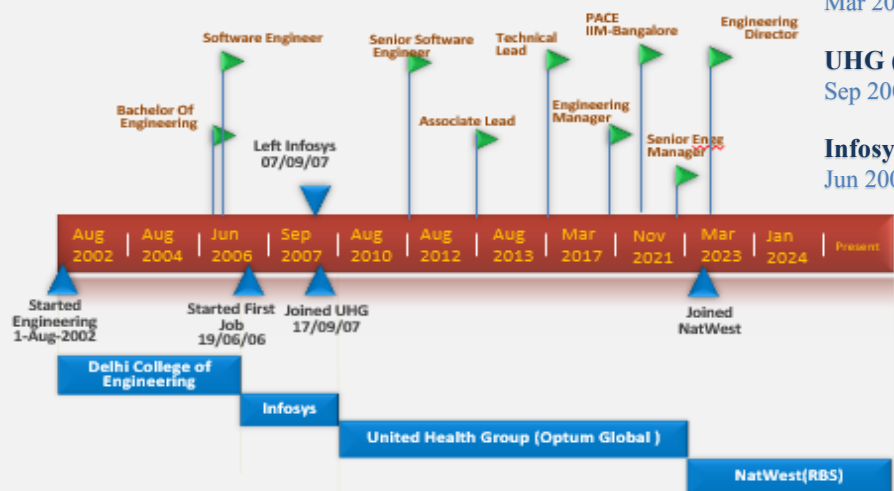
Natwest (2 years)
Mar 2023 to Present

UHG (15.5 years)
Sep 2007 to Mar 2023

Infosys (1.3 years)
Jun 2006 to Sep 2007

Education

Bachelor of Engineering - Delhi College of Engineering, Delhi University, Delhi with 72.60% in 2006

Roles Played

- ❖ Engineering Director
- ❖ Engineering Manager
- ❖ Cloud Migration Architect
- ❖ Technical Lead
- ❖ ETL and BI Lead
- ❖ ETL Engineer

Academic Achievements

- Scholarship by CBSE for being in top 0.1% student in Mathematics in SSC
- Mathematics Olympiad Certificate by Delhi Association of Mathematics Teachers
- Science Olympiad Certificate in school
- Certificate by Student Talent Club, Chennai

Extracurricular Activities

- Played Football at Zonal level while in school and in Inter-Branch Cricket Tournament in college
- Event Coordinator in Technical Fest "TATVA 2005" of Chemical Engineers
- Member of Organizing Committee of "Entrepreneurial Development Program" organized in the college

Notable Accomplishments Across the Career

- Got **MAKE IT HAPPEN award** for creating out of box IT solution in just 3 weeks using Kafka, ETL workloads **during COVID in April 2020 which enabled our company to disburse a part of $100 Billion relief fund** to various healthcare providers in partnership with US Health department.

- As a high potential leader, got nominated for executive MBA program - PACE provided by **IIM - Bangalore** in 2021.Learnt Product Mindset.

- Nominated and completed **Emerging Leadership Program** which was conducted by **Stew Friedmann and Steven Covey** in 2020.

- Nominated among handful of Data Engineering Manager **for internal Data Science University Program** and successfully completed the same in 2019.

- Generated approximately, **6 million in savings** (2.5 soft savings and 3.5 hard savings) through various initiatives like *modernization, automation, Infrastructure cost reduction, application hardening and productivity improvement.*

- Leading the **modernization agenda for moving legacy applications into cloud** for a very big enterprise application having a headcount of 100+ folks across the globe.

- Successfully led the **Resource Transformation** agenda for my team to transform them into using new technology from traditional ETL tools to modern Data Engineering

- Leading the Engineering Maturity Team which consist of multiple Engineering Manager with focus on **Agile Metrics Improvement, CI-CD transformation, technology transformation, application hardening**

- Established the concept of **Release Entry Framework** process that enabled IT Ops team to get engaged much early in lifecycle of delivery of various capabilities and features.

- Maintained **very high manager effectiveness score** as part of annual Employee Experience survey.

Personal Details

Date of Birth:	9 August 1984
Gender:	Male
Father's Name:	Mr. Gopi Kishan Aggarwal
Nationality:	Indian
Passport:	M5793419
Languages Known:	English & Hindi
Current Address:	B2-73 Spaze Privy AT4 Sector 84, Gurgaon, HR - 122004
Permanent Address:	WZ-44, Gali No.-1, Sri Nagar, Shakur Basti- ND-110034

Project	Customer Data and Analytics (Real Time Data Store, APIs and Analytics Store)
Team Size	80+
Duration	March 2023 – Till Date
Description	Customer 360 Data Products – OneBank Customer View – Cloud Transfromation
Role:	Engineering Director - Data
Technologies	**AWS/GCP, CDC**, Informatica BDM, **Kafka**, **Spark (EMR)- Batch and Streaming**, MongoDB, AWS S3 , AWS Glue, Athena, Snowflake, QuickSight, OpenSearch, Mongo Atlas, Gitlab, EKS, Microservices, **API** , **Airflow**
Duties	**Engineering Leadership & Delivery** • Spearheaded **engineering direction** and end-to-end delivery in alignment with product and technology roadmaps. • Designed and delivered **resilient, benchmark-setting data platforms and products** from concept to deployment. • Established **high-performing engineering teams** and scalable practices, driving business value across multiple stakeholders. **Strategic Collaboration & Roadmap Alignment** • Partnered with **different stakeholders** to advance **data analytics adoption, business strategies, and budgeting**. • Worked with **Product Owners** to integrate technology roadmaps into broader product visions. • Guided **solution designers** to ensure **vertically and horizontally scalable** architectures. **Innovation & Team Development** • Led **low-code/no-code adoption** to enhance productivity and efficiency. • Mentored teams in **designing robust, flexible, and scalable solutions**, conducting technical reviews. • Developed **new skill sets** aligned with future technology advancements. **Operational Excellence & Automation** • Drove cost optimization (TCO & TCM) year-over-year, improving efficiency. • Increased **automation across testing, code generation, and code reviews**. • Championed **world-class DevOps and CI/CD practices**, with a focus on **observability**. • Continuously learned, evolved, and adapted based on **Agile principles**.

Project	Azure Data Estate (Near Real Time Data Lake and Analytics)
Team Size	20
Duration	October 2021 – March 2023
Description	This project is to create Enterprise Data Lake using near real time ETL processing using CDC tools, Kafka and Azure (DataBricks, Delta Table and Synapse)
Role:	Senior Engineering Manager - Data
Technologies	Spark, Golang, Kafka, IBM CDC, Azure Data Factory, Databricks, Synapse, Power BI
Duties	• **Technology Leadership & Scalable Data Architectures** • **End-to-End Leadership**—driving global accountability for high-performance, **high resiliency** data ecosystems. • **Canonical Data Models**—designing unified, reusable data structures to enhance consistency and interoperability. • **Medallion Architecture Implementation**—leveraging **bronze, silver, and gold layers** for scalable, optimized data processing. • **Cloud-Native Scalability**—ensuring vertical and horizontal elasticity across distributed environments. • **Technical Strategy & Vision**—aligning product architecture with business objectives for long-term growth. • **Engineering Excellence**—guiding teams on **robust, flexible, scalable** solution designs to support AI-driven workloads. • **Platform Evolution**—collaborating with business leaders to refine data platforms for **future demand and AI/ML use cases**. • **Operational Efficiency**—providing execution strategies, troubleshooting critical issues, and enabling seamless deployment.

Project	**Non-Claim Payment System**
Team Size	20+
Duration	August 2019 – October 2021
Description	This project is to create a brand new non claim payment trail using combination of ETL jobs using Datastage and Java Microservices with real time streaming of data from upstream and downstream. Team also got **MAKE IT HAPPEN** award for the same
Role:	Engineering Manager
Technologies	IBM WebSphere Datastage 11.3/, MySQL, UNIX. Microservices, Kafka, OpenShift
Duties	• **Data Architecture & Engineering Leadership** • **Solution Architecture**—designed high-level **data flow** and **ETL integration**, ensuring seamless interoperability with existing systems. • **Advanced Data Modelling**—developed **new data trail designs**, optimizing schema efficiency and scalability. • **Cloud-Native Scalability**—ensured architectures were **vertically and horizontally scalable** for high-performance workloads. • **Project Lifecycle Leadership**—actively contributed to **analysis, planning, design, development, and implementation**, providing strategic inputs. • **Technical Guidance**—led development teams in **designing robust, flexible, and scalable solutions** tailored to business needs. • **Performance Optimization**—participated in **performance tuning and system enhancements** for optimized processing. • **End-to-End Delivery Ownership**—accountable for **full project execution**, ensuring technical and business objectives align. • **Engineering Execution & Support**—provided **execution strategies**, resolved defects, and oversaw **seamless code deployment** across test and production environments.

Project	**Migrating Payment Highway Operations Portal to Cloud**
Team Size	6
Duration	March 2020 – October 2021
Description	This project is to migrate Payment Highway Operations Workstation portal from IBM WAS server and AEM CQ5 to Cloud using Java Springboot microservices and moving them on Cloud (OpenShift)
Role:	Engineering Manager
Technologies	ReactJs, Java, Springboot, OpenShift, Oracle
Duties	• **Technology Leadership & Scalable Solution Design** • **Technology Selection**—collaborating with Technical Architects to identify the best-fit technologies for scalability and performance. • **Team Development**—building and ramping up **high-performing engineering teams**, aligning skills with future technology needs. • **Cloud-Native Scalability**—ensuring **vertical and horizontal scalability** in cloud environments for resilient architectures. • **Robust Solution Design**—guiding development teams to create **flexible, scalable, and high-performance** solutions. • **Technical Mentorship & Reviews**—mentoring engineers, leading **technical reviews**, and ensuring best practices in design and implementation. • **Business Collaboration**—working with stakeholders to **enhance portals** with future demand and **strategic growth** in mind. • **End-to-End Delivery Ownership**—accountable for **seamless project execution**, ensuring alignment with business objectives. • **Engineering Execution & Optimization**—providing **execution strategies**, resolving defects, and deploying code across test and production environments.

Project	**Member Legacy Payment System Modernization**
Team Size	50+
Duration	January 2021 – October 2021
Description	This project is to migrate and modernize Member Payment Legacy ETL platform for the largest claim Adjudication in the enterprise
Role:	Engineering Manager
Technologies	IBM WebSphere Datastage 11.3/, Oracle, UNIX. Microservices, Kafka, OpenShift
Duties	• **Application Modernization & Engineering Excellence** • **Strategic Modernization Planning**—assessing which application components should be modernized immediately and which should follow a phased approach. • **Project Lifecycle Involvement**—actively contributing to **analysis, planning, design, development, and implementation**, providing technical insights. • **Scalable Architecture Guidance**—leading teams in designing **robust, flexible, and scalable solutions** that align with long-term business needs. • **Technical Leadership & Mentorship**—heading the **Technical Review Board**, mentoring teams, and conducting in-depth technical evaluations. • **Performance Optimization**—participating in **performance tuning strategies** to enhance system efficiency. • **Engineering Execution & Troubleshooting**—providing **execution strategies**, resolving defects, and supporting seamless deployments from testing to production. • **Knowledge Sharing**—documenting key **migration learnings** to ensure best practices are shared across teams for future initiatives.

Project	**ONEPAY – Enterprise Claim Payment System**
Team Size	50+
Duration	January 2014 – November 2017
Description	Spearheaded development of an Enterprise Payment Solution for all claims platforms and lead the architecture and Solutioning of payment functionality, prioritize claim payment enhancements, standardize core business rules and reduce redundancy that exists in the legacy payment systems today
Role:	ETL Tech Lead and later Engineering Manager
Technologies	IBM WebSphere Datastage 11.3/8.7, Oracle 12c/11g, TWS, PL/SQL and Oracle, UNIX Big Data – Hive, MapReduce, Spark and Elasticsearch
Duties	• **ETL & Data Engineering Leadership** • **Business Requirement Analysis**—designed ETL process flow diagrams to tackle complex data challenges. • **Full Project Lifecycle Participation**—provided strategic input across analysis, planning, design, development, and implementation phases. • **ETL Architecture & Design**—guided development teams in building **robust, flexible, and scalable ETL jobs**. • **Technology Expertise**—leveraged **IBM DataStage Designer, Director, Administration**, and **WebSphere** for efficient data integration. • **Technical Leadership & Mentorship**—headed the **Technical Review Board**, ensuring best practices and continuous improvement. • **Performance Optimization**—conducted **performance tuning** for ETL jobs, managing **daily, monthly, and yearly schedules** for optimized throughput. • **Quality Assurance & Deployment**—supported **QA & UAT**, troubleshooting, defect resolution, and **code deployments** across test and production environments. • **Knowledge Management**—documented migration insights to facilitate cross-team learning and efficiency. • **Global Delivery Leadership**—led **UHG offshore vendor CTS** in executing and delivering data projects at scale.

Project	Payment Engine (Strategic Payment Program)
Team Size	30+
Duration	January 2009 – October 2014
Description	The purpose of the Strategic Payment Program is to bring a strategic level focus on payment capability and objectives by aligning all associated activities under a single governance program and vision of UnitedHealth Group. It involves processing payment and creating cheques for providers and members by gathering information from various claim adjudication systems of UHG, creating EOB (explanation of benefits), creating 835 (standard EDI format) and sending feedback data to various upstream applications. Our application receives data from various claim adjudication systems which we process to create the payments. Datastage is used as ETL Tool. Oracle Financial application is used for maintaining and generating invoices for payments. The scheduling tool initially used was Autosys and is now migrated to TWS
Role:	ETL Developer and Later Tech Lead
Technologies	IBM WebSphere Datastage 7.x, Oracle 12c/11g, TWS, PL/SQL and Oracle, UNIX, Oracle Financials
Duties	• ETL Development & Leadership (DataStage & EDI 835/837 Focused) • Design, develop, and optimize DataStage ETL jobs for 835 and 837 EDI transaction processing, ensuring compliance with healthcare standards. • Architect scalable ETL solutions, integrating EDI 835 (Healthcare Payment/Remittance Advice) and EDI 837 (Claims Transactions) with existing data pipelines. • Lead technical design for canonical data models, ensuring structured data representation across traditional ETL workflows. • Mentor teams, conduct code reviews, and implement performance tuning for high-volume processing of healthcare claim data. • Collaborate with business stakeholders to align ETL strategies with payer-provider data exchange requirements. • Troubleshoot, optimize, and automate DataStage pipelines, enabling low-latency processing for high-throughput 835/837 transactions.

Project: **Health Statement Generation**
Team size: 5
Duration: Sep'07 to Dec'08

Project: **Enterprise Data Warehouse**
Client: WellPoint, USA
Team size: 12
Duration: Oct'06 to Sep'07

Project: **Bank Automation Application**
Client: Internal Project
Team size: 4
Duration: Jun'06 to Oct'06