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G-Cloud 14

Data Engineering, AI, and Gen-AI Services
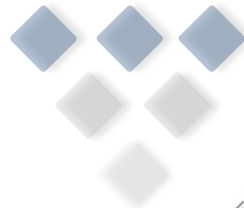
www.nablainfotech.com

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About Nabla

Nabla Infotech is a leading provider of software solutions and consulting services to clients globally. Our extensive services encompass technology consulting, data engineering, data science, bespoke application development and maintenance, process, technology re-engineering, and quality assurance services. We excel in creating, managing, and optimizing large-scale business outcomes.

Nabla is proud to have a global footprint with a strong presence in key markets like the USA and the UK and a state-of-the-art Global Development Center (GDC) in Pune, India. Our local presence in the USA and UK allows us to understand the unique business landscapes, cultural nuances, and regulatory environments, enabling us to deliver tailored solutions that meet our clients' specific needs and preferences.

Our GDC in Pune, India, is at the heart of our operations. This vibrant city is a hub of IT excellence, home to world-class educational institutions and a rich pool of highly skilled technical talent. By tapping into these resources, we ensure that our teams are equipped with the expertise and capabilities needed to deliver cutting-edge solutions to our global clients.

Our global delivery model enables us to offer cost-effective and scalable services to our clients worldwide. With teams operating in different time zones, we ensure round the clock support, timely delivery, and seamless communication, maximizing efficiency and minimizing project turnaround times.

At Nabla Infotech, we are committed to operational excellence. We achieve this through strategic automation of our internal business and operational processes, leading to increasingly shorter turnaround cycles. By adopting the best DevSecOps practices and a comprehensive pipeline of ALM tools, we ensure the delivery of quality solutions with tangible benefits to our clients, such as accelerated time to market, budget control, and enhanced service reliability and security.

In our pursuit of offering sophisticated services along the value chain, we have established knowledge management groups. Additionally, we ensure that all our resources undergo periodic training in cutting-edge technologies and best practices.

Overview of Nabla Services

At Nabla, we pride ourselves on delivering unparalleled excellence in data engineering, management, governance, master data management, analytics, Databricks implementation, and maintenance services.

Nabla has distinguished Artificial Intelligence (AI) and Generative Artificial Intelligence (GenAI) Advisory Service. We provide unparalleled expertise in harnessing the transformative potential of AI and GenAI technologies, delivering customized solutions that drive innovation, efficiency, and growth.

Nabla is proud to be a leader in deploying cutting-edge AI strategies, backed by a team of world-class experts who bring deep industry knowledge and technical prowess. Our advisory service helps organizations navigate the complexities of AI implementation, from ideation to execution, ensuring they stay ahead in a rapidly evolving digital world.

Our service equips clients with state-of-the-art tools and methodologies that enable them to develop more innovative solutions, streamline operations, and exploit predictive insights that lead to superior results. Whether it's streamlining processes, improving decision-making, or discovering new avenues, our AI and GenAI Advisory Service is your ally in transforming today's possibilities into tomorrow's triumphs.

With our comprehensive suite of data science, AI consulting, and generative AI services, we're ready to help you harness artificial intelligence's full potential and drive innovation, growth, and success in your organization.

Nabla excels in architecting and implementing robust data pipelines that ensure smooth data flow across your organization. From ingestion to transformation and storage, our engineering solutions are meticulously tailored to your specific needs, demonstrating our commitment to harnessing your data's full potential.

With our comprehensive data management services, we help you organize, secure, and govern your data effectively. From data quality management to metadata management and beyond, we ensure that your data assets are optimized for performance, reliability, and compliance.

We understand the importance of data governance in today's data-driven world. Our experts work closely with you to establish and enforce policies, processes, and controls that ensure data integrity, confidentiality, and availability, mitigating risks and ensuring regulatory compliance.

Our master data management services provide a single, authoritative source of truth for your critical data assets. By standardizing, harmonizing, and centralizing your master data, we enable you to improve data quality, consistency, and accuracy across your organization, driving better decision-making and operational efficiency.

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Our data scientists and analysts are adept at extracting actionable insights from your data. Whether descriptive, diagnostic, predictive, or prescriptive analytics, we leverage state-of-the-art techniques and tools to uncover valuable patterns and trends that drive informed decision-making.

As certified Databricks partners, we specialize in implementing and optimizing Databricks solutions for your business. From setting up clusters to optimizing workloads and providing ongoing support, we empower you to leverage the full potential of Databricks for your data analytics and AI initiatives.

Nabla's team of data scientists and AI experts leverages advanced algorithms and techniques to extract actionable insights and drive transformative outcomes for your business. Whether it's predictive modeling, machine learning, natural language processing, or computer vision, we have the expertise to tackle complex challenges and unlock new opportunities, inspiring a new era of success for your business.

We provide strategic guidance and expertise to help you navigate the rapidly evolving landscape of artificial intelligence. From developing AI roadmaps to identifying use cases and assessing feasibility, we work closely with you to design and implement AI solutions that align with your business objectives and deliver tangible value. Our holistic approach ensures that AI is integrated seamlessly into your workflows and processes, driving innovation and competitive advantage.

Our generative AI services push the boundaries of creativity and innovation, enabling you to unlock new possibilities and differentiate your brand in the market. Whether generating personalized content, designing unique products, or optimizing business processes, our generative AI solutions empower you to achieve unprecedented efficiency and innovation. With our cutting-edge technologies and creative expertise, we're redefining what's possible with AI and driving meaningful impact for your business.

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Service Differentiators

Data and AI		
Nabla's data engineering solutions with streamlined data pipelines that significantly reduce time-to-insight. Our optimized processes ensure rapid data ingestion, transformation, validation, and delivery, accelerating your analytics and decision-making processes by **30%**.	Our data management solutions deliver measurable improvements in data quality and reliability, with a proven track record of reducing errors and discrepancies by **85%**.	Our generative AI solutions deliver measurable results, with a demonstrated **45%** increase in productivity and a significant decrease in time-to-market for new products and services. By harnessing the creative power of AI, we enable you to unlock new opportunities and differentiate your brand in the market.

- Nabla's accelerator products
  - ChangeTracker Pro: ChangeTracker Pro is a cutting-edge solution crafted to simplify and enhance Change Data Capture (CDC) in SQL and NoSQL databases. With an unwavering focus on efficiency and reliability, ChangeTracker Pro empowers organizations to seamlessly identify and capture data modifications, facilitating smooth data replication and synchronization from source to target systems.

    ChangeTracker Pro meticulously identify, and capture alterations made to data. By leveraging database transaction logs, our solution ensures comprehensive coverage and accuracy in tracking data modifications.

    ChangeTracker Pro seamlessly captures changes to tracked tables using transaction logs, enabling swift and precise replication of data changes across disparate systems. Experience unparalleled efficiency in data transfer with minimized volume and optimized performance.

  - Data Integrity Pro is your solution for ensuring data quality across your organization's diverse datasets. With its intuitive graphical user interface (GUI), Data Integrity Pro seamlessly connects to source and target databases and perform various pre-configured validations.

    Data Integrity Pro equips you with a robust toolkit for defining and verifying data quality rules. From completeness and consistency checks to custom query validation and schema verification, our utility ensures that your datasets adhere to stringent quality criteria.

    Harness the power of Apache Spark for large-scale data processing and analysis. Data Integrity Pro seamlessly integrates with Apache Spark,

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empowering you to tackle complex data quality challenges with unparalleled scalability and performance.

Define and enforce a wide array of data quality rules, including count checks, data type validation, special character detection, and more, tailored to your organization's unique requirements. Whether you're dealing with small datasets or vast data lakes, Data Integrity Pro scales effortlessly to meet your evolving data quality management needs. Seamlessly integrate Data Integrity Pro into your existing data warehousing, ETL, and business intelligence workflows.

Elevate your data quality management efforts to new heights with Data Integrity Pro. Experience unparalleled accuracy, scalability, and efficiency in ensuring data integrity across your organization. Unlock the full potential of your data today.

- Skilled talent pool
- Time zone advantage
- Agility and flexibility
- Engagement and loyalty
- Knowledge transfer and training for in-house teams

Key Features

- Advisory services
  - Evaluate AI maturity and readiness across personnel, processes, and technology.
  - Develop a perspective and strategy for AI and GenAI implementation.
  - Create a value-driven use-case roadmap, aligned with business readiness and strategic vision.
  - Assess AI maturity and readiness of the existing data environment.
  - Provide analysis and advice on the latest AI tools and platforms.
  - Plan AI economics to develop and manage cost-effective solutions.
  - Ensure ethical compliance in implementations through clarity and explain-ability.
  - Organize transformation and delivery with proven methods and templates.
  - Design business processes, manage change, align stakeholders, and coordinate efforts.
  - Assist with the expansion, operationalization, and ongoing management of services.
- Data Roadmap and Strategy
- Data Platforms (Hadoop, Spark)
- Data exploration
- Data Mining
- Data modeling
- Cloud data engineering (AWS, Azure, Google Cloud)
- Data processing
- Data lakes and data warehousing solutions
- Data Modernization
- Databricks Implementation
- Cloud Data warehouse tools (Snowflake, AWS Redshift and Azure Synapse)
- Master Data Management (MDM)
- Data Governance
  - Data Quality
  - Data Catalog
  - Data Security (RBAC, ABAC)
  - Data Cleansing
  - Governance rules and Policies
- Data Analytics
- BI Tools (Tableau, Power BI, Business Object, Cognos, OBIEE, OBIA & Hyperion)
- Artificial Intelligence and Machine Learning (AI & ML)
  - Generative AI
  - Predictive Analytics
  - Spend Analytics
  - Sentiment Analytics
  - Neural Networks
  - Machine Learning Libraries (TensorFlow, PyTorch)
- Data visualization

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- Customer Data Platform (CDP)
- Data Fabric (one lake architecture)
- Datamesh
- Medallion Architecture

Business Benefits

- Solve complex problems by automating and optimizing processes.
- Skilled in evaluating business preparedness.
- Enhances service efficiency and effectiveness with tailored solutions.
- Reduces reputational risks linked to biases in AI and ML models.
- Capable of deploying AI and GenAI on a large scale.
- Able to formulate and execute AI and GenAI strategies.
- Minimizes delivery risks through the expertise of a global partner.
- Actionable business insights
- Advanced data management
- Competitive advantage through analytics
- Custom analytics dashboard development
- Predictive maintenance solutions
- Data literacy workshops
- Digital skills training
- Data governance and security compliance
- Continuous data optimization
- Knowledge transfer and training for in-house teams
- Improved automation, security, and standardization
- Cost savings and improved operational productivity.
- Prevention of potential financial losses from discrepancies.
- Improved processing speed and reduced time to market.
- Enhanced reliability of the data.

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Technologies, Vendor, Methodologies Supported

Nabla supports a wide array of cutting-edge technologies, utilizes the latest toolset, and adheres to industry best practices and standards.

Nabla's data engineering solutions leverage cutting-edge technologies such as Apache Spark, Apache Kafka, and Apache Airflow to build scalable and resilient data pipelines. We embrace agile methodologies such as DevOps and CI/CD to ensure rapid development and deployment of data solutions.
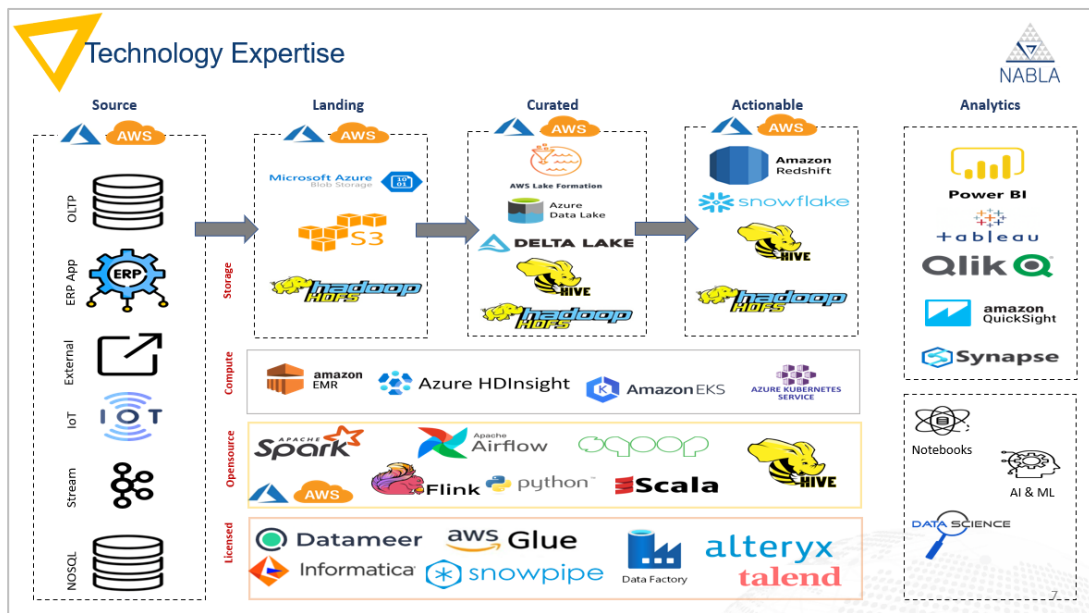
We partner with leading vendors such as Microsoft to provide best-in-class data management solutions. Our approach combines industry-standard methodologies like DAMA-DMBOK with customized frameworks to address your specific data management challenges.

Our data governance solutions are built on top of industry-standard frameworks. We harness the power of technologies like Apache Hadoop, Apache Spark, and Elasticsearch to perform advanced analytics on your data. Our analytics methodologies include descriptive, diagnostic, predictive, and prescriptive analytics, supported by tools such as Tableau, Power BI, and Google Data Studio.

As certified Databricks partners, we specialize in implementing and optimizing Databricks solutions for your business. We follow the Databricks Unified Analytics Platform methodology, leveraging features like Delta Lake and MLflow to accelerate your data science and machine learning initiatives.
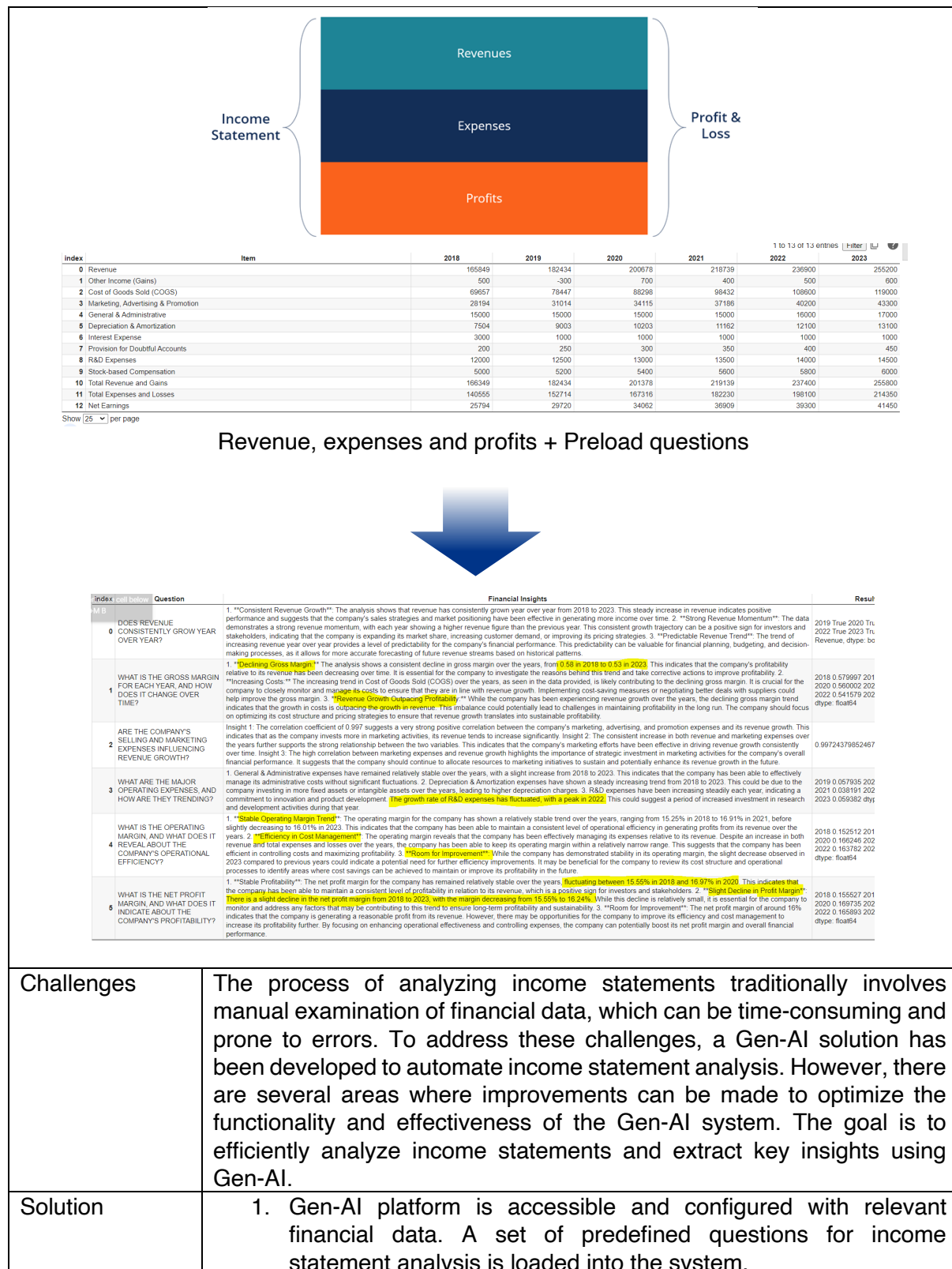
Our data science and AI solutions utilize a wide range of technologies including Python, R, TensorFlow, and PyTorch. We follow industry-standard methodologies such as CRISP-DM and TDSP to deliver end-to-end data science projects, from data preparation to model deployment.

Nabla harnesses the power of platforms like AWS, Microsoft Azure, and Google Cloud for our clients. Whether it's building scalable applications, deploying robust infrastructure, or leveraging advanced cloud services like AI, machine learning, and big data analytics, we excel in maximizing the potential of the cloud to fuel business growth and agility. We have forged strategic alliances with top-tier cloud vendors, enabling us to access cutting-edge technologies, exclusive resources, and specialized support. Our partnerships ensure that we stay ahead of the curve, offering our clients the most advanced solutions and expert guidance to navigate the complexities of the cloud landscape.

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Technology Expertise
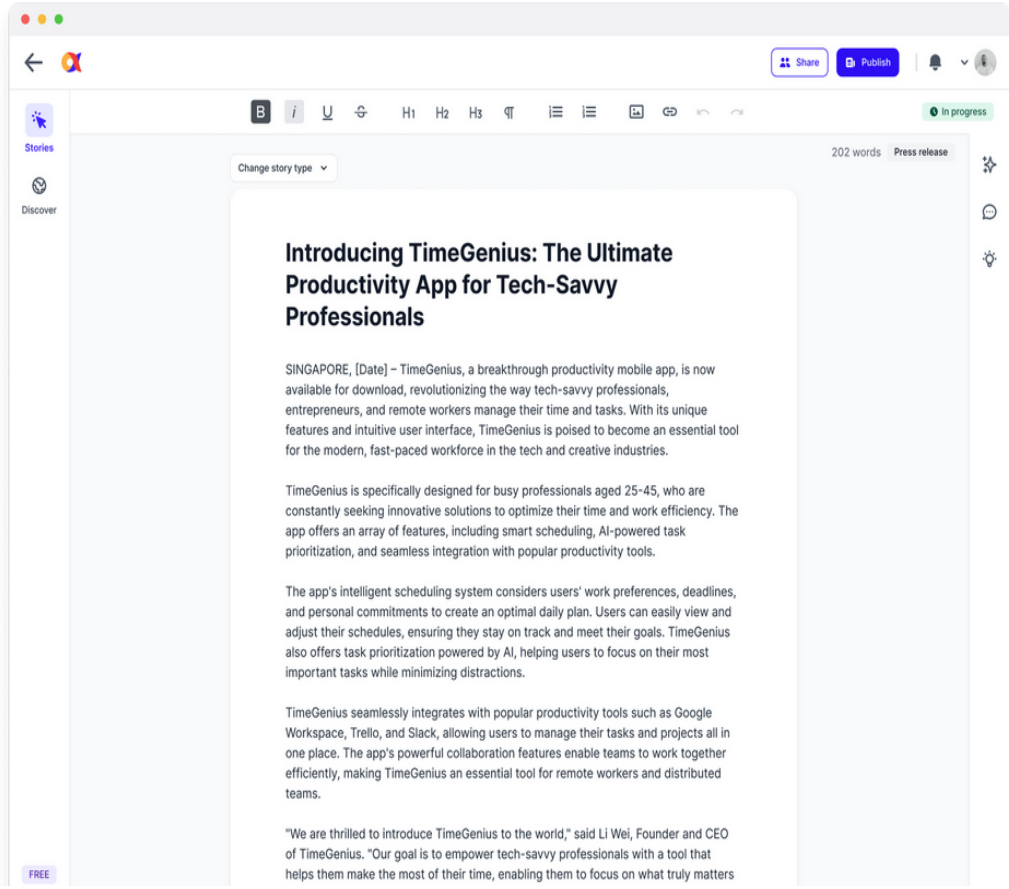
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Client Success Stories

Collaboration platform for standards development – SaaS Solution

Revenue, expenses and profits + Preload questions

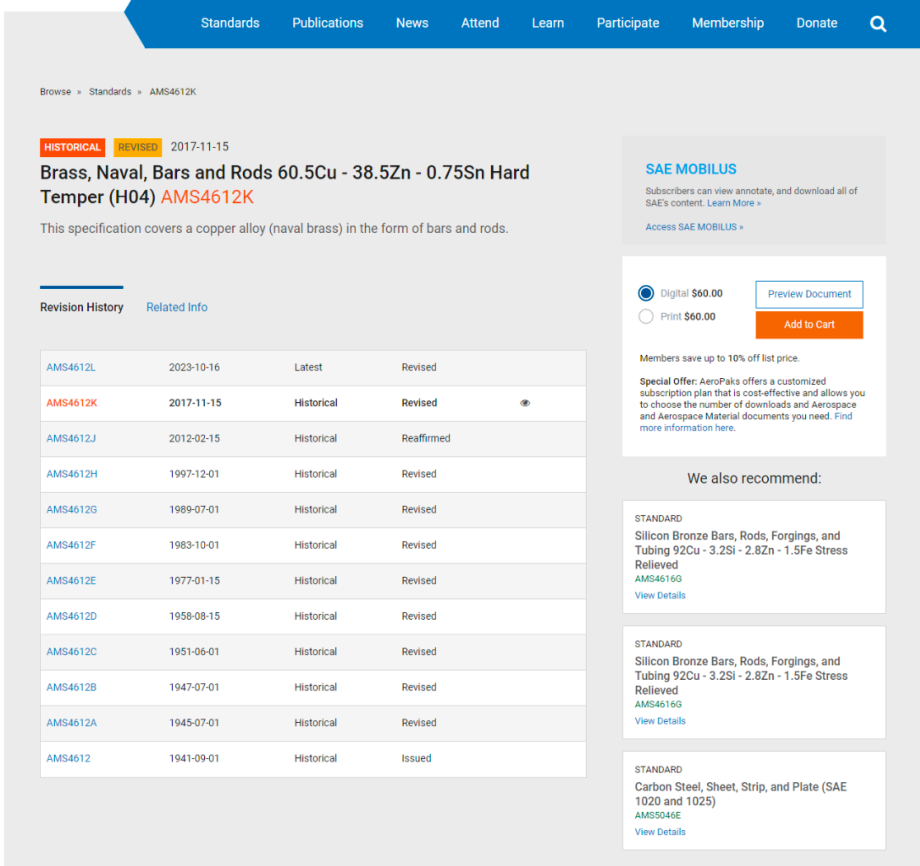|	Challenges	The process of analyzing income statements traditionally involves manual examination of financial data, which can be time-consuming and prone to errors. To address these challenges, a Gen-AI solution has been developed to automate income statement analysis. However, there are several areas where improvements can be made to optimize the functionality and effectiveness of the Gen-AI system. The goal is to efficiently analyze income statements and extract key insights using Gen-AI.
	Solution	1. Gen-AI platform is accessible and configured with relevant financial data. A set of predefined questions for income statement analysis is loaded into the system.

	2. The system presents a set of predefined questions relevant to income statement analysis. The financial analyst can configure these questions according to specific requirements, such as adding, removing, or modifying questions based on the analysis goals. Once satisfied, the analyst confirms the question set and proceeds to the next step.
	3. The Gen-AI module processes the uploaded income statement data row by row, focusing on the specified questions for each row. For each question, the AI algorithm extracts three key insights based on the data in the respective row. These insights may include metrics such as operating margin, revenue growth rate, net income, etc.
	4. After analyzing each row, the system compiles the extracted insights into a structured table format. Each row of the table corresponds to a data row from the income statement, while columns represent the predefined questions and the insights derived from them.
Benefits	The Gen-AI platform displays the generated insights table to the financial analyst. Analysts can review the insights to gain a deeper understanding of the income statement's performance and identify areas of strength or concern. The financial analyst gains valuable insights into the income statement data, aiding in informed decision-making and strategic planning. The Gen-AI platform stores the analysis results for future reference and may offer options for exporting or sharing the insights with stakeholders.

Similar use cases	The financial data of U.S. hospitals and healthcare providers can be segmented into several key areas, reflecting the diverse sources of revenue, areas of expenditure, and financial challenges these entities face. Here's an overview based on available information:
	
	• Revenue Segments:
	   o Patient Care Services: The primary revenue for hospitals and healthcare providers comes from patient care, including inpatient, outpatient, and emergency services.
	   o Government Programs: Medicare and Medicaid payments are significant revenue sources, especially for services provided to the elderly and low-income populations.
	   o Private Insurance: Payments from private health insurance companies for services rendered to their policyholders.
	   o Other Revenues: This can include investment income, donations, and revenue from non-patient care activities such as cafeterias and gift shops.
	
	• Expenditure Segments:
	   o Labor Costs: Salaries, benefits, and training for doctors, nurses, and administrative staff represent the largest expense for most hospitals.
	   o Supplies and Drugs: Costs associated with medical supplies, pharmaceuticals, and equipment necessary for patient care.

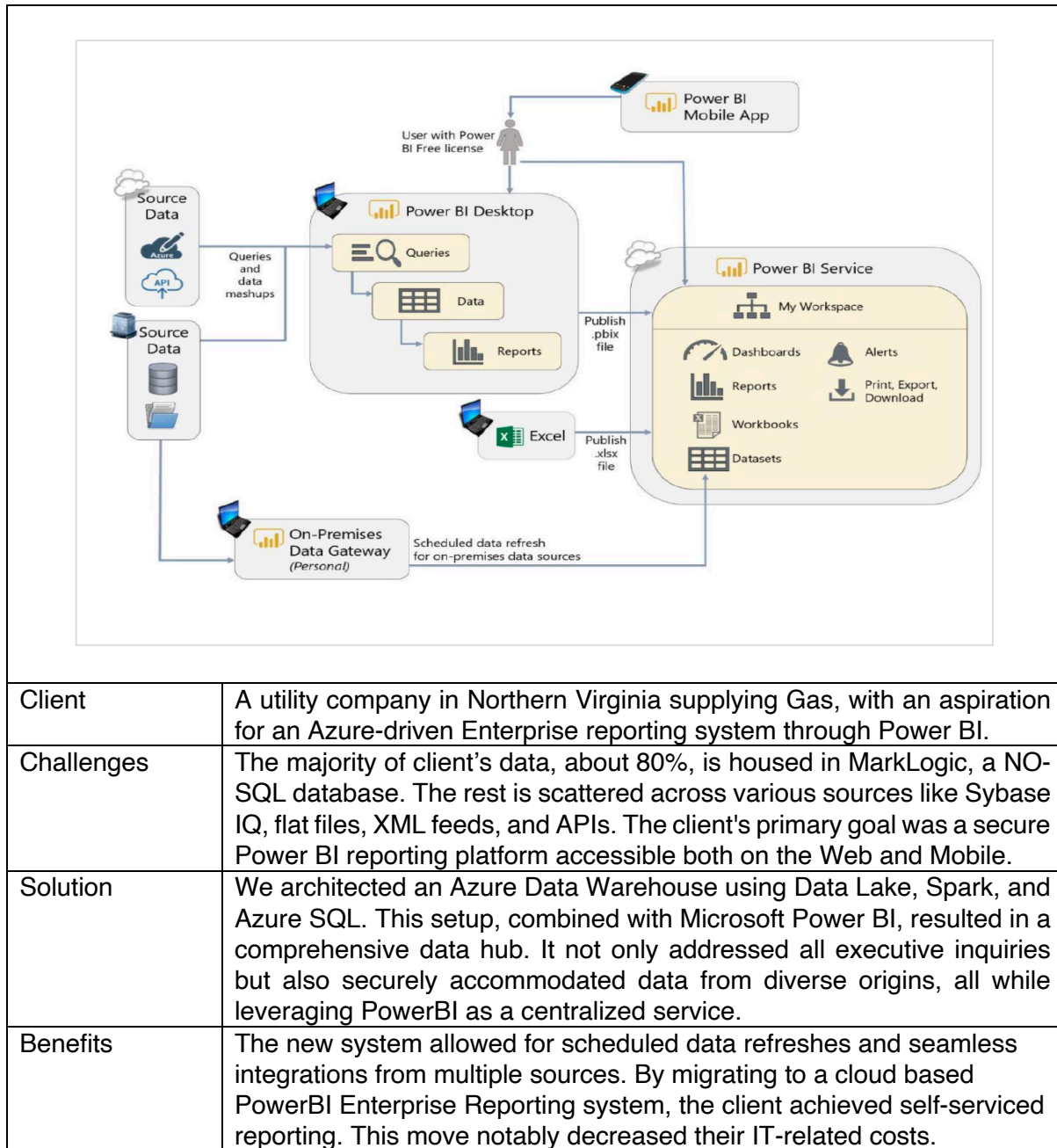|	- Facilities and Operations: Expenses related to maintaining hospital buildings, utilities, and other operational costs. - Technology and Innovation: Investments in healthcare IT, electronic health records (EHRs), telehealth, and other technological advancements to improve care delivery and operational efficiency. • Financial Challenges: - Rising Costs: Increased expenses for labor, drugs, and supplies, often outpacing revenue growth. - Regulatory Changes: Adjustments to government reimbursement rates and healthcare policies can impact financial stability. - Payer Mix and Reimbursement Rates: The mix of patients covered by Medicare, Medicaid, private insurance, or uninsured can significantly affect revenue, as can the rates negotiated with payers. - Pandemic Impact: The COVID-19 pandemic has introduced new costs and operational challenges, affecting financial performance. • Trends and Forecasts: The nonprofit hospital sector is expected to stabilize in 2024 with increases in reimbursement rates and patient volumes helping to offset labor expense challenges. An anticipated 10% to 20% increase in median operating cash flow across 2024 is a positive sign, reflecting a financial recovery marked by an uptick in cash flow margins. Healthcare profit pools are projected to grow, with payer profit pools increasing to $78 billion by 2027, a 5% CAGR from 2022. This growth is partly due to recovery in the market and margin recovery in the commercial segment. Hospitals and health systems have been facing significant financial pressures, exacerbated by increased costs for labor, drugs, and supplies, alongside the challenge of government reimbursement rates not fully covering the cost of patient care. These segments and challenges highlight the complex financial landscape U.S. hospitals and healthcare providers navigate, underscoring the need for strategic financial management, cost containment efforts, and adaptation to changing healthcare demands and regulatory environments.

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Gen-AI & ML Powered PR Tool

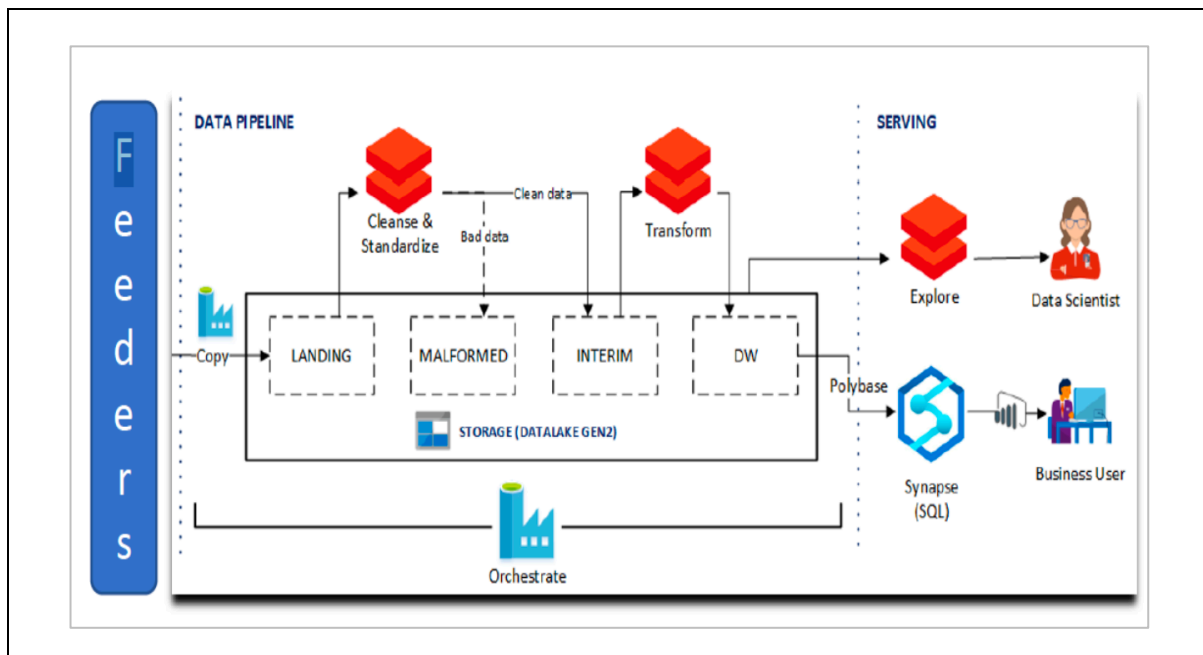| Client	Singapore-based founder with 8+ years in PR Agency created an AI-powered PR tool
Challenges	Using our experience building Gen AL Solution, we helped a Singapore-based company with 8+ years in PR create an AI-powered PR tool, AlphaStory https://alphastory.co/
Solution	1. Understood the problem statement, built out designs, and then developed the MVP. 2. Added critical feature enhancements to improve the product. We have collaborated with the agency on tuning the model from the importance of trust-building and implementation of AI in the PR space with a global perspective. 3. We have used LLMs, and vector databases with Lang chain framework to build this solution.
Benefits	1. Client Acquisition: Achieved a 70% boost in new client onboarding since the launch. 2. Increased Revenue: Achieved 45% increase in revenue increase for clients.

Recommendation engine for eCommerce application – AI/ML

Client	A leading technical specifications publisher aimed to boost engagement and cross-sell opportunities across its products.
Challenges	Data inadequacies hindered machine learning model development, with unclear associations between product lines and inconsistent customer purchase data.
Solution	1. Implemented a thorough data cleansing process for machine learning readiness. 2. Employed EDA, association mining rules, and a custom ensemble with various algorithmic weights to produce a recommendation model offering 3-5 top product-line suggestions for every item. 3. Enhanced the model using product taxonomy, NLP sentiment analysis from product content feedback, and e-commerce log data.
Benefits	• Deployed the model on e-commerce and subscription platforms. • Customers spent, on average, 25x longer on the subscription platform per session. • Over three years, the e-commerce platform saw $2M in product line cross-sells.

Azure & Power BI: Fueling Northern Virginia's Gas Reporting

Client	A utility company in Northern Virginia supplying Gas, with an aspiration for an Azure-driven Enterprise reporting system through Power BI.
Challenges	The majority of client's data, about 80%, is housed in MarkLogic, a NO-SQL database. The rest is scattered across various sources like Sybase IQ, flat files, XML feeds, and APIs. The client's primary goal was a secure Power BI reporting platform accessible both on the Web and Mobile.
Solution	We architected an Azure Data Warehouse using Data Lake, Spark, and Azure SQL. This setup, combined with Microsoft Power BI, resulted in a comprehensive data hub. It not only addressed all executive inquiries but also securely accommodated data from diverse origins, all while leveraging PowerBI as a centralized service.
Benefits	The new system allowed for scheduled data refreshes and seamless integrations from multiple sources. By migrating to a cloud based PowerBI Enterprise Reporting system, the client achieved self-serviced reporting. This move notably decreased their IT-related costs.

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Oncology Data Transformation: Enhancing Analytics with BI Solutions

Client	Renowned R&D company in oncology, serving patients in China, the US, and the EU.
Challenges	- Struggled with the maintenance of research data feeds. - Required on-the-fly ad-hoc reports on various research topics, such as trial data reliability and third-party data validity. - Sought faster response times for cloud-generated reports. - Needed automated anomaly detection in trial and other data.
Solution	- Developed a BI solution leveraging Big Data and OLTP, integrated with Azure DWH Analytics and Data Lake. - Set up automated tools and practices using Azure DevOps. - Integrated Databricks, Data Factory, and Polybase with Synapse Analytics for a cutting-edge Analytics Datawarehouse solution that manages drifting and SCD records. - Designed a futuristic, scalable, and multi-cloud infrastructure. Integrated platforms include AWS S3, Azure Blob, SAP APIs, and Data Lake.
Benefits	- Enhanced reliability of trial and third-party data. - Boosted anomaly detection response time by **40%**. - Transitioned the client to the Cloud, reducing infrastructure costs by **25%**. - Improved processing speed and reduced time to market.

Why Nabla?

At Nabla, we understand that choosing the right IT partner is crucial for your business's success. We are more than just an IT vendor; we are your trusted partner in digital transformation.

With Nabla's unwavering commitment to customer satisfaction, we foster enduring partnerships built on trust, transparency, and mutual respect. Your contentment is our paramount concern. From the initial consultation to post-launch support, we pledge to deliver exceptional service at every juncture.

With a global footprint and local presence in key markets, we're well-positioned to serve clients worldwide. Whether based in the USA, the UK, Europe, or beyond, you can count on Nabla to deliver reliable, cost-effective solutions that drive tangible results for your business.

Nabla's Differentiator

- Skilled talent pool: Top-tier talent with expertise in cutting-edge technologies
- Proven track record: Track record of successful project deliveries considering time, budget, and quality.
- Cost effectiveness: High-quality services at competitive rates
- Quality assurance and compliance: Prioritizing quality assurance, adherence to industry standards, and compliance with regulatory requirements
- Agile methodologies: Experience in agile methodologies for software development adding flexibility, transparency, and ability to deliver value iteratively.
- Cultural compatibility: Experience working with clients from diverse cultural backgrounds.
- Innovation and creativity: Commitment to innovation, emerging technologies, and continuous learning
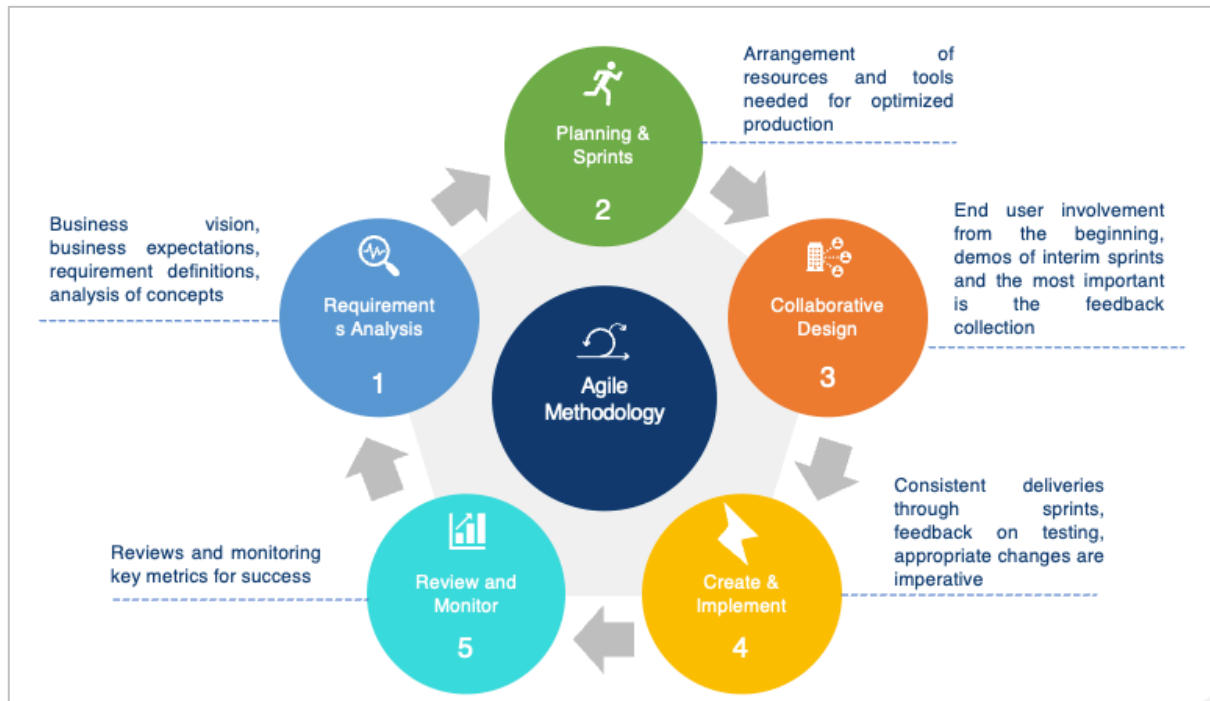
Nabla's Approach

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1. Nabla starts by thoroughly evaluating the client's existing landscape, including their current applications, maintenance practices, and product offerings. This assessment involves understanding the client's business objectives, market position, target audience, and technological infrastructure.
2. Following the landscape assessment, Nabla conducts a comprehensive gap analysis to identify discrepancies between the client's current and desired state. This assessment involves scrutinizing application performance, user experience, feature set, scalability, security, and maintenance requirements.
3. Based on the landscape assessment and gap analysis findings, clear and measurable goals are defined in collaboration with the client. These goals are aligned with the client's business objectives and serve as the foundation for the project's scope, timeline, and success criteria.
4. A customer discovery workshop is organized to gain deeper insights into the client's business needs, user preferences, pain points, and market dynamics. Stakeholders, end-users, and subject matter experts are engaged in collaborative sessions to gather valuable feedback and refine project requirements.
5. Leveraging insights from the landscape assessment, gap analysis, and customer discovery workshop, the company designs tailored solutions to address identified challenges and opportunities. Solution design encompasses architectural planning, technology selection, development methodologies, and scalability considerations to ensure alignment with client goals.
6. With a well-defined roadmap and solution design, the company proceeds with the execution phase, encompassing application development, maintenance, and product development activities.

Skilled development teams collaborate closely with clients to build robust, scalable, and user-centric applications that meet project requirements and quality standards. Continuous communication, transparency, and collaboration ensure that development efforts are aligned with business objectives and user expectations. Post-launch, the company provides ongoing application maintenance and support services to ensure optimal performance, stability, and security. Proactive monitoring, issue identification, and resolution are prioritized to minimize downtime and enhance user satisfaction.

The company emphasizes continuous improvement and optimization throughout the application development, maintenance, and product development lifecycle. Feedback loops, performance metrics, and post-implementation reviews are utilized to identify areas for enhancement and drive ongoing innovation.

By following this comprehensive approach, the company ensures that its application development, maintenance, and product development services are aligned with client objectives, user needs, and market trends, ultimately delivering value-driven solutions that drive business growth and success.

Methodology

At Nabla, we pride ourselves on our Agile methodology for application and product development. Our approach is centered around delivering value to our clients efficiently, collaboratively, and iteratively. For Nabla, the Agile methodology for application and product development is not just the process; we have embraced the Shift Left approach to software development, putting quality at the forefront of everything we do.

Agile methodology is a strategic philosophy that drives our commitment to excellence. When you choose Nabla, you are choosing a partner who prioritizes quality, collaboration, and innovation at every stage of the development journey. We are not just building software – we're building success. Rapid time-to-market, flexibility and adaptability, continuous collaboration, customer-centric focus, quality assurance and continuous improvement, transparent communication and visibility are the key benefits that clients can be assured of.

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Team Structure & Governance
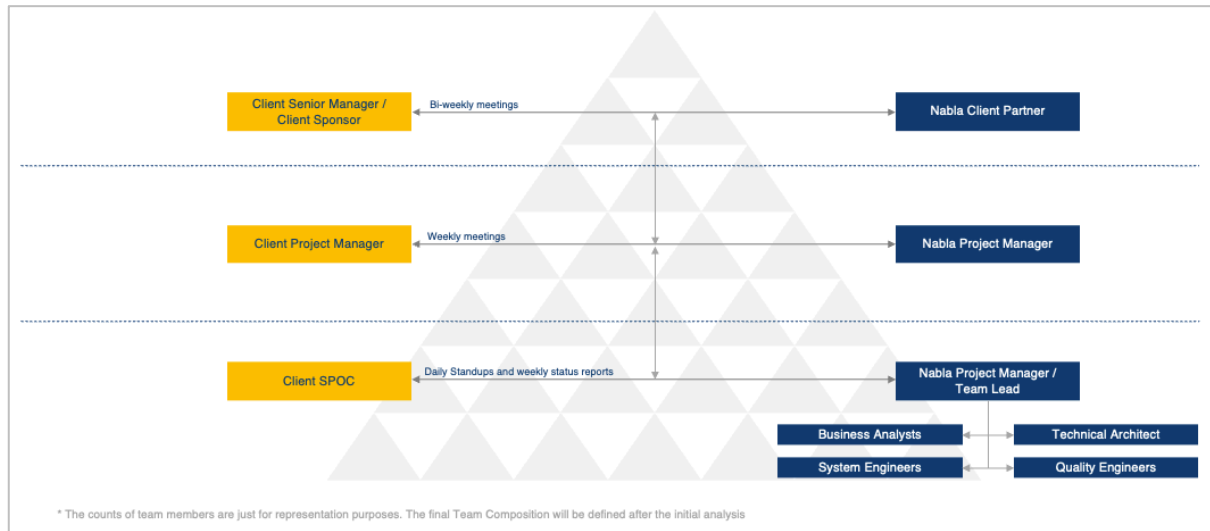
At Nabla, our team structure and governance are designed to ensure seamless collaboration, effective communication, and successful project delivery. Our team is designed to minimize risk and deliver exceptional results for every project with benefits like dedicated client teams, clear communication channels, transparent governance framework, proactive risk management, and continuous improvement.

Further Information

For more information about our G-Cloud services, please contact our Public Sector team at reachout@nablainfotech.com.

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