

# **INTERNSHIP REPORT**

*A Report Submitted*

*In Partial Fulfillment*

*for award of Bachelor of Technology*

**In**

**COMPUTER SCIENCE AND ENGINEERING(IoT)**

**By**

**RAJ KUMAR SINGH (2001331550029)**

**Under the Supervision of**

Industrial Supervisor

**Mr. RAJIV SARKAR**

**Manager**

**Genpact**

**&**

Institutional Supervisor

**Prof. Sachin Chawla**

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**Internet of Things**

**School of Computer Science in Emerging Technology**

**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY,  
GREATER NOIDA**

**(An Autonomous Institute)**

**Affiliated to**

**DR. A.P.J. ABDUL KALAM TECHNICAL UNIVERSITY, LUCKNOW**

**May, 2024**

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**Under the Supervision of**

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**Mr. RAJIV SARKAR**

**Manager**

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**&**

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**Professor, Computer Science & Engineering(IOT)**



**CSE(IoT) Department**

**School of Computer Science & Emerging Technologies**

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**May, 2024**

## **DECLARATION**

I hereby declare that the work presented in this report was carried out by me. I have not submitted the matter embodied in this report for the award of any other degree or diploma of any other University or Institute.

Name: Raj Kumar Singh

Roll Number: 2001331550029

## CERTIFICATE FROM THE INSTITUTE

Certified that **Raj Kumar Singh** (Roll No: 2001331550029), has carried out the industrial work presented in this Internship Report at **Genpact** in partial fulfillment of the requirements for the award of **Bachelor of Technology, CSE-Internet of Things** from Dr. APJ Abdul Kalam Technical University, Lucknow under our supervision.

Signature

Mr. Sachin Chawla

**Assistant Professor**

CSE-Internet of Things

NIET Greater Noida

Date: 23-05-2024

Signature

Mayank Deep Khare

**H.O.D**

Internet of Things

NIET Greater Noida



## **INTERNSHIP OFFER LETTER**

11<sup>th</sup> January 2024

Raj Kumar Singh  
Noida Institute of Engineering and Technology

Dear Raj Kumar,

We are pleased to formally confirm your internship offer with Genpact. The duration of the project will be **20 weeks** beginning **05<sup>th</sup> February 2024** working with us on Project- **Internship**.

You will be required to apply and maintain the highest standards of personal conduct and integrity and comply with all Genpact policies as may be applicable. Any violation of the same can result in this offer being withdrawn without any notice

Please feel free to contact HR Manager – **Roy, Sonaki** [sonaki.roy@genpact.com](mailto:sonaki.roy@genpact.com) in case of any clarifications.

Once again, we are delighted to have you on board and hope you have a rewarding and enriching experience with Genpact.

Congratulations and welcome to the team!

Yours Sincerely,

**Ritu Bhatia**

Senior Vice President -Recruitment, India

Human Resources  
Genpact Phase 5 Office  
Gurgaon- 122002  
[www.genpact.com](http://www.genpact.com)

Raj Kumar Singh

Genpact Intern, 2024

## ACKNOWLEDGEMENT

I would like to express my sincere gratitude to all those who have contributed to the successful completion of this internship report.

First and foremost, I am deeply thankful to **Mr. Sachin Chawla**, my internship supervisor, for their guidance, support, and valuable feedback throughout this journey. Their expertise, patience, and willingness to share knowledge have been instrumental in shaping this report.

I am also indebted to the entire **Genpact** team for providing me with the opportunity to intern with them. I am grateful for the warm welcome, encouragement, and trust extended to me.

Special thanks to **Mr. Rajiv Sarkar** and **Ms. Shampa Sen** whose mentorship and encouragement have been invaluable. I am grateful for their willingness to answer my questions, offer assistance, and share their insights, which have enriched my learning experience.

My thanks and appreciation to the respected HOD, **Mr. Mayank Deep Khare**, for their motivation and support throughout.

Lastly, I extend my heartfelt appreciation to my family and friends for their unwavering encouragement, understanding, and belief in my abilities. Their support has been my source of strength throughout this endeavor.

Thank you to everyone who has contributed to this report and helped me grow both personally and professionally.

Raj Kumar Singh

2001331550029

## **ABSTRACT**

This internship report details my experiences within the Master Data Management (MDM) department at Genpact from February 2nd, 2024, to July 28th, 2024 (5 months). My primary goals were to gain a comprehensive understanding of MDM practices and their application within the Consumer-Packaged Goods (CPG) industry [KRAFT HEINZ].

During the internship, I participated in a comprehensive training program, acquiring valuable technical skills in data manipulation using SQL, data visualization tools like Power BI and Excel, and foundational knowledge of Enterprise Resource Planning (ERP) systems like SAP. Additionally, I honed essential soft skills crucial for success in MDM, including data analysis, attention to detail, critical thinking, communication, collaboration, and problem-solving.

Through cross-departmental training, I gained insights into how MDM interacts with other areas within Genpact, fostering a holistic understanding of data management within the organization. Notably, [if you have a specific example of applying these skills, like identifying and resolving data inconsistencies, mention it here].

This internship at Genpact provided a valuable platform to bridge the gap between theoretical knowledge and the practical application of MDM in the CPG industry. My contributions through improved data accuracy and consistency directly benefited the company's decision-making processes. Overall, this experience solidified my interest in data management and equipped me with a robust skillset in data manipulation, analysis, and communication, preparing me for a successful career in this field.



## TABLE OF CONTENTS

	Page No.
Declaration	i
Certificate from the institute	ii
Certificate from the industry	iii
Acknowledgement	iv
Abstract	v
<b>CHAPTER 1: INTRODUCTION</b>	<b>1-27</b>
1.1 ORGANIZATION OVERVIEW	1
1.2 HISTORY	1
1.3 INDEPENDENCE AND INTERNATIONAL	2
1.4 RECENT DEVELOPMENT	2
1.5 ACQUISITION	3
1.6 ORGANIZATIONAL STRUCTURE	3
1.6.1 AFRICA	
1.6.1.1 SOUTH AFRICA	3
1.6.2 ASIA	
1.6.2.1 CHINA	3
1.6.2.2 INDIA	4
1.6.3 JAPAN	7
1.6.4 MALAYSIA	8
1.6.5 PHILIPPINES	8
1.6.6 SINGAPORE	8
1.6.7 LATIN AMERICA	
1.6.7.1 COSTA RICA	8
1.6.7.2 BRAZIL	9
1.6.7.3 GUATEMALA	9
1.6.7.4 MEXICO	9
1.6.8 MIDDLE EAST	
1.6.8.1 EGYPT	9

1.6.8.2 ISRAEL	10
1.6.8.3 TURKEY	10
1.6.9 NORTH AMERICA	
1.6.9.1 CANADA	10
1.6.9.2 USA	10
1.6.10 PACIFIC	
1.6.10.1 AUSTRALIA	11
1.6.11 UK AND EUROPE	
1.6.11.1 FRANCE	12
1.6.11.2 ITALY	12
1.6.11.3 GERMANY	12
1.6.11.4 NETHERLANDS	12
1.6.11.5 NORDICS	12
1.6.11.6 POLAND	12
1.6.11.7 PORTUGAL	13
1.6.12 REPUBLIC OF IRELAND	13
1.6.13 ROMANIA	13
1.6.14 SWITZERLAND	14
1.6.15 UNITED KINGDOM	
1.6.15.1 ENGLAND	14
1.6.15.2 SCOTLAND	14
1.7 OUR LEADERSHIP	14
1.7.1 Balkrishan "BK" Kalra	14
1.7.2 Krista Bessinger	15
1.7.3 CAITLIN BLEWETT	15
1.7.4 SAMEER DEWAN	15
1.7.5 VIPIN GAIROLA	16
1.7.6 PIYUSH MEHTA	16
1.7.7 ANIL NADURU	16
1.7.8 VIDYA	17
1.7.9 SANJAY SRIVASTAVA	17
1.7.10 RIJU VASHISHT	17
1.7.11 MIKE WEINER	17
1.7.12 MEG VAN WINKLE	18

1.7.13 HEATHER WHITE	18
1.8 SERVICES	18
1.8.1 ARTIFICIAL INTELLIGENCE SOLUTIONS	18
1.8.2 INTELLIGENT AUTOMATION	19
1.8.3 CLOUD SERVICES	19
1.8.4 CUSTOMER CARE	19
1.8.5 DATA ANALYTICS SOLUTIONS	20
1.8.6 CUSTOMER EXPERIENCE MANAGEMENT	20
1.8.7 FINANCE TRANSFORMATION SERVICES	20
1.8.7.1 ACCOUNT PAYABLE SERVICES	20
1.8.7.2 ENTERPRISE PERFORMANCE	21
1.8.7.3 FINANCE AND ACCOUNTING	21
1.8.7.4 RECALIBRATE INVOICE	21
1.8.7.5 R2R PROCESS	22
1.8.8 RISK AND COMPLIANCE	22
1.8.8.1 FINANCIAL RISK MANAGEMENT	22
1.8.8.2 ENTERPRISE RISK	22
1.8.8.3 FINANCIAL CRIME	22
1.8.9 SALES AND COMMERCIAL SERVICES	23
1.8.10 SUSTAINABILITY SERVICES	23
1.8.11 SOURCING AND PROCUREMENT	23
1.8.12 SUPPLY CHAIN MANAGEMENT	23
1.8.13 TECHNOLOGY SERVICES	24
1.8.13.1 APPLICATION AND INFRA	24
1.8.13.2 ENTERPRISE APPLICATIONS	24
1.8.14 TRUST AND SAFETY	24
1.9 OBJECTIVE	25
1.9.1 DIGITAL TRANSFORMATION	25
1.9.2 OPERATIONAL EXCELLENCE	25
1.9.3 CUSTOMER SUCCESS	25
1.9.4 INNOVATION AND LEADERSHIP	25
1.10 SCOPE	26
1.10.1 INDUSTRY FOCUS	26
1.10.2 GLOBAL PRESENCE	26

1.10.3 COMPREHENSIVE SERVICE	26
1.10.4 CLIENT-CENTRIC APPROACH	26
1.10.5 PARTNERSHIPS AND ECOSYSTEM	27
<b>CHAPTER 2: INTERNSHIP EXPERIENCE</b>	<b>28-91</b>
2.1 INTERNSHIP EXPERIENCE	28
2.2 TOOLS AND TECHNOLOGY	29
2.2.1 MICROSOFT POWER BI	29
2.2.2 SQL	33
2.2.3 MICROSOFT EXCEL	34
2.2.4 MICROSOFT POWER APPS	35
2.2.5 MICROSOFT POWER AUTOMATE	35
2.2.6 SAP	36
2.2.6.1 SAP FI	37
2.2.6.2 SAP SD	40
2.2.6.3 SAP WM	43
2.2.6.4 SAP HAMA	45
2.2.6.5 SAP GRC	47
2.2.6.6 SAP BI	50
2.2.6.7 SAP CRM	52
2.2.6.8 SAP SCM	55
2.2.6.9 SAP PLM	57
2.2.6.10 SAP PS	61
2.2.6.11 SAP CO	63
2.2.6.12 SAP HR	66
2.2.6.13 WHY ERP/SAP	69
2.2.7 SAP MASTER DATA MANAGEMENT	70
2.3 ROLES AND RESPONSIBILITIES OF THE INTERN	72
2.4 DETAILS OF WORK DONE	73
2.4.1 POWER BI PROFICIENCY	74
2.4.2 SAP MDM	75
2.4.3 CUSTOMER MDM	77
2.4.4 PRICING MDM	78
2.4.5 VENDOR MDM	80
2.4.6 MATERIAL MDM	82

2.4.7 TRAINING AND INSIGHTS	85
2.4.8 ACCOUNT OVERVIEWS	85
2.4.9 GENOME CERTIFICATIONS	88
2.4.10 CONTINUOUS LEARNING AND GROWTH	88
2.4.11 TRANSFORMATIVE EXPERIENCE	88
2.5 SKILLS LEARNT	89
<b>CHAPTER 3: CONCLUSION AND FUTURE WORK</b>	<b>92-93</b>
<b>REFERENCES</b>	<b>94</b>
<b>APPENDICES</b>	<b>98</b>
<b>CURRICULUM VITAE</b>	<b>100</b>

# CHAPTER 1

## INTRODUCTION

### 1.1 ORGANIZATION OVERVIEW

Genpact is a professional services firm legally domiciled in Bermuda with its headquarters in New York City, New York.<sup>[1]</sup> The company currently employs more than 125,000 people and provides services to clients in over 30 countries worldwide.<sup>[2]</sup> Genpact is listed on the NYSE and generated revenues of US\$4.48 billion in 2023.<sup>[1]</sup>

### 1.2 HISTORY

Genpact was founded in 1997 as a unit of General Electric.<sup>[4]</sup> The company was founded as GE Capital International Services (GECIS) in Gurgaon. Starting with 20 employees under the leadership of CEO Pramod Bhasin, its charter was to provide business process outsourcing solutions to GE's businesses.<sup>[5][6]</sup> In the beginning, GECIS created processes for outsourcing back-office activities for GE Capital such as processing car loans and credit card transactions. It was an experimental concept at the time and the beginning of the Business-Process-Outsourcing (BPO) industry.<sup>[5][7]</sup>

One year after its launch, GECIS employed about 800 people and generated revenues of US\$4 million.<sup>[8]</sup> By 2001, GECIS operations had grown to 12,000 employees and the company began to manage a wide range of processes across GE's financial services and manufacturing businesses.<sup>[8]</sup> Jack Welch, CEO of GE at the time, said that GECIS was a key driver of GE's growth between 1998 and 2001, and was responsible for reducing operating costs by approximately US\$1 billion.<sup>[7]</sup>

In 2003, GE reduced its stake in GECIS to 40% and sold the remainder to two American private equity firms. At the time of the sale, GECIS employed around 13,000 people in India and 4,000 people in the US, China, Hungary and Mexico, providing a range of solutions in areas such as finance and accounting, insurance claim processing, IT management and technical support.<sup>[9][10]</sup>

By 2004, GECIS oversaw around 700 business processes for GE that had migrated from the US to India, generating revenues of US\$426 million.<sup>[7]</sup>

### **1.3 INDEPENDENCE AND INTERNATIONAL**

In January 2005, the company became independent and started to serve clients outside of GE.<sup>[11]</sup> As part of this transition, the company changed its name to Genpact for “generating business impact.”<sup>[12]</sup> Also in 2005, the company opened additional offices in India and by the end of the year, recorded US\$493 million in revenue, with 15% coming from new global clients, and the remaining 85% from GE.<sup>[7]</sup> In 2006, Genpact further expanded in India, the Philippines, Mexico, and China.<sup>[13]</sup>

In August 2007, Genpact was listed on the NYSE under the symbol 'G'. The company continued to grow, opening offices in six additional countries that same year and launching a joint venture with the Indian company [NDTV](#) to offer outsourcing services for the media industry.<sup>[14][15]</sup> In 2008, the company crossed US\$1 billion in revenue, with 53% coming from clients other than GE.<sup>[7]</sup>

From 2010 onward, the company increasingly focused its operations and presence in Europe and the US. As part of its shift west, the company moved its headquarters to New York, and in 2011, Bhasin stepped down as CEO and became non-executive vice chairman of the company.<sup>[16][17]</sup> He was succeeded on 17 June 2011 by NV "Tiger" Tyagarajan,<sup>[18]</sup> who was appointed to the Board of Directors and became Genpact's new CEO.<sup>[19]</sup> Tyagarajan was previously CEO of Genpact from 1999 to 2002 when he led the business through a critical growth phase as a subsidiary of GE.<sup>[20]</sup> When Genpact became an independent company, he rejoined the firm from [GE Capital](#) U.S. as executive vice president of sales and business development from 2005 to 2009. Thereafter, he took on the role of the firm's chief operating officer, before being named CEO in 2011.

Bain Capital became the firm's largest shareholder in October 2012.<sup>[21]</sup>

In February 2019, Genpact contractors in Hyderabad who were assigned content moderation tasks for Facebook reportedly experienced psychological trauma while evaluating videos depicting suicide, torture, terrorism, and pornography.<sup>[22][23][24]</sup>

## 1.4 RECENT DEVELOPMENT

On February 9, 2024, Balkrishan Kalra (“BK”) assumed the role of President and CEO. He replaced Tiger Tyagarajan, who retired.<sup>[25]</sup> BK was previously Genpact's Global Business Leader, Financial Services and Consumer & Healthcare.<sup>[26]</sup>

In September 2020, UK Medicines and Healthcare products Regulatory Agency contracted Genpact to supply an Artificial intelligence software tool to process the expected high volume of COVID-19 vaccine Adverse drug reactions to ensure that no details from the ADRs reaction texts are missed. MHRA and Genpact announced an expansion of the partnership in January 2022.<sup>[28]</sup> In August 2021, Genpact signed a multi-year digital transformation contract with Coca-Cola Beverages in Africa.<sup>[29][30]</sup>

During the COVID-19 pandemic, Genpact opened its internal learning and reskilling platform, "Genome", to public access.[citation needed]

That same year, the company expanded its operations in Germany, and was added to the S&P 400 Mid-Cap Index.<sup>[31]</sup> The company also signed an agreement with the National Institute of Industrial Engineering in Mumbai to establish a Digital Manufacturing and Supply Chain center, supporting the transformation from traditional to digital manufacturing.<sup>[32]</sup>

In 2022, Genpact was added to the Bloomberg Gender Equality Index.<sup>[33]</sup>

## 1.5 ACQUISITION

- April 2016: Endeavour Software Technologies, an enterprise mobility software company<sup>[34][35]</sup>
- August 2017: TandemSeven, an experience design company<sup>[36]</sup>
- September 2017: OnSource, a provider of an Inspection-as-a-Service (IaaS) product for property and casualty (P&C) insurance carriers and their customers<sup>[37][38]</sup>
- June 2018: Commonwealth Informatics, a provider of cloud-based drug safety analytics products and services for medical research and healthcare delivery<sup>[39]</sup>
- July 2018: Barkawi Management Consultants, a supply chain management firm<sup>[40][41]</sup>



- January 2019: riskCanvas, an end-to-end Financial Crimes software platform<sup>[42]</sup>
- October 2019, Rightpoint, a digital consultancy<sup>[43]</sup>
- January 2021: Enquero, a data engineering and analytics firm<sup>[44]</sup>

## **1.6 ORGANIZATIONAL STRUCTURE**

### **1.6.1 AFRICA**

#### **1.6.1.1 SOUTH AFRICA**

- Johannesburg: Genpact South Africa (Proprietary) Limited Building 2 Woodmead Country Club Estate, 21 Woodlands Drive, Woodmead, Gauteng, 2191

### **1.6.2 ASIA**

#### **1.6.2.1 CHINA**

- Dalian: No.30 East Road Software Park Dalian, Phone: +86 411 8366 6998
- Foshan: The 6th Floor, No.8 Building, A Zone, No.17 Shenhai Road, Guicheng Subdistrict, Nanhai District, Foshan, Guangdong Province, Phone: +86 757 8606 1111
- Kunshan (Huqiao): No.1 Jin Jie Road, Huaqiao Economic Development Zone, Kushan City, Jiangsu Province, Phone: +86 512 3662 1533

#### **1.6.2.2 INDIA**

- Bangalore - Capital Markets-India: Pritech Park, Tower 5A, 1st Floor, Pritech Park SEZ, Bellandure Village, Outer Ring Road, Varthur, Bangalore - 560 037, Karnataka, Phone: +91 80 39467601
- Bangalore - Genpact-India: Pritech Park TR, Block 9 - 2nd Floor; Block 11, G floor, Block 12, 9th floor Bellandure Village, Outer Ring Road, Varthur, Bangalore - 560 037, Karnataka, Phone: +91 80 41982000, Fax: +91 80 41982777
- Bangalore - Genpact-India: Surya Park, 99, Surya Park, Electronic City , Phase 1, Bangalore - 560100, Karnataka, +91 80 41198999

- Bangalore - Genpact-India: SMS, Bldg # 2, Salarpuria Softzone, Bellandur, Varthur Hobli, Bangalore – 560037, Karnataka, Phone: +91 80 30835000
- Chennai - RMZ One Paramount Porur Chennai, Campus-10, 6th Floor, RMZ-One Paramount, Mount Poonamallee High Road, Porur, Chennai-600116
- Gurgaon - Genpact-India: NCR North Campus, Kore Tech Park, Tower 4, Red Parks Ltd, Southern Peripheral Road, Sector 69, Gurgaon - 122018, Haryana
- Gurgaon - Genpact-India: NCR GGN DLF - Phase V, DLF City - Phase V, Sector 53, Gurgaon - 122002, Haryana, Phone: +91 124 402 2000, Fax No: +91 124 402 2205
- Gurgaon - Genpact-India: NCR GGN - Plot 22, Sector 18, Udyog Vihar, Gurgaon 122015, Haryana, Phone: +91 124 4022000
- Hyderabad - Genpact-India: HYBD Hafeezpet, Phoenix Trivium Project, Phoenix Infrastructure Pvt. Limited. Survey No: 87P and 88P, Hafeezpet Village, Serilingampally Mandal, Hyderabad
- Hyderabad - Genpact-India: HYBD Pocharam - RITP SEZ, 4th, 5th & 6th Floors, Building 8, Raheja Mind Space, Pocharam, Hyderabad - 500088, Andhra Pradesh, Phone: +91 40 6613 4411 Extn: 83100
- Hyderabad - Genpact-India: HYBD Uppal, 14-45, IDA Uppal Opp. NGRI Habsiguda, Hyderabad - 500039, Andhra Pradesh, Phone: +91 40 6611 4411, Fax: +91 40 6611 4614
- Hyderabad - Genpact-India: HYBD Phoenix, M/s. Phoenix Tech Tower Private Limited, 2nd Floor, Plot No. 14/46, IDA Uppal, Habsiguda, Hyderabad - 500039, Andhra Pradesh
- Jaipur - Genpact-India: Jaipur - JLN, Jawaharlal Nehru Marg, Malviya Nagar, Near Venkateshwara Temple, Jaipur - 302017, Rajasthan, Phone: +91 141 409 2008, Fax: +91 141 409 2345
- Jaipur - Genpact-India: Jaipur - Sitapura, E-145/146, Sitapura Industrial Area, Tonk Road, Jaipur - 302022, Rajasthan, Phone: +91 141 4058007

- Jodhpur - Genpact-India: Cyber Park - RIICO Industrial Area, 4th Floor, Cyber 7, Cyber Park, RIICO Heavy Industrial Area, Near Saras Dairy, Jodhpur - 342003, Rajasthan, Phone: +91 8929315716
- Kolkata - Genpact-India: Kolkata - Imagine Tech Park, Plot no 6, DP Block, Sector - V, Salt Lake, Kolkata - 700 091
- Madurai - Genpact, Swami Vivekananda Nagar, Plot No:3, 120 Feet Road, Swami Vivekanandha Nagar, K.Pudur Po, Madurai - 625007, Tamil nadu
- Mumbai - Pharmalink Consulting Mumbai, 7th Floor – Tower II, The Raiaskaran Tech Park, Andheri-Kurla Road, Sakinaka, Andheri (east), Mumbai-400072, Phone: +91 22 6143 7777
- New Delhi - Genpact-India: New Delhi, 12 A, Ground Floor, Prakash Deep Building, 7 Tolstoy Marg, New Delhi - 110001
- Noida - Capital Markets-India: Noida - D-4, Sector 59, Noida 201307, Uttar Pradesh, Phone: +91 120 4074000, Fax: +91 120 4075999
- Noida - Genpact-India: Noida - Unitech SEZ, Candor InfoSpace, Tower 8, Plot No. 20 & 21, Sector – 135, Noida - 201301, Uttar Pradesh, Phone: 0120 4819600
- Noida - Genpact-India: Noida - Stellar - M/S Osprey E commerce pvt ltd, Plot 5&6, Sector-135, Dist Gautam Budh Nagar, Noida
- Noida - Genpact-India: Noida - Assotech, Tower 5, Plot 22, Sector 135, Noida 201305
- Pune - Rage-India: Pune, Rage Frameworks India Private Limited, Nyati Tech Park, First Floor, Wing A and Wing B Survey No. 9/2/10/1/2/3/5 Nyati Tech Park, Wadgaon sheri, Pune, Maharashtra 411014, Phone: +91-20-4141-3000/3001
- Warangal - Genpact, Incubation Cntr, Hanamkonda, Telangana, 50-Survey no. 1596, 1703/1 of Madikonda village, Ground and First floor, Plot no.1, Phase I in IT incubation centre, Warangal, Telangana, Warangal, 506002

### 1.6.3 JAPAN

- Tokyo – Genpact Japan: 9F Marunouchi Kitaguchi Building, 1-6-5, Marunouchi, Chiyoda-ku, Tokyo 100-0005, Phone: +81 3 6688 7306
- Tokyo - Genpact Consulting (Headstrong): 9F Marunouchi Kitaguchi Building, 1-6-5, Marunouchi, Chiyoda-ku, Tokyo 100-0005, Phone: +81 3 6688 7306
- Tokyo - Genpact Japan Business Services: 9F Marunouchi Kitaguchi Building, 1-6-5, Marunouchi, Chiyoda-ku, Tokyo 100-0005, Phone: +81 3 6688 7306
- Yokohama - Genpact Japan: 1-1, Takashima 1-chome, Nishi-ku Yokohama-shi, Kanagawa 220-8686, Phone: +81 45 523 5464

### 1.6.4 MALAYSIA

- Kuala Lumpur: 2nd Floor, Quill 9, 112, Jalan Semangat, Seksyen 19, 46300 Petaling Jaya, Selangor, Phone: +60 379338200

### 1.6.5 PHILIPPINES

- Bataan: 3F Vista Mall Bldg., Barangay, Cupang, Balanga City, Bataan, Phone: +63 792 2709
- Manila: G/F 5132 bldg., Northgate Cyberzone, Alabang, Muntinlupa City, Phone: +63 2792 2702
- Manila: 12/F One Cyberpod Centris bldg., Eton Centris, Edsa cor. Quezon Ave., Quezon City, Phone: +63 2792 2700, Pin: 76001

### 1.6.6 SINGAPORE

- Singapore: 30/F Singapore Land Tower, 50 Raffles Place, Singapore 048623, Phone: +65 66323455

### 1.6.7 LATIN AMERICA

#### 1.6.7.1 COSTA RICA

- Heredia: Lagunilla, Ultra Park II, Building 4, Phone: 506-60189954

#### 1.6.7.2 BRAZIL

- Brasil: Avenida Cesario Alvim, 5606, Granja Marileusa, Uberlândia-MG / Brasil, Cep: 38406-633

#### 1.6.7.3 GUATEMALA

- Guatemala City: Avenida Petapa 40, calle 40-35, Zona 12, Guatemala City, Phone: 502 2501 2700, Fax: 502 2501 2790

#### 1.6.7.4 MEXICO

- Juarez: Av. Hermanos Escobar #7651 Col. Partido Escobedo Parque Ind. Omega, Cd. Juarez, Chih. 32330, Phone: +52 656 680 0350, +1 915 225 2500 (US)
- Guadalajara: Avenida Acueducto 6075 A, Puerta de Hierro, Zapopan, Jalisco, CP 48116, +52 33 1493 3200
- Monterrey: Blvd. Diaz Ordaz KM333 Col. Unidad San Pedro, San Pedro Garza Garcia N.L., CP 66215

### 1.6.8 MIDDLE EAST

#### 1.6.8.1 EGYPT

- Cairo: Plot 44 Tesseen, El Shamaly Street Al Salam Axis First Sector, City Centre, 5th settlement 11835 Cairo

#### 1.6.8.2 ISRAEL

- Netanya: Hamahshev St 1, (Entrance C, 3rd Floor) Poleg IZ, Netanya 4250711, Phone: +972 9 8853633

#### 1.6.8.3 TURKEY

- Istanbul: Eski Buyukdere Cad. No.27 Orjin Maslak Is Merkezi 34485 Istanbul

## 1.6.9 NORTH AMERICA

### 1.6.9.1 CANADA

- Toronto, Ontario: 100 King St W, Toronto ON M5X 1A9, Suite 56033, Phone: +1 647-255-3112

### 1.6.9.2 USA

- Atlanta, GA: 8010 Roswell Road, Atlanta, GA, 30350, Phone: +1 678-325-5010
- Atlanta, GA: Atlanta Galleria Office Tower #100, 100 Galleria Parkway, Atlanta, GA 30399
- Bentonville, AR: 2600 NE 11th Street, Bentonville, AR 72712, Phone+1 267-649-9600
- Chicago, IL: 233 N Michigan Avenue, Two Illinois Center, Suite# 1440, 14th Floor, Chicago IL - 60601
- Danville, IL: 1901 E Voorhees Rd., Danville, IL 61834, Phone: +1 217 554 8000
- Jacksonville, FL: 6737 Southpoint Drive South, Jacksonville, FL 32216, Phone: +1 940-945-6086
- Milpitas, CA: 1551 McCarthy Blvd. Suite 207, Milpitas, CA 95035
- New York: 521 5th Ave, 14th Floor, New York, NY 10175
- Portland, OR: Tiffany Center 1410 SW Morrison Street, Portland, Suite 700 OR, 97205
- Richardson, TX: 3300 E Renner Road Richardson, TX 75082, Phone: +1469-917-2722 Ext. 7861099
- Wilkes-Barre, PA: 335 New Commerce Blvd., Wilkes-Barre, PA 18706, Phone: +1 570 825 6191

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- Melbourne: Level 8, 369 Royal Parade, Parkville, Victoria 3052
- Sydney: Suite 3.01, Level 3, 55 Clarence Street, SYDNEY NSW 2000, Phone: +61 2 8297 7700

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### 1.6.11.2 ITALY

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- Kraków: Opolska 112 Street, O3 Business Campus, 31-323 Krakow, Phone:  
+48 12 443 6000
- Lublin: Zana Center, 16-18 Witosa Street, Lublin, Phone: +48 81 4696313

### 1.6.11.7 PORTUGAL

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## 1.6.12 REPUBLIC OF IRELAND

- Dublin: Ten, Earlsfort Terrace, Dublin 2, D02 T380

### 1.6.13 ROMANIA

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- Cluj-Napoca: United Business Center One, 64 Teodor Mihali Street, 400591. Phone: +40 372 066 6686; +40 372 066 6685, Pin: 400436, Fax No: +40 21 304 4485
- Iași: United Business Center 5, 27 Sfântul Lazăr Street, 700259, ground floor. Phone: +40 726 322 817

### 1.6.14 SWITZERLAND

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### 1.6.15 UNITED KINGDOM

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- Manchester: Dovecote House, Old Hall Road, M33 2GS Sale, Greater Manchester

#### 1.6.15.2 Scotland

- Bellshill: Suite 2L, Willow House, Strathclyde Business Park, Bellshill, ML4 3PB

## 1.7 OUR LEADERSHIP

### 1.7.1 Balkrishan "BK" Kalra (President and Chief Executive Officer)

- Balkrishan “BK” Kalra is Genpact’s President and Chief Executive Officer and a member of the company’s board of directors.<sup>[45]</sup>
- BK was appointed to the CEO role in 2024. BK is responsible for accelerating Genpact’s growth to deliver shareholder value and remain an employer of choice. He is known for innovation and delivering impactful transformations that leverage domain expertise, data,



technology, and AI first principles. Genpact has more than 125,000 employees and annual revenues of USD 4.48 billion as of December 31, 2023.

#### 1.7.2 Krista Bessinger (Head of Investor Relations)

- Krista serves as the Head of Investor Relations (IR) for Genpact, where she plays a pivotal role in the development, execution, and oversight of a comprehensive, strategic IR program.<sup>[46]</sup>
- Prior to joining Genpact in 2023, Krista held prominent positions in the IR and Environmental, Social, and Governance (ESG) departments for Twitter. During her tenure at Twitter, she led the company through its initial public offering and led the IR and ESG functions for over nine years, a period culminating in the company's acquisition in 2022.

#### 1.7.3 Caitlin Blewett (Chief Marketing Officer)

- Caitlin Blewett is Genpact's Chief Marketing Officer. In her role, Caitlin is responsible for overseeing all aspects of the company's marketing function, including brand development, go-to-market strategies, digital and regional marketing, communications, and talent marketing. She works closely with business leaders and cross-functional teams to align marketing initiatives to support Genpact's business and growth goals.<sup>[47]</sup>

#### 1.7.4 Sameer Dewan (Global Business Leader, Financial Services)

- Sameer Dewan is the Global Business Leader for Genpact's Financial Services business.<sup>[48]</sup>
- He focuses on leveraging innovative digital strategies to drive significant transformations for these clients, enhancing their technological and operational landscapes. Sameer has been in leadership roles of increasing responsibility at GE and Genpact, and was instrumental in setting up, running, and growing multiple businesses at Genpact. His holistic approach to serving clients, extensive experience across operations, and his expert grasp of digital technologies, have helped him lead large, successful businesses over the years.

#### 1.7.5 Vipin Gairola (Global Operating Officer).

- In this role, Vipin is responsible for all Genpact's global operations, client service delivery across operations, and digital and technology services. A key part of his leadership role is driving continuous improvement and agility, increasing efficiency in the company's growing operations, and optimizing data, AI, and technology enablement.

#### 1.7.6 Piyush Mehta (Chief Human Resources Officer and Country Manager for India).

- Piyush leads Genpact's global Human Resources (HR) function and plays an integral role in the company's ongoing journey to be an employer of choice. Piyush is also responsible for representing Genpact with key India stakeholders.<sup>[49]</sup>

#### 1.7.7 Anil Nanduru (Global Business Leader for Genpact).

- In this role, Anil serves major clients across these industries, supporting them in their transformation journeys, and driving innovation at the intersection of AI, data, and new-age technologies.
- Anil also established and built Genpact's businesses in the key markets of Japan and Germany.

#### 1.7.8 Vidya (Chief Technology and Transformation Officer).

- Leading Genpact's internal digital transformation processes, Vidya is at the forefront of reimagining Genpact's suite of tools, technologies, and infrastructure to further the company's AI-first approach. In this role, she is responsible for establishing a world-class data office to drive insights, support AI and automation initiatives effectively, and shape the company's functions for the future.

#### 1.7.9 Sanjay Srivastava (Chief Digital Strategist).

- Sanjay works exclusively with Genpact's senior client executives and ecosystem technology leaders to mobilize digital transformation at the intersection of cutting-edge technology, data strategy, operating models, and process design. Sanjay's work informs the company's innovation programs and technology initiatives, and the digital strategies and transformation practices it applies across the industries it serves globally.

#### 1.7.10 Riju Vashisht (Chief Growth Officer)

- In her position, Riju plays a pivotal role in advancing Genpact's growth trajectory. Her responsibilities include expanding strategic client relationships, championing Genpact's AI-First strategy through core services including finance and accounting, order management, supply chain, and risk, and orchestrating innovative joint solutions that drive business outcomes for clients through technology partners and strategic alliances.

#### 1.7.11 Mike Weiner (Chief Financial Officer).

- In this role, Mike supports the company's strategic growth initiatives, driving the company's financial performance and shareholder value.
- Mike is a seasoned finance executive. He joined Genpact in August 2021 from National General Holdings Corp., a specialty insurance company where he served as chief financial officer and treasurer.

#### 1.7.12 Meg Van Winkle (Chief of Staff to the CEO).

- Meg Van Winkle is the Chief of Staff to the CEO at Genpact, where she drives key strategic initiatives pivotal to the company's business goals. She collaborates with major internal and external stakeholders to foster strategic, growth-focused engagement and leads the Office of the CEO.

#### 1.7.13 Heather White (Chief Legal Officer).

- In this role, she leads all legal, compliance, and corporate governance functions for Genpact. She brings more than 20 years of broad legal experience to the company. Heather is also the global leader of Corporate Responsibility and Diversity, Equity, and Inclusion at Genpact.

## 1.8 SERVICES

### 1.8.1 Artificial Intelligence Solutions

- Genpact offers AI and machine learning solutions tailored to diverse industries, addressing challenges in identifying high-ROI AI use cases and ensuring informed decision-making at scale. Their technology-agnostic approach, coupled with governance models, guarantees data integrity and unbiased insights. From advisory services to full-stack AI implementation, Genpact enables seamless integration of AI into business processes, driving growth and outcomes swiftly. With a responsible AI framework and a robust partner ecosystem, they empower organizations to transform data into actionable insights. With over 20 years of industry expertise and a global team of 22,000+ specialists, Genpact is poised to lead AI-driven innovation for businesses worldwide.

### 1.8.2 Intelligent automation

- At Genpact, we see automation as more than just productivity enhancement—it's about business innovation. Through our intelligent automation consulting, we help clients retain talent, drive growth, cut costs, and manage risk. With our expertise in AI and RPA, backed by a strong partner network, we empower businesses across industries to thrive by creating exceptional experiences for employees and customers. Trusted by leading companies globally, we're here to guide you on your path to becoming an autonomous enterprise.

### 1.8.3 Cloud services

- Genpact leverages its extensive experience in managing operations for large enterprises to offer expert cloud transformation services. Partnering with industry leaders like Microsoft Azure, AWS, and Google Cloud, we develop tailored cloud solutions for diverse needs. Let us guide you through cloud migration and modernization, ensuring seamless integration and driving digital transformation while maximizing productivity and customer satisfaction.

### 1.8.4 Customer care

- As customer expectations soar and technology drives hyper-personalization, companies are reshaping customer care. Genpact leads this evolution, using data and advanced tech to shift from reactive to proactive service. Our solutions tailor customer journeys, empower agents, and foster man-machine collaboration, anticipating needs and responding swiftly. With over 20 years of experience, we've transformed customer service globally. Our team of 22,000+ experts pioneers innovation, leveraging advanced technologies like generative AI to automate tasks and enhance the customer experience.

### 1.8.5 Data analytics solutions

- Genpact harnesses the power of data for digital transformation, empowering enterprises to enhance customer value and achieve sustainable growth. With expertise in data, technology, and AI, we build robust data foundations on the cloud, driving unparalleled outcomes. Our global team of over 10,000 data specialists transforms data into actionable intelligence, enabling organizations to focus on value creation and innovate with confidence.

#### 1.8.6 Customer Experience Management services

- Genpact specializes in customer experience transformation. Our services integrate people, processes, data, and technology to attract and retain customers effectively. Teaming up with Rightpoint, we map customer and employee journeys using advanced data and analytics, fostering deeper connections across your business.

#### 1.8.7 Finance transformation services

##### 1.8.7.1 Accounts Payable Services

- As CFOs shift towards innovation and growth, Accounts Payable (AP) evolves into a strategic driver of profit. With businesses facing volatility, streamlined AP processes are crucial for financial resilience and supplier relations. AP teams must prioritize agility, automation, and data-driven insights, leveraging advanced technologies like generative AI.
- Genpact facilitates AP digital transformation, standardizing and automating processes to deliver strategic business value.

##### 1.8.7.2 Enterprise Performance Management (EPM)

- With inflation and supply chain disruptions prompting FP&A leaders to adopt predictive and agile planning, Genpact steps in to transform EPM, including FP&A, into strategic business partners. We establish an EPM center of excellence, embedding predictive intelligence into reporting, financial planning, and analysis. Our expertise in EPM, coupled with digital and analytics capabilities, enables timely decision-making based on actionable insights. Through a consulting-led approach and proven transformation frameworks, we drive world-class EPM solutions.

##### 1.8.7.3 Finance and accounting consulting services.

- Genpact's accounting and finance consulting services empower CFOs to transform finance functions into strategic partners. We assist in reimagining operating models, streamlining processes, and providing intelligent insights. Leveraging our finance knowledge, digital technologies, analytics, and

transformation frameworks, businesses can build and operate world-class finance organizations poised for the future.

#### 1.8.7.4 Recalibrate invoice to cash.

- Genpact's transformation services enable businesses to build agile and future ready I2C functions. By leveraging functional expertise, automation, and AI, we streamline processes, transactions, and unlock predictive intelligence to add greater value.

#### 1.8.7.5 Reimagine your record to report (R2R) process.

- Genpact employs design thinking and extensive finance expertise to help CFOs rethink record-to-report (R2R) operations. Leveraging intelligent automation, AI, and predictive analytics, we transform R2R processes for real-time reporting. This results in faster, more agile, and error-free book closings, enhancing compliance and decision-making capabilities.

### 1.8.8 Risk and Compliance

#### 1.8.8.1 Financial risk management

- In today's financial landscape, managing risk is complex. Genpact works with financial institutions to address challenges like credit risk management, regulatory compliance, and customer remediation. Our solutions enhance decision-making, ensure compliance, and drive growth.

#### 1.8.8.2 Enterprise risk management and compliance services

- As businesses expand globally, compliance becomes more complex. Genpact offers compliance risk consulting and digital transformation services to ensure anti-bribery and anti-corruption programs meet evolving laws. We help mitigate risks efficiently for business continuity.

#### 1.8.8.3 Financial crime risk management

- Genpact helps financial firms stay ahead of financial crime with our end-to-end FCRM solutions. Leveraging ex-regulators, industry experts, and data scientists, we prevent, detect, and reduce fraud risks efficiently.

#### 1.8.9 Sales and commercial services

- Genpact's sales and commercial team helps companies drive profitable growth by rethinking traditional models, embracing data-driven strategies, and prioritizing customer-centric experiences. Leveraging industry expertise and advanced technologies, we enhance revenue through improved customer identification, conversion, and loyalty.

#### 1.8.10 Sustainability services

- Genpact partners with businesses to accelerate their sustainability journeys, integrating ESG principles holistically and leveraging advanced technology solutions. Through measurement and analytics, we enable businesses to track progress and demonstrate the value of their sustainability efforts. Our expertise empowers companies to drive meaningful, sustainable progress for both their businesses and the world.

#### 1.8.11 Sourcing and procurement

- Genpact's sourcing and procurement team empowers organizations to navigate complex challenges such as inflation and supply chain disruptions. We drive down costs, manage supplier risks, optimize cash flow, foster innovation, and enhance supplier relations. Leveraging domain expertise and advanced technology, we enable seamless source-to-pay processes, contributing to ESG goals and building resilience against economic volatilities.

#### 1.8.12 Supply chain management

- Genpact empowers businesses to excel in today's complex supply chain landscape. Leveraging industry expertise, advanced digital technologies like generative AI, and data-driven solutions, we enhance supply chain performance. Our services ensure end-to-end visibility and optimize returns from existing technology investments. With over 20 years of consulting experience and a robust partner network, we collaborate with global leaders to design, transform, and manage their supply chains effectively.



### 1.8.13 Technology services

#### 1.8.13.1 Application and Infrastructure Modernization Services

- Genpact's application integration and modernization services ensure organizations protect their technology investments while leveraging emerging technology. Despite the challenges of modernization, such as complex inputs and lengthy development cycles, we help clients succeed with next-gen infrastructure. With industry expertise and a strong partner network, we enable clients to innovate with cloud and automation, becoming cloud-native, accelerating app development, and improving APIs and microservices architecture—all while aligning with business objectives and strategic priorities.

#### 1.8.13.2 Enterprise applications

- Genpact streamlines enterprise applications, offering solutions from Oracle to Salesforce to SAP to ServiceNow. We help modernize processes, develop SaaS offerings, and create intelligent workflows for a competitive edge.

### 1.8.14 Trust and safety

- Genpact prioritizes trust and safety in the online world, offering industry-specific expertise and tailored operating models to ensure operational safety at scale. We address evolving threats through deep knowledge and robust measures across all integrated platform functions. Our focus on regulatory compliance in all regions helps mitigate legal risks, avoid fines, and enhance brand reputation. Through innovation and specialized services, Genpact supports companies in digital operations, specialized services, and the development of trust and safety products.

## 1.9 OBJECTIVES

### 1.9.1 Digital Transformation

- In today's digital age, businesses must adapt to new technologies to remain competitive. Genpact aims to assist businesses in leveraging digital technologies such as artificial intelligence, machine learning, automation,

and cloud computing to transform their operations. This transformation involves digitizing processes, optimizing workflows, and enhancing customer experiences to drive innovation and stay ahead of the curve.

#### 1.9.2 Operational Excellence

- Genpact focuses on optimizing business processes to improve efficiency and reduce costs for its clients. By leveraging its expertise in business process management (BPM), analytics, and automation, Genpact helps organizations streamline operations, eliminate inefficiencies, and achieve operational excellence. This not only improves productivity but also enhances the overall performance and agility of the business.

#### 1.9.3 Customer Success

- Customer satisfaction is paramount for any business's success. Genpact is committed to understanding its clients' unique needs and delivering tailored solutions that meet or exceed their expectations. By providing superior customer experiences, Genpact ensures high levels of satisfaction and fosters long-term relationships with its clients.

#### 1.9.4 Innovation and Thought Leadership

- In a rapidly changing business landscape, innovation is key to staying ahead of the competition. Genpact invests in research and development, fosters a culture of creativity and collaboration, and shares insights and best practices with its clients and partners. By staying at the forefront of industry trends and thought leadership, Genpact helps drive innovation and deliver value-added solutions to its clients.

## **1.10 SCOPE**

### **1.10.1 Industry Focus**

- Genpact serves clients across a wide range of industries, including banking and financial services, insurance, healthcare, life sciences, manufacturing, retail, consumer goods, technology, and telecommunications. This diverse industry focus allows Genpact to apply its expertise and experience across different sectors, addressing unique challenges and opportunities in each industry.

### **1.10.2 Global Presence**

- With a presence in over 30 countries and delivery centers across the world, Genpact offers its services to businesses operating in diverse geographic regions. This global presence enables Genpact to provide localized support and tailored solutions to clients worldwide, regardless of their location or size.

### **1.10.3 Comprehensive Service Portfolio**

- Genpact offers a comprehensive portfolio of services spanning digital transformation, BPM, analytics, finance and accounting, customer experience management, risk and compliance management, and more. This broad range of services allows Genpact to address various aspects of its clients' businesses and provide end-to-end solutions to meet their needs.

### **1.10.4 Client-Centric Approach**

- Genpact takes a client-centric approach to its engagements, working closely with each client to understand their specific challenges, goals, and objectives. By collaborating closely with clients, Genpact delivers customized solutions that address their unique needs and drive tangible business outcomes.

### **1.10.5 Partnerships and Ecosystem**

- Genpact collaborates with technology partners, industry experts, academia, and other stakeholders to create value-added solutions and drive innovation. By leveraging its partnerships and ecosystem, Genpact expands its service

offerings and delivers cutting-edge solutions that meet the evolving needs of its clients.

Overall, the objective and scope of Genpact encompass a broad range of activities aimed at helping businesses achieve their strategic objectives, drive growth, and succeed in today's digital age. Through its focus on digital transformation, operational excellence, customer success, innovation, and a comprehensive service portfolio, Genpact delivers value-added solutions and drives business success for its clients worldwide.

## CHAPTER 2

### 2.1 INTERNSHIP EXPERIENCE:

During my enriching internship journey at Genpact, I delved into a multifaceted array of tools and platforms that are pivotal in the realm of data analytics and management. Harnessing the power of Microsoft Power BI, SQL, MS Excel, MS Power Apps, and SAP, I navigated through diverse datasets, leveraging their capabilities to extract valuable insights and drive informed decision-making processes. Through hands-on experience and rigorous training sessions, I honed my skills in crafting dynamic dashboards within Power BI, enabling me to distill complex datasets into actionable visualizations, thus empowering stakeholders with profound insights derived from raw data.

Moreover, my internship tenure provided me with invaluable exposure to SAP Master Data Management (MDM) solutions, spanning across Customer MDM, Vendor MDM, and Material MDM modules. By immersing myself in these domains, I not only gained a comprehensive understanding of how MDM frameworks operate but also acquired practical insights into their strategic significance within different industries. This firsthand experience was further augmented by training sessions and in-depth discussions on Data Engineering Services, Data Visualization, and MDM Governance/Quality/Data Cleansing methodologies.

In addition to technical skills development, my internship journey at Genpact encompassed immersive account overviews, particularly within the healthcare industry and life sciences sector. These sessions served as invaluable opportunities to witness firsthand how MDM principles are intricately woven into the fabric of industry operations, ensuring data integrity, compliance, and operational efficiency. Engaging with senior teams, I gleaned insights into the practical applications of MDM solutions, gaining a holistic understanding of their role and impact within organizational ecosystems.

Furthermore, my pursuit of excellence extended beyond practical applications, as I embarked on a journey of continuous learning and professional development through Genpact Genome certifications. These certifications, including Business Analyst, Executive Presence, Data Visualization Certificate, and Storytelling, not only validated my skill set but also enriched my understanding of industry best practices and emerging trends. They served as testament to my commitment to personal and professional growth, equipping me with a diverse skill set that is poised to drive meaningful impact in the realm of data analytics and management.

In essence, my internship experience at Genpact was a transformative journey characterized by immersive learning, practical application, and professional growth. Through exposure to cutting-edge tools, hands-on experience with MDM solutions, and interactive sessions with industry experts, I emerged equipped with a holistic understanding of data management principles and their real-world applications. This experience not only solidified my passion for data analytics but also instilled in me a profound appreciation for the pivotal role of MDM in driving organizational success in today's data-driven landscape.

## **2.2 TOOLS AND TECHNOLOGY**

### **2.2.1 Microsoft Power BI:**

Microsoft Power BI is a powerful business analytics tool developed by Microsoft. It empowers users to visualize and analyze data from various sources to gain valuable insights into their business processes. With Power BI, users can connect to a wide range of data sources including databases, spreadsheets, cloud services, and streaming data sources, enabling them to consolidate and transform raw data into interactive visualizations and reports.

Key features of Microsoft Power BI include:

- **Data Connectivity:** Power BI offers seamless connectivity to a multitude of data sources, allowing users to import, transform, and combine data from disparate sources into a single coherent dataset.
- **Data Visualization:** Users can create rich and interactive visualizations such as charts, graphs, maps, and tables to represent their data in a visually appealing and insightful manner.
- **Dashboards and Reports:** Power BI enables users to create interactive dashboards and reports that provide a holistic view of their business metrics and KPIs, facilitating data-driven decision-making.
- **AI-Powered Insights:** Power BI leverages artificial intelligence and machine learning capabilities to automatically identify trends, patterns, and anomalies within the data, empowering users to uncover hidden insights and make informed decisions.

- Collaboration and Sharing: Power BI facilitates collaboration among teams by allowing users to share dashboards and reports with colleagues, partners, and clients securely, ensuring that everyone has access to the latest insights.

Overall, Microsoft Power BI is a versatile and intuitive tool that empowers organizations to harness the power of their data and drive better business outcomes through data-driven decision-making.

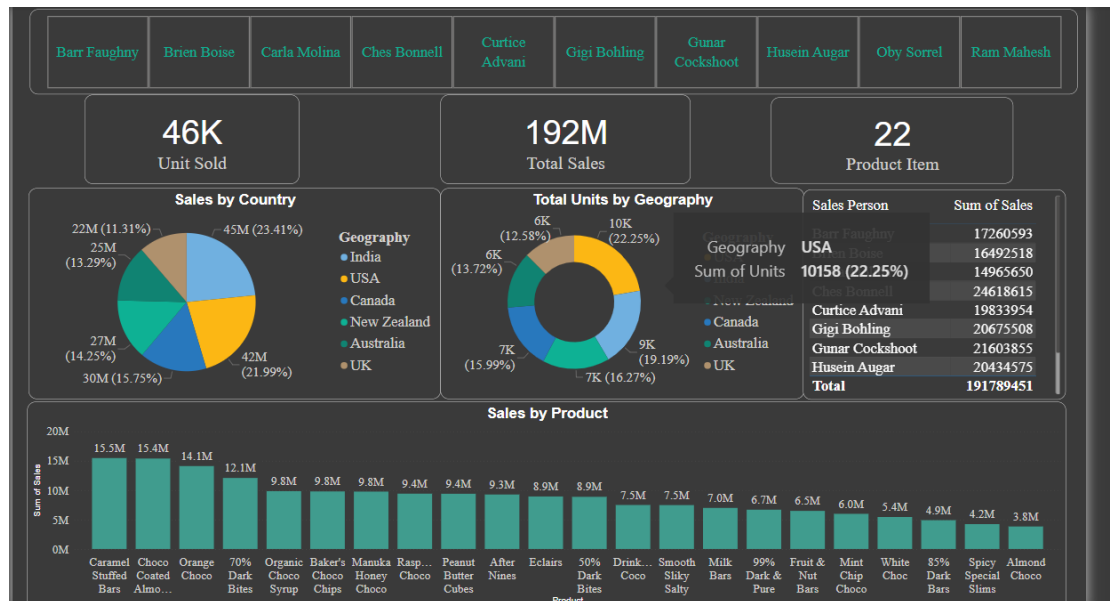


Figure 1: Sales Dashboard

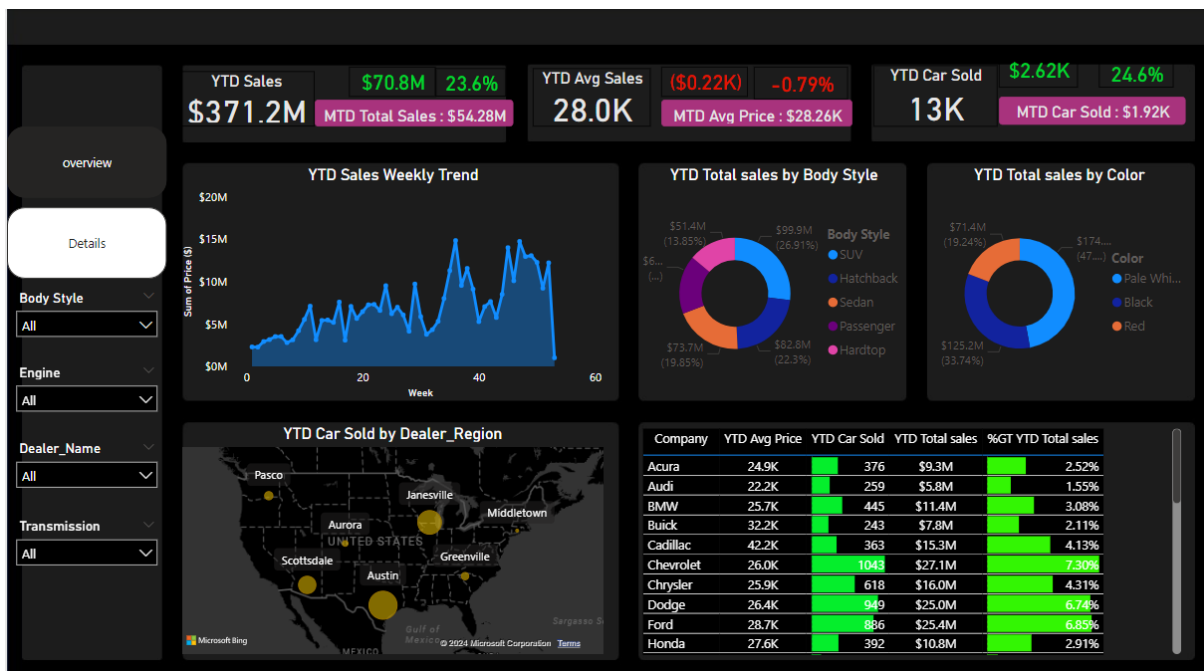


Figure 2: Product SalesDashboard

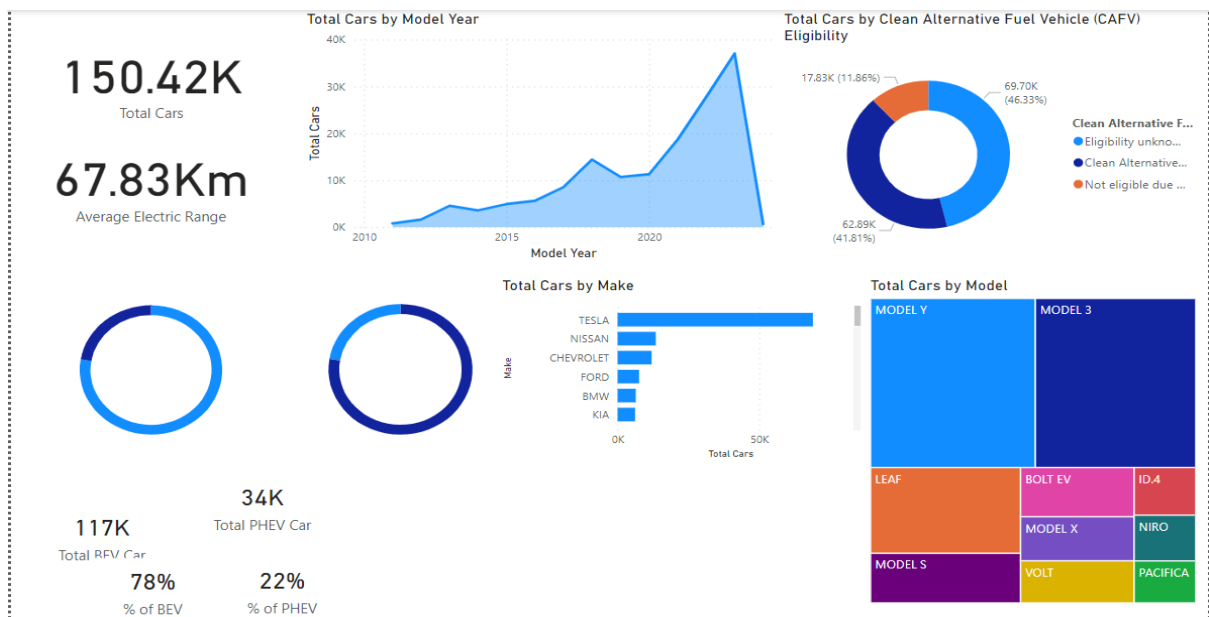


Figure 3: Cars Sales Dashboard





Figure 4: New Car Sales Dashboard

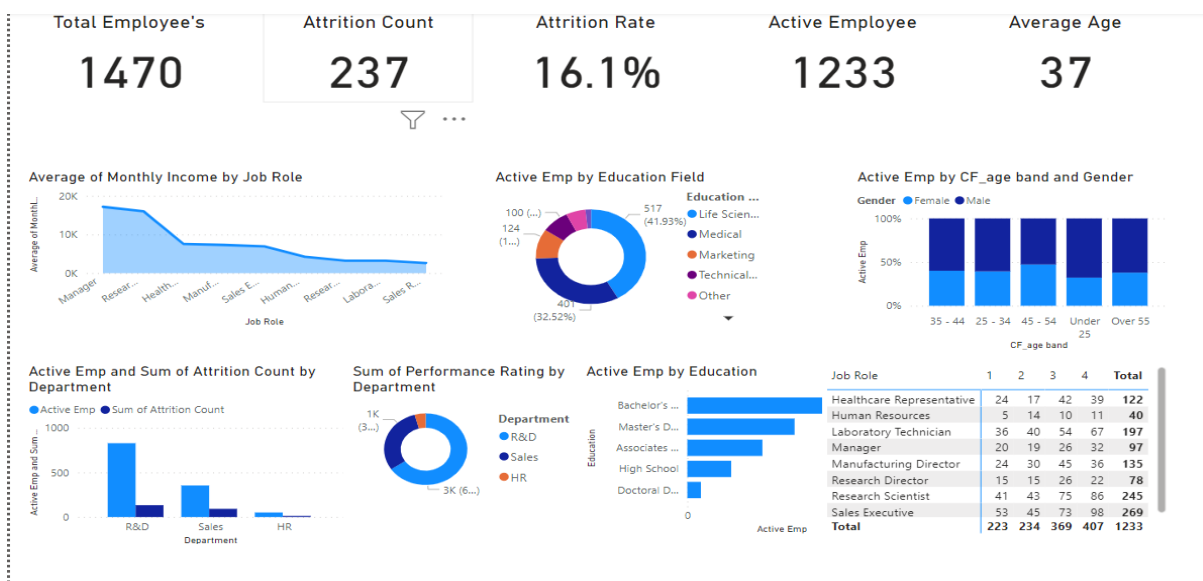


Figure 5: Employee Dashboard

### 2.2.2 SQL (Structured Query Language)

SQL is a powerful programming language used for managing and querying relational databases. In the realm of data analytics, SQL plays a crucial role in extracting, manipulating, and analysing data to derive valuable insights and make informed decisions.

Key aspects of SQL in data analytics and Master Data Management (MDM) include:

- **Data Retrieval:** SQL allows users to retrieve data from databases using queries. These queries can be tailored to filter, sort, and aggregate data based on specific criteria, enabling users to extract the information they need for analysis.
- **Data Manipulation:** SQL provides commands for manipulating data within databases. Users can insert new data, update existing records, or delete data based on their requirements. This flexibility allows for efficient data management and maintenance.
- **Data Analysis:** SQL supports various analytical functions and operations, such as aggregating data, calculating summary statistics, and performing calculations. These capabilities enable users to perform complex data analysis tasks directly within the database environment.
- **Data Integration:** In the context of Master Data Management (MDM), SQL is used to integrate and manage master data across disparate systems and applications. By leveraging SQL's capabilities, organizations can ensure the consistency, accuracy, and integrity of master data, regardless of its source or location.
- **Data Quality:** SQL can also be used to enforce data quality rules and standards within databases. By implementing data validation checks and constraints using SQL, organizations can maintain high data quality standards and prevent inconsistencies or errors in master data.

Overall, SQL is a fundamental tool in the fields of data analytics and Master Data Management. Its versatility, efficiency, and robust capabilities make it an essential tool for managing and analysing data effectively, driving insights, and supporting decision-making processes within organizations. Certainly! Here's a brief introduction to Microsoft Excel:

### 2.2.3 Microsoft Excel

Excel is a widely used spreadsheet application developed by Microsoft. It is part of the Microsoft Office suite and is commonly used for various tasks including data analysis, calculation, reporting, and visualization.

Key features of Microsoft Excel include:

- **Grid Interface:** Excel's interface consists of a grid of rows and columns, where users can enter and manipulate data. Each cell in the grid can contain text, numbers, formulas, or functions.
- **Formulas and Functions:** Excel allows users to perform calculations using formulas and functions. Formulas can be entered into cells to perform mathematical operations, while functions are predefined formulas that perform specific tasks.
- **Data Analysis Tools:** Excel offers a range of data analysis tools, including sorting, filtering, and pivot tables, which enable users to analyze and summarize large datasets efficiently.
- **Charts and Graphs:** Excel allows users to create various types of charts and graphs to visualize data trends and patterns. Users can customize the appearance and formatting of charts to convey information effectively.
- **Data Import and Export:** Excel supports importing data from external sources such as databases, text files, and web pages. Users can also export data to different file formats for sharing and collaboration purposes.
- **Collaboration and Sharing:** Excel facilitates collaboration among users by allowing multiple users to work on the same workbook simultaneously. Users can also share workbooks via email or cloud storage services for real-time collaboration.

Overall, Microsoft Excel is a versatile and powerful tool that is widely used in businesses, educational institutions, and other organizations for data management, analysis, and reporting purposes. Its intuitive interface and rich feature set make it an essential tool for professionals across various industries.

#### 2.2.4 Microsoft Power Apps

- **Power Apps** enables users to create custom business applications using a low-code/no-code approach.
- With **Power Apps**, users can build apps for a variety of purposes, including data collection, task management, and workflow automation.
- **Power Apps** provides a range of templates and pre-built components that users can customize to suit their specific business needs.

- The platform offers integration with various data sources, including Microsoft 365, SharePoint, Dynamics 365, and external databases, allowing users to leverage existing data assets within their applications.
- Power Apps empowers organizations to streamline business processes, improve productivity, and drive innovation by enabling users to build tailored solutions quickly and easily.

#### 2.2.5 Microsoft Power Automate

- Power Automate allows users to automate repetitive tasks and workflows across multiple applications and services.
- With Power Automate, users can create automated workflows, known as flows, by defining triggers, actions, and conditions to govern the flow of data and information.
- Power Automate integrates with a wide range of Microsoft and third-party applications, enabling seamless data exchange and process automation.
- The platform offers a variety of pre-built templates and connectors to simplify the creation of automated workflows for common use cases.
- Power Automate helps organizations streamline business processes, reduce manual effort, and increase efficiency by automating routine tasks and enabling seamless data integration across disparate systems.

In summary, Microsoft Power Apps and Power Automate are powerful tools that empower users to build custom applications and automate business processes, enabling organizations to drive digital transformation, increase productivity, and accelerate innovation with minimal coding expertise required.

#### 2.2.6 SAP

SAP, which stands for System Applications and Products, is an incredibly large and extensive software package designed to manage a company's business processes. These standard software packages are configurable to meet the specific needs of a company, ensuring that they align with the unique operational requirements of the organization. As a robust database program, SAP performs essential functions such as input, storage/retrieval, manipulation, and output of data, providing a comprehensive solution for managing and optimizing business operations.

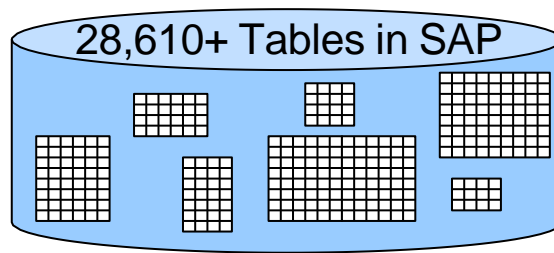


Figure 6: Tables in SAP

The big ERP vendors in the market include SAP, Oracle/PeopleSoft/J.D. Edwards (J.D. Orisoft), and Microsoft Great Plains. SAP, often referred to as the German juggernaut, stands for System, Anwendungen, Product in der Datenverarbeitung, or Systems, Analysis and Products in Data Processing. It is a widely implemented system, used in at least nine out of ten Fortune 500 companies. Microsoft Great Plains targets smaller companies, while SAP Business One is a competing product in this space. Despite its complexities, SAP remains a leading choice for enterprise resource planning solutions.

SAP Modules:

#### 2.2.6.1 SAP FI (Financial Accounting)

SAP FI (Financial Accounting) is a core module in SAP ERP that helps organizations manage their financial transactions and accounting processes effectively. It ensures compliance with external reporting standards and provides the necessary information for internal and external stakeholders. Below is a detailed explanation of the various components and functionalities within the SAP FI module:

##### General Ledger (G/L) Accounting

- Overview: Central repository for all accounting data. It contains all the ledger accounts and their respective balances.

##### Features

- Chart of Accounts: A structured list of all G/L accounts used by the company.
- Posting: Recording financial transactions to appropriate G/L accounts.
- Reconciliation Accounts: Ensures real-time integration with sub-ledgers like Accounts Receivable and Accounts Payable.

- Financial Statements: Preparation of balance sheets and profit & loss statements.

#### Accounts Receivable (AR)

- Overview: Manages customer accounts and processes incoming payments.

#### Features:

- Customer Master Data: Central repository for customer information, including credit management and payment terms.
- Invoice Processing: Creation and management of customer invoices.
- Payment Processing: Handling customer payments and receipts.
- Dunning: Automated reminder and collection process for overdue receivables.
- Credit Management: Monitoring and managing customer credit limits.

#### Accounts Payable (AP)

- Overview: Manages vendor accounts and processes outgoing payments.

#### Features:

- Vendor Master Data: Central repository for vendor information.
- Invoice Verification: Ensures that vendor invoices are accurate and match purchase orders.
- Payment Processing: Handling vendor payments.
- Automatic Payment Program (APP): Streamlines and automates the payment process.
- Withholding Tax: Calculation and management of tax withheld from vendor payments.

#### Asset Accounting (AA)

- Overview: Manages fixed assets of an organization throughout their lifecycle.
- Features:
- Asset Master Data: Detailed information on each asset, including acquisition date, cost, and depreciation method.
- Depreciation: Calculation of asset depreciation using various methods (e.g., straight-line, declining balance).
- Asset Transactions: Handling acquisitions, retirements, transfers, and adjustments.

- Asset Reporting: Comprehensive reporting on asset valuations and depreciation.

#### Bank Accounting

- Overview: Manages all bank transactions, including bank reconciliations.
- Features:
- Bank Master Data: Information about bank accounts used by the organization.
- Electronic Bank Statement (EBS): Automatic import and reconciliation of bank statements.
- Cash Journal: Recording and managing petty cash transactions.
- Bank Reconciliation: Ensuring that bank statements match the internal records.

#### Travel Management

- Overview: Manages business travel expenses.
- Features:
- Travel Planning: Booking and managing travel arrangements.
- Expense Reporting: Submission and processing of travel expenses.
- Reimbursement: Managing reimbursements for travel expenses.

#### Special Purpose Ledger (SPL)

- Overview: Provides a flexible ledger system for reporting purposes.
- Features:
- Customizable Ledgers: Creation of additional ledgers to meet specific reporting requirements.
- Parallel Accounting: Managing different accounting principles (e.g., IFRS, GAAP) in parallel ledgers.
- Reconciliation: Ensuring consistency between general and special ledgers.

#### Funds Management (FM)

- Overview: Manages budgets and funds to ensure financial control.
- Features:
- Budgeting: Setting up and managing budgets.
- Commitment Management: Monitoring commitments and ensuring they do not exceed budgeted amounts.

- Funds Availability Control: Checking the availability of funds before processing transactions.

#### Financial Supply Chain Management (FSCM)

- Overview: Enhances financial processes and cash flow management.
- Features:
  - Credit Management: Advanced tools for monitoring and managing customer credit.
  - Dispute Management: Handling customer disputes and resolving them efficiently.
  - Collections Management: Streamlining the collection of outstanding receivables.
  - Cash and Liquidity Management: Monitoring and managing the organization's liquidity and cash flow.

#### General Features and Benefits

- Integration: Seamless integration with other SAP modules like SAP CO (Controlling), SAP MM (Materials Management), and SAP SD (Sales and Distribution).
- Reporting and Analytics: Advanced reporting tools for financial analysis and decision-making.
- Compliance and Control: Ensures compliance with legal and regulatory requirements.
- Flexibility: Customizable to meet specific business needs and requirements.
- Scalability: Suitable for businesses of all sizes, from small enterprises to large corporations.

In summary, SAP FI is a comprehensive financial management solution that helps organizations manage their financial operations with accuracy, efficiency, and compliance. Its robust features and seamless integration with other SAP modules make it an essential tool for modern businesses.

#### 2.2.6.2 SAP SD (Sales and Distribution) Module:

The SAP SD (Sales and Distribution) module is a critical component of the SAP ERP system that helps organizations manage their sales processes efficiently. It covers various aspects of sales order processing, from initial inquiries and quotations to order fulfillment and billing.



Below is a brief overview of the main components and functionalities within the SAP SD module:

#### Master Data Management

- Customer Master Data: Contains all relevant information about customers, including contact details, credit limits, and payment terms.
- Material Master Data: Information about products and services, including descriptions, pricing, and availability.
- Pricing Conditions: Defines pricing elements such as discounts, surcharges, and taxes.

#### Sales Order Processing

- Inquiry and Quotation Management: Handling customer inquiries and generating quotations.
- Sales Order Creation: Processing customer orders and converting quotations into sales orders.
- Availability Check: Ensuring that the requested products are available for delivery.

#### Shipping and Delivery

- Delivery Scheduling: Planning and scheduling deliveries based on customer orders.
- Picking and Packing: Managing the picking and packing of goods for shipment.
- Transportation Management: Coordinating the transportation of goods to customers.

#### Billing and Invoicing

- Billing Document Creation: Generating invoices based on deliveries and sales orders.
- Revenue Recognition: Ensuring that revenue is recognized according to accounting principles.
- Credit and Debit Memo Processing: Handling adjustments to billing documents.

#### Sales and Distribution Reporting

- Sales Analysis: Analyzing sales data to identify trends and performance metrics.
- Order Fulfillment Reporting: Tracking the status of orders from processing to delivery.
- Customer Account Management: Monitoring customer accounts, including outstanding invoices and payments.

### Integration with Other Modules

- SAP MM (Materials Management): Integration for managing inventory and ensuring product availability.
- SAP PP (Production Planning): Coordination with production for make-to-order and assemble-to-order scenarios.
- SAP FI (Financial Accounting): Integration for managing billing and financial transactions.
- SAP CO (Controlling): Alignment with cost accounting and profitability analysis.

### Key Benefits

- Improved Efficiency: Streamlined sales processes reduce processing time and errors.
- Enhanced Customer Satisfaction: Better order management and fulfillment improve customer satisfaction.
- Accurate Reporting: Real-time data and comprehensive reporting facilitate informed decision-making.
- Compliance and Control: Ensures compliance with regulatory requirements and internal controls.

In summary, the SAP SD module provides a robust framework for managing the sales and distribution processes of an organization. Its integration with other SAP modules ensures that all aspects of sales, from order processing to billing and delivery, are handled efficiently and effectively.

### 2.2.6.3 SAP WM (Warehouse Management) Module:

The SAP WM (Warehouse Management) module is an essential component of the SAP ERP system designed to manage complex warehouse operations. It provides tools to control and optimize warehouse processes, ensuring efficient storage, retrieval, and movement of goods within the warehouse.

### Master Data Management

- Warehouse Structure: Definition of the warehouse layout, including storage types, storage bins, and sections.
- Material Master Data: Detailed information about materials, including storage and handling requirements.

- **Batch Management:** Management of materials in batches, ensuring traceability and quality control.

#### Inbound Processes

- **Goods Receipt:** Handling the receipt of goods from suppliers or production. Includes verification, quality inspection, and placement into storage bins.
- **Putaway Strategies:** Automated determination of the optimal storage location for received goods, based on predefined rules and criteria.

#### Storage and Inventory Management

- **Storage Control:** Management of the physical storage of goods within the warehouse, including rearrangement and consolidation of stock.
- **Inventory Counting:** Support for cycle counting and physical inventory processes to ensure accuracy of stock levels.

#### Outbound Processes

- **Picking and Packing:** Efficient picking of goods for orders, including wave picking, batch picking, and zone picking strategies. Packing of goods for shipment.
- **Shipping:** Management of the loading and transportation of goods to customers or other warehouses.

#### Internal Warehouse Processes

- **Replenishment:** Automated replenishment of picking areas from bulk storage to ensure stock availability for order fulfillment.
- **Transfer Orders:** Management of internal stock movements, including transfers between storage bins, areas, and warehouses.

#### Integration with Other SAP Modules

- **SAP MM (Materials Management):** Coordination of goods receipts and issues.
- **SAP SD (Sales and Distribution):** Integration for picking, packing, and shipping of sales orders.
- **SAP PP (Production Planning):** Management of material staging for production orders.

- SAP QM (Quality Management): Integration for quality inspections during inbound and outbound processes.

#### Warehouse Activity Monitor

- Monitoring and Alerts: Real-time monitoring of warehouse activities, with alerts for critical issues such as stock discrepancies or delayed orders.
- Performance Analysis: Tools for analyzing warehouse performance metrics, such as throughput, picking accuracy, and storage utilization.

#### Key Benefits

- Improved Efficiency: Streamlined processes for receiving, storing, and shipping goods reduce operational costs and increase productivity.
- Enhanced Accuracy: Accurate inventory management minimizes stock discrepancies and ensures reliable order fulfillment.
- Optimized Space Utilization: Effective management of storage locations maximizes warehouse space usage.
- Real-Time Visibility: Real-time tracking of warehouse activities provides valuable insights for decision-making.

In summary, the SAP WM module offers comprehensive functionality to manage warehouse operations efficiently. Its integration with other SAP modules ensures seamless coordination of warehouse processes with procurement, sales, production, and quality management activities. This results in enhanced operational efficiency, accuracy, and visibility within the warehouse.

#### 2.2.6.4 SAP HANA (High-Performance Analytic Appliance): A Brief Overview

SAP HANA, which stands for High-Performance Analytic Appliance, is an advanced in-memory computing platform developed by SAP. It combines database, data processing, and application platform capabilities in a single system, enabling real-time data analysis and application development.

### In-Memory Computing

- **Real-Time Processing:** Unlike traditional databases that store data on disk, SAP HANA stores data in memory (RAM), allowing for lightning-fast data retrieval and processing.
- **Columnar Storage:** Data is stored in a columnar format rather than rows, optimizing it for analytical queries and enabling significant compression and performance benefits.

### Database Management

- **High Performance:** Designed for high-speed transactions and complex query processing, SAP HANA can handle large volumes of data and perform complex calculations in real-time.
- **Integrated Database Services:** Combines OLAP (Online Analytical Processing) and OLTP (Online Transaction Processing) in a single database platform, reducing data redundancy and improving efficiency.

### Advanced Analytics

- **Predictive Analytics:** Provides built-in tools for predictive modeling and machine learning, enabling users to gain insights from data patterns and trends.
- **Text Analytics:** Capabilities for text mining and processing unstructured data, such as social media content and customer reviews, to extract meaningful information.
- **Graph Data Processing:** Allows analysis of data relationships and hierarchies, useful for network and relationship data analysis.

### Application Development Platform

- **Custom Applications:** Developers can build and deploy custom applications on top of SAP HANA, leveraging its in-memory capabilities for real-time processing.
- **SAP HANA Studio:** An integrated development environment (IDE) for managing and developing applications on the HANA platform.

### Data Integration and Management

- **Data Provisioning:** Tools for extracting, transforming, and loading (ETL) data from various sources into HANA, supporting a wide range of data formats and sources.

- Smart Data Integration (SDI): Seamlessly integrates data from different sources, including cloud and on-premises systems, into the HANA environment for comprehensive analysis.

### Deployment Options

- On-Premises: SAP HANA can be deployed on physical servers within a company's own data center.
- Cloud: Available as a cloud service, providing flexibility and scalability for businesses without the need for on-premises infrastructure.
- Hybrid: Combines both on-premises and cloud deployments, offering the benefits of both environments.

### Security and Administration

- Data Security: Robust security features, including encryption, user authentication, and role-based access control, to ensure data protection and compliance.
- System Management: Comprehensive tools for monitoring, administration, and maintenance of the HANA environment, ensuring high availability and reliability.

### Use Cases and Benefits

- Real-Time Analytics: Ideal for scenarios requiring instant data analysis, such as financial forecasting, supply chain management, and customer insights.
- Enhanced Performance: Significantly reduces data processing times, leading to faster decision-making and improved business agility.
- Cost Efficiency: Consolidates multiple data management solutions into one, reducing hardware and maintenance costs.

In summary, SAP HANA revolutionizes data management and analytics with its in-memory computing capabilities, providing unprecedented speed and real-time insights. It supports a wide range of applications, from advanced analytics to custom application development, and offers flexible deployment options to meet the diverse needs of modern businesses.

#### 2.2.6.5 SAP GRC (Governance, Risk, and Compliance)

SAP GRC (Governance, Risk, and Compliance) is a suite of software applications designed to help organizations manage regulations and compliance, mitigate risks, and streamline internal processes. The GRC suite integrates these functions into a unified platform, enhancing the ability to enforce policies, manage risks, and ensure compliance with regulatory requirements.

##### Key Components of SAP GRC:

###### Governance

- **Policy Management:** Helps organizations create, manage, and enforce policies and procedures. It ensures that all policies are up-to-date, accessible, and communicated effectively across the organization.
- **Control Management:** Establishes and monitors internal controls to ensure they are functioning as intended. This helps in maintaining compliance and achieving business objectives.

###### Risk Management

- **Risk Identification:** Facilitates the identification and documentation of potential risks that could impact the organization. This includes operational, financial, strategic, and compliance risks.
- **Risk Assessment:** Evaluates the likelihood and impact of identified risks, helping prioritize them based on their potential effect on the organization.
- **Risk Mitigation:** Develops and implements strategies to mitigate or eliminate risks. This may involve implementing new controls or modifying existing ones.

###### Compliance Management

- **Regulatory Compliance:** Ensures that the organization adheres to relevant laws, regulations, and industry standards. This includes tracking regulatory changes and implementing necessary adjustments to maintain compliance.
- **Audit Management:** Manages internal and external audits, ensuring that compliance with regulations and internal policies is continually assessed and validated.

### Key Features and Benefits:

- **Unified Platform:** Integrates governance, risk, and compliance functions into a single platform, providing a comprehensive view of the organization's risk and compliance status.
- **Automated Processes:** Automates routine tasks such as risk assessments, control monitoring, and compliance checks, reducing the likelihood of human error and improving efficiency.
- **Real-Time Monitoring:** Offers real-time monitoring and reporting capabilities, allowing organizations to quickly identify and respond to potential risks and compliance issues.
- **Enhanced Decision-Making:** Provides actionable insights through detailed analytics and reporting, supporting better decision-making and strategic planning.
- **Regulatory Adaptation:** Helps organizations stay up-to-date with evolving regulatory requirements, ensuring continuous compliance and reducing the risk of penalties.
- **Improved Accountability:** Clearly defines roles and responsibilities for governance, risk, and compliance activities, fostering accountability and transparency within the organization.

### Use Cases:

- **Financial Institutions:** Managing compliance with financial regulations, such as Sarbanes-Oxley (SOX) and Basel III.
- **Healthcare:** Ensuring compliance with healthcare regulations like HIPAA.
- **Manufacturing:** Managing supply chain risks and regulatory compliance with safety and environmental standards.
- **Public Sector:** Ensuring transparency and accountability in governance and managing public sector risks.

In summary, SAP GRC helps organizations effectively manage governance, risk, and compliance activities through an integrated platform, enhancing overall efficiency, reducing risks, and ensuring adherence to regulatory requirements. By automating key processes and providing real-time insights, SAP GRC supports proactive risk management and compliance, ultimately contributing to the organization's strategic goals and operational integrity.



#### 2.2.6.6 SAP BI (Business Intelligence): A Brief Overview

SAP Business Intelligence (BI) is a comprehensive suite of tools and applications designed to help organizations collect, process, analyze, and present business data. It enables companies to transform raw data into meaningful insights, facilitating informed decision-making and strategic planning.

Key Components of SAP BI:

##### Data Warehousing

- **Data Integration:** Consolidates data from various sources, such as transactional systems, external databases, and spreadsheets, into a centralized repository.
- **Data Storage:** Stores integrated data in a structured format within data warehouses, making it accessible for analysis and reporting.

##### Data Processing

- **ETL (Extract, Transform, Load):** Extracts data from different sources, transforms it into a suitable format, and loads it into the data warehouse.
- **Data Cleansing:** Ensures data quality by detecting and correcting errors, inconsistencies, and inaccuracies in the data set.

##### Data Analysis

- **OLAP (Online Analytical Processing):** Provides multi-dimensional analysis of data, allowing users to perform complex calculations, trend analyses, and data modeling.
- **Data Mining:** Identifies patterns, correlations, and trends within large data sets using statistical and machine learning techniques.

##### Reporting

- **Ad-hoc Reporting:** Enables users to create on-the-fly reports tailored to specific needs without requiring predefined templates.
- **Dashboards:** Offers visual representations of key performance indicators (KPIs) and metrics through interactive dashboards, making it easy to monitor and track business performance.
- **Standard Reports:** Provides predefined reports for routine analysis and reporting requirements, ensuring consistency and reliability.

## Data Visualization

- **Charts and Graphs:** Presents data visually through various types of charts and graphs, making it easier to understand and interpret complex data sets.
- **Interactive Visuals:** Allows users to interact with data visualizations, such as drilling down into specific details, filtering data, and adjusting parameters to explore different scenarios.

## Key Features and Benefits

- **Centralized Data Management:** Consolidates data from multiple sources into a single, unified platform, ensuring data consistency and accuracy.
- **Real-Time Data Access:** Provides real-time access to business data, enabling timely and informed decision-making.
- **Enhanced Reporting:** Delivers powerful reporting capabilities, allowing users to generate detailed and customized reports that meet specific business needs.
- **Advanced Analytics:** Supports advanced analytical functions, including predictive analytics and data mining, to uncover deeper insights and trends.
- **User-Friendly Interface:** Offers an intuitive and user-friendly interface, making it accessible for users with varying levels of technical expertise.
- **Scalability:** Scales to accommodate the growing data and analytical needs of an organization, supporting both small businesses and large enterprises.

## Use Cases:

- **Financial Analysis:** Analyzing financial data to monitor revenue, expenses, profitability, and financial performance.
- **Sales and Marketing:** Tracking sales performance, customer behavior, and marketing campaign effectiveness to optimize strategies.
- **Operations Management:** Monitoring operational metrics, such as production efficiency, supply chain performance, and inventory levels.
- **Human Resources:** Analyzing employee data to manage workforce planning, performance evaluation, and talent acquisition.

In summary, SAP BI provides organizations with the tools and capabilities needed to transform raw data into actionable insights. By centralizing data management, enhancing reporting, and

supporting advanced analytics, SAP BI empowers businesses to make data-driven decisions, improve operational efficiency, and achieve strategic goals.

#### 2.2.6.7 SAP CRM (Customer Relationship Management): A Brief Overview

SAP Customer Relationship Management (CRM) is a comprehensive software solution designed to help businesses manage and optimize their interactions with customers. It aims to improve customer satisfaction, loyalty, and profitability by providing tools to streamline and enhance various customer-related processes.

Key Components of SAP CRM:

##### Sales Management

- **Lead and Opportunity Management:** Tracks potential sales leads and opportunities, helping sales teams prioritize and follow up effectively.
- **Sales Planning and Forecasting:** Assists in planning sales activities and forecasting future sales to meet targets and identify trends.
- **Quotations and Orders:** Manages the creation, approval, and tracking of sales quotations and orders, ensuring accurate and timely processing.

##### Marketing Management

- **Campaign Management:** Designs, executes, and monitors marketing campaigns across multiple channels, such as email, social media, and direct mail.
- **Segmentation and Targeting:** Analyzes customer data to segment the market and target specific groups with tailored marketing messages.
- **Loyalty Programs:** Develops and manages customer loyalty programs to reward and retain customers.

##### Service Management

- **Service Request Management:** Manages customer service requests, incidents, and issues, ensuring timely resolution and customer satisfaction.
- **Field Service Management:** Coordinates and tracks field service activities, such as technician dispatch and on-site repairs.
- **Service Contracts and Warranties:** Manages service contracts, warranties, and maintenance agreements to ensure compliance and customer support.

## Customer Interaction Management

- **Contact Center Management:** Manages inbound and outbound communications through various channels, including phone, email, chat, and social media.
- **Interaction Recording:** Records customer interactions for quality assurance, training, and compliance purposes.
- **Customer Feedback and Surveys:** Collects and analyzes customer feedback to improve products, services, and customer experiences.

## Analytics and Reporting

- **Customer Insights:** Provides detailed insights into customer behavior, preferences, and trends through advanced analytics.
- **Performance Dashboards:** Offers visual dashboards to monitor key performance indicators (KPIs) and metrics related to sales, marketing, and service activities.
- **Custom Reports:** Allows the creation of custom reports to address specific business needs and provide actionable information.

## Key Features and Benefits:

- **Integrated Customer View:** Consolidates customer information from various touchpoints, providing a comprehensive view of each customer.
- **Enhanced Customer Experience:** Personalizes interactions and offers tailored solutions to improve customer satisfaction and loyalty.
- **Improved Sales Efficiency:** Streamlines sales processes, enabling sales teams to close deals faster and more effectively.
- **Targeted Marketing:** Enhances marketing efforts by allowing precise targeting and segmentation, leading to higher campaign effectiveness.
- **Proactive Service Management:** Improves service delivery by managing service requests efficiently and ensuring timely resolutions.
- **Data-Driven Decisions:** Empowers businesses to make informed decisions based on real-time customer data and insights.

## Use Cases:

- **Retail:** Managing customer loyalty programs, personalized marketing campaigns, and sales promotions.

- Telecommunications: Handling customer service requests, managing field service operations, and enhancing customer support.
- Financial Services: Tracking customer interactions, managing sales leads, and providing personalized financial products.
- Healthcare: Managing patient interactions, scheduling appointments, and handling service requests.

In summary, SAP CRM is designed to help businesses build and maintain strong customer relationships by providing a comprehensive suite of tools for sales, marketing, service, and customer interaction management. By leveraging SAP CRM, organizations can enhance customer satisfaction, increase sales efficiency, and drive overall business growth.

#### 2.2.6.8 SAP SCM (Supply Chain Management):

SAP Supply Chain Management (SCM) is a software solution designed to optimize and streamline the various processes involved in the supply chain, from planning and procurement to manufacturing and distribution. It enables businesses to enhance visibility, collaboration, and efficiency across their supply chain network, ultimately improving customer satisfaction and reducing costs.

##### Key Components of SAP SCM:

###### Demand Planning and Forecasting

- Demand Forecasting: Utilizes historical data, market trends, and statistical algorithms to forecast future demand for products.
- Sales and Operations Planning (S&OP): Aligns sales forecasts with production plans and inventory levels to meet customer demand efficiently.

###### Supply Network Planning

- Distribution Planning: Optimizes distribution networks, warehouse locations, and transportation routes to minimize costs and maximize service levels.
- Inventory Optimization: Balances inventory levels across the supply chain to reduce stockouts, excess inventory, and carrying costs.

### Production Planning and Scheduling

- Material Requirements Planning (MRP): Generates production schedules and procurement plans based on demand forecasts, inventory levels, and lead times.
- Shop Floor Control: Monitors and controls manufacturing processes in real-time, ensuring efficient use of resources and adherence to production schedules.

### Procurement and Supplier Collaboration

- Strategic Sourcing: Identifies and qualifies suppliers, negotiates contracts, and manages supplier relationships to ensure cost-effective procurement.
- Supplier Collaboration: Enables seamless communication and collaboration with suppliers for order fulfillment, quality management, and performance tracking.

### Warehouse Management

- Inbound and Outbound Logistics: Manages the receipt, storage, and dispatch of goods in warehouses and distribution centers.
- Inventory Tracking: Tracks inventory movements, stock levels, and warehouse operations in real-time to optimize inventory management.

### Transportation Management

- Route Optimization: Plans and optimizes transportation routes to minimize transportation costs, reduce transit times, and improve delivery efficiency.
- Freight Management: Manages freight contracts, rates, and carriers, ensuring timely and cost-effective transportation of goods.

### Key Features and Benefits:

- End-to-End Visibility: Provides real-time visibility into the entire supply chain network, allowing businesses to track inventory, monitor order status, and identify bottlenecks.
- Improved Collaboration: Facilitates collaboration and communication among supply chain partners, including suppliers, manufacturers, distributors, and customers.
- Optimized Inventory Levels: Helps businesses maintain optimal inventory levels by synchronizing supply with demand and minimizing excess inventory and stockouts.

- **Enhanced Efficiency:** Streamlines supply chain processes, reduces lead times, and increases throughput, leading to higher productivity and lower costs.
- **Responsive Supply Chain:** Enables businesses to respond quickly to changes in demand, market conditions, and supply chain disruptions, ensuring agility and resilience.
- **Better Decision-Making:** Provides actionable insights and analytics to support data-driven decision-making, helping businesses identify opportunities for improvement and optimize performance.

#### Use Cases:

- **Manufacturing:** Planning and scheduling production activities, optimizing inventory levels, and managing supplier relationships.
- **Retail:** Forecasting demand, managing inventory across multiple locations, and optimizing transportation and distribution.
- **Consumer Goods:** Collaborating with suppliers, optimizing packaging and shipping, and managing promotions and discounts.
- **Logistics and Transportation:** Optimizing transportation routes, managing fleet operations, and tracking shipments in real-time.

In summary, SAP SCM is a comprehensive solution designed to optimize and streamline supply chain operations, from planning and procurement to production and distribution. By leveraging SAP SCM, businesses can improve efficiency, reduce costs, and enhance customer satisfaction across their supply chain network.

#### 2.2.6.9 SAP PLM (Product Lifecycle Management):

SAP Product Lifecycle Management (PLM) is a comprehensive software solution designed to manage the entire lifecycle of a product, from its conception and design to manufacturing, service, and disposal. It enables businesses to streamline product development processes, improve collaboration among cross-functional teams, and accelerate time-to-market while ensuring compliance with regulatory requirements and industry standards.

##### Key Components of SAP PLM:

Product Data Management (PDM)

- **Centralized Repository:** Provides a centralized repository for managing product-related data, including CAD files, documents, specifications, and bills of materials (BOMs).
- **Version Control:** Ensures version control and revision management of product data, allowing users to track changes and maintain an accurate audit trail.

#### Product Lifecycle Collaboration (PLC)

- **Cross-functional collaboration:** Facilitates collaboration among cross-functional teams, including design, engineering, manufacturing, and procurement, enabling seamless communication and knowledge sharing.
- **Workflow Automation:** Automates workflow processes, approvals, and notifications, ensuring timely execution of tasks and reducing time-consuming manual interventions.

#### Product Design and Development

- **CAD Integration:** Integrates with Computer-Aided Design (CAD) software to streamline product design and development processes, enabling designers to create, modify, and validate designs within the PLM environment.
- **Design Validation:** Enables virtual prototyping, simulation, and analysis to validate product designs for performance, reliability, and manufacturability before physical prototypes are produced.

#### Quality Management

- **Quality Planning:** Facilitates quality planning and assurance activities, including defining quality requirements, specifications, and inspection criteria.
- **Non-Conformance Management:** Manages non-conformance events, deviations, and corrective actions to address quality issues and ensure compliance with quality standards and regulations.

#### Manufacturing Process Management (MPM)

- **Bill of Process (BOP) Management:** Manages manufacturing process information, including routing, work instructions, and resource allocations, to ensure consistent and efficient production.



- **Production Planning Integration:** Integrates with production planning systems to synchronize product design with manufacturing processes and optimize production schedules.

#### Document Management

- **Document Control:** Manages documents and technical documentation throughout the product lifecycle, ensuring accessibility, version control, and compliance with regulatory requirements.
- **Change Management:** Facilitates change management processes, including change requests, approvals, and notifications, to manage changes to product designs, specifications, and documentation.

#### Key Features and Benefits:

- **Streamlined Product Development:** Enables businesses to streamline product development processes, reduce time-to-market, and accelerate innovation by providing a collaborative platform for cross-functional teams.
- **Improved Collaboration:** Facilitates collaboration among internal and external stakeholders, including suppliers, partners, and customers, to ensure alignment of product requirements, specifications, and expectations.
- **Enhanced Product Quality:** Helps businesses maintain product quality and compliance with regulatory requirements by integrating quality management processes into the product development lifecycle and ensuring adherence to standards and best practices.
- **Reduced Costs:** Optimizes product development, manufacturing, and service processes, reduces rework and scrap, and minimizes the risk of costly errors and defects, resulting in lower production costs and improved profitability.
- **Compliance and Risk Management:** Provides tools and capabilities to manage regulatory compliance, product safety, and risk mitigation throughout the product lifecycle, ensuring adherence to industry standards and regulatory requirements.

#### Use Cases:

- **Engineering and Design:** Managing product designs, specifications, and configurations, and facilitating collaboration among design teams and stakeholders.

- **Manufacturing and Production:** Streamlining manufacturing processes, optimizing production schedules, and ensuring consistency and quality in manufacturing operations.
- **Quality Assurance and Compliance:** Ensuring product quality, safety, and regulatory compliance through rigorous quality planning, testing, and validation processes.
- **Service and Maintenance:** Supporting product service and maintenance activities, including spare parts management, warranty management, and field service operations.

In summary, SAP PLM is a comprehensive solution designed to manage the entire product lifecycle, from concept to disposal, by providing tools and capabilities to streamline product development, enhance collaboration, ensure product quality, and maintain regulatory compliance. By leveraging SAP PLM, businesses can accelerate innovation, reduce costs, and improve competitiveness in today's fast-paced and dynamic market environment.

#### 2.2.6.10 SAP PS (Project System):

SAP Project System (PS) is a module within the SAP ERP system designed to effectively manage projects throughout their lifecycle, from planning and execution to completion and evaluation. It provides comprehensive tools and functionalities to plan, monitor, and control projects, ensuring efficient utilization of resources, timely delivery of deliverables, and adherence to project budgets and schedules.

#### Key Components of SAP PS

- **Project Planning:** SAP PS enables users to create detailed project plans, defining project structures, work breakdown structures (WBS), activities, milestones, and dependencies. It allows for the allocation of resources, materials, and costs to each project element, facilitating accurate project estimation and planning.
- **Project Budgeting and Cost Management:** The module supports budget planning and monitoring, enabling users to allocate budgets to project elements, track costs, and compare actual costs against planned budgets in real time. It also provides tools for managing procurement, subcontracting, and external services related to the project.
- **Resource Management:** SAP PS allows for efficient resource management by providing visibility into resource availability, skills, and assignments. It enables users to assign

resources to project activities, monitor resource utilization, and optimize resource allocation to ensure optimal project performance.

- **Time Management:** The module facilitates time tracking and management by allowing project participants to record actual hours worked on project activities. It supports time entry, approval, and validation processes, ensuring accurate recording of project progress and effort.
- **Project Monitoring and Reporting:** SAP PS provides comprehensive monitoring and reporting capabilities, enabling users to track project progress, performance, and key metrics in real time. It offers dashboards, KPIs, and reports to visualize project status, identify issues, and make informed decisions to mitigate risks and delays.
- **Integration with Other SAP Modules:** SAP PS seamlessly integrates with other SAP modules, such as SAP Finance (FI), SAP Controlling (CO), SAP Materials Management (MM), and SAP Human Capital Management (HCM), allowing for end-to-end project management and integration with core business processes.

#### Key Features and Benefits:

- **Improved Project Visibility and Control:** SAP PS provides stakeholders with real-time visibility into project status, progress, and performance, enabling effective project monitoring and control.
- **Enhanced Resource Utilization:** The module facilitates efficient resource allocation and utilization, ensuring optimal utilization of resources and minimizing resource shortages and overruns.
- **Cost Control and Budget Management:** SAP PS enables effective cost control and budget management by providing tools to monitor project costs, compare actual costs against planned budgets, and take corrective actions as needed.
- **Streamlined Collaboration:** The module supports collaboration among project teams, stakeholders, and partners by providing a centralized platform for sharing project-related information, documents, and communications.
- **Improved Decision Making:** SAP PS provides stakeholders with accurate, timely, and actionable information to make informed decisions, mitigate risks, and drive project success.

#### Use Cases:

- **Engineering and Construction Projects:** Managing large-scale engineering and construction projects, including infrastructure projects, building construction, and plant maintenance projects.
- **IT Projects:** Planning and executing IT projects, such as software development projects, system implementations, and technology upgrades.
- **Manufacturing Projects:** Managing manufacturing projects, including new product development, process improvements, and equipment installations.
- **Service Projects:** Supporting service projects, such as consulting engagements, installation projects, and maintenance contracts.

In summary, SAP PS is a powerful module that enables organizations to effectively manage projects of all types and sizes, ensuring efficient project execution, optimal resource utilization, and successful project outcomes. By leveraging SAP PS, businesses can improve project visibility, control, and collaboration, ultimately driving project success and delivering value to stakeholders.

#### 2.2.6.11 SAP CO (Controlling)

SAP CO (Controlling) is a module within the SAP ERP system designed to support management accounting and internal controlling processes in an organization. It provides tools and functionalities to monitor, analyze, and manage costs, revenues, and performance within various business areas, enabling better decision-making and strategic planning.

#### Key Components of SAP CO:

- **Cost Element Accounting:** SAP CO allows for the classification and tracking of costs using cost elements, which represent individual expenses or revenues within the organization. It enables users to categorize costs by various criteria, such as cost type, cost center, or activity type, for detailed analysis and reporting.
- **Cost Center Accounting:** The module facilitates the allocation and monitoring of costs to specific cost centers, which represent organizational units responsible for incurring costs. It allows for the analysis of cost center performance, budgeting, and variance analysis to identify areas for cost optimization and improvement.

- **Internal Orders:** SAP CO supports the management of internal orders, which are used to track costs and revenues associated with specific activities, projects, or events within the organization. It enables users to define, plan, and settle internal orders, providing visibility into project costs and profitability.
- **Profitability Analysis (CO-PA):** The module enables organizations to analyze profitability by customer, product, or market segment through CO-PA. It allows for the allocation of revenues and costs to different dimensions, enabling detailed profitability reporting and analysis to support strategic decision-making.
- **Product Costing:** SAP CO provides tools for calculating and analyzing the costs associated with manufacturing products or providing services. It supports both standard and actual costing methods, enabling organizations to determine product costs accurately and make informed pricing decisions.
- **Profit Center Accounting:** The module allows for the analysis of profits and losses by profit center, which represent business units responsible for generating revenues and incurring costs. It enables organizations to evaluate the performance of profit centers and allocate overhead costs accurately.

#### Key Features and Benefits:

- **Cost Control and Analysis:** SAP CO enables organizations to track and analyze costs at various levels of granularity, providing insights into cost drivers, variances, and trends to support cost control and optimization initiatives.
- **Performance Measurement:** The module facilitates the measurement and evaluation of performance metrics, such as cost efficiency, profitability, and return on investment, enabling organizations to assess their financial health and operational performance.
- **Budgeting and Planning:** SAP CO supports budgeting and planning processes by providing tools for setting budgets, forecasting revenues and expenses, and monitoring budget deviations in real time.
- **Decision Support:** The module provides stakeholders with accurate, timely, and actionable information to support decision-making, enabling organizations to identify opportunities, mitigate risks, and drive business growth.
- **Compliance and Governance:** SAP CO helps organizations comply with regulatory requirements and internal controls by ensuring transparency, accuracy, and integrity in financial reporting and management accounting processes.

#### Use Cases:

- **Cost Management:** Tracking and controlling costs across different business functions, such as production, sales, and administration, to optimize cost structures and improve profitability.
- **Performance Analysis:** Analyzing performance metrics, such as profitability, margins, and return on investment, to identify areas for improvement and strategic focus.
- **Budgeting and Forecasting:** Setting budgets, forecasting revenues and expenses, and monitoring budget performance to ensure financial targets are met and resources are allocated effectively.
- **Product Costing:** Calculating and analyzing the costs associated with manufacturing products or providing services to support pricing decisions and cost optimization efforts.
- **Profitability Analysis:** Analyzing profitability by customer, product, or market segment to understand revenue drivers, identify profitable opportunities, and allocate resources effectively.

In summary, SAP CO is a comprehensive module that enables organizations to manage costs, analyze performance, and make informed decisions to drive business success. By leveraging SAP CO, businesses can optimize cost structures, improve profitability, and achieve their strategic objectives effectively.

#### 2.2.6.12 SAP HR (Human Resources) or HCM (Human Capital Management)

SAP HR, also known as SAP HCM (Human Capital Management), is a module within the SAP ERP system that manages all aspects of an organization's human resources processes. It encompasses a wide range of functionalities related to workforce management, talent acquisition, development, and retention, as well as payroll and personnel administration.

##### Key Components of SAP HR/HCM:

- **Personnel Administration:** SAP HR/HCM enables organizations to manage employee master data, such as personal information, employment history, organizational structure, and compensation details. It provides tools for maintaining accurate employee records and ensuring compliance with regulatory requirements.
- **Organizational Management:** The module facilitates the creation and maintenance of organizational structures, including hierarchies, reporting relationships, and job

positions. It allows organizations to define organizational units, positions, and job roles, enabling effective workforce planning and management.

- **Recruitment and Onboarding:** SAP HR/HCM supports the recruitment and onboarding processes by providing tools for posting job vacancies, managing candidate applications, conducting interviews, and processing new hire paperwork. It streamlines the hiring process and helps organizations attract and retain top talent.
- **Training and Development:** The module enables organizations to plan, track, and evaluate employee training and development activities. It provides tools for identifying training needs, scheduling training sessions, tracking employee progress, and assessing training effectiveness to enhance employee skills and performance.
- **Performance Management:** SAP HR/HCM facilitates the management of employee performance through goal setting, performance appraisals, and feedback mechanisms. It enables organizations to define performance objectives, conduct performance reviews, and provide ongoing feedback to employees to improve performance and productivity.
- **Payroll and Benefits Administration:** The module supports payroll processing, including wage calculations, tax deductions, and benefits administration. It automates payroll tasks, ensures compliance with payroll regulations, and provides employees with accurate and timely compensation information.
- **Time and Attendance Management:** SAP HR/HCM helps organizations track employee time and attendance through electronic timesheets, time clocks, and attendance tracking systems. It enables organizations to monitor employee attendance, manage work schedules, and calculate attendance-related metrics such as overtime and leave accruals.
- **Employee Self-Service (ESS) and Manager Self-Service (MSS):** SAP HR/HCM provides self-service portals for employees and managers to access and update their personal information, view pay stubs, submit leave requests, and perform other HR-related tasks. It empowers employees and managers to manage their HR-related activities efficiently and reduces the administrative burden on HR departments.

#### Key Features and Benefits:

- **Centralized HR Management:** SAP HR/HCM provides a centralized platform for managing all HR processes, data, and transactions, enabling organizations to streamline HR operations and improve efficiency.

- **Enhanced Employee Experience:** The module enhances the employee experience by providing self-service capabilities, mobile access, and personalized HR services, empowering employees to manage their own HR-related activities and access relevant information anytime, anywhere.
- **Compliance and Data Security:** SAP HR/HCM helps organizations maintain compliance with labor laws, regulations, and data privacy requirements by ensuring data accuracy, integrity, and security. It provides tools for data encryption, access controls, and audit trails to protect sensitive HR information.
- **Strategic HR Planning:** The module supports strategic HR planning and decision-making by providing real-time insights into workforce demographics, skills gaps, succession planning, and talent development needs. It enables organizations to align HR initiatives with business goals and drive organizational growth and innovation.

#### Use Cases:

- **Talent Acquisition:** Attracting, recruiting, and onboarding top talent to fill critical roles and drive business success.
- **Employee Development:** Identifying employee training needs, providing skill development opportunities, and fostering a culture of continuous learning and growth.
- **Performance Management:** Setting performance goals, conducting performance reviews, and providing feedback to improve employee performance and productivity.
- **Payroll Processing:** Calculating employee wages, taxes, and benefits accurately and timely, ensuring compliance with payroll regulations and laws.
- **Workforce Planning:** Analyzing workforce demographics, skills inventory, and succession plans to identify talent gaps and develop strategies for talent acquisition and retention.

In summary, SAP HR/HCM is a comprehensive module that helps organizations effectively manage their human capital, align HR initiatives with business objectives, and create a positive employee experience. By leveraging SAP HR/HCM, businesses can optimize HR processes, attract and retain top talent, and drive organizational success in today's dynamic and competitive business environment.



#### 2.2.6.13 Why ERP/SAP?

Implementing ERP systems like SAP offers numerous benefits, making it a top choice for many organizations, including nine out of ten Fortune 500 companies. SAP ensures well-integrated operations, bringing discipline and efficiency to companies. Its robust system includes various authorization levels and maintains a complete track record of entries, corrections, and movements, which boosts overall transparency and accountability.

SAP's drill-down facility allows for comprehensive transaction mapping, enhancing the organization's efficiency and enabling better control mechanisms. It supports multiple languages and currencies, making it suitable for global operations. Features like auto bank reconciliation, data export/import capabilities, and the ability to handle remote work contribute to its flexibility and convenience.

Moreover, SAP can address data across different periods, providing auditors with confidence in the system's accuracy. It also offers significant career enhancement opportunities for professionals skilled in using this system. Overall, SAP's capabilities in managing complex business processes and fostering growth make it an invaluable asset for any organization.

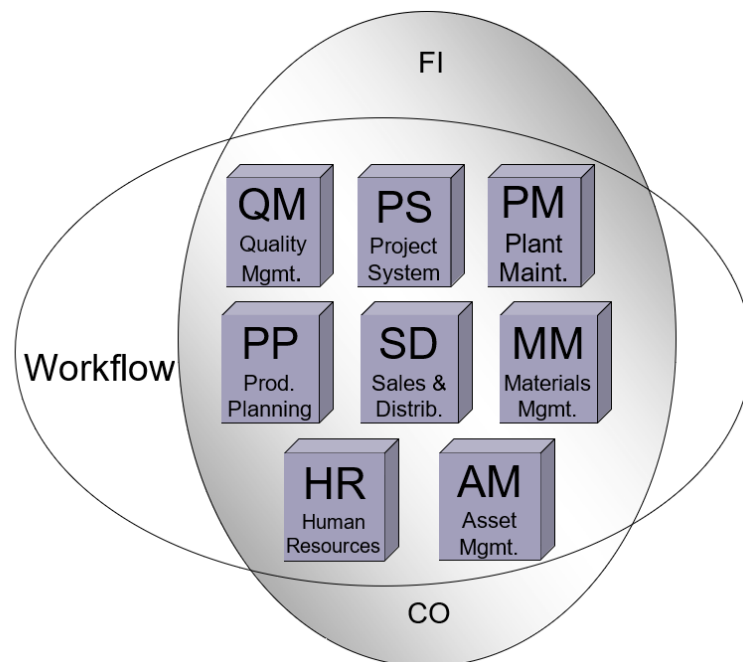


Figure 7: SAP R/3 Enterprise

#### 2.2.7 SAP Master Data Management (MDM)

SAP MDM is a comprehensive solution designed to help organizations manage and maintain their critical master data across various domains and systems. Master data refers to the core

business entities such as customers, vendors, products, and employees, which are essential for business operations and decision-making processes.

Key aspects of SAP MDM include:

- **Centralized Data Management:** SAP MDM provides a centralized platform for managing master data, allowing organizations to create, update, and synchronize master data across multiple systems and applications. This centralized approach ensures data consistency, accuracy, and integrity across the organization.
- **Data Governance:** SAP MDM enables organizations to enforce data governance policies and standards to ensure the quality, security, and compliance of master data. Through data governance, organizations can define rules, workflows, and processes for managing and maintaining master data throughout its lifecycle.
- **Data Harmonization and Consolidation:** SAP MDM supports data harmonization and consolidation efforts by providing tools and functionalities to cleanse, standardize, and reconcile master data from disparate sources. By harmonizing master data, organizations can eliminate duplicate records, resolve inconsistencies, and create a single, authoritative source of truth for critical business entities.
- **Data Quality Management:** SAP MDM offers capabilities for data quality management, including data validation, enrichment, and cleansing. These features help organizations improve the quality and accuracy of master data by identifying and correcting errors, inconsistencies, and incomplete information.
- **Integration with SAP and Non-SAP Systems:** SAP MDM seamlessly integrates with SAP and non-SAP systems, allowing organizations to synchronize master data across their entire landscape. This integration enables real-time data exchange and interoperability between different applications, ensuring data consistency and reliability.

Overall, SAP Master Data Management (MDM) is a comprehensive solution that empowers organizations to manage and maintain their critical master data assets effectively. By centralizing data management, enforcing data governance, and improving data quality, SAP MDM enables organizations to achieve greater operational efficiency, compliance, and agility in today's complex business environments.

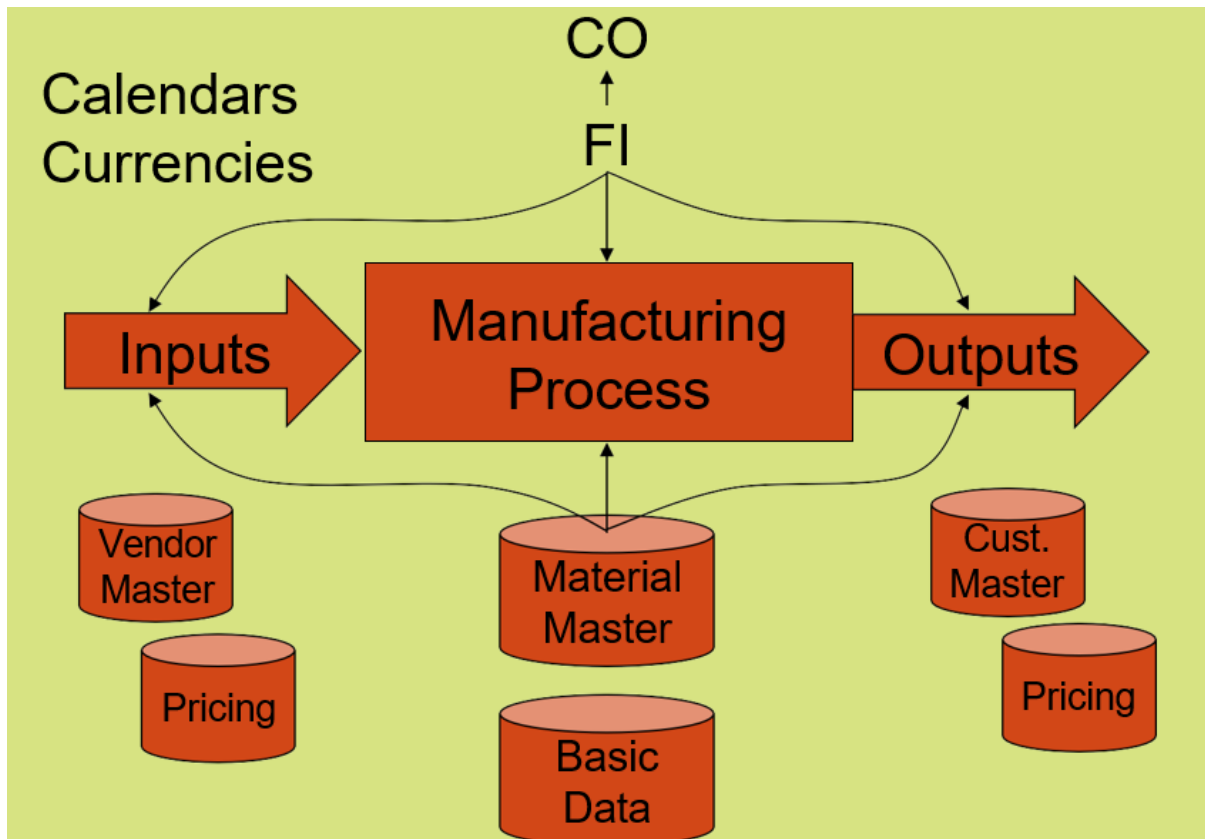


Figure 8: SAP MDM Process

### 2.3 ROLES AND RESPONSIBILITIES OF THE INTERN

During my internship at Genpact, I undertook a multifaceted role encompassing a diverse array of responsibilities and learning experiences. A significant portion of my time was dedicated to training and skill development, where I engaged with various tools and platforms such as Power BI, SQL, MS Excel, MS Power Apps, and SAP. Through rigorous practice and hands-on application, I honed my proficiency in these tools, preparing myself for assignments and real-world scenarios. My involvement in creating numerous dashboards using Power BI facilitated the extraction of valuable insights from data, aiding in informed decision-making processes. Additionally, I delved into SAP Master Data Management (MDM), including modules like Customer MDM, Vendor MDM, and Material MDM. Working on MDM projects, I assisted senior team members in tasks ranging from data cleansing and validation to harmonization activities, contributing to the maintenance of high-quality master data.

Furthermore, my internship provided invaluable exposure to data engineering services and visualization techniques. Through training sessions, I gained insights into methodologies and

tools used for data ingestion, transformation, and storage, enhancing my understanding of data engineering principles. Additionally, exploring data visualization techniques allowed me to create compelling visualizations that effectively communicated insights to stakeholders. Moreover, I developed an understanding of MDM governance principles and quality management practices, ensuring data integrity, consistency, and compliance. Participating in data cleansing initiatives, I collaborated with colleagues to identify and rectify data inconsistencies, further enhancing the quality of master data.

Beyond technical skills development, my internship afforded me exposure to different industries, particularly the healthcare and life sciences sectors. Through account overviews and interactions with senior team members, I gained insights into how MDM solutions are leveraged in these industries, understanding their practical applications and role within organizational ecosystems. Additionally, completing certifications on Genpact Genome, including Business Analyst, Executive Presence, Data Visualization Certificate, and Storytelling, validated my proficiency in key areas of expertise. Demonstrating commitment to continuous learning and professional development, these certifications equipped me with a comprehensive skill set, positioning me for future career opportunities in the dynamic field of data analytics and management. Overall, my internship journey at Genpact was a transformative experience, characterized by immersive learning, practical application, and professional growth, setting a strong foundation for my future endeavors.

## **2.4 DETAILS OF WORK DONE**

During my internship, I had the opportunity to work extensively with a variety of tools in the realms of data analytics and Master Data Management (MDM). Engaging with these tools not only enhanced my technical skills but also enriched my overall internship experience.

In the field of data analytics, I worked with tools such as Microsoft Power BI, SQL, MS Excel, and MS Power Apps. These tools allowed me to manipulate and analyze data efficiently, extract valuable insights, and create visually engaging dashboards and reports. Through hands-on experience and practice with these tools, I deepened my understanding of data analysis techniques and gained confidence in my ability to derive actionable insights from complex datasets.

In the realm of Master Data Management, I delved into SAP MDM modules including Customer MDM, Vendor MDM, and Material MDM. Working with these modules provided me with valuable exposure to data governance principles, data quality management, and the importance of maintaining accurate and consistent master data across organizational systems.

By actively participating in MDM projects and initiatives, I not only sharpened my technical skills but also developed a deeper appreciation for the critical role that MDM plays in ensuring data integrity and driving business value.

Overall, my experience working with these tools of data analytics and Master Data Management significantly contributed to my professional growth and enriched my internship experience. Through hands-on practice and real-world application, I gained valuable skills and insights that will undoubtedly benefit me in my future career endeavors.

#### 2.4.1 Power BI Proficiency:

- Created numerous dynamic dashboards within Power BI to distill complex datasets into actionable visualizations, facilitating easier interpretation of data trends and patterns.
- Utilized Power BI functionalities such as data modeling, DAX formulas, and custom visuals to extract valuable insights from raw data, enabling stakeholders to make informed decisions based on data-driven analyses.

#### 2.4.2 SAP Master Data Management (MDM):

- SAP, which stands for Systems, Applications, and Products in Data Processing, is a leading provider of enterprise resource planning (ERP) software and solutions. Founded in 1972 in Germany, SAP has since grown into one of the world's largest software companies, serving organizations of all sizes and industries across the globe.

Key aspects of SAP include:

- **ERP Solutions:** SAP offers a wide range of ERP solutions designed to streamline business processes and operations across various functional areas such as finance, human resources, procurement, sales, and manufacturing. These solutions help organizations optimize their resources, improve efficiency, and drive business growth.
- **Industry-Specific Solutions:** SAP provides industry-specific solutions tailored to the unique needs and requirements of different industries such as retail, healthcare, manufacturing, utilities, and automotive. These industry solutions incorporate best practices and industry-specific functionality to address the specific challenges and opportunities faced by organizations in each sector.
- **Cloud-based Solutions:** In addition to traditional on-premises software, SAP offers cloud-based solutions and services through its SAP Cloud Platform. These cloud

solutions provide organizations with flexibility, scalability, and agility, enabling them to innovate faster, reduce IT complexity, and lower total cost of ownership.

- **Analytics and Business Intelligence:** SAP offers advanced analytics and business intelligence solutions to help organizations gain insights from their data, make data-driven decisions, and drive business performance. These solutions include SAP BusinessObjects, SAP Analytics Cloud, and SAP Data Warehouse Cloud, among others.
- **Customer Experience Solutions:** SAP provides customer experience solutions that help organizations deliver personalized and seamless experiences to their customers across all touchpoints. These solutions include SAP Customer Experience (CX) Suite, SAP Marketing Cloud, SAP Sales Cloud, and SAP Commerce Cloud.
- **Integration and Connectivity:** SAP offers integration and connectivity solutions to enable seamless data exchange and interoperability between different systems, applications, and technologies. These solutions include SAP Integration Suite, SAP Process Orchestration, and SAP Data Intelligence, among others.

Overall, SAP is a comprehensive provider of enterprise software and solutions that help organizations run their businesses more effectively, efficiently, and intelligently. With a broad portfolio of products and services spanning ERP, industry solutions, analytics, customer experience, and integration, SAP empowers organizations to digitalize their operations, transform their businesses, and succeed in today's digital economy.

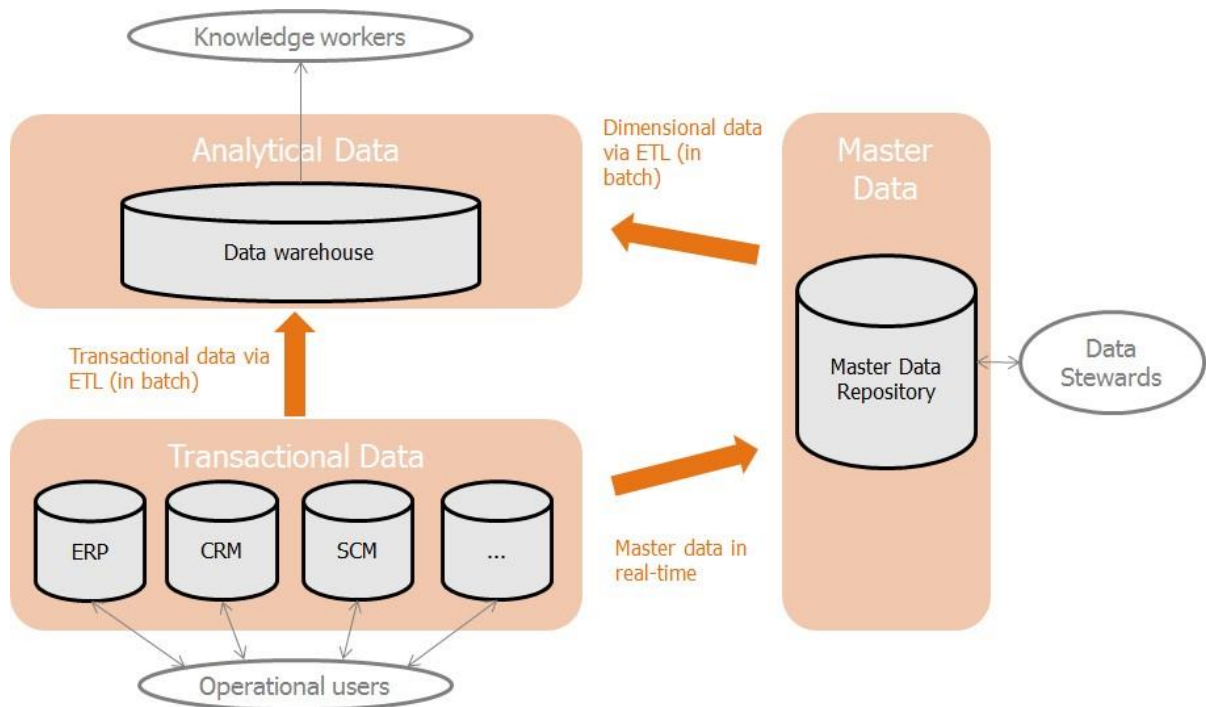


Figure 9: MDM Architecture & Technology

#### 2.4.3 Customer Master Data Management (MDM)

Customer Master Data Management (MDM) is a critical component of data management within organizations, particularly in industries where customer relationships are central to business operations. Customer MDM involves the processes and technologies used to create, maintain, and govern a single, accurate, and complete view of customer information across an organization's systems and applications.

Key aspects of Customer MDM include:

- **Single Source of Truth:** Customer MDM aims to establish a centralized repository or "single source of truth" for customer data, ensuring that all departments and systems within an organization have access to consistent and up-to-date customer information.
- **Data Integration:** Customer MDM involves integrating customer data from disparate sources such as CRM systems, sales databases, marketing platforms, and customer service applications. By consolidating data from multiple sources, organizations can eliminate duplicate records and inconsistencies, enabling a unified view of customers across the enterprise.

- **Data Quality Management:** Customer MDM includes processes for ensuring the quality and accuracy of customer data. This may involve data cleansing activities to remove duplicate or outdated records, data validation checks to enforce data integrity, and data enrichment to enhance customer information with additional attributes or insights.
- **Data Governance:** Customer MDM requires the establishment of data governance policies and procedures to govern the creation, usage, and maintenance of customer data. Data governance ensures that data is managed in accordance with organizational policies, regulatory requirements, and industry standards, minimizing the risk of data breaches or compliance violations.
- **360-Degree View of Customers:** One of the primary goals of Customer MDM is to provide a 360-degree view of customers, encompassing their interactions, transactions, preferences, and history with the organization. A comprehensive view of customers enables organizations to deliver personalized experiences, anticipate needs, and build stronger relationships.
- **Business Insights and Analytics:** Customer MDM enables organizations to leverage customer data for strategic decision-making and business analytics. By analyzing customer information, organizations can identify trends, opportunities, and areas for improvement, driving targeted marketing campaigns, optimizing sales efforts, and enhancing customer satisfaction.

Overall, Customer MDM plays a crucial role in enabling organizations to effectively manage customer relationships, improve operational efficiency, and drive business growth. By establishing a single, trusted source of customer data and implementing robust governance and quality management processes, organizations can unlock the full potential of their customer information and gain a competitive advantage in today's data-driven marketplace.

#### 2.4.4 Pricing Master Data Management (MDM) in SAP

Pricing Master Data Management in SAP is a crucial component that helps organizations efficiently manage their pricing strategies across various products and services. It ensures that the correct prices are applied to sales transactions, contracts, and other pricing-related activities. Here are the key aspects of Pricing Master Data Management in SAP:



- Condition Records:
  - Condition records store pricing information, such as base prices, discounts, surcharges, taxes, and other price-related conditions.
  - These records can be maintained at various levels, including material, customer, sales organization, or distribution channel levels.
- Access Sequences:
  - Access sequences determine the order in which the system searches for valid condition records during pricing.
  - It defines a sequence of condition tables that the system checks to find relevant pricing information.
- Condition Tables:
  - Condition tables store condition records for different pricing elements.
  - Each table contains fields that are used to define the key combinations for accessing pricing data (e.g., customer/material, material/price group).
- Pricing Procedures:
  - Pricing procedures are predefined sequences of condition types and their associated access sequences.
  - They define the sequence of pricing conditions that the system applies to calculate the final price of a product or service.
- Scales:
  - Scales are used to define quantity-based or value-based price breaks (e.g., volume discounts).
  - They allow for pricing adjustments based on the quantity or value of the items being sold.
- Pricing Conditions:
  - Pricing conditions are specific instances of condition types with defined values.
  - They can include fixed prices, percentage-based discounts, or surcharges.

#### Validity Periods:

- Pricing conditions can have validity periods to ensure that the correct prices are applied for specific dates or periods.
- This allows for time-based pricing strategies, such as promotional discounts or seasonal pricing.

- Integration with Other Modules:
  - Pricing MDM integrates with various SAP modules, such as Sales and Distribution (SD), Materials Management (MM), and Finance (FI).
  - This integration ensures that pricing data is consistent and accurately reflected across all business processes.
- Configuration and Customization:
  - SAP provides tools for configuring and customizing pricing conditions to meet specific business requirements.
  - Users can define new condition types, access sequences, and pricing procedures to tailor the pricing engine to their needs.

Effective management of pricing master data in SAP ensures that companies can maintain accurate and competitive pricing strategies, leading to improved customer satisfaction and better financial performance.

#### 2.4.5 Vendor Master Data Management (MDM)

Vendor Master Data Management (MDM) involves the processes and technologies used to create, maintain, and govern a single, accurate, and complete view of vendor information across an organization's systems and applications. Managing vendor master data effectively is essential for organizations to optimize their procurement processes, manage supplier relationships, and ensure compliance with regulatory requirements.

Key aspects of Vendor MDM include:

- Single Source of Truth: Vendor MDM aims to establish a centralized repository or "single source of truth" for vendor data, ensuring that all departments and systems within an organization have access to consistent and up-to-date vendor information. This centralized approach helps eliminate duplicate records, reduce data inconsistencies, and improve data accuracy.
- Data Integration: Vendor MDM involves integrating vendor data from various internal and external sources, including ERP systems, procurement platforms, supplier databases, and third-party data providers. By consolidating vendor data from disparate sources, organizations can achieve a unified view of their vendors, enabling better decision-making and efficiency in procurement processes.
- Data Quality Management: Vendor MDM includes processes for ensuring the quality and accuracy of vendor data. This may involve data cleansing activities to remove

duplicate or outdated records, data validation checks to enforce data integrity, and data enrichment to enhance vendor information with additional attributes or insights. By maintaining high-quality vendor data, organizations can minimize errors, improve operational efficiency, and reduce costs associated with incorrect or incomplete vendor information.

- **Data Governance:** Vendor MDM requires the establishment of data governance policies and procedures to govern the creation, usage, and maintenance of vendor data. Data governance ensures that vendor data is managed in accordance with organizational policies, regulatory requirements, and industry standards. By implementing robust data governance practices, organizations can ensure data security, privacy, and compliance, mitigating risks associated with vendor data management.
- **Vendor Relationship Management:** Vendor MDM enables organizations to manage their relationships with vendors more effectively by providing insights into vendor performance, capabilities, and risk exposure. By maintaining accurate and comprehensive vendor records, organizations can evaluate vendor performance, negotiate contracts, and identify opportunities for cost savings and process improvements.

Overall, Vendor Master Data Management is a critical component of data management within organizations, enabling them to optimize procurement processes, manage supplier relationships, and achieve operational excellence. By establishing a centralized repository of vendor data, implementing robust data quality management and governance practices, and leveraging data insights for vendor relationship management, organizations can drive efficiency, reduce risks, and enhance competitiveness in the marketplace.



Figure 10: Vendor MDM

2.4.6 Material Master Data Management (MDM) involves the processes and technologies used to create, maintain, and govern a single, accurate, and complete view of material information across an organization's systems and applications. Material data encompasses various types of products, goods, and items that organizations procure, produce, sell, or use in their operations.

Key aspects of Material MDM include:

- **Single Source of Truth:** Material MDM aims to establish a centralized repository or "single source of truth" for material data, ensuring that all departments and systems within an organization have access to consistent and up-to-date information about materials. This centralized approach helps eliminate duplicate records, reduce data inconsistencies, and improve data accuracy.
- **Data Integration:** Material MDM involves integrating material data from various internal and external sources, including ERP systems, supply chain management platforms, product catalogs, and third-party data providers. By consolidating material data from disparate sources, organizations can achieve a unified view of their materials, enabling better decision-making and efficiency in procurement, production, and inventory management processes.
- **Data Quality Management:** Material MDM includes processes for ensuring the quality and accuracy of material data. This may involve data cleansing activities to remove duplicate or outdated records, data validation checks to enforce data integrity, and data enrichment to enhance material information with additional attributes or insights. By maintaining high-quality material data, organizations can minimize errors, improve operational efficiency, and reduce costs associated with incorrect or incomplete material information.
- **Data Governance:** Material MDM requires the establishment of data governance policies and procedures to govern the creation, usage, and maintenance of material data. Data governance ensures that material data is managed in accordance with organizational policies, regulatory requirements, and industry standards. By implementing robust data governance practices, organizations can ensure data security, privacy, and compliance, mitigating risks associated with material data management.
- **Product Lifecycle Management (PLM):** Material MDM is closely linked to product lifecycle management (PLM) processes, as materials are integral components of products. Material MDM enables organizations to manage material specifications, attributes, and relationships throughout the product lifecycle, from design and

development to manufacturing and distribution. By maintaining accurate and comprehensive material records, organizations can ensure product quality, compliance, and innovation.

Overall, Material Master Data Management is a critical component of data management within organizations, enabling them to optimize procurement, production, and inventory management processes. By establishing a centralized repository of material data, implementing robust data quality management and governance practices, and integrating material data with PLM systems, organizations can drive efficiency, reduce costs, and enhance competitiveness in the marketplace.



Figure 11: Material MDM Services

#### 2.4.7 Training and Insights:

Participated in training sessions covering:

- Data Engineering Services: Explored methodologies and tools used for data engineering, including data ingestion, transformation, and storage.
- Data Visualization: Learned best practices for creating visually appealing and informative data visualizations to communicate insights effectively.
- MDM Governance/Quality/Data Cleansing methodologies: Delved into the principles and practices of MDM governance, quality management, and data cleansing to ensure the reliability and accuracy of master data.

- Engaged in in-depth discussions to gain practical insights into industry best practices, emerging trends, and real-world challenges faced in data management and analytics.

#### 2.4.8 Account Overviews:

- **Healthcare Industry:** In the context of the healthcare industry, Master Data Management (MDM) solutions play a crucial role in managing patient data effectively, enhancing care delivery, and ensuring compliance with regulatory standards. Here's a breakdown of how MDM solutions are utilized in healthcare settings:
- **Patient Data Management:** Healthcare organizations deal with vast amounts of patient data, including medical history, treatment plans, medications, and demographics. MDM solutions help consolidate this disparate patient data from various sources such as electronic health records (EHRs), laboratory systems, billing systems, and administrative databases. By centralizing patient data into a single, comprehensive view, healthcare providers can ensure continuity of care, facilitate informed decision-making, and improve patient outcomes.
- **Care Coordination and Collaboration:** MDM solutions enable seamless integration and sharing of patient data across different healthcare systems and providers. This interoperability facilitates care coordination and collaboration among healthcare professionals, allowing them to access up-to-date patient information, exchange medical records securely, and coordinate treatment plans effectively. By breaking down data silos and enabling real-time data exchange, MDM solutions enhance communication and collaboration across the care continuum.
- **Clinical Decision Support:** MDM solutions support clinical decision-making by providing clinicians with accurate and consistent patient data at the point of care. By integrating clinical decision support systems (CDSS) with MDM platforms, healthcare providers can leverage real-time patient data to generate alerts, reminders, and recommendations based on evidence-based guidelines and best practices. This ensures that clinicians have access to timely and relevant information to make informed decisions about patient care, leading to better clinical outcomes and patient safety.
- **Regulatory Compliance:** Healthcare organizations are subject to stringent regulatory requirements and data privacy laws such as HIPAA (Health Insurance Portability and Accountability Act) and GDPR (General Data Protection Regulation). MDM solutions help healthcare providers ensure compliance with these regulations by implementing

robust data governance, security, and privacy measures. By centralizing and standardizing patient data, MDM solutions enable organizations to enforce access controls, audit trails, and data encryption to protect sensitive patient information and maintain regulatory compliance.

Overall, MDM solutions play a vital role in the healthcare industry by improving patient data management, enhancing care coordination, supporting clinical decision-making, and ensuring regulatory compliance. By leveraging MDM solutions effectively, healthcare organizations can unlock the full potential of their data to deliver high-quality, patient-centered care while safeguarding patient privacy and confidentiality.

- **Life Sciences Sector**In the context of the Life Sciences sector, understanding the nuances of data management is paramount due to the unique challenges and opportunities inherent in areas such as drug development, clinical trials, and regulatory reporting. Here's how these aspects play out:
- **Drug Development:** Life Sciences companies invest significant resources in drug discovery and development, which involves complex data management processes. Master Data Management (MDM) solutions help consolidate and harmonize data related to compounds, molecules, and research findings from various sources. By centralizing this data, organizations can streamline the drug development process, improve collaboration among researchers, and accelerate time-to-market for new therapies.
- **Clinical Trials:** Clinical trials are critical for testing the safety and efficacy of new drugs and medical treatments. Managing patient data, trial protocols, and study outcomes is essential for ensuring the success and integrity of clinical trials. MDM solutions enable life sciences companies to organize and analyze vast amounts of clinical trial data, optimize trial design, and ensure compliance with regulatory requirements. By standardizing and centralizing clinical trial data, organizations can enhance data quality, facilitate regulatory submissions, and expedite the approval of new treatments.
- **Regulatory Reporting:** The Life Sciences sector is highly regulated, with stringent requirements for data integrity, traceability, and compliance. MDM solutions play a crucial role in managing regulatory data, including product registrations, adverse event

reports, and pharmacovigilance data. By implementing MDM solutions, organizations can ensure the accuracy and completeness of regulatory submissions, mitigate compliance risks, and maintain regulatory compliance across global markets.

Overall, learning about the unique data management challenges and opportunities in the Life Sciences sector provides valuable insights into the importance of MDM solutions in driving innovation, efficiency, and compliance. By addressing these challenges effectively, life sciences companies can optimize their operations, accelerate research and development, and deliver safe and effective treatments to patients worldwide.

#### 2.4.9 Genpact Genome Certifications

- Business Analyst: Expanded analytical skills and understanding of business processes to drive data-driven decision-making.
- Executive Presence: Developed communication and leadership skills necessary for presenting insights and recommendations to stakeholders effectively.
- Data Visualization Certificate: Mastered techniques for creating compelling and informative data visualizations to convey complex information succinctly.
- Storytelling: Learned how to craft narratives around data insights to drive understanding and engagement among diverse audiences.
- Expanded skill set and understanding of industry trends and best practices, validating proficiency in key areas of data analytics and management.

#### 2.4.10 Continuous Learning and Growth:

- Embarked on a journey of continuous learning and professional development, actively seeking opportunities to expand knowledge and skill set in data management and analytics.
- Demonstrated commitment to personal and professional growth through active participation in training sessions, certification programs, and collaborative learning initiatives.

#### 2.4.11 Transformative Experience:

Experienced transformative growth characterized by:



- Immersive Learning: Engaged in hands-on learning experiences, gaining practical skills and insights into industry-standard tools and practices.
- Practical Application of Skills: Applied acquired knowledge and skills to real-world scenarios, addressing complex data challenges and driving business impact.
- Professional Development Opportunities: Leveraged internship experience to enhance both technical and soft skills, preparing for future career opportunities in data analytics and management.
- Emerged equipped with a holistic understanding of data management principles and their real-world applications, poised to make meaningful contributions to the field of data analytics and management.

## **2.5 SKILLS LEARNT**

During your internship, you acquired a diverse set of skills that are invaluable in today's professional landscape. Let's break down the skills you learned and add some additional insights:

- MS Excel: You developed proficiency in using Excel for data analysis, manipulation, and visualization. This skill is essential for various tasks such as financial modeling, data organization, and report generation.
- SAP: Understanding SAP systems provides you with insights into enterprise resource planning (ERP) software used widely across industries. This skill enhances your ability to navigate complex business processes and manage data effectively within an organization.
- Power BI: Mastery of Power BI enables you to create interactive dashboards and reports, transforming raw data into actionable insights. This skill is highly sought-after in roles involving data analysis, visualization, and decision-making support.
- MS Power Apps and Power Automate: These tools empower you to build custom applications and automate business processes without extensive coding. Proficiency in Power Apps and Power Automate enhances your efficiency and productivity in streamlining workflows and solving business challenges.
- Customer MDM, Vendor MDM, Material MDM: Your understanding of Master Data Management (MDM) principles and practices is crucial for maintaining data accuracy, consistency, and integrity across different domains within an organization. This skill

is essential in industries where data quality is paramount, such as healthcare, manufacturing, and retail.

- **Team Building:** Collaboration and teamwork are fundamental skills in any professional environment. Your experience in team building during the internship enhances your ability to work effectively with diverse teams, leverage collective strengths, and achieve common goals.
- **Communication:** Effective communication is key to conveying ideas, collaborating with colleagues, and building relationships. Your internship provided opportunities to hone your verbal and written communication skills, enabling you to articulate thoughts clearly, listen actively, and engage stakeholders effectively.
- **Emailing:** Professional email communication is a vital skill in today's digital workplace. Your experience in drafting concise, clear, and professional emails enhances your ability to communicate efficiently and professionally in a business setting.
- **Time Management:** Efficient time management is essential for prioritizing tasks, meeting deadlines, and maximizing productivity. Your internship experience equipped you with time management techniques to optimize your workflow and accomplish tasks effectively.
- **Adaptability and Learning Agility:** Internships often require adaptability to new environments, tasks, and challenges. Your ability to learn quickly, adapt to changing circumstances, and embrace new technologies or processes is a valuable skill that fosters resilience and growth in any professional setting.
- **Business Analyst:** Expanded analytical skills and understanding of business processes to drive data-driven decision-making.
- **Executive Presence:** Developed communication and leadership skills necessary for presenting insights and recommendations to stakeholders effectively.
- **Data Visualization Certificate:** Mastered techniques for creating compelling and informative data visualizations to convey complex information succinctly.
- **Storytelling:** Learned how to craft narratives around data insights to drive understanding and engagement among diverse audiences.

These skills, combined with your dedication and enthusiasm for learning and growth, position you for success in your future endeavors. Keep nurturing and expanding these skills as you continue to evolve professionally.

# CHAPTER 3

## CONCLUSION AND FUTURE WORK

This internship at Genpact has been an invaluable experience that significantly enhanced my Master Data Management (MDM) skills. I gained practical experience in e.g. data governance and product information management.

Beyond technical skills, the internship fostered my ability to translate complex data into compelling stories. Through presentations and reports, I honed my storytelling skills, effectively communicating insights to both technical and non-technical audiences.

Furthermore, I significantly improved my proficiency in essential tools like Excel, Power BI, and SQL. These skills allowed me to analyze and manipulate data efficiently, generating valuable reports and visualizations.

The internship also provided opportunities to develop my executive presence. Through client meetings and presentations, I gained confidence in articulating complex information in a clear and concise manner.

Looking ahead, I am eager to leverage my MDM foundation to bridge the gap into the exciting field of data science, which aligns with my academic background. Here are some potential areas for exploration:

- **Data Science Applications in MDM:** I would like to investigate how machine learning algorithms can be integrated with MDM processes to automate data cleansing, improve data quality, and identify data anomalies. This could involve exploring techniques like anomaly detection, data classification, and natural language processing (NLP) for data enrichment.
- **MDM as a Data Source for Data Science Projects:** I see significant potential in utilizing the clean and standardized data managed by MDM systems as a foundation for building robust data science models. This would involve learning how to extract relevant data sets from the MDM platform and prepare them for advanced analytics and machine learning projects.
- **Master Data Governance in a Data Science Context:** Understanding how data governance principles established within MDM can be applied to ensure the quality, consistency, and security of data used for data science projects is crucial. This would involve exploring data lineage tracking and access control mechanisms within the MDM framework.

By pursuing these areas, I aim to establish myself as a data professional with a unique understanding of both data management and data science. This combined skillset will allow

me to contribute significantly to building robust data pipelines and generating valuable insights for organizations.

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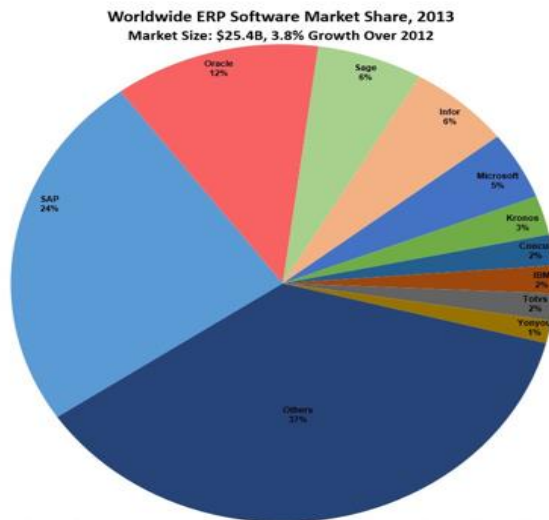
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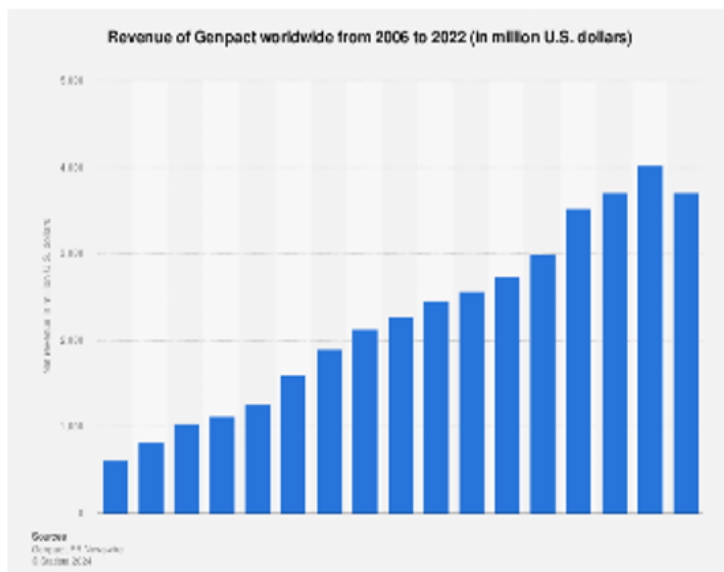
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## APPENDICES



SAP Market Cap



Genpact Revenue'

## Genpact Ltd.



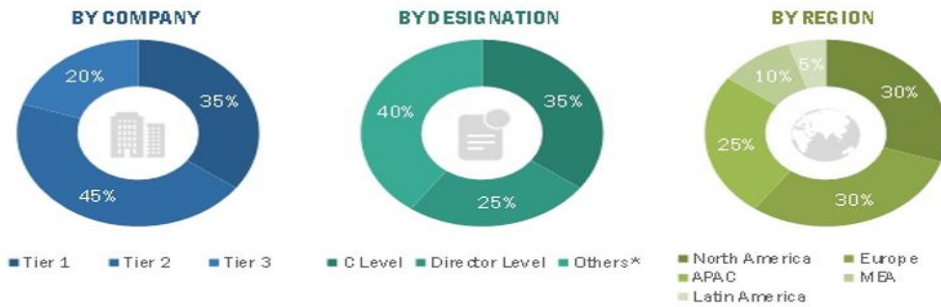
genpact

<b>Company type</b>	Public
<b>Traded as</b>	NYSE: G <a href="#">↗</a> S&P 400 Component
<b>ISIN</b>	BMG3922B1072
<b>Industry</b>	Professional services Information technology Consulting
<b>Founded</b>	1997; 27 years ago Gurgaon, India
<b>Headquarters</b>	New York City, New York, U.S.
<b>Key people</b>	Balkrishnan "BK" Kalra (CEO) <sup>[1]</sup>
<b>Revenue</b>	▲ \$4.48 billion (2023)
<b>Operating income</b>	▲ \$736 million (2023)
<b>Net income</b>	▲ \$631 million (2023)
<b>Total assets</b>	▲ \$4.81 billion (2023)
<b>Total equity</b>	▲ \$2.25 billion (2023)
<b>Number of employees</b>	125,000 (2023)
<b>Website</b>	<a href="http://www.genpact.com">www.genpact.com</a> <a href="#">↗</a>

**Footnotes / references**  
<sup>[2]</sup>



Genpact locations



Note: Tier 1 companies comprise the overall annual revenue of >USD 10 billion; tier 2 companies' revenue ranges in between USD 1 and 10 billion; and tier 3 companies' revenue ranges in between USD 500 million–USD 1 billion

Source: MarketsandMarkets Analysis

Master Data Management Market Size & Forecast, Growth Analysis

- Genpact purpose: <https://www.genpact.com/purpose>
- Cpg (Consumer Product Goods) | Genpact  
<https://www.genpact.com/industries/consumer-goods-and-retail/consumer-goods>
- data & technology | Genpact:  
<https://www.youtube.com/watch?v=rD8rLshWXAg>
- Discover How Data Analytics Can Transform Your Business | Genpact  
<https://www.youtube.com/watch?v=Z0pEG4eZAT0>

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## SKILLS

C++, Java, Javascript, HTML, SQL, Data Structures and Algorithms, OOPS, Node.js.

**Tools:** Android Studio, Git, Git Hub, Google Firebase SAP.

**Framework:** React Native, SDLC,.

**Code editors/IDE:** Visual Studio Code, Sublime Text, Android Studio, MySQL Workbench.

## WORK EXPERIENCE

**Homians Pvt Ltd,**

Jan 2022 – Jul 2022

**Android Developer Intern** ([certificate](#))

Greater Noida

- Spearheaded the development of an Android app for food ordering with payment acceptance (**Razorpay**), cart system, and authentication system, serving 280 active users and processing **1,100 transactions weekly**.
- Delivered the app within a tight deadline of **6 months**, resulting in a **20%** decrease in app crashes and a 15% increase in overall user satisfaction.
- **Tools used:** Kotlin, Android Studio, Google Firebase.

## PROJECTS

**CRYPTOMETER** | [GitHub](#)

- Developed a cryptocurrency market tracking application using **Javascript** and **React Native**, integrated **charting functionality** to display historical performance data of cryptocurrencies.
- Implemented the **Context API** and **Recoil library**, resulting in a **20%** reduction in app loading times, and utilized the **AXIOS library** for **real-time data updates**, enabling users to create and manage personalized portfolios tailored to their investment preferences.
- **Tools used:** Javascript, React Native, Node.js, Expo, API, Firebase, Android Emulator.

**THEATRE** | [GitHub](#)

- Developed **dynamic movie ticket app** with **Javascript**, **React Native**, and integrated **Sanity CMS**, resulting in **25%** increased user engagement through real-time content updates and enhanced user experience.
- Streamlined cart system using **React Redux**, leading to a **20%** decrease in cart abandonment rate and improved transaction success rates by **30%** after integrating **Razorpay** for efficient payment processing.
- Maintained **100%** accuracy in seat booking records using **Sanity backend storage**.
- **Tools used:** Javascript, React Native, Node.js, Expo, API, Android Emulator, Sanity.

**SMARTCHECK ATTENDANCE** | [GitHub](#)

- Developed an application utilizing **QR code scanning** technology. Integrated with **Google Apps Script**, the system saved an estimated 2 hours per teacher per week, resulting in a **25%** reduction in administrative tasks related to attendance management.
- Streamlined attendance management for teachers by providing real-time access to an online attendance sheet, **reducing manual record-keeping and administrative tasks**.
- **Tools used:** Kotlin, Google Firebase, Android Studio, Android Emulator.

## EDUCATION

**B.Tech Computer Science Engineering**

2024

Noida Institute of Engineering and Technology, Greater Noida.

CGPA: 8.1

## AWARDS/ACHIEVEMENT

- Served as an **Android Lead** at the **Google Developer Student Club**, NIET. ([Certificate](#))
- A Winner in IOTRON organized by the **Institutions Innovation Council (IIC)** of NIET, Greater Noida.
- Selected in the **top 3 teams** at the college level in the **Hardware edition of Smart India Hackathon 2022**.

## CERTIFICATIONS

- Goldman Sachs Engineering Virtual Program. ([Certificate](#))
- Accenture Developer Virtual Experience Program. ([Certificate](#))
- Object Oriented Programming in Java. ([Certificate](#))

