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A Design-Driven, Knowledge-Based Approach to CSP Digital and Business Transformation

Responding to changes in IT services, Infosys pursues business process innovation and automation

Summary

In brief

India-based IT services company Infosys is driving forward with a wide range of internal changes and investments to reposition itself and make its offerings more appealing to the industry at large and the communications, media, and entertainment (CME) sector, especially as communications service providers (CSPs) increasingly pursue digital transformation strategies. At the heart of this transformation is a series of offerings and processes that have been reorganized around a services framework it calls "AiKiDo," and a range of acquisitions and investments that support a drive to boost business process automation and innovation. CSPs' business and investment needs increasingly revolve around the transition to digital operations, the adoption of cloud delivery models, and the use of automation and analytics to transform business processes. At the same time, competition from IT services peers, such as Accenture, TCTS, Wipro, Cognizant, and Tech Mahindra, and the increasing interest in services from IT vendors leave no room for safe choices.

Ovum view

Infosys continues to pursue its transformation strategy with vigor. At the heart of the new Infosys policy is a drive to apply automation to both existing BPO activities and new business areas, thus supporting a more industrialized approach to software development and a focus on business process innovation. Although this is a strategy that encompasses all the sectors Infosys is active in, it is an approach that will appeal to the communications sector given the radical transformation it is undergoing and its growing need for assistance with business process reengineering.

Acquisitions and investments are playing an important role in supporting these changes as Infosys has targeted its savings on technology innovators and early-stage companies such as Panaya and Kallidus/Skava with a view to building up a series of platforms that are supported by solutions encompassing services automation and data analytics. Infosys is not unusual in the sense that other Indian IT services companies are displaying a growing appetite for such investments, but it is the specific areas that Infosys is focusing on that are interesting and of obvious relevance to the communications sector.

Infosys is also retraining its workforce in areas such as "design thinking" and agile development using a variety of frameworks to better align its offerings to customer needs and address problem-solving more creatively. Infosys has decided that it needs to upgrade its own internal processes before it can credibly tackle those of external clients, and this applies just as much to the platforms it adopts – Infosys's new offerings such as the recently launched artificial intelligence (AI) platform, Mana, are being implemented internally before being rolled out externally.

Infosys is well positioned to assist CSPs with their transformation because of its extensive project management expertise, business transformation methodology, and combination of global delivery model and local expertise. A vendor-agnostic services approach is also a useful angle when it positions itself against product vendors. However, until the recent round of acquisitions, Infosys had a reputation of being a slower mover than some of its IT services competitors. It will need to display strong evidence of innovation over the next twelve months if it is to consolidate its repositioning. This

is especially important given that many software vendors are looking to expand their own services business.

Recommendations

- Infosys's recent investment spree has added to its diverse range of platforms and technologies, but the large number of companies and start-ups involved raises the issue of integration. Considerable effort is required in knitting them into a coherent whole that brings together not only the various technologies but also associated consulting, systems integration, and transformation capabilities.

- Investment in new areas such as process automation, data governance, data analytics, and digital experience solutions will help Infosys to position itself as an innovator, but this investment will take time to bear fruit, especially as it involves not only technology evolution but also associated business model change. In the interim, it is important that Infosys does not take its eye off legacy business revenues – be it in the communications sector or in other areas. It will need to juggle the requirements of its cloud and traditional IT outsourcing business and balance long-term and short-term goals.

- Infosys and many of its peers have in the past focused more on tier-1 CSPs. This strategy was fine when tier-1 CSPs were the early adopters, but as the market speeds up, opportunities relating to tier-2 and tier-3 CSPs are increasing, especially around anything-as-a-service (XaaS) offerings. Infosys needs to adjust its offerings accordingly, for example, by offering more customizable cloud-based solutions.

- An increasing number of CSPs are embarking on digital transformation projects that impact all aspects of their business – people, processes, and platforms. This means they need partners who have the skills to tackle not only network and IT system transformation but also large-scale business processes and organizational changes required to deliver greater agility, flexibility, and efficiency. The scale of the transition required also means that the best-positioned IT services partners to deliver this change are those that have already automated their own processes and created flexible models that can scale up quickly.

- Paradoxically, given the increasing emphasis on process automation, it is important for IT services companies to have good staff and skills retention rates, something that has been an issue with India-based IT services companies. To gain CSPs' confidence, their IT services partners need to reassure them that they not only possess the right domain expertise but will also retain and enhance it. This is where investment in workforce retraining programs can deliver value that goes beyond the immediate impact on delivery and operational processes.
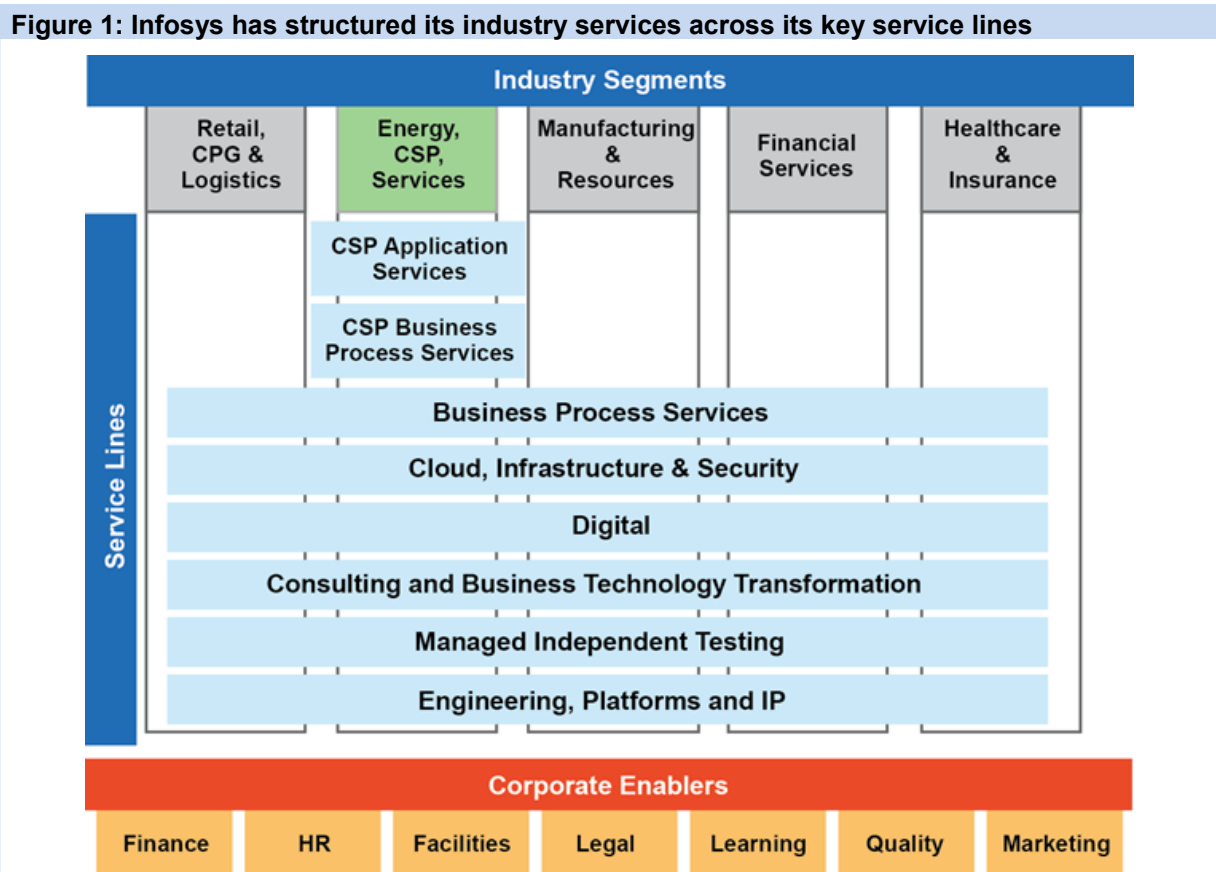
Infosys's strategy update

Infosys structure

Infosys, a global IT services company, reported total revenue of $9.5bn in its last financial year.

Infosys has a growing global presence with over 197,000 employees, 85 sales and marketing offices, and 114 development centers as of end-March 2016.

Infosys's focus is on major vertical industry segments: financial services, insurance, healthcare, life sciences, manufacturing, retail, consumer packaged goods, logistics, energy, utilities, communications, and services (see Figure 1). The communications vertical is a big one within Infosys, accounting for about $1bn in revenues.

Figure 1: Infosys has structured its industry services across its key service lines
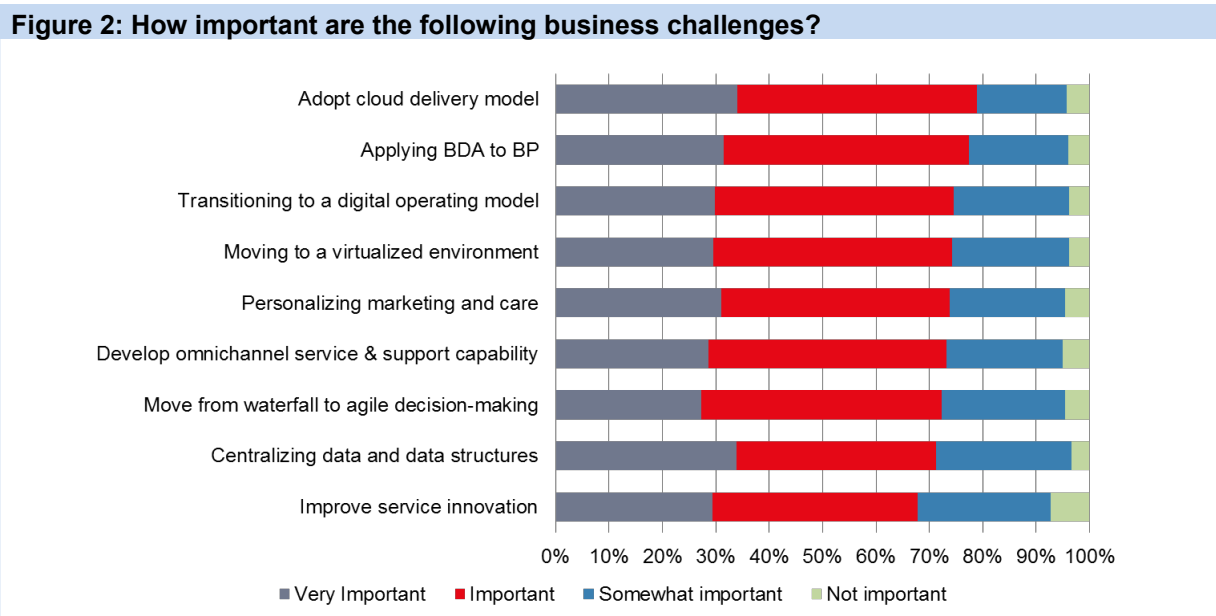

Source: Infosys

Infosys's strategy shakeup

The last year and a half has seen major changes at Infosys. Following the appointment of former SAP executive Vishal Sikka as CEO of the company, Infosys has pressed ahead with its "renew-new" strategy. The financial consequences of this are still feeding through – a lower-than-expected Q1 earnings announcement for the quarter ending June 2016 was a reminder that work remains to be done – but there is no question that Infosys is continuing to pursue its transformation strategy with vigor. This may be partly because it has no choice but to transform itself if it is to address the diminishing advantages of more traditional offshoring and IT services models and strengthen its position against the IT services competition. The vendor has set an ambitious target of reaching $20bn in revenues by 2020.

In order to deliver this, Infosys is placing greater emphasis on customizable cloud-based solutions. At the heart of the new Infosys policy is a drive to apply automation and analytics to both existing BPO activities and new business areas. The increased automation is intended to support a more industrialized approach to software development that is less software-centric and more focused on business process innovation. Infosys is seeking to tap into future developments around business analytics and robotic process automation (RPA).

These areas that Infosys is focusing on are well chosen as they are all key priority areas for CSPs and address real business needs. As a recent Ovum survey of telecom CIOs shows, the top three business challenges are perceived to be the adoption of cloud delivery models, applying big data analytics to business processes, and transitioning to a digital operating model (see Figure 2).

Figure 2: How important are the following business challenges?

Source: Ovum ICT Enterprise Insights, 2015/2016

To support this change, Infosys is developing partnerships and partner ecosystems as a means to target new markets and strengthen its position in growth technology areas. Not surprisingly, areas of particular interest include automation, data analytics, and artificial intelligence.

Acquisitions and investments have played an increasingly important role as Infosys has sought to bring in platforms that it hopes will strengthen its intellectual property (IP) differentiation. Since the establishment of a $500m innovation fund, Infosys has acquired Panaya, a provider of automation technology for large-scale enterprise software management; Kallidus/Skava, a provider of digital experience solutions; and Noah Consulting, a provider of advanced information management consulting services.

The Panaya purchase, the biggest of these recent acquisitions, ties in particularly with Infosys's process automation push. It is not only intended to enhance Infosys's internal software capabilities but also help expand its partnering ecosystem.

Infosys has also made a series of investments in early-stage ventures including US-based start-ups (see Table 1).

Table 1: Infosys's recent acquisitions and investments

Company	Details
Panaya	March 2015. $200m acquisition of Panaya, an Israel-based provider of automation technology for large-scale enterprise software management
Kallidus/Skava	June 2015. $120m acquisition of Kallidus (Skava), a provider of digital experience solutions, including mobile commerce and in-store shopping experiences.
Noah Consulting	November 2015. $70m acquisition of Noah Consulting, a provider of advanced information management consulting

	services, including data governance capabilities
Nova	February 2015. $15m investment in Nova, a DreamWorks Animation spin-off joint venture that develops image-generation technologies and collaboration tools
ANSR Consulting	July 2015. $1.4m investment in ANSR Consulting, an India-based provider of consulting, outsourcing, and implementation services to a global client base.
Whoop	December 2015. $3m investment in Whoop, a US-based early-stage company that offers a performance optimization system for professional sports teams
CloudEndure	December 2015. $4m investment in CloudEndure, a start-up that provides cloud migration and cloud-based disaster recovery (DR) software
Waterline Data Science	January 2016. $4m investment in Waterline Data Science, a US-based start-up that offers data discovery and data governance software
Trifacta	April 2016. Undisclosed investment in Silicon Valley-based Trifacta, a data analytics and data preparation tooling vendor

Source: Ovum

Infosys's portfolio changes

Infosys AiKiDo initiative

As already mentioned, Infosys has sought to deliberately shake up its services business. In particular, in 3Q15, it launched "AiKiDo," a services framework based on three core capabilities revolving around platforms (Ai), knowledge-based IT (Ki), and design thinking (Do). The AiKiDo framework is envisaged as an overarching approach that applies to every vertical sector where Infosys is active, although it is the communications segment that this report particularly focuses on.

Named after the Asian martial art of aikido, the framework is intended to help clients transform their business in a holistic and focused way.

- The first element, **Ai**, is an offering based on a series of platforms and platforms delivered as a service, and is supported by intelligent solutions encompassing service automation, data analytics, and more.
- The second element, **Ki**, is essentially focused on knowledge-based transformation, capturing product and process knowledge in a software system in order to optimize and automate business operations.
- The third element, **Do**, refers to an offering based on a series of design-led initiatives and what Infosys calls "design thinking."

Ai (Intelligence)

"Ai" is focused on assisting businesses with the rapid operationalization of their data assets and identifying new innovation and growth opportunities. It is based on a series of platforms encompassing a data analytics platform, service automation platforms leveraging AI and knowledge-based techniques, a mobile application platform, an Internet of Things (IoT)/devices platform, an application program interface (API) definition and management platform, and a series of platforms to automate a wide range of business processes.

Infosys aims to deliver rapid cloud-based solutions based on combinations of these capabilities. It also aims to help in rapid development of digital communications-based solutions and in minimizing upfront investment. Most of the platforms are based on open source technologies.

Infosys has recently widened its portfolio through a series of acquisitions and investments, and its core platforms now include the following:

- **Infosys Information Platform (IIP),** an open source Hadoop/Spark/Hive big data platform that delivers data visualization, data analytics, and rapid data-processing capabilities to support faster and more accurate business decisions.
- A series of Service Automation Platforms that include:
  - **Infosys Automation Platform (IAP),** an IT operations and analytics platform that sits on top of IIP, and which uses AI and automation technologies to improve quality and efficiency in IT services delivery.
  - **Knowledge-based Engineering (KBE),** a platform that supports technology and engineering product development and services automation.
  - **Data Extraction and Enrichment Platform (DEEP),** a business process automation platform that automates end-to-end processing of information from a variety of document types.
  - **Panaya application maintenance automation platform,** including the Panaya CloudQuality suite, comprises a set of cloud-based automation solutions to test, manage, and upgrade enterprise resource planning (ERP) applications.
  - **Testing automation platform**, which is used to reduce manual testing of software systems and accelerate regression testing.
- **Skava hybrid mobile application platform**, a platform designed for rapid deployment of mobile websites and omnichannel sales solutions, mobile commerce, and contextual/interactive advertising.
- **IoT/devices platform,** a data management platform for building smart and connected device applications – be it focused on enterprise IoT, consumer IoT, or a wide range of "smart" ecosystems.
- **API platform,** a cloud-based API definition and management platform to renew ERP and custom applications.
- **AssistEdge, BrandEdge, ProcureEdge, CreditFinanceEdge, and TradeEdge,** a series ofbusiness platforms that automate business processes in areas such as customer support, marketing, procurement, finance, and e-commerce.
- **Mana.** In April 2016, Infosys announced the launch of Mana, a knowledge-based AI platform that comprises three integrated components: IIP, IAP, and Infosys Knowledge Platform. Mana aims to simplify and automate fragmented and complex systems, driving automation and innovation through a number of vehicles including RPA and API integration. Mana is already live with a number of external organizations, including Telstra.

Ki (Knowledge)

"Ki" is a large-scale and modular service that sets out to capture product and process knowledge from various sectors and embed it in software systems in order to optimize and automate business

operations.It is intended to drive knowledge-based transformation through services that include the following:

- **Knowledge-based IT strategy** involving the development of operating roadmaps and portfolio rationalizations.
- **Knowledge curation services** focused on helping enterprises consolidate and transition business, operations, and workforce.
- **Knowledge-based cost optimization** to help enterprises renew their mainframe applications and drive automation in business operations.
- **Knowledge-based innovation** to support new application development, and new technology and platform adoption.

To gather this knowledge, Infosys is using a wide range of channels and sources, including in-house sources, clients, partnerships including those with start-ups, and investments and acquisitions (see Table 1). Also important are cross-industry initiatives, in particular TM Forum (TMF) catalysts in areas such as virtual customer premises equipment (vCPE), omnichannel, digital experience, big data analytics, and the creation of open-cloud ecosystems for digital SMEs.

Do (Imagination)

"Do" refers to services offerings based on "design thinking" and design-led initiatives that provide Infosys with the framework for identifying, understanding, and defining business problems that are most important to clients. To help it achieve this "design thinking" approach, Infosys has collaborated with the Hasso Plattner Institute of Design at Stanford, commonly known as d.school, to add "design thinking" to its education curriculum. Infosys has rolled out "design thinking" workshops and trained more than 90,000 employees in this problem-solving approach. The rationale behind this move is the argument that if Infosys is not successful in changing its own organizational culture, mindset, and behavior, then it can hardly be expected to deliver the same with its CSP and non-CSP clients.

Infosys is encouraging its staff to "look, learn, and improve" by clearly articulating business value, adopting best practices from other company projects, proactively developing new solutions, finding more efficient ways to complete projects, and sharing information to disseminate knowledge. In order to achieve this, Infosys places a lot of emphasis on what it calls the BICEP (bringing an innovation culture to every project) framework and "zero distance" initiative.

The "zero distance" initiative, launched in March 2015, seeks to narrow the distance between Infosys employees, technology, and clients by flattening the traditional corporate structure and encouraging bottom-up innovation. "Zero distance," like all the above initiatives, is a means for Infosys to better align its offerings to customer needs.

Targeting the communications sector

A description of AiKiDo and associated initiatives can at times feel fairly conceptual, but in parallel with its broad-based investments and development work, Infosys is working closely with a wide range of service providers. It is aiming to identify new applications and capabilities that can be brought specifically into the communications domain for service provider clients such as BT, Proximus, Telstra, Vodafone, and AT&T.

As part of the partnering approach outlined earlier, Infosys has also been cooperating with vendors such as Huawei, HPE, Pegasystems, and Sigma Systems in order to broaden its reach. Within the communications industry vertical, Infosys is currently focusing on the following five key business areas (and associated challenges):

- **Consumer usage and expectations**. This includes support of future voice platforms (e.g. HD voice, VoIP), the relationship between CSPs and over-the-top (OTT) players (e.g. leveraging network assets, augmented realities), and unified communications and omnichannel.
- **Service evolution**. This includes targeting new verticals such as health, finance, smart homes, and connected cars.
- **Access and devices.** This includes both fixed and mobile broadband, including long-term evolution (LTE), software-defined networks (SDN)/network function virtualization (NFV), network simplification, network outsourcing, and a range of device-associated issues.
- **Business model**. This includes assistance with a wide range of issues including future revenue sources, third-party relationships, machine to machine (M2M), and CSP revenue models.
- **Regulation and industry structure**. This includes network sharing and outsourcing issues, and a wide range of regulatory issues such as roaming and the EU's General Data Protection Regulation (GDPR).

However, over time, Infosys expects these to expand into a range of new areas where it believes it can assist CSPs with digital transformation. Some of the key areas it has identified are as follows:

- **Exploiting digital and new services**. This includes enterprise services, big data, IoT, and cloud.
- **Advisory and transformation.** This includes acquisitions and mergers, services, processes, and operations transformation.
- **Networks.** This includes network design, performance management, and network operations center (NOC) SDN/NFV augmentation.
- **Enterprise.** This includes multicountry transformation and contracts service delivery.
- **Devices**. This includes lifecycle management, testing and certification, and consultancy.

Some of the new areas Infosys is taking on are illustrated through its involvement in TMF catalysts. Not surprisingly, given the focus of Infosys's overall investment and the development of its CME strategy, most of these include some elements of automation, data analytics, or AI. The TMF catalysts that Infosys is involved in are as follows:

- **CPE virtualization in the home.** In this customer-centricity catalyst, Infosys is working with AT&T, Telecom Italia, and Orange. The focus of this project is the development of predictive analytics and enhanced diagnostics in a vCPE environment in order to offer proactive care of residential IP services. This includes monitoring of home devices and distributed virtual functions to detect issues proactively, and collecting contextual data and identifying service degradation signature patterns. The project is also focusing on the metrics needed to support proactive care.
- **Omnishop.** In this second customer-centricity catalyst, Infosys is working with Liberty Global. The catalyst aims to show how an established service provider can enable omnichannel purchases of bundled offerings that contain a mix of traditional, digital, and IoT services from

different partners in a cost-efficient and seamless way. It involves an "omnichannel enablement layer" that makes use of federation to enable an open partner ecosystem.

- **Digital experience platform:** In this open digital catalyst, Infosys is working with Telefonica. The objective of this catalyst is to demonstrate how CSPs can participate in a wider digital ecosystem. The open digital platform being used to deliver this supports personalized and context-aware delivery of digital engagement by bringing together capabilities such as omnichannel, sales catalog (offers), distributed order management, user lifecycle management, context delivery platform, multitenant business support systems (BSS), and a cloud integration platform. These are all being brought together in a holistic manner in order to deliver personalized and context-aware customer experience across the entire user/customer lifecycle. An open digital experience platform also makes use of open APIs to deliver microservices to different channels.

- **Delivering open cloud ecosystems for digital SMEs:** In this third customer-centricity catalyst, Infosys is working with Vodafone. This involves a zero-touch digital SME portal that is being used to conceptualize and validate user-centric design for the "digital SME" experience. Orchestration and management control are put in the hands of the "digital SME" using a service provider's virtual operations center. The purpose is to allow the service provider to support easy upsell of a range of applications and value-added services.

- **ABDR (analytics and big data repository):** In this fourth customer-centricity catalyst, Infosys is working with China Mobile, Cox Communications, Orange, and Telekom Malaysia. The ABDR provides a unified data layer and data dictionary blueprint that can support multiple use cases and multiple analytics systems. It aims to reduce data replication, thus improving efficiency, reducing cost, and shortening the time to implement new big data analytics use cases.

Appendix

Methodology

This report is based on a combination of primary and secondary research, including information received directly from Infosys through briefings, webinars, and industry events. Financial information is from published financial reports from the respective vendors. The report also utilizes Ovum's ongoing research into the global vendor market.

Further reading

"Trifacta adds consulting channel with Infosys partnership," IT0014-003123 (May 2016)

BSS Applications Managed Services for CSPs, IT0012-000154 (March 2016)

"Infosys seems well on its way to regaining its past glory," IT0019-003473 (July 2015)

"Infosys gets serious about automation with Panaya acquisition," IT0019-003417 (February 2015)

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