## isG Provider Lens™

# Digital
# Engineering
# Services

Analyzing digital engineering capabilities
from design to customer experience

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## Introduction

With the rise of technological advancements, enterprises seek transformative journeys leveraging digital technologies to expedite product and service development with enhanced quality and experience. ISG reports a 36 percent growth in the engineering market's ACV, surpassing its five-year average by 90 percent, with over 25 acquisitions in this space (ISG Index Insider).

The digital engineering market is driven by AI and industrial automation technologies, including GenAI in design, digital twins, virtual prototyping and industry 5.0, streamlining design-to-execution processes and enterprise platform outcomes, reducing operational and strategic risks, innovation cycle times and costs associated with the enterprise value chain and ecosystem.
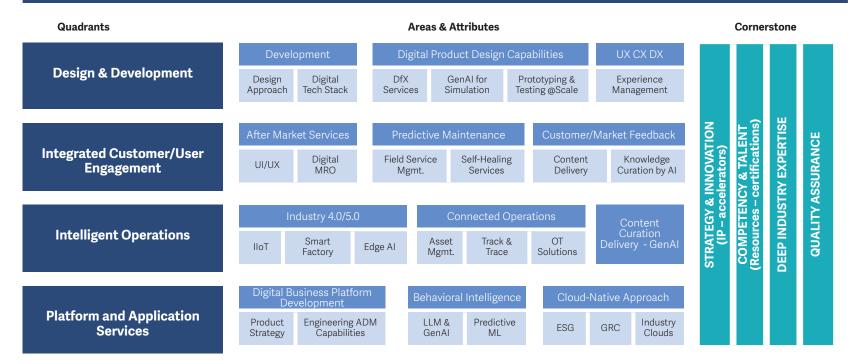
Mobility, big data, AI/GenAI, ML, IIoT and predictive analytics drive visibility, traceability, reliability and consistency across the value chain.

This transformation digitizes the value chain, impacting foundational engineering services from product innovation to aftermarket services. The importance of tracking and tracing has heightened as it establishes a product's lineage and historical record throughout its value-addition process.

The GenAI Technology has elevated expectations for digital engineering service providers, emphasizing new experience design, transformational platforms and intelligent manufacturing operations.

Industry 4.0 and 5.0, augmented by IIoT and Artificial Intelligence of Things (AIoT), take engineering to a new era of an automated, smart, intelligent, and controllable ecosystem. The market has shifted toward digital engineering transformation services, offering comprehensive strategies and data-driven Product Lifecycle Management (PLM) for delivering digital CX services.

## Digital Engineering Services – 2024: Deep View

**Quadrants**

**Areas & Attributes**

**Cornerstone**

| | | |
|---|---|---|
| **Design & Development** | **Development**<br>Design Approach — Digital Tech Stack | **Digital Product Design Capabilities**<br>DfX Services — GenAI for Simulation — Prototyping & Testing @Scale | **UX CX DX**<br>Experience Management |

| | | |
|---|---|---|
| **Integrated Customer/User Engagement** | **After Market Services**<br>UI/UX — Digital MRO | **Predictive Maintenance**<br>Field Service Mgmt. — Self-Healing Services | **Customer/Market Feedback**<br>Content Delivery — Knowledge Curation by AI |

| | | |
|---|---|---|
| **Intelligent Operations** | **Industry 4.0/5.0**<br>IIoT — Smart Factory — Edge AI | **Connected Operations**<br>Asset Mgmt. — Track & Trace — OT Solutions | **Content Curation Delivery - GenAI** |

| | | |
|---|---|---|
| **Platform and Application Services** | **Digital Business Platform Development**<br>Product Strategy — Engineering ADM Capabilities | **Behavioral Intelligence**<br>LLM & GenAI — Predictive ML | **Cloud-Native Approach**<br>ESG — GRC — Industry Clouds |

Cornerstone columns:
- STRATEGY & INNOVATION (IP – accelerators)
- COMPETENCY & TALENT (Resources – certifications)
- DEEP INDUSTRY EXPERTISE
- QUALITY ASSURANCE

## Key focus areas for Digital Engineering Services 2024

Simplified Illustration Source: 2023

**Design and Development (Products, Services and Experiences)**

**Integrated Customer/ User Engagement**

**Platform and Applications Services**

**Intelligent Operations**

**Scope of the report**

The ISG Provider Lens™ Digital Engineering Services study offers the following to business and IT decision-makers:

- Transparency on the strengths and weaknesses of relevant providers.
- A differentiated positioning of providers by segments on their competitive strengths and portfolio attractiveness.
- Focus on Key markets, including the U.S. and Europe

Our study serves as an important decision-making basis for positioning, key relationships, and go-to-market considerations. ISG advisors and enterprise clients also use information from these reports to evaluate their current vendor relationships and potential engagements.

## Design and Development (Products, Services and Experiences)

**Definition**

This quadrant assesses providers' ability to deliver integrated hardware and software and new data-driven product development and feature augmentation services. These services range from ideation and strategy to design and R&D, leveraging capabilities across rapid and agile design, prototyping and quality testing. Some of the resulting benefits include faster product innovation cycles and time-to-market, the creation of smarter and more connected digital products, and an improved CX. Key enabling capabilities include design thinking and digital product design techniques. This encompasses the entire new product introduction (NPI) process, right from the ideation to pilot runs of the product or services under consideration. It is known as Idea to Realization, which validates the new product ideas in the form of new features to be added to the existing product.

The tools and techniques used to track design changes across the value chain of the NPI process are enabled by technologies such as computer-aided design (CAD), computer-aided manufacturing (CAM) and computer-aided engineering (CAE). Recent advancements in GenAI have exponentially augmented digital experience design capabilities, with generative design and simulations as well as virtual prototype design and testing on a large scale.

### Eligibility Criteria

1. Breadth of lifecycle coverage: Support for product/service combinations and digital business platform development strategy, **new product/service/business design and development capabilities,** integrate and scale, and support/maintain stages

2. Proven experience in ideation, innovation, and engineering of digital value offerings: Use of **design thinking** capabilities, new **product/service strategy** formulation requirements analysis, **market feedback/research,** demonstrated **generative design** capabilities supporting ideation and innovation

3. Digital CX design competency: User/persona-based journey mapping, design and storyboarding, **UI/UX design,** industrial design, service design and interaction design, net new **hyper-personalization** and platform experience design with **GenAI** e.g. with personal digital avatars as service assistants

4. New software operating models: Ability to support **agile, continuous, and rapid development, CI/CD and continuous testing** unit and integration processes, managing the AI use cases and data lifecycles

## Design and Development (Products, Services and Experiences)

5. Digital technology and capabilities: Covering new product/service/ experience design such as using **digital twins, rapid prototyping,** autonomous and continuous testing and **quality management** through platforms/solutions/ testbeds, PLM, data and model-driven engineering

6. Ability to ideate, strategize, design and develop new connected digital experiences: Functionality and use cases of **AR/VR/MR and extended/**

**immersive reality, additive manufacturing, 3D printing,** linked services, products, features and other digital systems, networks and value chains

7. Showcase of **PoC and use cases** including leveraging **GenAI** in design and experience management.

## Integrated Customer/User Engagement

**Definition**

This quadrant covers providers using intelligent aftermarket services to deliver customer services and product support through digital platforms. Providers' key capabilities in this space include providing AI-enabled customer services, virtual agents, self-service knowledge support, remote services and field support, and using AR/VR technology for remote services using drones and real-time experience management. Effective customer and user engagement services are crucial as they directly affect the customer and the end-users of the product or services. The degree of customer satisfaction achieved relative to their expectations ultimately influences their decision for repeat purchases and serves as a critical determinant of success.

Feedback in the form of the voice of the customer (VoC) obtained from various down-the-line digital sources plays a vital role in making a self-learning, auto-correcting process that remains highly relevant to the customer, as well as the CX providers.

### Eligibility Criteria

1. Predictive maintenance competency: Use of **data analytics, AI and machine learning in maintenance, field service management** and **self-healing services**

2. Warranty management, lifecycle management and maintenance, repair, and operations **(MRO)** capabilities: Focus on **digital experience platforms service,** customer engagement, query resolution and support

3. Innovation in **aftermarket services** interfaces: Including **UI/UX design** and engineering and product/service **personalization**

4. Experience with new business and service models: Using IoT technologies, **AR/VR-powered digital avatars** and virtual customer care assistants, real-time knowledge support, and predictive actions suggestion engines to provide **remote infield customer service** and help

5. Content delivery capability: Autonomous and intelligent content distribution, on-demand, **AI-powered** self-service knowledge help, such as using NLP, NLU, NLG, conversational AI, and virtual agent support

6. Leverage customer and market feedback (VoC): **Value-added utilization** of customer, field and market **feedback** across all relevant channels, including social media and web Track and trace capability across the value chain

7. Showcase of Proof of Concepts and Use cases leveraging **GenAI for content development, knowledge curation, and feedback mechanisms** that could support different processes.

## Platform and Application Services

**Definition**

This quadrant assesses service providers' ability to design and deliver digital platform engineering competencies. Key capabilities include proficiency in business and technical design, building new experiences and leveraging digital ecosystems, orchestration platforms and microservice-based architectures. This analysis also covers containerization, connected intelligence and real-time experience management across products, services and UX.

The new paradigm of platforms represents an abstraction of standardized, modularized and well-articulated process elements across the value chain, which can be applied and leveraged as virtually independent components to address specific functionalities and, hence define specific outcomes.

Platforms serve specific purposes and functions that are delivered as platform services and can be easily configurable and extendable. They also yield benefits such as simplified maintenance, reduced changes for variants, decreased setup and changeover time, streamlined diagnosis and enhanced overall reliability in the process. Platforms also allow plug-and-play operations, demonstrate a heightened level of maturity and introduce consistency to the value chain.

### Eligibility Criteria

1. Digital ecosystem orchestration platform capabilities: Design, build, deliver, support, and monetize using **digital ecosystem orchestration** platforms for streamlined commerce.

2. Technology platforms engineering capabilities: Building and operating a common platform as a product for technology teams to **reduce the time-to market** and complexity

3. Capabilities and proven experience: Utilize integrated digital technology platforms and digital experience **of connected systems, hardware and software**

4. Core platform strategy and engineering capabilities: Helping businesses shift from a product to a platform mentality by architecting and **developing an API** and ecosystem strategy for a scalable and future-ready platform

5. Cloud-native design skills: Ability and agility to leverage **cloud-based digital platform ecosystem**

6. Engineering ADM competency: ADM ability with a focus on **smart, connected product,** design and cloud-native, digital-native design

7. Product/service configurability and personalization abilities: Use of **behavioral intelligence and**

## Platform and Application Services

**predictive analytics** on real-time/streaming data from users and smart connected devices

8. Ability to **augment** and **synchronize users' digital experience in real-time**

9. Ability to **design, build, test**, deliver, run, and augment **reusable functions/ modules** in digital

10. Experience in **code capability**

11. Showcase of and **Use Cases leveraging GenAI** in content development and knowledge curation.

## Intelligent Operations

**Definition**

This quadrant assesses service providers offering intelligent operations to clients across industries, particularly with legacy factories and production plants. These providers offer smart and new digital technologies and methods and help set up intelligent greenfield and brownfield plants and operations. Intelligent operations encompass paradigms such as Industry 4.0, 5.0, smart industries and IIoT that significantly impact the industry. These trends are aimed at making connected, autonomous operations capable of self-decision-making and auto-correction. Key aspects of these intelligent operations include machines communicating with each other, fetching the status of various operations and making informed decisions and corrections at both upstream and downstream ends. This helps reduce manual dependencies and interventions, leading to an increase in operational efficiency.

### Eligibility Criteria

1. **Proven experience in design, implementation and operations:** Technologies, methods, structures and processes used in the context of **Industry 4.0, smart factories, smart production/operations**, supply chain, distributions, and service operations

2. **Breadth and depth** of coverage in **connected operations** for different types of industries in the target regions, with proven examples

3. Experience in **OT solutions**, specifically across data, security, and people aspects

4. Experience with applying digital technologies, Including various **digital threads** such as real-time AI and machine learning, remote, field, and hazardous operations management, real-time data engineering, edge computing, 5G, industrial cybersecurity, and cloud engineering

5. Asset performance, maintenance, and lifecycle management: Covering **asset performance monitoring,** maintenance schedules, lifetime value optimization and predictive maintenance

6. **ESG compliance** resources: Support for environmentally sustainable smart operations.

7. Demonstrated experience with new business/operating models: New ways of operating and optimizing highly **flexible and intelligent production** and assembly lines/flow operations, supporting new business models

## Quadrants by Region

As a part of this ISG Provider Lens™ quadrant study, we are introducing the following quadrant on Digital Engineering 2024:

| Quadrant | US | EU |
|---|:---:|:---:|
| Design and Development (Products, Services and Experiences) | ✔ | ✔ |
| Integrated Customer/User Engagement | ✔ | ✔ |
| Platform and Applications Services | ✔ | ✔ |
| Intelligent Operations | ✔ | ✔ |

## Schedule

The research phase falls in the period between November and January 2024, during which survey, evaluation, analysis and validation will take place. The results will be presented to the media in May 2024.

| Milestones | Beginning | End |
|---|---|---|
| Survey Launch | November 23, 2023 | |
| Survey Phase | November 23, 2023 | January 10, 2024 |
| Sneak Previews | March 2024 | April 2024 |
| Press Release & Publication | May 2024 | |

**Research Production Disclaimer:**

ISG collects data for the purposes of writing research and creating provider/vendor profiles. The profiles and supporting data are used by ISG advisors to make recommendations and inform their clients of the experience and qualifications of any applicable provider/vendor for outsourcing the work identified by clients. This data is collected as part of the ISG FutureSource™ process and the Candidate Provider Qualification (CPQ) process. ISG may choose to only utilize this collected data pertaining to certain countries or regions for the education and purposes of its advisors and not produce ISG Provider Lens™ reports. These decisions will be made based on the level and completeness of the information received directly from providers/vendors and the availability of experienced analysts for those countries or regions. Submitted information may also be used for individual research projects or for briefing notes that will be written by the lead analysts.

**Access to Online Portal**

You can view/download the questionnaire from here using the credentials you have already created or refer to instructions provided in the invitation email to generate a new password. We look forward to your participation!

**ISG Star of Excellence™ – Call for nominations**

The Star of Excellence™ is an independent recognition of excellent service delivery based on the concept of "Voice of the Customer." The Star of Excellence™ is a program, designed by ISG, to collect client feedback about service providers' success in demonstrating the highest standards of client service excellence and customer centricity.

The global survey is all about services that are associated with IPL studies. In consequence, all ISG Analysts will be continuously provided with information on the customer experience of all relevant service providers. This information comes on top of existing first-hand advisor feedback that IPL leverages in context of its practitioner-led consulting approach.

Providers are invited to nominate their clients to participate. Once the nomination has been submitted, ISG sends out a mail confirmation to both sides. It is self-evident that ISG anonymizes all customer data and does not share it with third parties.

It is our vision that the Star of Excellence™ will be recognized as the leading industry recognition for client service excellence and serve as the benchmark for measuring client sentiments.

To ensure your selected clients complete the feedback for your nominated engagement please use the Client nomination section on the Star of Excellence™ website.

We have set up an email where you can direct any questions or provide comments. This email will be checked daily, please allow up to 24 hours for a reply.

Here is the email address:
ISG.star@isg-one.com

**ISG Star of Excellence**

## Contacts For This Study

Tapati
Bandopadhyay

**Lead Analyst (U.S)**

Srinivasan
P N

**Lead Analyst (Europe)
and Research Specialist**

Akshay
Rathore

**Data Analyst**

Yeshashwi
Nagarajan C

**Project Manager**

**ISG Provider Lens Advisors Involvement Program**

ISG Provider Lens offers market assessments incorporating practitioner insights, reflecting regional focus and independent research. ISG ensures advisor involvement in each study to cover the appropriate market details aligned to the respective service lines/technology trends, service provider presence and enterprise context.

In each region, ISG has expert thought leaders and respected advisors who know the provider portfolios and offerings as well as enterprise requirements and market trends. On average, three advisors participate as part of each study's quality and consistency review team (QCRT). The QCRT ensures each study reflects ISG advisors' experience in the field, which complements the primary and secondary research the analysts conduct. ISG advisors participate in each study as part of the QCRT group and contribute at different levels depending on their availability and expertise.

The QCRT advisors:

- Help define and validate quadrants and questionnaires,

- Advise on service provider inclusion, participate in briefing calls,

- Give their perspectives on service provider ratings and review report drafts.

## ISG Advisors to this study

Gaurav Gupta

**Partner and Global Head, Digital Engineering Services**

Rajeev Chatrath

**Principal Consultant, Engineering Services**

Rohit Bhatt

**Director, Engineering Services**

Rohit Ravichandran

**Consulting Manager, Engineering Services**

Shubham Rajvanshi

**Principal Consultant, Engineering Services**

John Lytle

**Director Manufacturing, Manufacturing Bill**

## ISG Advisors to this study



Matteo
Gallina

**Digital Engineering
Solutions Lead Americas,
Engineering Services**

## Invited Companies

**If your company is listed on this page or you feel your company should be listed, please contact ISG to ensure we have the correct contact person(s) to actively participate in this research.**

| | | | |
|---|---|---|---|
| Accolite Digital* | Caresoft Global | Endava | IAV |
| AFRY | CENIT | EPAM | IBM* |
| Akkodis* | CGI | Esterline | Indx |
| Alten | CI&T | Eviden | Infinite Computer Solutions |
| Apexon | Cigniti* | Expleo | Infogain |
| Ascendion | CoForge | e-Zest* | Infosys* |
| Atos | Cognizant* | Ferchau | Infovision |
| AVL | Computacenter | FEV | Innominds |
| Axiscades | Cyient* | Fulcrum Digital | ITC Infotech* |
| Belcan | Daffodil Software | GlobalLogic* | itemis AG |
| Bertrandt | DXC Technology | Grid Dynamics | Itransition |
| Bilfinger SE | EDAG | Happiest Minds* | KPIT |
| Birlasoft | Egis | HARMAN DTS* | Kyndryl |
| Bosch SDS | eInfochips* | HCLTech* | LTIMindtree* |
| Capgemini* | Encora* | Hexaware* | |

## Invited Companies

LTTS*

Mindteck

Motherson Technology*

Movate

Mphasis

Nagarro Software

Navikenz

NEC

Ness Engineering

N-iX

Onward Tech

Persistent Systems*

Publicis Sapient

QuEST Global

Safran Engineering Services

SAIC

Sasken

SLK Group

Softtek

Softserve

Sonata Software*

Tata Elxsi*

Tata Technologies

TCS*

Tech Mahindra

TietoEvry

To The New

UST*

Ventum Consulting

Virtusa

Volansys

VVDN Technologies

Wipro*

WSP

Xebia

Xoriant

Zensar*

## ISG Provider Lens™

The ISG Provider Lens™ Quadrant research series is the only service provider evaluation of its kind to combine empirical, data-driven research and market analysis with the real-world experience and observations of ISG's global advisory team. Enterprises will find a wealth of detailed data and market analysis to help guide their selection of appropriate sourcing partners, while ISG advisors use the reports to validate their own market knowledge and make recommendations to ISG's enterprise clients. The research currently covers providers offering their services across multiple geographies globally.

For more information about ISG Provider Lens™ research, please visit this webpage.

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## ISG

ISG (Information Services Group) (Nasdaq: III) is a leading global technology research and advisory firm. A trusted business partner to more than 900 clients, including more than 75 of the world's top 100 enterprises, ISG is committed to helping corporations, public sector organizations, and service and technology providers achieve operational excellence and faster growth. The firm specializes in digital transformation services, including automation, cloud and data analytics; sourcing advisory; managed governance and risk services; network carrier services; strategy and operations design; change management; market intelligence and technology research and analysis.

Founded in 2006, and based in Stamford, Conn., ISG employs more than 1,600 digital-ready professionals operating in more than 20 countries—a global team known for its innovative thinking, market influence, deep industry and technology expertise, and world-class research and analytical capabilities based on the industry's most comprehensive marketplace data.

For more information, visit isg-one.com.

# ISG Provider Lens™

**NOVEMBER, 2023**

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**BROCHURE: DIGITAL ENGINEERING SERVICES**