

***ISG** Provider Lens™

Life Sciences Digital Services

Global 2021

Quadrant
Report



A research report
comparing provider
strengths, challenges
and competitive
differentiators

Customized report courtesy of:

PPD®

December 2021

About this Report

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The research and analysis presented in this report includes research from the ISG Provider Lens™ program, ongoing ISG Research programs, interviews with ISG advisors, briefings with services providers and analysis of publicly available market information from multiple sources. The data collected for this report represents information that ISG believes to be current as of September 2021, for providers who actively participated as well as for providers who did not. ISG recognizes that many mergers and acquisitions have taken place since that time, but those changes are not reflected in this report.

All revenue references are in U.S. dollars (\$US) unless noted.

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EXECUTIVE SUMMARY

Digital: The New Engine Behind The Life Sciences Business

As the world moved into year two of the COVID-19 pandemic, all segments of the life sciences industry showed dramatic strategy and process adaptations to the new normal. The adoption of digital technologies to facilitate the pace of change and deliver competitive advantage and increased efficiencies provided the foundation for much of this new way of working. Significant mergers and acquisitions focused on enabling rapid scale-up of digital expertise and innovation. Challenges such as the need to rapidly implement telemedicine and enable direct-to-patient data collection while maintaining cybersecurity have put new constraints on technology providers and have increased demands for digital solutions. Added to this are challenges that, while not always specific to the life sciences industry, have a significant impact on business continuity and profitability. These include the implementation of digital clinical trials, dramatically increased levels of patient engagement, supply chain dysfunction and increased dependence on AI, machine learning (ML) and automation to enhance operations in MedTech, pharmacovigilance and regulatory affairs.

The Leaders in each of these quadrants were able to rapidly implement digital solutions as a result of their existing investments and strategies focused on developing digital offerings prior to the pandemic. Some of these firms leveraged solutions they were already providing

in other sectors to support the sudden shift to digital in the life sciences industry. Some providers that are purely life sciences service-oriented, such as the leading global contract research organization (CROs), or those that have developed substantial life science-specific offerings, were already deeply invested in digital roadmaps based on their own understanding of where the market would need to go to achieve necessary efficiencies and economies of scale. The pandemic provided the impetus for the industry to meet these Leaders at a point of delivery that might otherwise have taken several more years to attain.

The increased reliance on digital technologies is associated with other trends across the life sciences quadrants evaluated. There is an increased demand for cloud services in the industry to support the needs of a growing remote workforce and for additional computing power. Changing business needs have also elevated the demand for Software as a Service (SaaS) solutions that can rapidly provide digital power in expert domains and facilitate turning large volumes of data into business intelligence. In addition to investments in technology, services, tools and skillsets, interest and sophistication in the use of advanced analytics, AI and automation is rapidly rising to expert levels across

the talent continuum, not just within IT. The new face of the customer is a digitally-savvy subject matter expert (SME), and providers that can exceed this customer's expectations are the Leaders in their respective quadrants. The quadrant trends are highlighted below.

Within the **Clinical Development** quadrant two major trends — digital clinical trials and the advantages of implementing advanced analytics — require both CROs and technology providers to offer standardized, but customizable, solutions that clients can rapidly implement. Leaders in this quadrant, such as Accenture, Capgemini, Cognizant, HCL, IQVIA, PPD, TCS and Wipro, also offer strong change management support and active measures of early and ongoing success. Hexaware is a Rising Star.

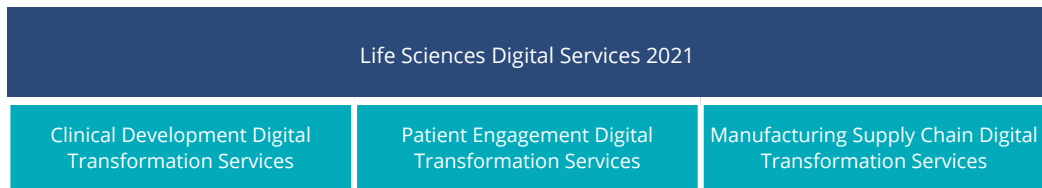
With the overarching goal of improving patient experience and outcomes, digital services providers in the **Patient Engagement** quadrant have been focusing on remote monitoring, using devices, wearables, sensors and smart pills as some of the direct-to-patient ways to help ensure compliance and patient retention. Leaders in this quadrant, which include Atos, Capgemini, Cognizant, HCL, Hexaware, IQVIA, PPD, TCS and Wipro demonstrate deep knowledge of digital enablement, regulatory requirements and the patient experience. Verizon is a Rising Star.

Well-documented supply chain and logistics challenges have raised the demand for business intelligence in the **Manufacturing Supply Chain quadrant**. The use of sensors to monitor real-time shipping data, combined with expertise in advanced analytics sets apart Leaders such as Accenture, Atos, Capgemini, Cognizant, HCL, TCS and Wipro. LTI is a Rising Star.

Collaborations between traditional IT providers and global CROs, often including representation from industry and academia, continue to grow as the leading providers in these areas leverage their combined expertise. The emphasis on improving patient outcomes by combining deep domain expertise with digital enablers is seen among all the Leaders in these quadrants. The accelerated pace of change demanded as a result of the COVID-19 pandemic has created so many new points of entry that Leaders are increasingly pursuing multiple models to expand their capacity for innovation.

Introduction

Simplified illustration



Source: ISG 2021

Definition

The life sciences industry is under increasing pressure to change. The COVID-19 pandemic and public demand for more effective outcomes are mandating the acceleration of actions needed to better meet care lifecycle requirements and build patient-centric business models. All segments of the industry are being compelled to comply with new regulations and to deal with emerging sources of competition, integrate waves of competitive mergers and acquisitions, and adapt to the needs of an aging population. The efforts required to deal successfully with each of these challenges are expensive. At the same time, consumers are increasingly expecting advanced and convenient digital service delivery. Life sciences companies are increasingly relying on innovation to stay apace with the rising demand for their services and mounting competitive pressures.

Definition (cont.)

As new business approaches take hold, regulatory hurdles and cost pressures will continue to be higher and more complex. The competitive landscape has never been more dynamic and global. In this context, innovation is imperative. Biopharma companies, CROs and other life sciences ancillary suppliers will face increasing pressures to expand and extend current investments. MedTech companies should continue to focus on the efficiency of the supply chain and recognize that innovation is the key to growth and survival.

Successful organizations in the life sciences industry have been meeting these challenges with the following:

- Driving targeted investments and constant cost control
- Using advanced technology and digital operating models as a platform for transformation
- Focusing on improved and innovative patient engagement
- Optimizing supply chain operations

Digital transformation helps address many of the current and anticipated industry challenges. In the life sciences industry, digital transformation services are already playing a key role across multiple areas to help accelerate clinical development. Digital transformation is also making fundamental changes to how pharmacovigilance and regulatory affairs activities are conducted. Furthermore, recent technology trends such as connectivity, including mobile enablement or advanced analytics, provide innovation opportunities for MedTech companies. As the impact of COVID-19 has shifted the concept of “customer” more directly onto the patient, life sciences enterprises are increasingly relying on digital transformation to conduct their operations, support regulatory obligations and help ensure business outcomes.

Definition (cont.)

Scope of the Report

While many organizations may initially pilot digital solutions with internal resources, the need for expertise, scale, innovation, flexibility and cost efficiency often point toward an outsourced solution. This study focuses on accelerated clinical development, patient engagement and manufacturing supply chain services.

Participating service providers are evaluated on how they are an extension of a client's technology organization and involved in creating blueprints, architecture frameworks and management processes. They are also measured on factors such as brand recognition in the markets under study, market reach and the number and quality of clients. They are evaluated on thresholds of annual revenue, assigned professionals (resources) and R&D investments.

The ISG Provider Lens™ study offers technology decision-makers the following:

- Transparency on the strengths and weaknesses of relevant providers
- A differentiated positioning of providers by segments
- Perspective on different markets, including global, the U.S. and EU

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.

Provider Classifications

The provider position reflects the suitability of IT providers for a defined market segment (quadrant). Without further additions, the position always applies to all company sizes classes and industries. In case the IT service requirements from enterprise customers differ and the spectrum of IT providers operating in the local market is sufficiently wide, a further differentiation of the IT providers by performance is made according to the target group for products and services. In doing so, ISG either considers the industry requirements or the number of employees, as well as the corporate structures of customers and positions IT providers according to their focus area. As a result, ISG differentiates them, if necessary, into two client target groups that are defined as follows:

- **Midmarket:** Companies with 100 to 4,999 employees or revenues between US\$20 million and US\$999 million with central headquarters in the respective country, usually privately owned.
- **Large Accounts:** Multinational companies with 5,000 or more employees or revenue above US\$1 billion, with activities worldwide and globally distributed decision-making structures.

Provider Classifications

The ISG Provider Lens™ quadrants are created using an evaluation matrix containing four segments (Leader, Product & Market Challenger and Contender), and the providers are positioned accordingly.

Leader

Leaders have a comprehensive product and service offering, a strong market presence and established competitive position. The product portfolios and competitive strategies of Leaders are strongly positioned to win business in the markets covered by the study. The Leaders also represent innovative strength and competitive stability.

Product Challenger

Product Challengers offer a product and service portfolio that reflect excellent service and technology stacks. These providers and vendors deliver an unmatched broad and deep range of capabilities. They show evidence of investing to enhance their market presence and competitive strengths.

Market Challenger

Market Challengers have a strong presence in the market and offer a significant edge over other vendors and providers based on competitive strength. Often, Market Challengers are the established and well-known vendors in the regions or vertical markets covered in the study.

Contender

Contenders offer services and products meeting the evaluation criteria that qualifies them to be included in the IPL quadrant. These promising service providers or vendors show evidence of rapidly investing in both products and services and a sensible market approach with a goal of becoming a Product or Market Challenger within 12 to 18 months.

Provider Classifications (cont.)

Each ISG Provider Lens™ quadrant may include a service provider(s) which ISG believes has strong potential to move into the Leader quadrant. This type of provider can be classified as a Rising Star. Number of providers in each quadrant: ISG rates and positions the most relevant providers according to the scope of the report for each quadrant and limits the maximum of providers per quadrant to 25 (exceptions are possible).

Rising Star

Rising Stars have promising portfolios or the market experience to become a Leader, including the required roadmap and adequate focus on key market trends and customer requirements. Rising Stars also have excellent management and understanding of the local market in the studied region. These vendors and service providers give evidence of significant progress toward their goals in the last 12 months. ISG expects Rising Stars to reach the Leader quadrant within the next 12 to 24 months if they continue their delivery of above-average market impact and strength of innovation.

Not In

The service provider or vendor was not included in this quadrant. Among the possible reasons for this designation: ISG could not obtain enough information to position the company; the company does not provide the relevant service or solution as defined for each quadrant of a study; or the company did not meet the eligibility criteria for the study quadrant. Omission from the quadrant does not imply that the service provider or vendor does not offer or plan to offer this service or solution.

Life Sciences Digital Services - Quadrant Provider Listing 1 of 2

| | Clinical Development Digital Transformation Services | Patient Engagement Digital Transformation Services | Manufacturing Supply Chain Digital Transformation Services |
|-----------|--|--|--|
| Accenture | ● Leader | ● Market Challenger | ● Leader |
| Apexon | ● Contender | ● Product Challenger | ● Not in |
| Atos | ● Market Challenger | ● Leader | ● Leader |
| Birlasoft | ● Contender | ● Product Challenger | ● Product Challenger |
| Capgemini | ● Leader | ● Leader | ● Leader |
| CGI | ● Not in | ● Contender | ● Contender |
| Cognizant | ● Leader | ● Leader | ● Leader |
| Conduent | ● Not in | ● Product Challenger | ● Not in |
| DXC | ● Not in | ● Market Challenger | ● Product Challenger |
| Genpact | ● Not in | ● Product Challenger | ● Market Challenger |
| Harman | ● Market Challenger | ● Market Challenger | ● Contender |
| HCL | ● Leader | ● Leader | ● Leader |
| Hexaware | ● Rising Star | ● Leader | ● Not in |
| IBM | ● Market Challenger | ● Not in | ● Not in |

Life Sciences Digital Services - Quadrant Provider Listing 2 of 2

| | | Clinical Development Digital Transformation Services | | Patient Engagement Digital Transformation Services | | Manufacturing Supply Chain Digital Transformation Services | |
|--|---------------|--|--------------------|--|--------------------|--|--------------------|
| | ICON | <div></div> | Market Challenger | <div></div> | Product Challenger | <div></div> | Not in |
| | IQVIA | <div></div> | Leader | <div></div> | Leader | <div></div> | Not in |
| | LTI | <div></div> | Not in | <div></div> | Product Challenger | <div></div> | Rising Star |
| | Mphasis | <div></div> | Contender | <div></div> | Contender | <div></div> | Product Challenger |
| | NTT DATA | <div></div> | Product Challenger | <div></div> | Product Challenger | <div></div> | Product Challenger |
| | Persistent | <div></div> | Contender | <div></div> | Product Challenger | <div></div> | Product Challenger |
| | PPD | <div></div> | Leader | <div></div> | Leader | <div></div> | Not in |
| | Stefanini | <div></div> | Not in | <div></div> | Product Challenger | <div></div> | Product Challenger |
| | TCS | <div></div> | Leader | <div></div> | Leader | <div></div> | Leader |
| | Tech Mahindra | <div></div> | Product Challenger | <div></div> | Product Challenger | <div></div> | Product Challenger |
| | Verizon | <div></div> | Not in | <div></div> | Rising Star | <div></div> | Not in |
| | Wipro | <div></div> | Leader | <div></div> | Leader | <div></div> | Leader |
| | Zensar | <div></div> | Not in | <div></div> | Product Challenger | <div></div> | Contender |



Life Sciences Digital Services Quadrants

ENTERPRISE CONTEXT

Clinical Development Digital Transformation Services — Global

This report is relevant to enterprises across industries and regions for evaluating providers of digital transformation services around clinical development.

In this quadrant report, ISG highlights the current market positioning of service providers that offer digital transformation services in the global clinical development space.

The rapid adoption of digital health technologies in clinical trials during the COVID-19 pandemic is a reflection of their important role in the quick development of vaccines and drugs; it is, concurrently, transforming the way clinicians engage with patients. The use of digital technologies in clinical trials is accompanied by several challenges, including the integration of data collected from patients and from onsite sources. Clinical development organizations are trying to collaborate with healthcare payers and providers to leverage historical and current data and develop new trial protocols to enable patients to participate from remote locations.

With the growing demand for health technologies, new personalized healthcare tools such as wearable devices and other sensor technologies are being embraced, globally. Consumers are increasingly using AI, virtual services, and home-based diagnostics. These

tools are enabling patients to gain greater control over their healthcare, wherever possible. Although the benefits of these technologies are widely known, their adoption in the clinical development domain is still limited due to factors such as the need for transparent algorithms to meet drug development regulations, siloed data and data governance-related issues.

By harnessing digital technologies, clinical development will increasingly tap the benefits of these technologies to empower and supplement human judgment, free up clinician time and personalize care. The corresponding increased efficiency and effectiveness will deliver benefits to patients, as well as the life sciences organizations developing new therapies.

Life science leaders should read this report to understand the relative positioning and capabilities of providers, enabling the effective selection of digital services and solutions related to clinical development.

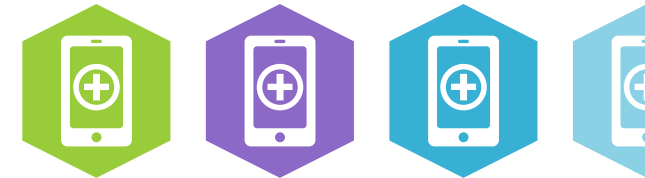
Start-up digital health innovators should read this report to understand the leading and emerging areas of investment, challenges faced by digital innovators and the key to longer-term success for innovators.

Pharma and MedTech companies should read this report to develop a deeper understanding of end users and create business models that not only help maximize patient outcomes but also create value for key healthcare stakeholders.

Security and R&D leaders should read this report to gain a greater insight into the way service providers address the significant challenges of compliance and security, while maintaining a seamless experience for end users.

IT and digital transformation professionals should read this report to understand how providers of clinical development digital transformation fit into existing initiatives and how they can be compared with one another.

Sourcing, procurement and vendor management professionals should read this report to develop a better understanding of the current landscape of providers of clinical development digital transformation services.



CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Definition

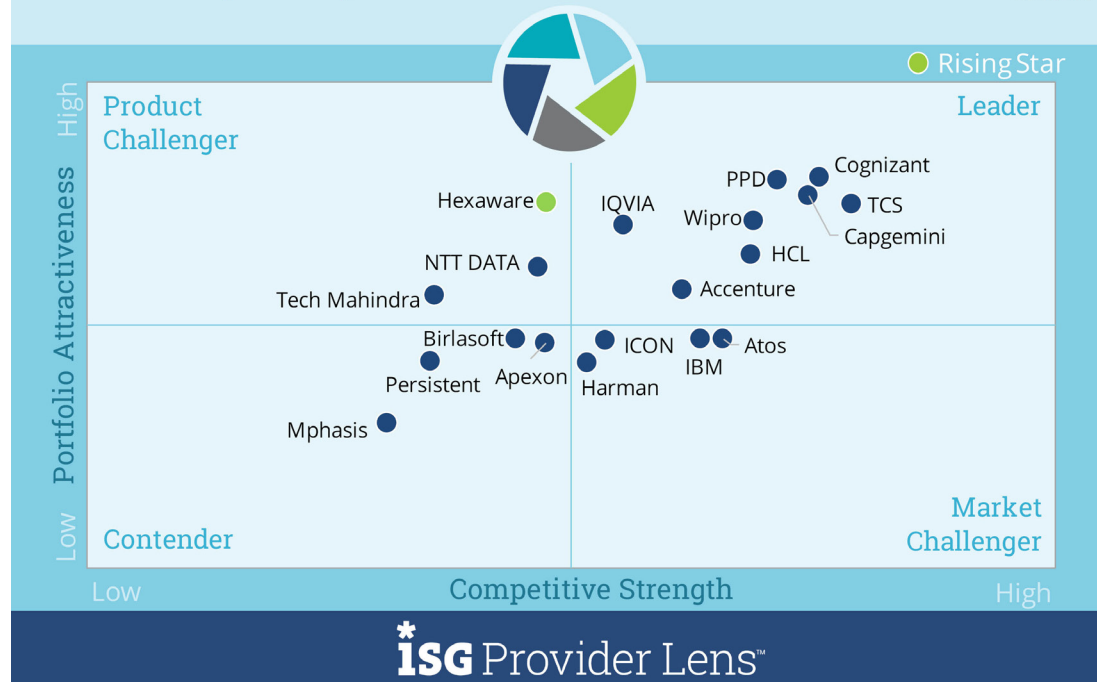
This quadrant assesses how service providers help biopharma companies hasten the process of developing and bringing products to the market. Clinical trials are expensive and have high failure rates. Life sciences companies must demonstrate the economic and clinical value (ECV) of potential products and constantly seek innovations and services to improve efficiency. As development moves into clinical trials, companies need to rapidly identify appropriate patients and monitor and manage the participant experience in an evolving landscape.

The ability to further support compliance checks, patient safety reporting and complex regulatory intelligence is in high demand. Digital services accelerate many of these processes. Artificial intelligence (AI) further influences all steps in clinical development by helping to access and analyze large data sets, thus driving the value of the data being collected.

Life Sciences Digital Services

Clinical Development Digital Transformation Services

2021
Global



Source: ISG Research 2021

CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Definition (cont.)

AI has been playing a crucial role in addressing the global challenge of COVID-19. It provides an irrefutable case for innovation and automation throughout the development lifecycle. In addition to escalating the development timelines for tests, vaccines and treatments, AI is providing a mechanism to manage and make robust decisions on the huge volume of data being collected. Service providers help companies align with the latest developments.

Service providers also improve the clinical design process with collaboration platforms. These improvements help engage participants in clinical trials with digital tools for enrollment and motivation management. Also, service providers help implement automation for clinical trials, including innovations such as AI in trial design, digital monitoring using predictive analytics and end-to-end automation for regulatory compliance and patient safety monitoring during clinical trials.

Eligibility Criteria

- Ability to offer alternatives to in-person interactions of researchers and participants such as telephone and internet-connected capabilities
- Established or emerging partnerships with clinical development technology and consulting firms
- Capability to support, integrate and modernize legacy systems
- Competencies in developing plans for deploying appropriate technologies and procedures
- Ability to support, scale and update technology tools and platforms

CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Observations

The past year has been one of the most dynamic in recent history for clinical development. Although the biopharma industry had conducted numerous pilots involving various digital solutions, mainstream clinical development processes saw little change as organizations are historically late adopters and are often constrained by real or potential regulatory hurdles. The reality of COVID-19 demanded a different way of conducting drug trials, and demanded that it be efficient, effective and rapidly implementable. Technology solutions, maximizing the power of AI, machine learning, automation and advanced analytics — powered and supported by cloud computing — provided the answer. Service providers and leading global CROs that were already deeply invested in digital transformation found they had a ready-made market in biopharma companies that needed to quickly get digital clinical trials up and running. Additional services, such as advanced analytics that turn large pools of unstructured data into business intelligence, and change management to ensure organizational uptake of new processes add significant value to underlying domain and technology expertise.

These demands, and the efficiencies produced by meeting them, are likely to stay relevant as the world returns to “normal.” In fact, it’s highly likely requirements will become increasingly complex and providers that can combine various types of expertise most effectively will accrue maximum benefits in this new market.

Key characteristics of Leaders in this market:

- **Accenture** continues its investment and innovations in its INTIENT™ platform, which provides an integrated digital solution across the clinical development space. Combining its longstanding engagement and expertise in clinical development with the INTIENT™ platform provides a powerful addition to Accenture’s existing offerings.
- **Capgemini** continues to grow and enhance its clinical development solutions portfolio, following its merger with Altran. With offerings that support both traditional and decentralized trials, its solutions are highly customizable.
- **Cognizant** combines its significant expertise in the clinical development domain with hands-on consulting and technology experience to offer a compelling portfolio of solutions, focused on digital transformation.

CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Observations (cont.)

- **HCL** leverages its suite of core IT capabilities to deliver end-to-end clinical development solutions that cover both trial and operational needs. The company also collaborates extensively with platform and clinical development service providers to increase the value of its customized solutions.
- **IQVIA** brings decades of expertise in being a clinical development global leader to its Connected Intelligence, a unified platform that covers functions across the entire clinical development lifecycle, which it enhances with its deep knowledge of conducting decentralized clinical trials.
- **PPD**, as a leading global CRO, continues to leverage its deep domain expertise and its position as an innovator in the digital clinical trial space. An early adopter of automated solutions for enhancing development quality and efficiency, PPD now offers an integrated suite of cloud-based solutions.
- **TCS** brings its longstanding expertise around clinical development to bear on its innovative applications of automation in clinical development. Its dedicated innovation group is focused on opportunities to transform the development process.
- **Wipro's** product engineering expertise, along with its DICE (Digital Integrated Clinical Enterprise) platform to manage core functionalities of clinical trials and solutions for decentralized clinical trials deliver great flexibility for meeting changing client demands.
- As a Rising Star in this quadrant, **Hexaware** has the potential to achieve a future leadership position. It has invested in digital solutions to support multiple areas of clinical development and has a strategic vision to become a leading digital transformation partner for the life sciences industry.

PPD



Overview

PPD is a global CRO, providing clinical development and laboratory services as well as patient-centric services for pharmaceutical, biotechnology, medical device, academic and government organizations. The company also provides laboratory services, comprising bioanalytical, biomarker, vaccine science, good manufacturing practice and central laboratory services. PPD was founded in 1986 and has its headquarters in Wilmington, North Carolina, U.S. PPD has more than 30,000 employees in 46 countries.



Strengths

Leadership role in implementing digital clinical trials combined with deep domain expertise: PPD, with its PPD Digital offering, has been an innovator in the digital clinical trial space. PPD already had programs in place for risk mitigation and trial continuation that it was able to rapidly leverage to support client strategy changes resulting from the COVID-19 pandemic.

Integrated suite of full-service offerings supported through ongoing investment: Investments in technologies to improve multiple services across the clinical development spectrum, including the cloud-based Preclarus data portfolio solution, combined with integrated lab operational and data platforms, support expanded flexibility, increased efficiencies, and offer customization for clients.

Vision for redefining the clinical site and the patient experience: PPD's extensive investment in site qualification and patient engagement modalities prior to the COVID-19 pandemic enables it to rapidly start and maintain enrollment in clinical trials.



Caution

PPD has additional opportunity to leverage its data portfolio capabilities to further support an end-to-end advanced analytics offering.

Expanding external partnerships as the clinical development technology marketplace matures may provide PPD with additional advantages.



2021 ISG Provider Lens™ Leader

PPD has the global scale, depth and breadth of domain expertise to provide innovative and compliant clinical development support across a wide range of client needs.

ENTERPRISE CONTEXT

Patient Engagement Digital Transformation Services — Global

This report is relevant to enterprises across industries, globally, for evaluating providers of digital transformation services around patient engagement.

In this quadrant report, ISG highlights the current market positioning of providers that offer digital transformation services in the global patient engagement space.

In response to COVID-19, healthcare practitioners are increasingly focusing on patient engagement and retention by leveraging digital solutions. The evolution of technology and its corresponding impact on the healthcare ecosystem is increasing patient participation in decision-making regarding their treatment and also overhauling their expectations from healthcare companies. At the same time, these companies require access to global content and the required regulatory approval. They also face the challenge of a coordinated patient care and experience across geographies.

The patient engagement technology market is expected to grow as the healthcare industry witnesses a rapid shift to a value-based reimbursement system, from the traditional volume-based fee system. The adoption of patient engagement technology enables the healthcare industry to reduce costs, while improving the quality of healthcare. The technology also provides positive ROI.

In the healthcare ecosystem, life sciences companies and healthcare providers have the opportunity to truly integrate patient engagement processes and other digital solutions and insights from data to improve patient outcomes.

Life science leaders should read this report to understand the relative positioning and capabilities of providers, enabling them to select the appropriate services and solutions related to patient engagement.

Start-up digital health innovators should read this report to understand the leading and emerging areas of investment, challenges faced by patient engagement innovators and the key to long-term success for innovators.

Pharma and MedTech companies should read this report to have a deeper understanding of end-user solutions and create business models that enhance patient outcomes and create value for key healthcare stakeholders, while ensuring patient safety, quality and compliance.

Security and R&D leaders should read this report to understand the way service providers address the significant challenges of compliance and security, while maintaining a seamless experience for end users.

IT and digital transformation professionals should read this report to understand how providers of patient engagement services fit in with their digital transformation initiatives and how they can be compared with one another.

Sourcing, procurement, and vendor management professionals should read this report to develop a better understanding of the current landscape of providers offering digital transformation services for patient engagement.



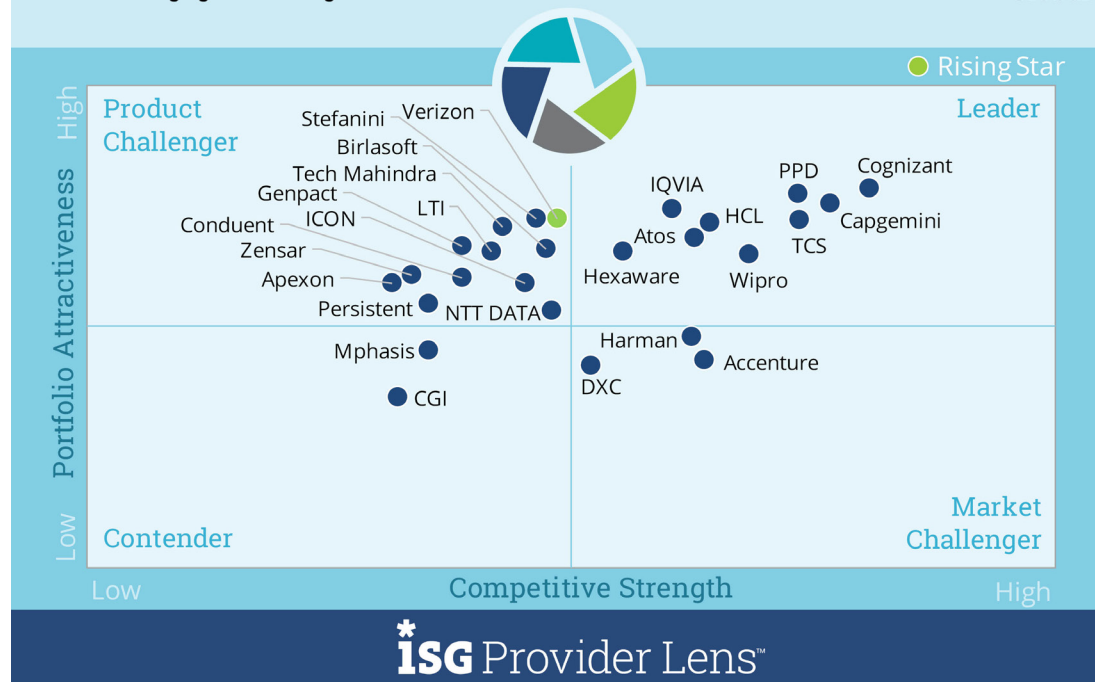
PATIENT ENGAGEMENT DIGITAL TRANSFORMATION SERVICES

Definition

This quadrant assesses service providers that focus on life science customer services using supporting processes and platforms. Life science companies are engaging directly with patients to improve their products and patient outcomes. The end goal is to improve patient experience during the development lifecycle all the way through outcomes, in collaboration with providers. With changes emerging from the pandemic, life science companies are leveraging remote monitoring for patient enrollment and engagement, while monitoring is done via connected sensors at home or in care facilities. In addition to enhancing enrollment and participation in clinical trials, improved patient engagement helps ensure compliance with therapies and reduces drop-out rates. Digital medicine is also an emerging area, with broader use of smart pills and wearables. Robotics and drones have the potential for enhancing the collection and value of data and therapeutic delivery. The connected technologies require secure, efficient and compliant data exchange to inform stakeholders in the patient care lifecycle, while adhering to regulations.

Life Sciences Digital Services Patient Engagement Digital Transformation Services

2021
Global



Source: ISG Research 2021

PATIENT ENGAGEMENT DIGITAL TRANSFORMATION SERVICES

Eligibility Criteria

- Ability to build a differentiated patient experience
- Capability to select, implement and manage patient engagement services and platforms
- Adept at providing consumer-friendly interactions with digital services
- Deep knowledge of device technologies and ability to develop suitable device strategies
- Competencies in device security and data privacy measures
- Ability to share data and analyses in an integrated ecosystem for communication, education and marketing.

Observations

Patient engagement is often viewed from the context of clinical development, where it covers functions such as patient enrollment, medication adherence and remote patient monitoring. These functionalities like the ones mentioned can also be used as a part of a solution during the ongoing marketing of a pharmaceutical product. For example, capturing vital signs by remote patient monitoring can be an integral part of the medication. Therefore, some CROs, with rich experience in this aspect, have evolved as significant players in this market. Crucial factors determining the success of the solutions provided are mobile enablement, in general, and integration of consumer devices (for example, smartphones and wearables) in particular. Hence, cooperation with device manufacturers is highly important for service providers.

PATIENT ENGAGEMENT DIGITAL TRANSFORMATION SERVICES

Observations (cont.)

The following providers achieved Leader positions in this quadrant:

- **Atos** provides a complete set of functionalities across the entire patient journey, combined on a virtual care platform. Based on its deep knowledge and broad experience on the infrastructure level and in IoT scenarios, Atos offers numerous solutions that enable comprehensive integration of wearables, sensors and other devices.
- **Capgemini** follows a strong patient-centric approach that integrates connected devices and the user interfaces for mobile and web around a patient. The company has shown significant growth in terms of capacity and the scope of functions covered, especially following the acquisition and fast integration of the engineering-focused company, Altran.
- **Cognizant** offers a device-agnostic Internet of Medical Things (IoMT) platform that is compliant with all relevant regulations and covers remote device management for medical-grade and consumer-grade devices (wearables and smartphones). In the context of patient services, Cognizant is co-creating a solution for digital health support, based upon the ServiceNow platform.
- **HCL** offers a complete spectrum of patient engagement solutions along the entire process chain, from consulting over design and implementation to operational support. With the Connected Care Suite, HCL provides a solution that drives the relationship between patients and physicians and ensures end-to-end patient engagement.
- **Hexaware** has been one of the early innovators in combining digital capabilities with pharmaceutical products (digital therapeutics). Its solutions entail a high level of automation that enable clients to reduce running costs significantly.
- **IQVIA** offers a comprehensive tool for use during clinical studies that includes functionalities such as telemedicine, patient eDiaries and questionnaires. The company's portfolio includes various solutions that take a data-oriented approach toward life-sciences-specific functionalities.

PATIENT ENGAGEMENT DIGITAL TRANSFORMATION SERVICES

Observations (cont.)

- **PPD's** portfolio includes a variety of solutions that primarily support interactions with patients that participate in clinical studies. PPD gives high consideration to an efficient supply chain operation in the context of patient engagement. Direct-to-patient (DTP) shipments are an integral part of this strategy.
- **TCS**, with its Health360 platform, provides patient-centric functionalities such as remote patient monitoring, telehealth and customized care programs. Effective integration is achieved by cloud-based data management, focusing on automated collection of patient-related data.
- **Wipro** uses its broad IoT capabilities to offer an integrated solution that helps to continuously monitor and capture high volumes of biometric data and health indicators from connected devices, wearables and health applications. In general, Wipro gives high priority to achieving efficiency in all relevant solutions by utilizing automation.

The following provider has positioned itself as a Rising Star in this quadrant and exhibits the potential to achieve a leader position in future.

- **Verizon** can rely upon its outstanding portfolio of connectivity and mobile device technologies. Its roadmap includes various functionalities that enhance the technological capabilities around connectivity by content- and data-management-driven solution components, including the technology backbone, for example, cloud databases.

PPD



Overview

PPD is a global CRO, providing clinical development and laboratory services as well as patient-centric services for pharmaceutical, biotechnology, medical device, academic and government organizations. The company also provides laboratory services, comprising bioanalytical, biomarker, vaccine science, good manufacturing practice and central laboratory services. PPD was founded in 1986 and has its headquarters in Wilmington, North Carolina, U.S. PPD has more than 30,000 employees in 46 countries.



Strengths

Comprehensive suite of patient engagement solutions in the context of clinical studies: Its portfolio includes a variety of solutions that primarily support interactions with patients that participate in clinical studies. A significant part of the solutions are preconfigured and can be used without major additional implementation efforts. The solutions include functionalities such as eConsent (which captures digital signatures on consent forms), televisits and remote monitoring. For remote monitoring, in particular, PPD's electronic Clinical Outcome Assessment (eCOA) facilitates the collection of data directly from a patient, for example, by connecting to respective devices or to patient diaries. These functionalities exhibit a high degree of mobile enablement in PPD's solution portfolio.

Secure data extraction from hospital EMR systems: The company's portfolio includes a solution designed to extract data from hospital EMR systems, while meeting all patient privacy and data security requirements. This solution allows remote authorized researchers to access multiple hospital EMR systems, simultaneously, to identify eligible patients for research studies and extract relevant data.

Investments in direct-to-patient (DTP) supply chain models: PPD gives high consideration to efficient supply chain operation in the context of patient engagement. DTP shipments are an integral part of this strategy and are key differentiators, especially with the increasing number of decentralized clinical trials.



Caution

PPD should further strengthen the use of consumer-grade devices, particularly in post-marketing surveillance studies. The respective capabilities for developing SaMD solutions can become a key success factor in this context.



2021 ISG Provider Lens™ Leader

PPD qualifies as a leading provider in the digitization of patient engagement with a complete suite of functionally rich solutions.

ENTERPRISE CONTEXT

Manufacturing Supply Chain Digital Transformation Services – Global

This report is relevant to enterprises across industries for evaluating providers of digital transformation services for the manufacturing supply chain.

In this quadrant report, ISG highlights the current market positioning of providers that offer digital transformation services for the global manufacturing supply chain.

Due to the restrictions imposed because of COVID-19, managing the supply chain of an organization, particularly one that is spread geographically, and encompasses many different regulatory structures, has become a challenge. Global life sciences supply chains are long and complex, and shaped by many internal and external factors. Failure of any kind in this supply chain can affect a company adversely, in terms of immediate loss of revenue from delayed product launches, remediation costs and long-term damage to credibility.

Organizations are accelerating the digital transformation of their logistics by focusing on real-time order monitoring, end-to-end inventory visibility and super-reverse logistics experiences. For instance, at the peak of the COVID-19 pandemic, a leading pharma company used a digital-twin to understand the impact of production slowdowns and shutdowns on the supply of patient medication.

As digital technologies continue to advance, life sciences companies have the opportunity to create supply chains that are increasingly cost-effective and responsive to emerging needs

Life science leaders should read this report to understand the relative positioning and capabilities of providers, enabling them to select the appropriate services and solutions related to manufacturing and supply chain more effectively.

Start-up digital health innovators should read this report to understand the leading and emerging areas of investment, challenges faced by manufacturing and supply chain innovators and the key to long-term success for innovators.

Pharma and MedTech companies should read this report to develop a deeper understanding of end-user solutions and create business models that enhance patient outcomes and create value for key healthcare stakeholders, while ensuring manufacturing and supply chain efficiency, quality, and compliance.

Security and R&D leaders should read this report to learn how service providers address the significant challenges of compliance and security, while maintaining a seamless experience for end users.

IT and digital transformation professionals should read this report to understand how providers of manufacturing and supply chain services fit into their existing digital transformation initiatives and how they can be compared with one another.

Sourcing, procurement and vendor management professionals should read this report to develop a better understanding of the current landscape of manufacturing and supply chain service providers.



MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Definition

This quadrant assesses service providers that work with their clients in life sciences to improve the manufacturing supply chain. Disruptions in the manufacturing supply chain because of the COVID-19 pandemic are now well known. There have been shortages in personal protective equipment (PPE) and COVID-19 testing and treatments worldwide. In some regions, there are changes or reductions in in-person inspections by regulatory overseers and in reporting requirements. For an industry dependent on ingredients from across the globe, the disruption of supply chains is a major challenge. The pandemic has led to a series of disruptions because of restrictions in movement. ISG expects a shift to localization of supply chains to reduce risks.

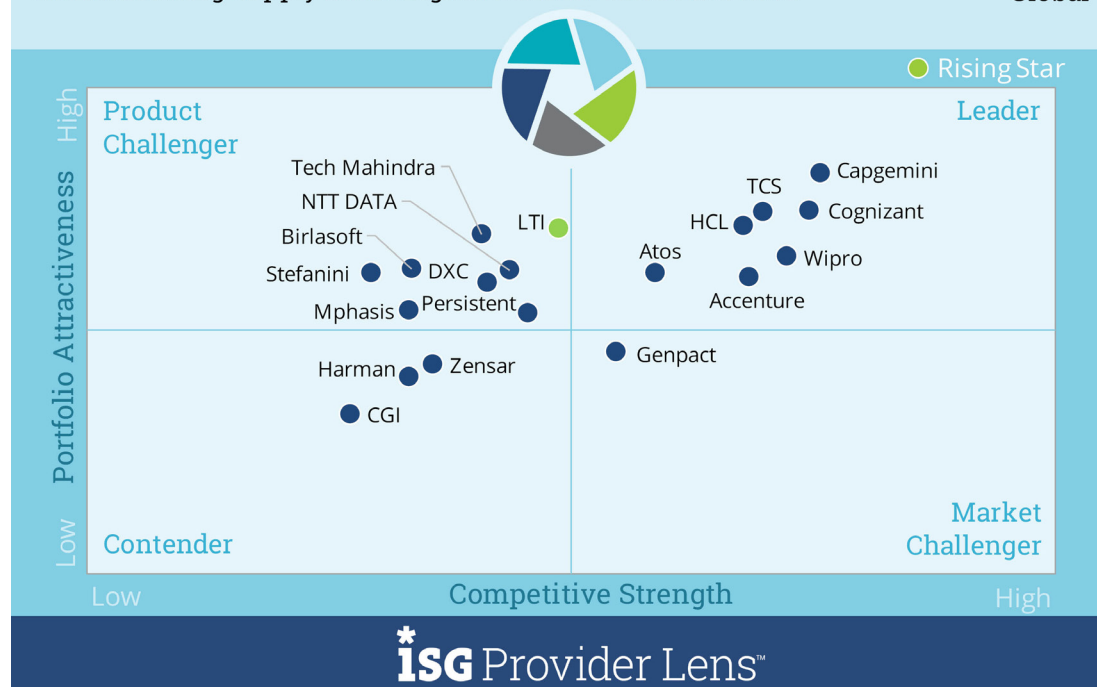
Manufacturers use sensors for monitoring equipment health and predicting maintenance needs to reduce downtime. Many aspects of the manufacturing supply chain rely heavily on collaborative engagement between companies, and technology often provides the

Life Sciences Digital Services

Manufacturing Supply Chain Digital Transformation Services

2021

Global



Source: ISG Research 2021

MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Definition (cont.)

most effective mechanism to engage across incompatible systems or processes. Appropriate analytics and AI are required to move inventory quickly to the desired location. Blockchain helps maintain the chain of custody that is important in life sciences.

Despite the advent of advanced technologies such as automation and AI, making accurate forecasts on shipments is an ongoing challenge for logistics managers. Visibility in the supply chain is hampered by expensive and variable manual processes that reduce the accuracy of the forecast. Often, historical data needed for efficient planning is unavailable or tied up in inaccessible legacy systems. Logistics managers also struggle to provide accurate and real-time estimated times of arrival because of the complexity of the current transportation logistics.

Eligibility Criteria

- Capabilities in assessing existing supply chains and recommending strategy, process and technology changes to improve efficiencies, lower risk and reduce costs
- Ability to transform manufacturing through digital and IoT, using a variety of automatic identification and data capture (AIDC) technologies
- Adept at providing real-time visibility in logistics, using sensors connected to systems that get status information (such as location or temperature) to the right people rapidly, while also changing routes as required and predicting problems
- Ability to provide solutions for complex supply chain structures, including complex connectivity with contract manufacturing and advanced technologies to track and trace
- Established or emerging partnerships with manufacturing supply chain specialists in life sciences and relevant technology providers
- Expertise in import/export compliance

MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Observations (cont.)

A most effective supply chain requires full integration across all relevant functional levels. An important factor in this area is the ongoing integration between the enterprise resource planning (ERP) level and the level of production and process control, usually called the shop-floor level. Most of the important service providers in this segment have built respective capabilities in the recent years. In some cases, this was achieved by considerable acquisition activities. Another aspect worth mentioning is the strong interrelation between manufacturing functions and product development and lifecycle management functions. A lot of data needed in manufacturing have their origin in these upfront functions.

Many aspects of the manufacturing supply chain rely heavily on collaborative engagement among companies, and technology often provides the most effective mechanism to engage across incompatible systems or processes. Appropriate analytics and AI are required to move inventory quickly to the desired location. Blockchain helps

maintain the chain of custody that is important in life sciences. Service providers need to exhibit strong capabilities supporting these aspects.

The following providers have achieved a Leader position in this quadrant:

- **Accenture** traditionally has a strong focus on strategy development and business process design within its service portfolio. Broad experience in life sciences enables the company to adequately offer its services in the regulated environment of this industry.
- **Atos** can refer to comprehensive capabilities in ERP implementation, particularly for environments with a large degree of manufacturing functionalities. Within its portfolio Atos addresses the transfer of technologies and data among the various functions within the lifecycle of a life sciences product.
- **Capgemini**, with its Smart Factory Model, offers powerful solutions along the entire supply chain, from planning functionalities over the manufacturing executions to the various aspects around physical logistics. The acquisition and fast integration of engineering services provider, Altran, has significantly increased Capgemini's capabilities in IoT-enabled solutions for integrating sensors, smart devices, wearables and other components.

MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Observations (cont.)

- **Cognizant** can leverage its deep expertise in manufacturing technology and related software packages, especially SAP ERP, to develop and maintain powerful solutions in the manufacturing supply chain segment. Following the acquisition of Zenith Technologies, a company focused on supply chain functions on the plant level, Cognizant further enhanced its smart manufacturing offerings with the acquisition of TQS Integration, a global industrial data and intelligence company, based in Ireland.
- **HCL** offers a variety of accelerators, designed and developed specifically for the life sciences industry. An important example is the Base90 solution, which is an SAP S/4HANA template, designed particularly for meeting the requirements of life sciences customers. HCL uses various technologies such as radio frequency identification (RFID), Bluetooth and QR Codes to track assets within the supply chain.

- **TCS's** portfolio, apart from capabilities in ERP and manufacturing, includes solutions for specific functions such as predictive maintenance of plant equipment and instruments. TCS offers strong capabilities to transfer information from process development for new products to the commercial manufacturing area using a product lifecycle management (PLM)-based collaboration platform.
- **Wipro** can rely upon deep expertise in all aspects of ERP to support manufacturing and supply chain functionalities, specifically for SAP S/4HANA. With its Supply Chain & Manufacturing IQ (MIQ) solution Wipro provides a cloud-based suite of manufacturing intelligence applications for the use of advanced analytics on critical operating parameters regarding production, quality, maintenance and the supply chain.

The following provider positioned itself as a Rising Star in this quadrant and exhibits the potential to "achieve a Leader position in future:"

- **LTI's** portfolio follows a clear strategy and focuses on specific segments such as manufacturing in the life sciences industry. It has comprehensive capabilities regarding common ERP packages like SAP S/4HANA and focuses specifically on manufacturing functions, including the manufacturing execution system (MES) level and the supply chain.



Methodology

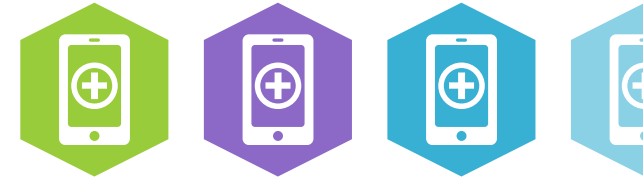


METHODOLOGY

The research study "ISG Provider Lens™ 2021 – Life Sciences Digital Services" analyzes the relevant software vendors/service providers in the Global market, based on a multi-phased research and analysis process, and positions these providers based on the ISG Research methodology.

The study was divided into the following steps:

1. Definition of Life Sciences Digital Services 2021 market
2. Use of questionnaire-based surveys of service providers/vendor across all trend topics
3. Interactive discussions with service providers/vendors on capabilities and use cases
4. Leverage ISG's internal databases & advisor knowledge & experience (wherever applicable)
5. Detailed analysis & evaluation of services & service documentation based on the facts & figures received from providers & other sources.
6. Use of the following key evaluation criteria:
 - Strategy & vision
 - Innovation
 - Brand awareness and presence in the market
 - Sales and partner landscape
 - Breadth and depth of portfolio of services offered
 - Technology advancements



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Frances Grote joined the ISG IPL Life Sciences team in 2021. Prior to this, she led ISG's Life Sciences Digital Drug Development practice, which she helped to design and establish in 2016. Frances has over 25 years of experience in leading global biopharma R&D Strategic Sourcing organizations, prior to joining ISG. She is a recognized innovator in building supplier partnerships in drug development as well as in implementing digital technologies in biopharma R&D. She holds an MBA with a focus on Strategic Planning and has completed graduate training in negotiations.



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Partner and Global Head - ISG Provider Lens™

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ISG Provider Lens™ | Quadrant Report

December 2021

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