Three Engagement Models for Embracing Digital in Life Sciences

By optimizing how business, IT and partners work together, life sciences organizations can more effectively transform into digital beings.

Executive Summary

The life sciences industry is being reshaped by an array of digital technologies that have significantly improved patient outcomes and consumer experiences. Developments in areas such as the Internet of Things (IoT), analytics, cloud infrastructure and biosensors have created opportunities for life sciences companies to generate unprecedented value for end-consumers and their businesses.

Harnessing digital for a typical life sciences organization, however, poses numerous challenges. To fully infuse digital into all aspects of the business requires a company to rethink the fundamental engagement model of business, IT and external vendors. The collaboration of business and IT, tightly coordinated with internal function vendors and agency partners, is key for driving digital innovation, design and systems implementation. As a result, life sciences decision-makers face a tricky imperative: They must simultaneously manage digital growth ambitions and design new business models while considering the strengths and capabilities of various players inside and outside the organization.

This white paper discusses drivers for digital adoption and how IT, business and other stakeholders can establish an engagement model with the necessary technology, talent and processes by recommending three model options for organizations to choose among :

- IT owns digital innovation.
- Business owns digital innovation.
- "New entity" owns digital innovation.

Key Trends that Demand a New Engagement Model

Life sciences companies across industry segments are gradually embracing "digital innovation." In fact, the growth of digital products, technologies and platforms has launched a new phase of competition in the market. Industry predictions for the next decade are no longer indicative or relevant due to the pace and nature of changes. With the rise of genomic medicine, 3-D bioprinting, robotics, wearable technology and biosensors, the industry's growth potential has been rethought.

Although companies have recognized the need to be digital, the question of who will drive and participate in digital transformation remains

Cognizant

unanswered. In this dynamic environment, organizations of every size have to consider not only their digital capabilities, talent and business model, but also the engagement model with its stakeholders who can support future direction. Each part of the organization has a role to play in leading or participating in enterprise digitization. IT, in particular, is in a unique position to lead and support digital initiatives as most innovations are characterized by effective use of technology to drive higher value for customers or internal stakeholders.

There are many reasons life sciences companies need to rethink the way their business and IT functions engage with one another. Among them are the following:

- **Disruptive technologies and growing collaborative platforms are transforming consumer markets, reducing costs and ensuring better medical outcomes.** Disruptive technologies (e.g., augmented/virtual reality, mobile, AI, big data) are continuously shaping business models, whereas collaborative platforms (such as for cloud-based R&D) are transforming consumers' lives by creating new experiences through more innovative products and services.[1] To turn ideas into actionable products and services, it is essential to establish next-gen engagement models and build functions that can assume key responsibilities of ideation, collaboration and implementation in the process of innovation.
- **Cloud, big data strategies, AI and analytics are enabling companies to capture and analyze vast amount of data to drive better and more timely decisions at a reduced cost.** With cloud-based analytics and consolidated R&D platforms, organizations can save significant costs in drug discovery and follow-up studies. With advanced analytics technologies, the cost per genome analysis has dropped rapidly to $1,000-$1,500 per genome compared with $100 million in 2001.[2]

Three Engagement Model Options for Making Good on Digital

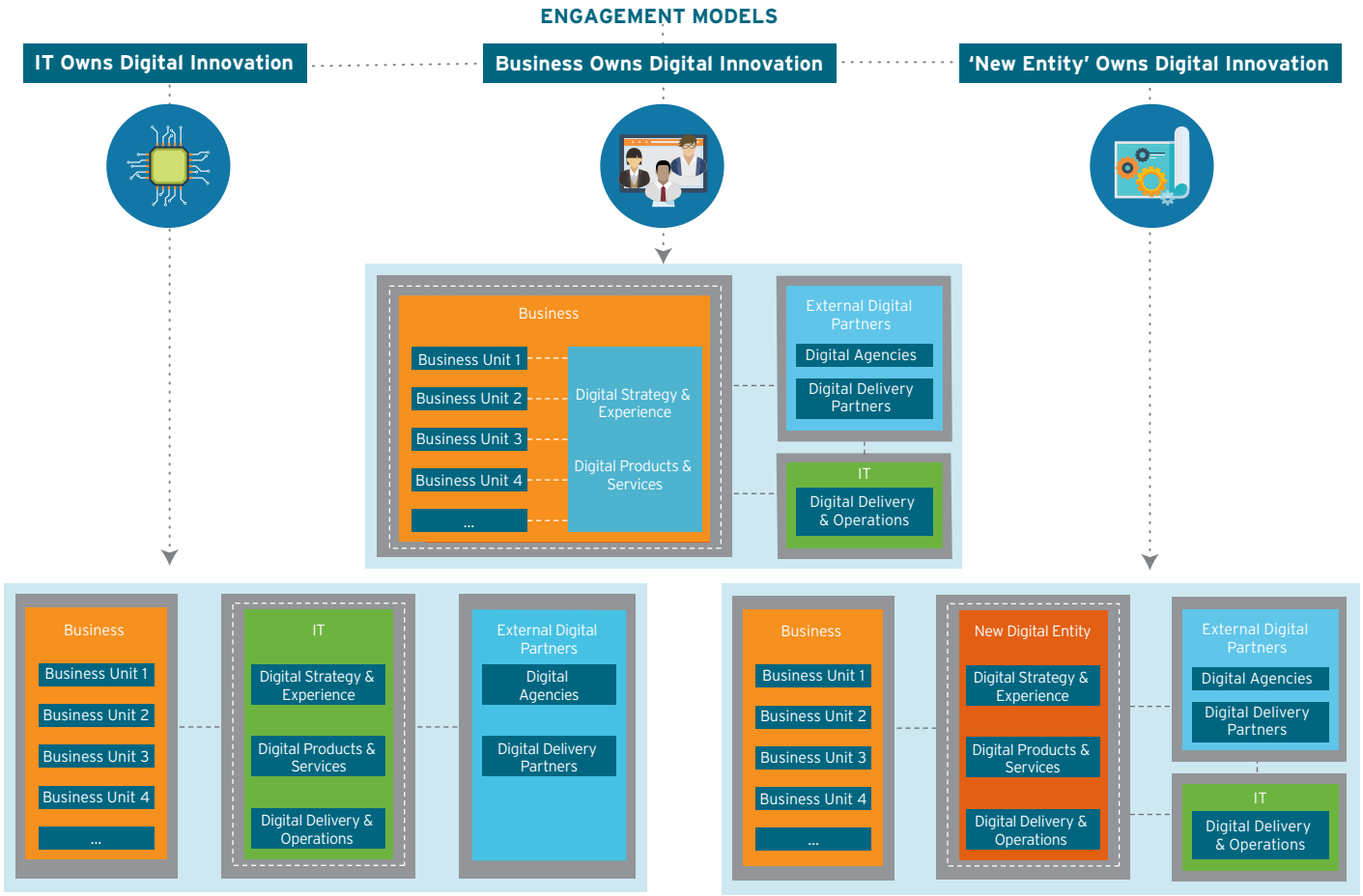


Figure 1

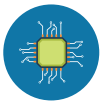
Predictive analytics are increasingly being used to manage supply chain and post-sales monitoring of devices to reduce cost and ensure better customer service.

As a result, life sciences organization must define a new model that enables business to partner with IT and strategic vendors for capturing customer, sales, market research, social and other types of data to make informed business decisions for developing better products and improving customer experience.

- **High-speed and bimodal[3] IT delivery models have replaced traditional SDLC and Waterfall methodologies to support business.** The business can no longer wait for IT to gather requirements, design, develop and implement applications or infrastructure that support key time-sensitive business products (e.g., a mobile app for diabetes devices). While quality is paramount for the success of any product or service, speed and delivery model have surfaced as important dimensions to gain a competitive advantage.

Digital Engagement Model Options

Organizations fully realize the importance and need for digital; however, a robust engagement model that enables digital innovation and strategy can be a challenge to design and deploy. We propose three models for life sciences organizations to assess to better embrace or advance their digital initiatives (see Figure 1, previous page).



Digital Engagement Model #1: IT Is the Center of Digital Everything

IT's role in key business decisions varies across segments of the life sciences industry. In the medical devices segment, for example, technology and products can exist as a single function, and therefore the IT team may serve only as a support function. Conversely, in healthcare product manufacturing, IT can be viewed as a key function to drive analytics, digital marketing and digital manufacturing. So, depending on the maturity[4] of the organization, the strength of its existing IT capabilities and other such factors, this first model can be relevant for various organizations.

In this model, IT is the primary driver of digital innovation; IT defines digital strategy along with business and drives the process of identification of digital needs, capability gaps and digital partnerships. However, IT must continuously demonstrate its value in digital innovation by showcasing success in rapid prototyping and accelerated delivery.

IT must continuously demonstrate its value in digital innovation by showcasing success in rapid prototyping and accelerated delivery.

As such, the organization is structured thusly:

- IT roles and responsibilities:
  - Collaborate with business and external providers in driving transformational and incremental innovation, development of prototypes and full-scale implementations.
  - Define both short and long-term digital needs, to advance overall corporate business strategy.
  - Identify existing and required digital capabilities and develop digital business and reference architecture.
  - Manage the digital application portfolio and infrastructure along with the vendor partnerships.

IT Is the Center of Digital Everything

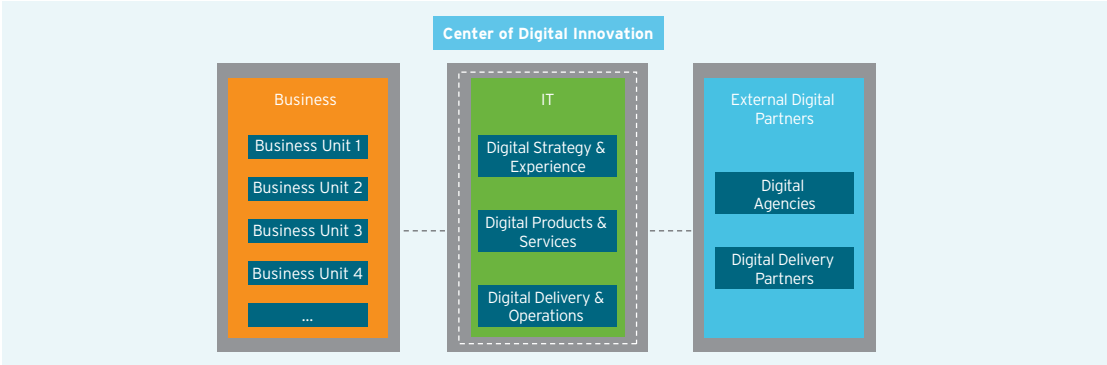


Figure 2

Pros and Cons of an IT-Centric Model

Pros	Cons
• Strong in-house digital innovation capabilities. • Alignment of IT portfolio of applications, infrastructure and partnerships with business strategy.	• IT may not have a comprehensive view of consumer needs for defining and driving digital transformation. • Capability to deliver in an agile way is a prerequisite for IT to become the driver of digital.

Figure 3

  - Develop centers of excellence for providing a catalog of digital services to business.
- Business roles and responsibilities:
  - Provide business use cases and requirements for next-gen product and services development.
  - Engage IT in product/process innovation.

Digital Engagement Model #2: Business Is the Owner of Digital Innovation

In organizations where digital is considered to be more than just technology, business leads digital strategy and innovation across processes, products and services. Business, however, partners with IT and external providers, including digital agencies, to obtain the necessary support for developing products, analyzing data and providing or maintaining digital services. Thus, in this second model, the digital strategy and corresponding initiatives are defined by business.

Depending on the requirements, the business collaborates with the established partners inside or outside the organization. This model has often been adopted by medical device players where the device and its inherent technology is considered as a single product which is ideated and defined by business with relevant inputs from its partners. The initial product is prototyped and piloted by business but the large-scale implementation, maintenance and support could be managed by IT or other digital product vendors.

In this model, the organization is structured thusly:

- Business roles and responsibilities:
  - Define digital strategy and corporate-wide digital initiatives.
  - Identify needs for digital services and capabilities required to support business products and services.
  - Partner with key digital players, such as creative agencies or product developers.
  - Collaborate with IT to develop product prototypes for pilot and full-scale implementation.
- IT roles and responsibilities:
  - Develop digital centers of excellence to provide capabilities, digital architecture standards and policies as required by business.
  - Support the development of prototypes, launching of pilots and full-scale implementation.
  - Provide product support, analyze data and manage the digital application portfolio and infrastructure along with the delivery vendor partnerships.

Business Owns Digital Innovation

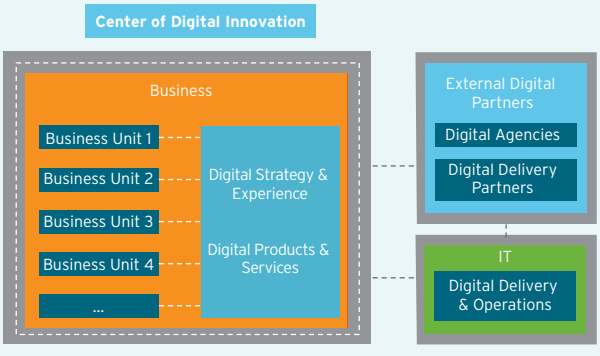


Figure 4

Pros and Cons of Business-Driven Digital Innovation

Pros	Cons
• Better and more effective translation of business goals and needs into digital strategy and initiatives. • Faster time to market due to better understanding of consumer needs and collaboration with IT and relevant external vendors.	• Can lead to excessive expansion and duplication of digital IT portfolio as business may bypass internal IT and go to external vendors. • Higher costs due to business inclination to engage with premium vendors for all solutions.

Figure 5

Digital Engagement Model #3: Digital Innovation Is Managed by a New Entity

This model is well-suited for organizations that face competition from the use of disruptive technologies in medical products or services (e.g., "lab on a chip," miniaturized sensors, mobile health and connected point-of-care devices). Organizations that have not fully established the apparatus of digital capabilities within their internal IT operations are often managed by a new entity set up specifically for managing *everything* digital. This new entity is usually led by a chief digital and/or innovation officer who is responsible for defining the digital strategy, identifying digital initiatives and projects, and also managing delivery and operations. The digital entity is usually established as a subset of business and IT functions that focus on design thinking,[5] high-speed delivery, agility, user-centricity, automation and analytics to drive fast-paced disruption.

The digital entity shares operations and infrastructure with existing IT to support foundational digital capabilities such as cloud, analytics, etc. As the organization matures, the digital entity is given innovation-based targets to drive ownership and accountability of digital products and services launched by the team in collaboration with business and IT. Innovation efforts target ways to accelerate the pace and quality of the organization's digital portfolio, fostering a culture of "start small, fail fast and scale soon."

This model has often been adopted by diagnostics players within the life sciences industry, where the focus has shifted from performing tests and providing reports, to creating platforms for test results. With such platforms, test results from smart devices can be transmitted and stored in big data platforms to generate and provide insights to consumers.

Innovation efforts target ways to accelerate the pace and quality of the organization's digital portfolio, fostering a culture of "start small, fail fast and scale soon."

In this model, the organization is structured thusly:

- New digital entity roles and responsibilities:
  - Define and own digital strategy for the organization by working with key stakeholders in business and IT.

Digital Innovation Owned by a 'New Entity'

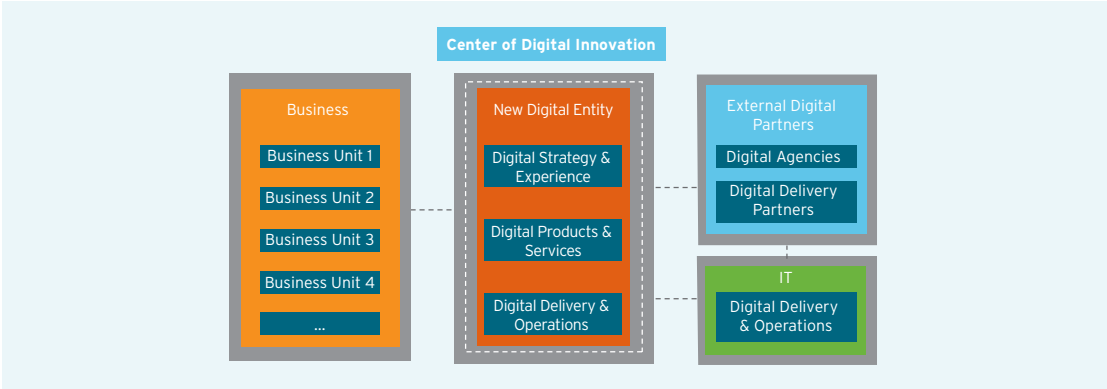


Figure 6

Pros and Cons of New-Entity-Driven Innovation

Pros	Cons
• High degree of agility in development and implementation of digital strategy. • New organization can have simplified processes and organizational structure that is lean, agile and customer-focused. • Comprehensive digital transformation via disruption.	• Requires close collaboration with existing IT organization to leverage foundational capabilities. • High initial operational costs resulting from the setup of new organization.

Figure 7

Digital Engagement Model Selection Criteria

Preexisting Condition or Requirement	Description	Yes	No	To a Limited Extent
Does the business have a digital-focused strategy and understanding of digital needs and processes?	A digital-focused strategy means having business goals and objectives focused on selling, servicing or improving processes and products through digital, with an adequate understanding of needs, available capabilities, gaps and required partnerships.	Model 2 Business	Model 3 New Digital Entity	Model 1 IT
Is there a high level of capability maturity in digital within IT?	Digital capabilities include the tools, technology, skills and leadership required to develop digital products and services.	Model 1 IT	Model 3 New Digital Entity	Model 2 Business
Is there a need for speed to market for launching products and services?	Speed to market is the time required to develop products and services that are enabled by digital capabilities, from the point of conception to implementation.	Model 3 New Digital Entity	Model 1 IT	Model 2 Business
Will there be minimal requirement of digital change management in the organization?	Digital change management is the process of ensuring that organizational changes, due to inclusion of digital in business process, products and services, are managed, communicated and harmonized effectively.	Model 1 IT	Model 3 New Digital Entity	Model 2 Business
Are there funds available to invest in digital initiatives?	Funding level refers to the investment appetite, requisite approval and stakeholder buy-in available to undertake digital innovation projects.	Model 2 Business	Model 1 IT	Model 3 New Digital Entity
Is there a need to maintain a high level of compliance related to digital products and services?	Compliance requirements refers to the set of rules, regulations and standards that need to be met during the lifecycle of digital product and services.	Model 2 Business	Model 3 New Digital Entity	Model 1 IT

Figure 8

Note: *This is not a prescription but a framework to help organizations select an appropriate engagement model. All preconditions may not apply simultaneously, and existence of multiple preconditions may not yield the selection of the same model. It is important to weigh the importance of preconditions or requirements to evaluate these models.*

- Develop prototypes, launch pilots and implement full-scale products and services.
- Build, manage and maintain products, platforms and services along with customer feedback.
- Maintain digital services, infrastructure and security.
- Coordinate with existing IT organization for foundational data capabilities or needs.
- Adopt a high-speed, lean, agile and customer-centric approach to enable faster time to market.

- Business roles and responsibilities:
  - Provide inputs to new entity for creating the digital strategy and generating digital ideas.
  - Provide financial goals to the digital entity (e.g., revenue goals across digital channels).
- IT roles and responsibilities:
  - Provide operational capabilities to the new entity.
  - Collaborate with business to monitor the performance of external partners.
  - Streamline foundational capabilities required to support digital needs to the new entity.

Selecting an Appropriate Engagement Model

Depending on multiple preexisting conditions or requirements, a suitable engagement model can be selected. An organization can also operate with a hybrid of one or more models to successfully execute digital initiatives across business units or geographic regions.

Figure 8, on the previous page, presents key parametric questions to be posed and answered using a carefully weighted evaluation methodology to select an appropriate engagement model. By concentrating on preexisting conditions such as business focus on digital, availability of funds, existing digital capabilities, etc. organizations can discover the model that is best suited to their business/IT requirements.

Looking Forward

In today's digital world, growth and innovation is tough to accomplish without strong collaboration between business and IT. IT has predominantly existed as the backbone of business operations, but as more digitally-infused products and serves emerge, IT is critical to defining and executing on the path forward.

However, not all IT organizations are designed to become strategic partners for business growth. Furthermore, IT and business may not be the only teams to steer the business toward success. Many organizations have paved a way for the establishment of new digital entities with strong leadership from both business and IT. Therefore, there is a need to establish a robust yet evolving engagement model to achieve the desired organizational objectives. Along with identifying an applicable model, strong leadership and a clear understanding of digital needs, a robust change management program, continuous improvement and evaluation are all hypercritical to achieving digital business success.

Footnotes

[1] "Making Digital Real and Rewarding," *Cognizanti* journal, Vol. 9, Issue 1, https://cognizant.com/whitepapers/being-digital-making-digital-real-and-rewarding-cognizanti12-codex2094.pdf.

[2] https://www.genome.gov/sequencingcosts/.

[3] Bimodal is the practice of managing two separate but coherent styles of work – one focused on predictability, the other on exploration; http://blogs.gartner.com/it-glossary/bimodal/.

[4] "Digital Business Maturity Model," *Cognizanti* journal, Vol. 9, Issue 1, https://cognizant.com/whitepapers/being-digital-making-digital-real-and-rewarding-cognizanti12-codex2094.pdf.

[5] "Human-Centric Design - How Design Thinking Can Power Creative Problem-Solving, Drive Change and Deliver Value," *Cognizanti* Journal, Volume 8, Issue 1, https://www.cognizant.com/InsightsWhitepapers/human-centric-design-how-design-thinking-can-drive-change-and-deliver-value-cognizanti11.pdf.

About the Authors

Sridhar Karimanal is the North America leader for Life Sciences within Cognizant Business Consulting's Strategy and Transformation Practice. Over his 17-year career, Sridhar has worked with leading consulting firms to advise clients in areas such as CIOs, M&As, digital transformation, business/IT transformation and organization change management. He holds a master's degree in computer engineering from Stony Brook University and a master's degree in business administration from Columbia University. Sridhar can be reached at Sridhar.Karimanal@cognizant.com | LinkedIn: https://www.linkedin.com/in/sridharkarimanal.

Ritika Chaudhary is a Senior Manager Consulting within Cognizant Business Consulting's Strategy and Transformation Practice. Over her eight-year career, she has led multiple consulting engagements across industries such as life sciences, healthcare, banking and financial services, and hospitality. Ritika's primary areas of focus are CIO advisory, digital strategy/transformation and M&A advisory. She received her bachelor's degree in economics from University of Delhi, India, and her master's degree in business administration from University of Rochester, NY. Ritika can be reached at Ritika.Chaudhary@cognizant.com | LinkedIn: www.linkedin.com/in/ritikachaudhary.

Nitesh Luthra is a Manager-Consulting within Cognizant Business Consulting's Strategy and Transformation Practice. Over his eight-year career, he has conducted multiple consulting projects in the areas of CIO advisory, change management, digital strategy/transformation and IT transformation in life sciences, utilities, banking and technology sectors. Nitesh holds a bachelor's degree in information and communication technology from Dhirubhai Ambani Institute of Information & Communication Technology (DAIICT), India, and a master's degree in business administration from Indian Institute of Foreign Trade (IIFT), New Delhi. He can be reached at Nitesh.Luthra@Cognizant.com | LinkedIn: https://in.linkedin.com/in/niteshluthra.

Saagar Prasad is a Consultant within Cognizant Business Consulting's Strategy and Transformation Practice. He has over three years of consulting experience, primarily in the CIO advisory and organization change management areas, spanning the healthcare, insurance and logistics industries. Saagar holds a bachelor's degree in electronics and communications engineering and a master's degree in business administration from the Indian Institute of Management (IIM), Ahmedabad. He can be reached at Saagar.RPrasad@cognizant.com | LinkedIn: https://in.linkedin.com/in/saagar-prasad-1368b615.

About Cognizant

Cognizant (NASDAQ: CTSH) is a leading provider of information technology, consulting, and business process services, dedicated to helping the world's leading companies build stronger businesses. Headquartered in Teaneck, New Jersey (U.S.), Cognizant combines a passion for client satisfaction, technology innovation, deep industry and business process expertise, and a global, collaborative workforce that embodies the future of work. With over 100 development and delivery centers worldwide and approximately 255,800 employees as of September 30, 2016, Cognizant is a member of the NASDAQ-100, the S&P 500, the Forbes Global 2000, and the Fortune 500 and is ranked among the top performing and fastest growing companies in the world. Visit us online at www.cognizant.com or follow us on Twitter: Cognizant.

World Headquarters
500 Frank W. Burr Blvd.
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll Free: +1 888 937 3277
Email: inquiry@cognizant.com

European Headquarters
1 Kingdom Street
Paddington Central
London W2 6BD
Phone: +44 (0) 20 7297 7600
Fax: +44 (0) 20 7121 0102
Email: infouk@cognizant.com

India Operations Headquarters
#5/535, Old Mahabalipuram Road
Okkiyam Pettai, Thoraipakkam
Chennai, 600 096 India
Phone: +91 (0) 44 4209 6000
Fax: +91 (0) 44 4209 6060
Email: inquiryindia@cognizant.com

Codex 2301