ISG Provider Lens™

Life Sciences Digital Services

Global 2020

Quadrant Report



A research report comparing provider strengths, challenges and competitive differentiators

March 2021

Customized report courtesy of:

PPD

About this Report

Information Services Group Inc. is solely responsible for the content of this report. Unless otherwise cited, all content, including illustrations, research, conclusions, assertions and positions contained in this report were developed by, and are the sole property of Information Services Group Inc.

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 December 2020, 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.

The lead author for this report is Rainer Suletzki. The editors are Ipshita Sengupta, Ambrosia Sabrina and Sajina B. The research analysts are Ammar Mohammed and Sidhanth Prasad and the data analyst is Bhanwar Chauhan. The quality and consistency advisors are Frances Grote and Jenn Stein.

ISG Provider Lens™

© 2021 Information Services Group, Inc. All Rights Reserved.

ISG Provider Lens™

ISG Provider Lens™ delivers leading-edge and actionable research studies, reports and consulting services focused on technology and service providers' strengths and weaknesses and how they are positioned relative to their peers in the market. These reports provide influential insights accessed by our large pool of advisors who are actively advising outsourcing deals as well as large numbers of ISG enterprise clients who are potential outsourcers.

For more information about ISG Provider Lens™ studies, please email ISGLens@isg-one.com, call +1.203.454.3900, or visit ISG Provider Lens™.

ISG Research™

ISG Research™ provides subscription research, advisory consulting and executive event services focused on market trends and disruptive technologies driving change in business computing. ISG Research™ delivers guidance that helps businesses accelerate growth and create more value.

For more information about ISG Research™ subscriptions, please email contact@isg-one.com, call +1.203.454.3900, or visit research.isg-one.com.

1 Executive Summary

3 Introduction

12 Clinical Development Digital Transformation Services

17 Patient Engagement Digital Transformation Services

22 Manufacturing Supply Chain Digital Transformation Services

25 Methodology

© 2021 Information Services Group, Inc. All Rights Reserved. Reproduction of this publication in any form without prior permission is strictly prohibited. Information contained in this report is based on the best available and reliable resources. Opinions expressed in this report reflect ISG's judgment at the time of this report and are subject to change without notice. ISG has no liability for omissions, errors or completeness of information in this report. ISG Research™ and ISG Provider Lens™ are trademarks of Information Services Group, Inc.

EXECUTIVE SUMMARY

DIGITAL AS SUCCESS FACTOR IN THE LIFE SCIENCES INDUSTRY

The life sciences industry is going digital. For biotech and pharmaceutical firms, innovation is an imperative. Digitization is rapidly expanding. Just a short while ago the expansion of electronic filing to support the management of safety information and in support of clinical trials was considered leading edge. Unprecedented challenges caused by COVID-19 are continuing to push the digital envelope to include all aspects of patient engagement, telemedicine and areas of drug development that were once considered off limits. As these new approaches take hold, regulatory hurdles and cost pressures have never been higher. Blockbuster mergers have begotten costly integration efforts. The competitive landscape has never been more dynamic — and global.

In addition to helping meet the demands of the pandemic, digital innovation is expanding in response to multiple other environmental challenges. Global demographic trends, with an aging population, have increased the demand not just for more medical care, but also for more efficient delivery mechanisms. And economic drivers such as lower prices, wider availability and improving digital infrastructures contribute to both demand and investment. Improvements in methods accompany ongoing innovation to further promote digital solutions.

Although outsourcing to contract research organizations (CROs) has been an industry standard for decades, the improvements in technology and accompanying reductions in cost have led many biopharma companies to increasingly rely on CRO partners for more strategic and business critical activities.

Another area affected by the trend toward more outsourcing is the manufacturing supply chain function of life science providers that often engage a global network of contract manufacturers for the production and distribution of medical devices, drugs, vaccines and tests. Digital transformation plays an important role in this area as supply chains become increasingly automated, using connected sensors and intelligent automation to improve efficiencies. Digital services can also help life sciences companies comply with a complex and changing regulatory landscape.

Direct interaction between drug manufacturers, healthcare providers and patients has increased because of the pandemic and will continue as it subsides because of proven capabilities, efficiencies and cost savings. With the wider adoption of technologies such as telemedicine and remote monitoring, it is easier for doctors to stay connected with patients

© 2021 Information Services Group, Inc. All Rights Reserved.

on a regular basis and for a variety of functions. For example, reminders can be sent to personal (wearable) devices integrated with remote monitoring of patients for specific conditions, such as high blood pressure or blood sugar, to regulate adherence to a specific therapy or administration of medicine. Personalized medicines/therapies will advance; for instance, specific drugs will be developed and produced in accordance with the genetic and health profiles of a patient. All such capabilities require advanced digital capabilities; as a result, IT is becoming an integral part of the life sciences industry.

But digital services for life sciences use cases are complex, so transformation of the life sciences industry requires extensive support and services from suitable providers. In addition to the CROs, the traditional IT providers are also important players in this market. These two groups of providers show converging developments in the recent years. Several CROs have developed sophisticated IT capabilities in response to client demand for enriched services that include advanced technological solutions. Concurrently, traditional IT providers are on the path of developing deeper domain expertise in life sciences to offer comprehensive solutions specific to this industry. In addition, CROs and IT providers are increasingly combining their respective capabilities to meet the changing demands of life sciences clients. This overlap in functions of CROs and IT providers is expected to continue in the future. Hence, both groups of providers are a part of the evaluation for this study as they are increasingly addressing the same requirements.

The scope of this study takes the trends described above into consideration with focus on three major quadrants, namely, Clinical Development, Patient Engagement and Manufacturing Supply Chain. In the clinical development and patient engagement quadrants CROs play an important role and depending on the implementation a CRO or a classical IT provider could be the appropriate choice for the development of a solution. In the manufacturing supply chain quadrant, IT providers dominate since manufacturing is not the core competency of CROs.

© 2021 Information Services Group, Inc. All Rights Reserved.

Introduction

Simplified Illustration



Source: ISG 2020

Definition

The healthcare and life sciences industry is, more than ever, under considerable pressure to change. The COVID-19 pandemic and public demand for more effective outcomes are accelerating the actions needed for improved healthcare and patient-centric business models. All segments of the industry are being compelled to comply with new regulations, engage in mergers and acquisitions (M&A) to stay competitive and adapt to the needs of a large aging population. Yet, blockbuster mergers have precipitated costly integration efforts. Also, consumers expect advanced and convenient digital service delivery. At the same time, many companies are struggling to stay apace with growing demands for their services as well as mounting competitive pressures.

© 2021 Information Services Group, Inc. All Rights Reserved.

Definition (cont.)

As new business approaches take centerstage, regulatory hurdles and cost pressures have never been higher and the competitive landscape has never been more dynamic and global. In this context, innovation is imperative; medical device companies are increasingly focusing on the efficiency of the supply chain and recognizing that innovation is the key to growth and survival.

Successful organizations in the healthcare and life sciences industry have been meeting these challenges by engaging in the following:

1. Driving targeted investments and constant cost control;
2. Using advanced technology and digital operating models;
3. Focusing on improved and innovative patient engagement.

Scope of the Report

In life sciences, while managed and strategic services are available for pharmaceuticals and research organizations, this study focuses on what ISG perceives as most critical in 2020, namely, 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. Also, they are evaluated on parameters such as annual revenue, assigned professionals (resources) and R&D investments.

© 2021 Information Services Group, Inc. All Rights Reserved.

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 more than 5,000 employees or revenue above US$1 billion, with activities worldwide and globally distributed decision-making structures.

© 2021 Information Services Group, Inc. All Rights Reserved.

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

The Leaders among the vendors/ providers have a highly attractive product and service offering and a very strong market and competitive position; they fulfill all requirements for successful market cultivation. They can be regarded as opinion leaders, providing strategic impulses to the market. They also ensure innovative strength and stability.

Product Challenger

The Product Challengers offer a product and service portfolio that provides an above-average cover¬age of corporate requirements, but are not able to provide the same resources and strengths as the Leaders regarding the individual market cultivation categories. Often, this is due to the respective vendor's size or weak footprint within the respective target segment.

Market Challenger

Market Challengers are also very competitive, but there is still significant portfolio potential and they clearly fall behind the Leaders. Often, the Market Challengers are established vendors that are somewhat slow to address new trends due to their size and company structure, and therefore have some potential to optimize their portfolio and increase their attractiveness.

Contender

Contenders still lack mature products and services or sufficient depth and breadth in their offering, but also show some strengths and improvement potential in their market cultivation efforts. These vendors are often generalists or niche players.

© 2021 Information Services Group, Inc. All Rights Reserved.

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

Companies that receive the Rising Star award have a promising portfolio 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. This award is only given to vendors or service providers that have made significant progress toward their goals in the last 12 months and are expected to reach the Leader quadrant within the next 12-24 months due to their above-average impact and strength for innovation.

Not In

The service provider or vendor was not included in this quadrant. There might be one or several reasons why this designation is applied: 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 qualify due to market share, revenue, delivery capacity, number of customers or other metrics of scale to be directly compared with other providers in the quadrant. Omission from the quadrant does not imply that the service provider or vendor does not offer this service or solution, or confer any other meaning.

© 2021 Information Services Group, Inc. All Rights Reserved.

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
Atos	Market Challenger	Leader	Leader
Birlasoft	Not In	Product Challenger	Product Challenger
Capgemini	Leader	Leader	Leader
CGI	Not In	Contender	Contender
Cognizant	Leader	Leader	Leader
Covance	Market Challenger	Not In	Not in
DXC	Not In	Market Challenger	Product Challenger
Genpact	Not In	Rising Star	Market Challenger
HCL	Leader	Leader	Leader
Hexaware	Product Challenger	Rising Star	Not In
IBM	Market Challenger	Market Challenger	Not In
ICON	Product Challenger	Product Challenger	Not In

© 2021 Information Services Group, Inc. All Rights Reserved.

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
Infosys	Not In	Not In	Product Challenger
IQVIA	Leader	Leader	Not In
LTI	Not In	Not In	Product Challenger
Mphasis	Not In	Contender	Not In
NTT DATA	Market Challenger	Product Challenger	Product Challenger
Persistent	Contender	Product Challenger	Contender
PPD	Leader	Leader	Not In
PRA	Market Challenger	Market Challenger	Not In
Stefanini	Product Challenger	Leader	Product Challenger
TCS	Leader	Leader	Leader
Tech Mahindra	Product Challenger	Product Challenger	Product Challenger
Wipro	Leader	Leader	Leader

© 2021 Information Services Group, Inc. All Rights Reserved.



Life Sciences Digital Services Quadrants

ENTERPRISE CONTEXT

Clinical Development Digital Transformation Services

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 clinical development space globally.

The COVID-19 pandemic has forced everyone, from patients to clinical trial coordinators, to stay home. As a result, pharmaceutical manufacturers and contract research organizations (CROs) across the globe were trying to figure out how to manage clinical trials remotely. Clinical development organizations are trying to partner with healthcare payers and providers to leverage the data collected over the years and develop new trial protocols that enable patients to participate from remote locations.

The growing demand for personalized medicine has also paved the way for artificial intelligence (AI) and machine learning (ML). These technologies aim at lowering drug development costs and improve the rate at which new drugs are being developed. Although the benefits of these technologies are widely known, their adoption 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.

Enterprises that conduct clinical development across the world are also investing heavily in digital technologies for improving operational efficiency, managing regulatory compliance and facilitating remote collaboration.

Healthcare providers and life science leaders should read this report to understand the relative positioning and capabilities of providers and thus effectively plan and select the appropriate services and solutions related to patient engagement. The report also shows how the technical and integration capabilities of a service provider compare with the rest in the market.

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 remote patients.

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

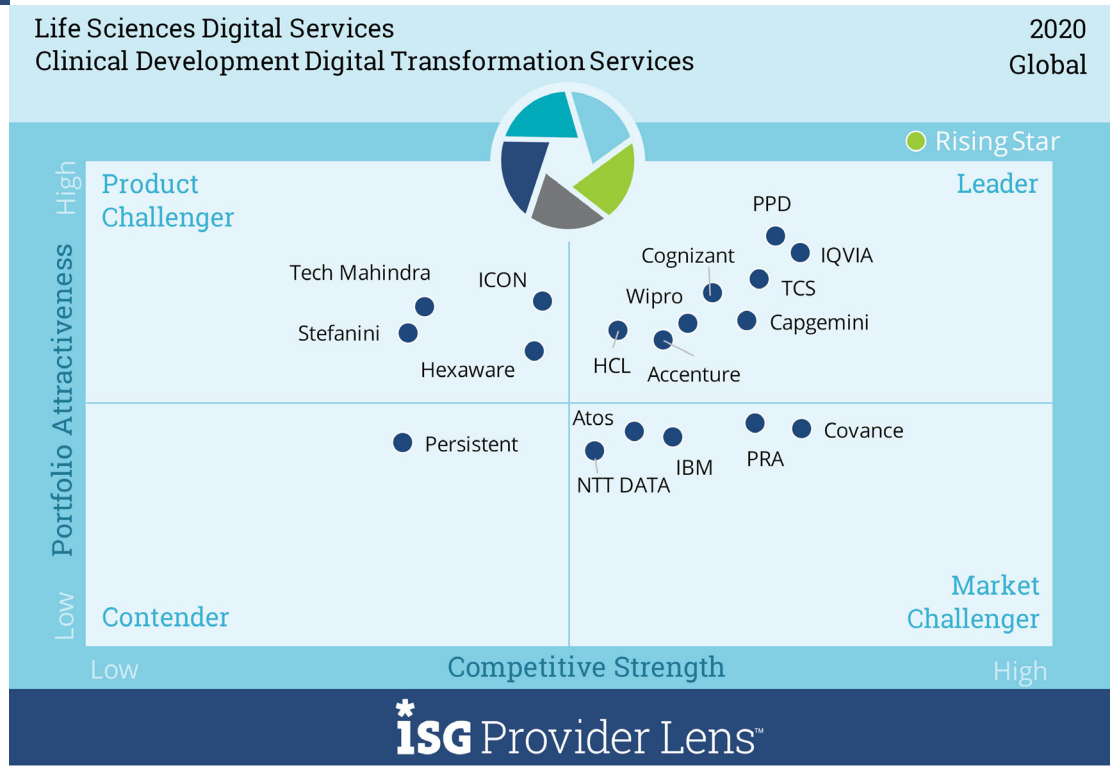
Sourcing, procurement and vendor management professionals should read this report to develop a better understanding of the current landscape of patient engagement service providers.

© 2021 Information Services Group, Inc. All Rights Reserved.

CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Definition

This quadrant assesses the way service providers help pharmaceutical and medical device companies hasten the process of developing and bringing products (medicines and devices) to the market. Clinical trials are expensive and time consuming, with high failure rates. Life sciences companies need to demonstrate the economic and clinical value (ECV) of products. Starting early in the value chain, drug discovery and lab studies require specific expertise, equipment and processes. As development moves into clinical trials, companies need to find, monitor and manage participant experience in an evolving landscape. Woven throughout this are compliance checks for complex regulations. Digital services accelerate many of these processes. Artificial intelligence (AI) influences all steps in clinical development by helping to access and analyze large data sets, thus driving the value of the data being collected. One exciting development in this space is the first AI-generated drugs starting on human trials.



Source: ISG Research 2020

© 2021 Information Services Group, Inc. All Rights Reserved.

CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Definition (cont.)

The pandemic is pushing the need for tests, vaccines and treatments within short time frames. For instance, the U.S. Food and Drug Administration (FDA) issued emergency use authorizations (EUAs) for tests, medical devices and therapeutics to prevent, diagnose and treat COVID-19. The intent is to help make medical products available as quickly as possible, by allowing previously unapproved medical products to reach patients in need, when there are no adequate, FDA-approved alternatives available. Service providers help companies align with the latest developments.

Service providers also improve the clinical design process with collaboration platforms. The use of these platform helps to 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 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;
- Support the FDA Coronavirus Treatment Acceleration Program (CTAP). The program uses every available method to make new treatments for patients available as quickly as possible, while, at the same time, determining if they are helpful or harmful.

© 2021 Information Services Group, Inc. All Rights Reserved.

CLINICAL DEVELOPMENT DIGITAL TRANSFORMATION SERVICES

Observations

The following providers could achieve a leader position in this quadrant:

- **Accenture,** with its INTIENT platform based upon the Google cloud, has a comprehensive offering for clinical development that includes four major components for research, clinical development, pharmacovigilance and patient engagement as well as the managed analytics environment.
- **Capgemini** offers a comprehensive solution portfolio for the development of drugs based on a secure and scalable data foundation platform. The process-related components are complemented by a strong analytics solution, combining all data areas that are relevant for clinical development.
- **Cognizant's** portfolio includes a powerful platform for decentralized clinical trials that follows a strong patient-centered approach. Furthermore, the company's well-designed delivery model is capable of leveraging the respective capabilities of its clients.
- **HCL,** with the Study Data Conversion Platform, provides a solution for the secure collection and storage of study related data. The company's portfolio includes a predefined package (Smart Clinical Trials) for comprehensive digital support during conducting clinical trials, complemented by various logistics services within these trials.
- **IQVIA,** based on its rich experience as a CRO, provides a full portfolio of compelling solutions for clinical trials. The company's Master Data Management solution enables the definition and implementation of a central global data model.
- **PPD,** as an experienced CRO, offers comprehensive domain knowledge in its services for clinical development that includes a comprehensive data portfolio solution that consolidates and standardizes data from multiple sources and is complemented by its data integration capabilities.
- **TCS,** with deep domain expertise and broad experience in clinical development, provides powerful platform solutions in this area with strong focus on cost effectiveness with the use of automation.
- **Wipro** focuses on the development of advanced analytics solutions within a comprehensive framework for clinical development called DICE (Digital Integrated Clinical Enterprise). The solutions are primarily cloud-based and highly scalable.

© 2021 Information Services Group, Inc. All Rights Reserved.

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 was founded in 1986 with headquarters in Wilmington, North Carolina. In 2020, PPD had more than 24,500 employees in 46 countries.

Strengths

Deep domain expertise combined with digital knowledge: PPD has comprehensive domain knowledge in clinical development and combines this with comprehensive service capabilities to develop and offer digital solutions in this area. Its real-time data solution, Preclarus®, is a comprehensive data portfolio solution that consolidates and standardizes data from multiple sources and is capable of presenting the data on various dashboards, including interactive visualizations and analytics. The company's rich experience is evident in the more than 80 digital studies completed with its digital services in the past three years.

Integration as a focus area: PPD Digital has a dedicated team for integration solutions focused on using APIs to connect a variety of data sources seamlessly into the PPD clinical development services. Scalability, data security and rapid deployment are most relevant aspects in these developments.

Comprehensive partner ecosystem: PPD has a broad network of partnerships with important providers of IT in order to leverage their products in the clinical development environment, and that includes partners for wearables and the related platforms, electronic data capture and cloud services.

Comprehensive compliance with regulations: PPD operates under a global, consistent QMS so that all service locations and functional areas are aligned with regulatory requirements such as GxP, FDA CFR 21 Part 11 and EU GMP Annex 11.

Caution

PPD primarily focuses on customized solutions. The company should define standardized entry packages for recurring clinical development cases in order to ensure that its sophisticated portfolio can be easily applied in less complex cases.

2021 ISG Provider Lens™ Leader

PPD is a highly capable CRO with compelling digital capabilities on a global scale.

© 2021 Information Services Group, Inc. All Rights Reserved.

ENTERPRISE CONTEXT

Patient Engagement Digital Transformation Services

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

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

The pursuit of a seamless and reminiscent patient engagement and experience has always been an integral priority for healthcare providers. Life sciences organizations are realizing they need to be patient centric. Typically, service providers support healthcare and life sciences companies to deepen their connections with patients by utilizing technology that enables patients to better understand and manage their own health. In order to do so, service providers have to improve their domain expertise in addition to their technological capabilities.

Factors such as the aging population and the ongoing pandemic have created opportunities for technology providers to produce innovative solutions. Some of them include wearable technologies and mobile health applications which are gaining momentum around the world.

In the current healthcare environment, patient care may involve collaborating across the healthcare ecosystem and coordinating care through digital technologies such as mobile apps, wearables and self-service portals.

Healthcare providers and life science leaders should read this report to understand the relative positioning and capabilities of providers and thus effectively plan and select services and solutions related to patient engagement. The report also shows how the technical and integration capabilities of a service provider compare with the rest in the market.

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 remote patients.

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

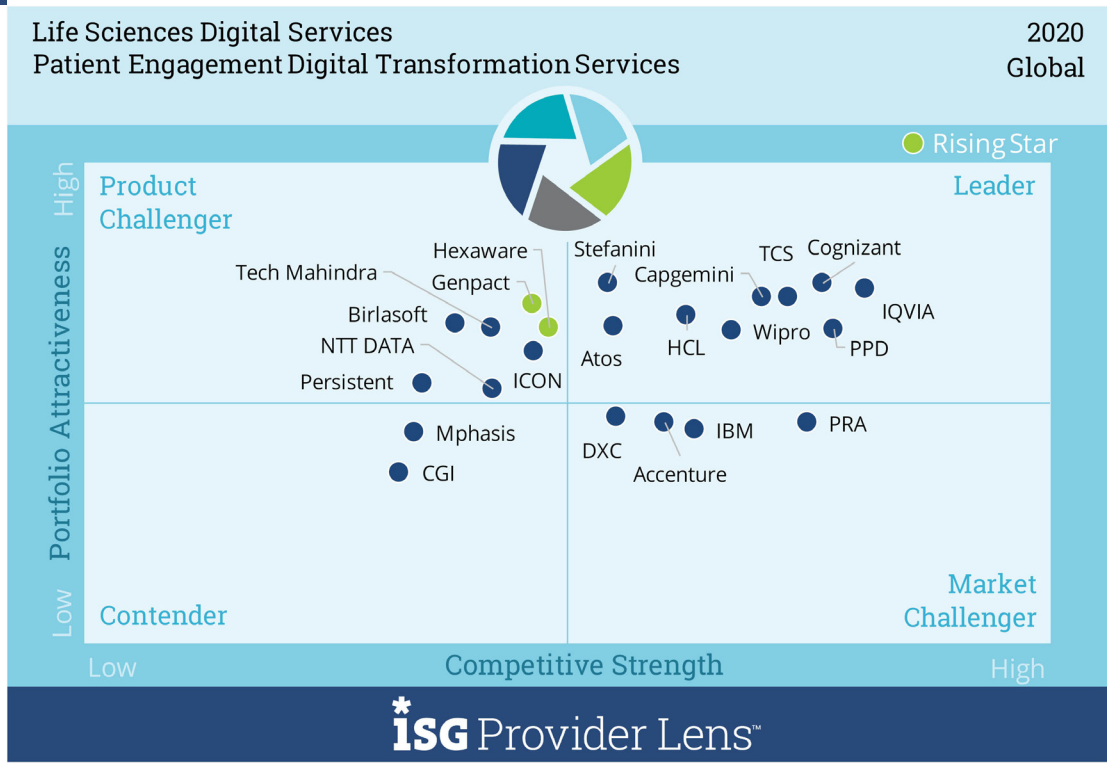
Sourcing, procurement and vendor management professionals should read this report to develop a better understanding of the current landscape of providers offering patient engagement services.

© 2021 Information Services Group, Inc. All Rights Reserved.

PATIENT ENGAGEMENT DIGITAL TRANSFORMATION SERVICES

Definition

This quadrant assesses service providers that offer life sciences customer services through supporting processes and platforms. life sciences companies are engaging directly with patients to improve their products as well as patient outcomes. The end goal is to improve patient experience during the development lifecycle all the way through to outcomes in collaboration with providers. With the pandemic, patient engagement increasingly means remote rather than in-person consultations. Electronic enrollment while monitoring is with the help of connected sensors in homes or 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 a broader use of smart pills and wearables. At the same time, 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 value chain, while adhering to regulations.



Source: ISG Research 2020

© 2021 Information Services Group, Inc. All Rights Reserved.

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

The following providers could achieve a leader position in this quadrant:

- **Atos,** with its Patient PULSE product, provides a compelling multi-channel, dynamic patient engagement framework to ensure patient satisfaction. Furthermore, the company's portfolio includes an EHR solution that can support medical practices and healthcare networks.
- **Capgemini,** apart from a rich experience in the utilization of consumer devices for connected health solutions, offers a powerful framework for the development of Software-as-a-Medical-Device (SaMD). Compelling preconfigured solutions for electronic health records (EHR) complete the portfolio.
- **Cognizant** exhibits a strong focus on patient-centric solutions, which is illustrated by its powerful solution, based on Salesforce, enabling physicians, nurses, pharmacists to be digitally connected for the purpose of medication for patients.
- **HCL's** portfolio includes patient-engagement solutions that take a persona-based approach. Another important aspect of its portfolio is a focus on mobile enablement for patients.
- **IQVIA** offers a compelling patient engagement solution in the form of a SaaS suite, called Orchestrated Patient Engagement (OPE). Furthermore, the provider takes a data-oriented approach to offer a master data management solution for the definition and implementation of a central global data model.

© 2021 Information Services Group, Inc. All Rights Reserved.

PATIENT ENGAGEMENT DIGITAL TRANSFORMATION SERVICES

Observations (cont.)

- **PPD** offers a variety of patient-centric solutions designed to improve the relationship between patients and physicians. The company's portfolio also includes a solution for secure data extraction from EMR systems in hospitals by complying with all patient privacy and data security requirements.
- **Stefanini** has a strong portfolio for patient engagement that includes a sophisticated patient-centric platform for clinical trials with comprehensive mobile enablement features that enable it to collect patient related data with mobile devices.
- **TCS'** powerful Health360 platform includes functionalities such as remote patient monitoring and telehealth, facilitating personalized interaction with patients. Integrated processes between patients and physicians are enabled by cloud-based automated collection of patient-related data.
- **Wipro** enables a comprehensive automated collection of data for electronic health records (EHRs) by connecting various health, fitness, laboratory and medical devices with a centralized platform. The company also has a strong focus on user experience in the context of patient engagement.

The following providers could position themselves as Rising Stars in this quadrant and exhibit the potential to achieve a leader position in future:

- **Genpact** takes an omnichannel approach to patient engagement that includes medical science liaisons (MSLs) of all kinds, call center functionalities, mobile apps and web functions. Most of the solutions include mobile apps that provide the functionalities to all parties involved (patients, physicians, nurses etc.).
- **Hexaware's** key offering is a strong SaaS solution suite, CarrotCube, based on Salesforce. It includes numerous functionalities such as tracking adherence to medication and collecting other vital data. CarrotCube is fully mobile enabled.

© 2021 Information Services Group, Inc. All Rights Reserved.

PPD

Overview

PPD is a global CRO, providing clinical development, laboratory services and patient-centric services for pharmaceutical, biotechnology, medical device, academic and government organizations. The company was founded in 1986 with its headquarters in Wilmington, North Carolina. In 2020, PPD had more than 24,500 employees in 46 countries.

Strengths

Solutions focused on patient experience: The solutions provided by PPD include functionalities such as eConsent (captures digital signatures on consent forms), tele-visits and remote monitoring. Another important development is a site/patient visualization tool that helps with country/site selection decision-making.

Sophisticated solutions for patient enrollment: With its Accelerated Enrollment Solution (AES), PPD provides access to a large, dedicated global site network that supports the use of technology for the utilization of specified and consented patient data in order to accelerate patient identification and patient enrollment. The solution includes various functionalities such as patient concierge, home healthcare nursing, remote monitoring and direct-to-patient supplies.

Secure data extraction from hospital EMR systems: The company's portfolio includes a solution designed to extract data from hospital EMR systems, by 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.

Integrated patient and site education strategy: The solutions provided are complemented by a detailed patient and site education strategy that ensures appropriate training for site staff and patients, for instance, in the form of instructional videos available on mobile devices such as tablets.

Caution

The use of consumer devices (smartphones) for remote patient monitoring (with apps as medical devices) should be given more consideration in the company's portfolio, specifically for pharmaceutical companies as part of their product offerings.

2021 ISG Provider Lens™ Leader

PPD offers a broad range of compelling patient engagement solutions that are suitable for clinical trials.

© 2021 Information Services Group, Inc. All Rights Reserved.

ENTERPRISE CONTEXT

Manufacturing Supply Chain Digital Transformation Services

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 service providers that offer digital transformation for the manufacturing supply chain globally.

Due to the COVID-19 crisis, managing a supply chain in an organization with a broad geographical spread and many different regulatory structures has become a challenge. This makes the monitoring and controlling of operational performance a complex issue for life science professionals. These challenges have made life science companies to scale up their supply chains efficiency. Globally, life sciences supply chains must transform to help organizations create and deliver a shared value focused on personalized outcomes that are fueled by unlocking the power of data.

An optimum supply chain strategy must align the physical network available, create a supporting organizational infrastructure and ensure uniformity in both the IT system and internal communication procedures. Improving the supply chain facility increases shareholder value and provides a competitive advantage in sales channels by accelerating the launch of new products.

Healthcare, supply chain and logistics leaders should read this report to understand the relative positioning and capabilities of providers and thus effectively plan and select the appropriate services and solutions related to the manufacturing supply chain. The report also shows how the technical and integration capabilities of a service provider compare with the rest in the market.

Security, marketing and R&D leaders should read this report to see how service providers address the significant challenges of compliance and security while keeping the manufacturing supply chain seamless.

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

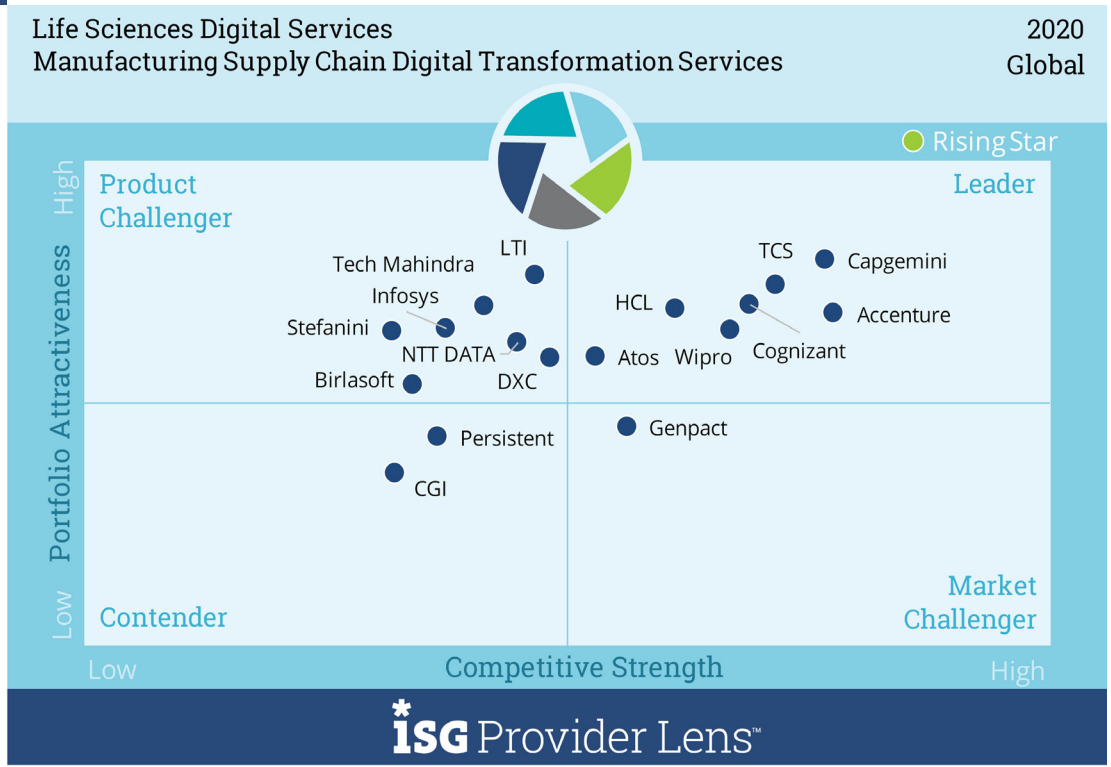
Sourcing, procurement and vendor management professionals should read this report to develop a better understanding of the current landscape of providers offering manufacturing supply chain services.

© 2021 Information Services Group, Inc. All Rights Reserved.

MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Definition

This quadrant assesses service providers that work with 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. Around the world there have been shortages in personal protective equipment (PPE) and COVID-19 testing and treatments. In some regions, there are changes or reductions in manual inspections by regulatory personnel as well as changing reporting requirements. For an industry dependent on materials from across the globe, the disruption of supply chains has come as 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.



Source: ISG Research 2020

© 2021 Information Services Group, Inc. All Rights Reserved.

MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Definition (cont.)

Manufacturers are using technology such as sensors for monitoring equipment health and predicting maintenance needs to reduce downtime. Many components of the manufacturing supply chain rely heavily on collaborative engagement between companies, and technology often provides the most effective means to engage across systems or processes. To move inventory as fast as possible to where it is needed requires appropriate analytics and AI. blockchain helps maintain the chain of custody that is important in life sciences.

Despite the advent of advanced technologies such as automation and the use of AI, making accurate forecasts on shipments is an ongoing challenge for logistics managers. Visibility in the supply chain is hampered by costly 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 estimates arrival time 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 risks 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 to 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 for track and trace;
- Established or emerging partnerships with manufacturing supply chain specialists in life sciences and relevant technology providers;
- Expertise in import/export compliance.

© 2021 Information Services Group, Inc. All Rights Reserved.

MANUFACTURING SUPPLY CHAIN DIGITAL TRANSFORMATION SERVICES

Observations

- **Accenture,** with the platform-oriented approach, Industry X.0, follows a comprehensive strategy, covering the essential aspects of digitalization in manufacturing. The recent acquisitions of the Italy-based PLM Systems and Ireland-based Enterprise System Partner (ESP) has enriched the company's portfolio significantly.
- **Atos** has deep expertise in the digital transformation of manufacturing processes, where its Intelligent Supply Chain strategy is a combination of various technologies (infrastructure and application) for the optimization of supply chain processes in general and for life sciences in particular.
- **Capgemini,** with its global delivery model that exhibits a good balance of onshore with nearshore and offshore capabilities, offers a comprehensive solution portfolio for the digital transformation of manufacturing. After the acquisition of Altran, the aspects related to engineering services have also been covered.
- **Cognizant** makes large investments in future trends such as personalized care and has strong ERP capabilities. With the recent acquisition of Ireland-based Zenith Technologies, Cognizant could significantly improve its expertise on the shop floor level, for instance, around Manufacturing Execution Systems (MES).
- **HCL's** smart use of tracking technologies such as RFID, Bluetooth and QR Codes for tracking assets within the supply chain is one of its most important credentials. Furthermore, the company has developed an SAP S/4 HANA template specifically for the requirements of life science customers.
- **TCS** has a strong global delivery concept with a dedicated onshore presence in many countries, specifically in the U.S. and several countries in Europe, leading to extensive experience in the implementation and continuous operation of large ERP systems that are typical for life science companies with a global presence.
- **Wipro,** with Manufacturing IQ (MIQ), has developed a cloud-based suite of manufacturing intelligence applications that complements its deep expertise in all aspects of ERP to support manufacturing and supply chain functionalities, specifically for SAP S/4HANA.

© 2021 Information Services Group, Inc. All Rights Reserved.



Methodology

METHODOLOGY

The research study "ISG Provider Lens™ 2020 – 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 market
2. Use of questionnaire-based surveys of service providers/vendor across all trend topics
3. Interactive discussions with service providers/vendors on capabilities & 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

© 2021 Information Services Group, Inc. All Rights Reserved.

Authors and Editors



Rainer Suletzki, Author

Senior Advisor

Mr. Suletzki relies on a deep understanding of core business processes and in-depth know-how of IT management. He has more than 30 years of experience as Senior IT Manager, Senior Project Manager and – at the beginning of his career – as IT consultant. His main areas of expertise comprise IT application management, IT architecture, data modelling as well as IT sourcing strategy and execution

Rainer acts as independent consultant with a focus upon application management for SAP and specifically for SAP HANA. On behalf of ISG he conducts studies within the framework of ISG Provider Lens and takes on client projects with definition of IT strategy and the resulting sourcing decisions.

Before becoming an independent consultant, Rainer worked more than 30 years for a global German Life Science corporation.

Rainer holds graduate degrees in Economics and Computer Sciences.

© 2021 Information Services Group, Inc. All Rights Reserved.

Authors and Editors



Ammar Mohammed, Enterprise Context and Global Overview Analyst

Senior Analyst

Ammar is a lead analyst with ISG Provider Services. At ISG he works on provider workshops, thought papers and IPL studies focused on the Media, Healthcare and Life Sciences industries. He also tracks and assesses digital transformation trends and the impact of emerging technologies across the Healthcare and Life Sciences verticals. During his tenure, he has developed content for ISG Momentum™ and ISG Provider Lens™ in the areas of Healthcare, Life Sciences and Manufacturing industries. He is responsible for supporting research authors and authoring blogs, enterprise content and the Global Summary report with market trends and insights.



Sidanth Prasad, Enterprise Context and Global Overview Analyst

Research Analyst

Sidhanth Prasad is a research analyst at ISG and is responsible for supporting Provider Lens™ studies on Healthcare and Lifesciences. During his tenure, he has developed content for ISG Provider Lens™ in the areas of Healthcare and Life Sciences. He is responsible for supporting research authors and authoring blogs, enterprise content and the Global Summary report with market trends and insights.

© 2021 Information Services Group, Inc. All Rights Reserved.

Authors and Editors



Jan Erik Aase, Editor

Partner and Global Head - ISG Provider Lens™

Mr. Aase brings extensive experience in the implementation and research of service integration and management of both IT and business processes. With over 35 years of experience, he is highly skilled at analyzing vendor governance trends and methodologies, identifying inefficiencies in current processes, and advising the industry. Jan Erik has experience on all four sides of the sourcing and vendor governance lifecycle - as a client, an industry analyst, a service provider and an advisor. Now as a research director, Partner and Global Head - ISG Provider Lens™, he is very well positioned to assess and report on the state of the industry and make recommendations for both enterprises and service provider clients.

© 2021 Information Services Group, Inc. All Rights Reserved.

ISG Provider Lens™ | Report: Life Sciences Digital Services March 2021

© 2021 Information Services Group, Inc. All Rights Reserved



ISG (Information Services Group) (Nasdaq: III) is a leading global technology research and advisory firm. A trusted business partner to more than 700 clients, including more than 75 of 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 1,300 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 www.isg-one.com.