



Cognizant

## DIGITAL OPERATIONS

# Success in Automation: Decoding the Winning Formula

While automation and its drivers are among the most discussed topics in the business world, few organisations are focused on where to begin, how to make the best use of machine intelligence and where to apply it in their business. A first step is to understand which processes are, and aren't, ripe for automation.

## EXECUTIVE SUMMARY

As per the new book from Cognizant, *What to Do When Machines Do Everything*,<sup>1</sup> smart machines are slowly permeating every aspect of our professional and personal lives. From smart phones to cars to the kind of music we play, the “new machine” is omnipresent. And the rising influence of smart machines is expected to grow exponentially, in unpredictable ways. The magnitude of change will dramatically influence how organisations and individuals perform their day-to-day work. And while nearly every organisation is taking note of the potential impact of smart automation (i.e., systems that think and learn), many appear baffled about how and where to start deploying this technology.

Many organisations, including some large insurance and brokerage firms, have taken the initial plunge by dabbling with robotics process automation (RPA). They see RPA as a way to reduce costs by automating outsourced or low-risk (i.e., routine) processes.

Yet while the intentions behind them are sound, many RPA initiatives have not met lofty cost-containment objectives. One reason: Off-the-shelf RPA products for automating business processes have failed to meet vendor promises. Another shortcoming: Decision-makers have lacked the necessary data points to establish a business process case to justify automation.

While organisations see automation as synonymous with optimization and efficiency, some fence-sitters are waiting for others to make the first big move. For organisations that have not yet started or are planning to start soon, the main questions include:

- Where do we start on the automation journey?
- How do we know which business process is right for which level of automation?
- What extent of control should machines be given?

This white paper helps to answer these questions by providing a comprehensive and quantitative scientific technique to analyse the current suite of business processes and generate a set of recommendations. Our flexible and empirical approach allows decision-makers to leverage this framework to make decisions at an organisational or functional level. Organisations can use this tool to move forward strategically, to ensure they realise the potential of automation to deliver significant and sustainable market advantage. Moreover, the white paper showcases several insurance industry examples to derive an automation scorecard that can be applied to any organisation's automation journey.

## DEFINING AN APPROACH FOR OPERATIONALIZING AUTOMATION

Smart machines, also known as systems of intelligence, have been described by the World Economic Forum<sup>2</sup> as the fourth wave of the industrial revolution – after steam power in 1784, mass production in 1870, and electronics and IT in 1969. The fourth industrial revolution is closely coupled with the third revolution's digital wave, which has been building since the advent of Y2K and is characterized by a blend of technologies that bring together the physical and digital.

What distinguishes the fourth wave compared with the preceding three are several factors:

- Its adoption curve is extremely steep, comparatively speaking.
- Not one industry is untouched.
- It promises to replace much of what has fundamentally been done manually in business.

Automation can be broadly categorised into three different types – systems that do, think and learn (see Figure 1).<sup>3</sup>

### Automation's Triumvirate

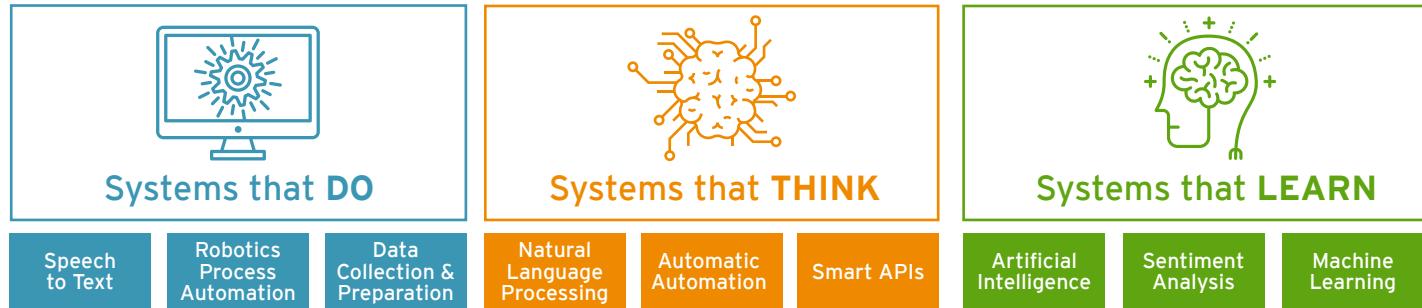


Figure 1

While systems that do have been around us since the mid-20th century, systems that think and learn are slowly becoming a part of how organisations operate. Their core focus is on automating manual, repetitive work. Making intelligent machines do the same work more efficiently and accurately frees up human labour to tackle more challenging tasks (see Figure 2).

## The Anatomy of an Automation Effort

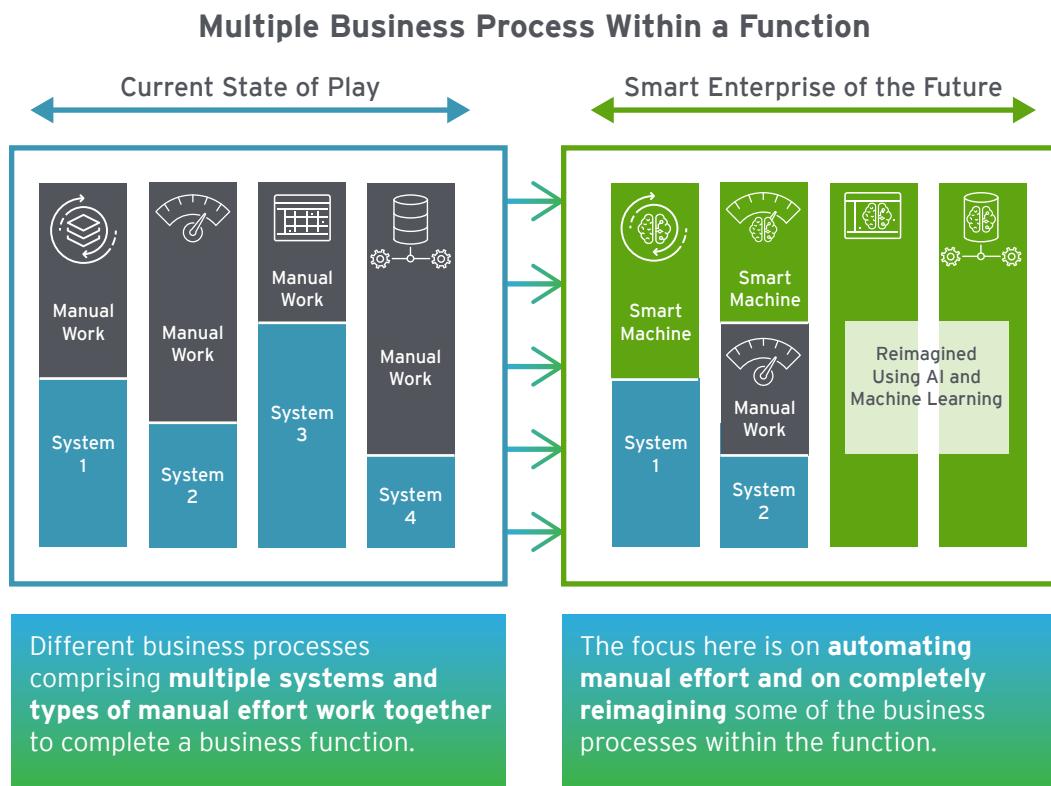


Figure 2

While RPA is most commonly associated with the current state of automation, it is important to understand that RPA is merely the most basic type of such technology. It addresses rote, routine work programmed to handle repetitive tasks that can be easily mapped to computer instructions. However, technology is rapidly evolving, and organisations are under increasing pressure to innovate and deliver value to their end customers while keeping costs in check. To achieve these end goals, it is imperative to identify business processes where systems that think and systems that learn can be applied to tap automation's vast potential and realise its benefits.

## AUTOMATING RIGHT: SELECTING THE RIGHT PROCESS

Organisations often are unable to map the right automation strategy to the right business process. So they end up choosing a business process that is focused on high-volume transaction rates (when that's not what they need) or is overly expensive to deploy (and can't deliver sufficient ROI to warrant the investment). Instead, what organisations need is a scientific approach towards business process selection for the right level of automation. For organisations that are at a nascent stage of their automation journey, the rule of thumb should be to start with simpler processes with low risk and quick gains and use the experience to eventually move towards complex processes.

A well-defined process can be easily broken down so that only a part of it is automated completely while the overall process continues to function as before. This, in turn, poses a lower risk for the function or the organisation. On the other hand, automating high-risk and complex processes may have a higher impact in achieving the organisation's goals, but may require a greater investment of time and money, thereby increasing the risk of failures.

### Key Factors For Selecting the Right Process

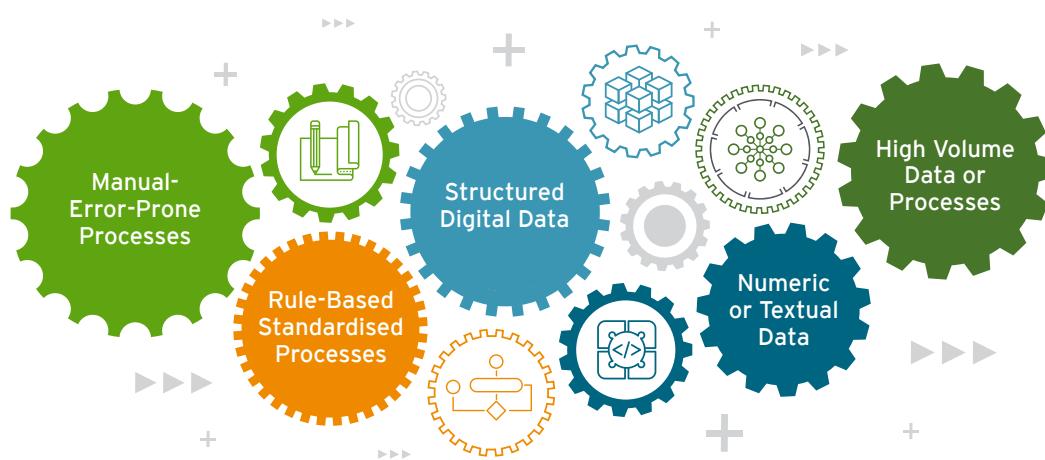


Figure 3

While RPA is most commonly associated with the current state of automation, it is important to understand that RPA is merely the most basic type of such technology. It addresses rote, routine work programmed to handle repetitive tasks that can be easily mapped to computer instructions.

A good example would be a simple nonmedical underwriting process in an insurance company. Here, the organisation will normally have a well-defined business process and rules running in tandem with simple system processing requirements. Such processes can be broken down into independent subprocesses such as data entry, document verification and rating. Each subprocess can be automated autonomously while the other subprocesses continue, uninterrupted.

Every organisation has its own conception of why they need to automate and what level of automation they seek. A company's goal can be related to cost reduction, cutting decision time and improving customer service, or the ultimate aim may be to redeploy human resources to more constructive work. The processes that are automated should be aligned with the overall strategic goal of the organisation. A pertinent example is a Japanese life insurance firm that has recently automated its systems to calculate payouts to customers, thereby saving millions of yen and improving productivity by as much as 30%.<sup>4</sup>

## A FRAMEWORK FOR AUTOMATION PROCESS SELECTION

Before we lay out a detailed methodology for applying the right level of automation to the right set of business processes, we will first define the different levels of automation based on the degree of control that machines will eventually have<sup>5</sup> (see Figure 4).

### Ranking Automation Capabilities

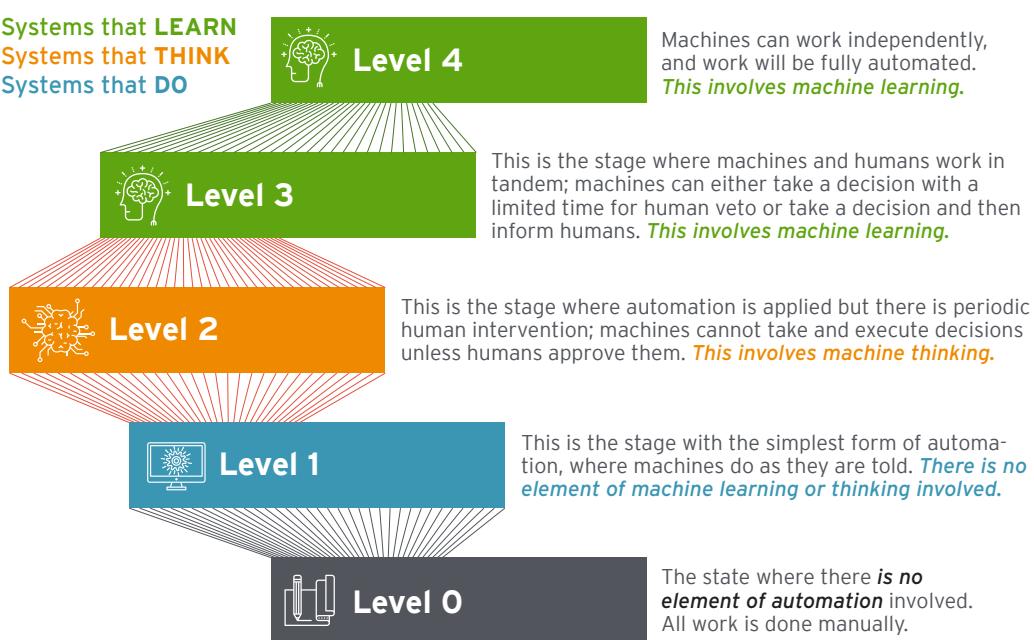
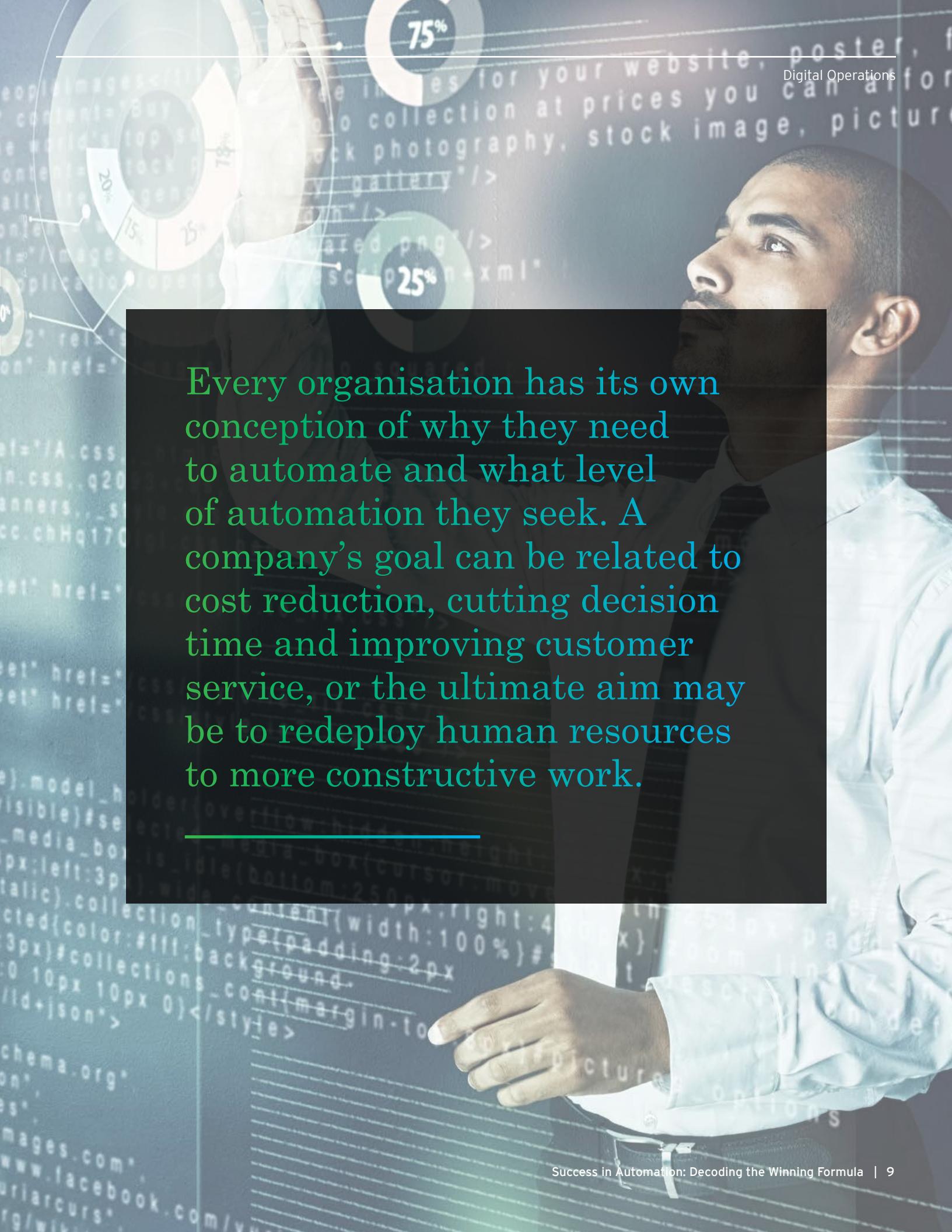


Figure 4



Every organisation has its own conception of why they need to automate and what level of automation they seek. A company's goal can be related to cost reduction, cutting decision time and improving customer service, or the ultimate aim may be to redeploy human resources to more constructive work.

## A Framework Snapshot

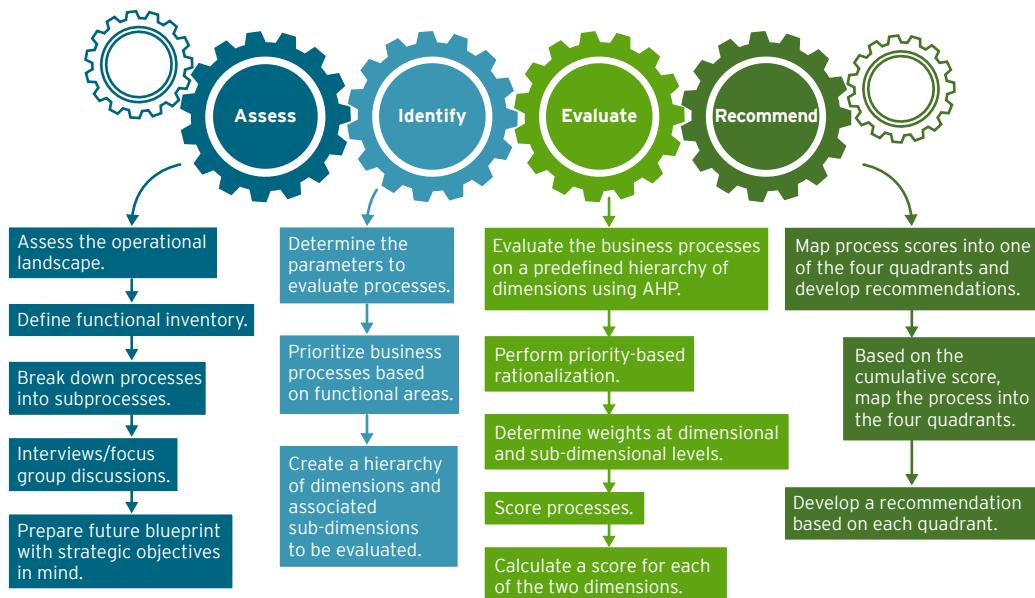


Figure 5

### ASSESS THE OPERATIONAL LANDSCAPE

Before an organisation initiates its assessment phase, a prerequisite is that it conducts a cost-benefit analysis to screen and focus on which processes make business sense to automate. All business processes should not be considered for automation. For example, it may be fruitless for an organisation to incur the costs of automating an activity that is performed once a year or has an insignificant effect on overall volume or resource allocation.

In the first phase of assessment, the organisation's business functions are broken down into processes. All processes (and subprocesses) must be mutually exclusive and collectively exhaustive. Obsolete processes or those that are earmarked for retirement should be removed from the process inventory list. At the end of this step, an enterprise-wide functional inventory is generated.

The next steps are to identify a focus group of business process owners within each team, and then develop stakeholder survey questionnaires (process- and user-specific) to gather inputs. The questionnaire can be customized to ensure the most accurate and useful information is captured for analysis.

The business process landscape is also analysed through process diagrams to determine cross-dependencies, if any, and categorise and understand business processes by line of business, process area and department. This exercise should help identify automation use cases, pain points, aspirations and complexities in the current list of business processes.

We initiate the identification phase by choosing two key parameters that affect both the individual and the business process: the degree of work variation and the degree of business process complexity.

### IDENTIFY THE PARAMETERS FOR PROCESS EVALUATION

The next step of the assessment is to identify the two elements that will be the cornerstone of the entire rationalization exercise and will serve as the fundamental principle for guiding your analysis.

Every business process comprises the individual(s) who perform(s) that business process as well as the business process itself. For example, underwriting as a function is composed of the individual underwriter and the actual business process of underwriting.

Hence, we initiate the identification phase by choosing two key parameters that affect both the individual and the business process: the degree of work variation and the degree of business process complexity.

- **Degree of variation of work:** This parameter allows us to understand the extent of repetitiveness in the individual's work for the business process being evaluated. In other words, it helps determine whether the job in question is routine or nonroutine. "Routine" would mean a job with minimal deviation, which produces simple rule-based output, and which can be performed in relative isolation with little social interaction. "Nonroutine," on the other hand, means the task involves significant people management and problem-solving ability. Work variation can be divided into these two dimensions:
  - » **Stakeholder management:** This measures the social component or nature of work. It involves tasks that have an emotional quotient, such as negotiation and team-building.
  - » **Analytical skills:** This measures the logical or problem-solving components of work. It involves tasks that require critical reasoning, such as decision-making and information processing.

To reduce subjectivity, we apply a fundamental rating technique to the dimensions and sub-dimensions. The framework uses a combination of decision weights and scores to derive the strength and weakness for each of the assessment dimensions.

- **Degree of complexity of business process:** This parameter allows us to understand the extent of complexity of the business process being evaluated. In other words, it helps determine whether the business process in question is complex or non-complex. A “complex” business process refers to one where the output is not a simple rule-based result and/or one involving many exceptions or overlaps during execution. The nature of the business impact also helps determine if a business process is complex or not. A “non-complex” business process, on the other hand, is one that is simple and straightforward, with no deviations and exceptions, and/or one that can be carried out with minimal business impact. Complexity can be divided into these two dimensions:
  - » **Process traits:** These are the actual traits that make a business process complex and potentially difficult to execute. For example, many overlaps or exceptions in the process.
  - » **Business impact:** This is the impact that a business process can cause based on its disruptive damage potential if it fails. This could mean financial impact, legal impact, reputational impact, etc.

The two dimensions can then be further decomposed into sub-dimensions as the organisation deems fit.

Note that these dimensions and sub-dimensions are not exhaustive or set in stone. The flexible nature of the framework allows for the addition, deletion or modification of these dimensions and sub-dimensions as stakeholders see fit. Also, the dimensions/sub-dimensions are not to be confused with “type.” For example, stakeholder management and analytical skills together compose the degree of variation, and any evaluated process must be quantified for both these parameters.

## EVALUATE THE BUSINESS PROCESS

The parameters of routine vs. non-routine for an individual’s work or complex vs. non-complex for a business process are often perceived in a subjective light, which can cause bias to creep into decision-making.

To reduce such subjectivity, we apply a fundamental rating technique to the dimensions and sub-dimensions. The framework uses a combination of decision weights and scores to derive the strength and weakness for each of the assessment dimensions. This should be based on the relative importance (criticality) and priority of a process, as estimated from the engagement. We apply the analytical hierarchical process, a mathematical tool, to help convert qualitative arguments into quantitative ones. A pairwise comparison is made for every dimension and sub-dimension for both the factors. This exercise can be performed at a business function level or at an organisation level.

After this exercise is completed at a sub-dimension level, it is then repeated for every dimension within a degree of variation and a degree of complexity until a relative weight is obtained at each level.

Once a relative weight is obtained at each level, the last step of the evaluation is to score the business process. The business process owner needs to assess the available data points and then assign a score, while recording the rationale. For example, if the intention is to score a business process on “team management” (a potential sub-dimension under stakeholder management), then it is possible to ask multiple questions and use the responses to arrive at a score. Figure 6 illustrates the scoring concept where, based on the responses, a score of 2 is allocated to the sub-dimension “team management.”

### Scoring Team Management: An Illustrative View

Team Management										
Process ID	Process Function	Business Process	Review and Monitor other's work	Setting goals for the team	Special Authority	Advising Team Members	Manage Team expectations	Executing Team Tasks	Inspecting & Reporting	Score? (1-5, can be in decimals, eg: 2.5)
1	Policy servicing Policy foreclosure	Updating pay-out by cheque and NEFT	Yes. Second pair of eyes check between team members	Does not involve setting goals between team members	None	The new team members are trained by experienced team members	None	Seldom	None	2

Figure 6

The process is then scored for every sub-dimension for both factors. The scoring conducted at this level is then used to derive the scoring at a dimension level. Thus, at the end of this step, every business process that has been the subject of the evaluation step has been assigned a score for both parameters chosen in the identification phase.

### RECOMMEND LEVEL OF AUTOMATION

After the individual processes are rated and scored to arrive at a cumulative score for both the dimensions, the processes are then plotted on a graph where one axis represents the degree of variation of work and the other axis represents the degree of complexity of the business process.

Depending on the score of the process, it can be plotted on one of four quadrants:

- **Quadrant 1:** Low degree of complexity and low degree of variation: Any process that falls within quadrant 1 is considered routine work. The recommendation here is that the process should be completely automated using level 1 automation, where machines will do as they are told, without any element of machine learning. There is no form of supervision needed for this work. RPA is a good example of the kind of automation that can be applied to processes in this quadrant.
- **Quadrant 2:** Low degree of complexity and high degree of variation: The recommendation for such business processes is to apply level 2 automation, where systems think and make decisions, but they cannot be executed unless approved by human supervisors. This is because even though the non-complex work can be broken down into data points, the nonroutine nature of this work means that machines will frequently encounter exceptions that require human supervision.
- **Quadrant 3:** High degree of complexity and high degree of variation: Any process that falls under quadrant 3 is considered nonroutine work. Such business processes are either very hard to automate or cannot be automated. The objective should be to try and break down the parts of work where rules can be fragmented (and made simpler) so it can eventually be moved to quadrant 2.
- **Quadrant 4:** High degree of complexity and low degree of variation: Any business process that falls under quadrant 4 is considered routine work. The recommendation for such processes is to implement cognitive automation and apply level 3 automation, where systems can understand and learn complex data structures through advanced artificial intelligence, such as machine learning. This is because even though the work is complex in nature, it is routine and has minimal variation; this means that complex business rules encounter minimal or no deviation and, if fragmented into simpler rules, can be performed by machines. Such processes will be challenging and time-consuming to automate but once automated can be performed unaided by machines.

## Breaking Down Tasks Ripe for Automation

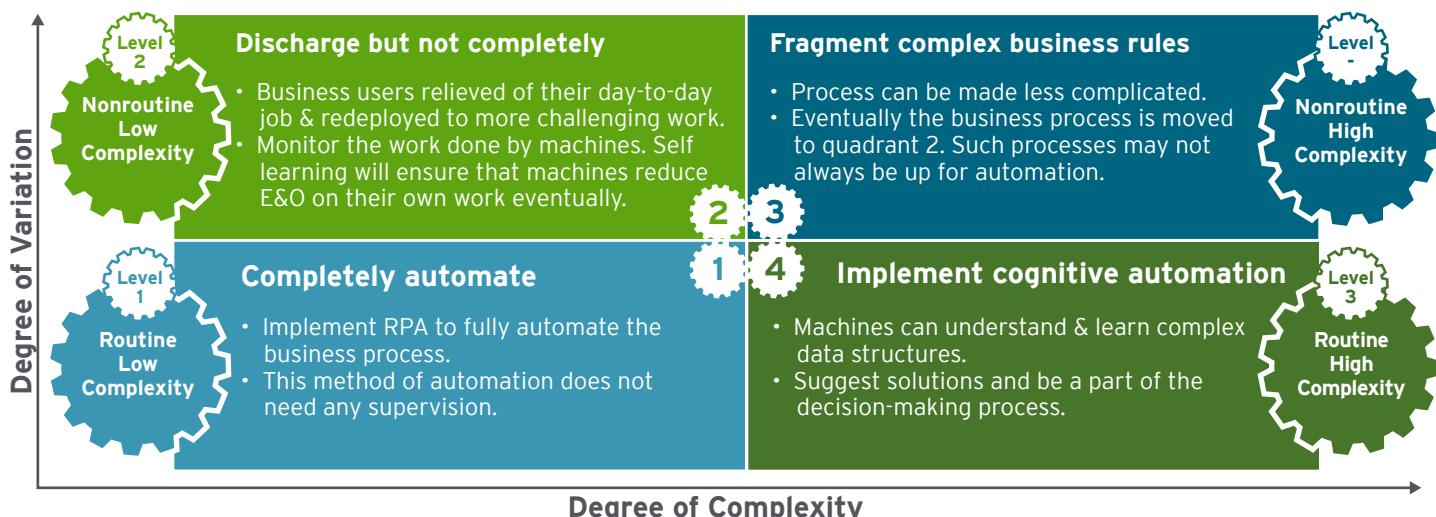


Figure 7

## Automation Scorecard: An Illustrative View

Process	Quadrant Positioning	Automation	Recommendation
Specialized Underwriting	4	Level 3 Assist	Complex business rules for underwriting specialized cases can be broken down into structured business rules; machines can understand data patterns and recommend the price and T&C. Using predictive analytics and historical analysis of similar risks in the past, the system can be used to automatically segment and price a risk and learn to get more accurate after each case.
Broking Relationship Management	3	Fragment	Broking relationship managers need a high degree of social skills to perform their jobs. While that bit is not up for automation, it is advisable to atomize the desk-job part of their jobs so they can spend more time on the field.
Customer Grievance Management	2	Level 2 Discharge but Monitor	Customer grievance mechanism can be structured at the offset so that by looking at the category, subcategory of the complaint and other structured details, the machine can auto-diagnose the problem and recommend a resolution. However, since every grievance case is unique, before the resolution is sent out to the customer, it will have been approved by a supervisor.
Tacit Renewals	1	Level 1 Completely Automate	Straight-through processes require minimal human intervention and have no process complexity. These processes can be considered ideal candidates for complete automation, where the renewed policy can be auto-issued and delivered to the client or the broker.

Figure 8

## The Automation Gestalt

By repeating this sequence for all business processes, a detailed score card is generated individually for all the processes with recommendations for each (see Figure 8).

A consolidated summary of findings – either at a business function level or at an organisation level – can be published to gain a holistic picture (see Figure 9).

### Summary of Findings at Organisation Level

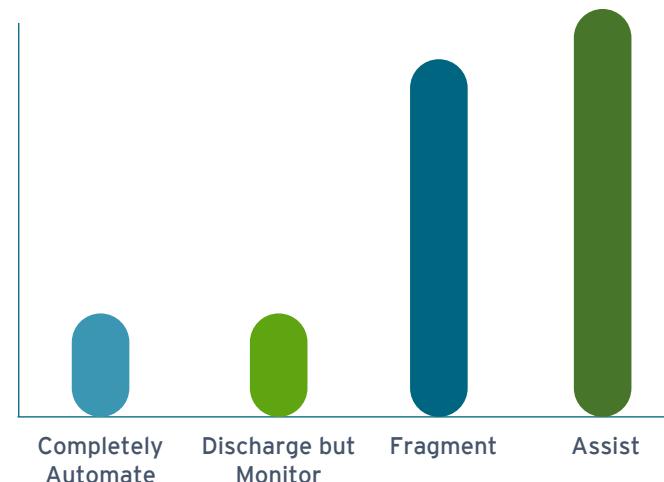
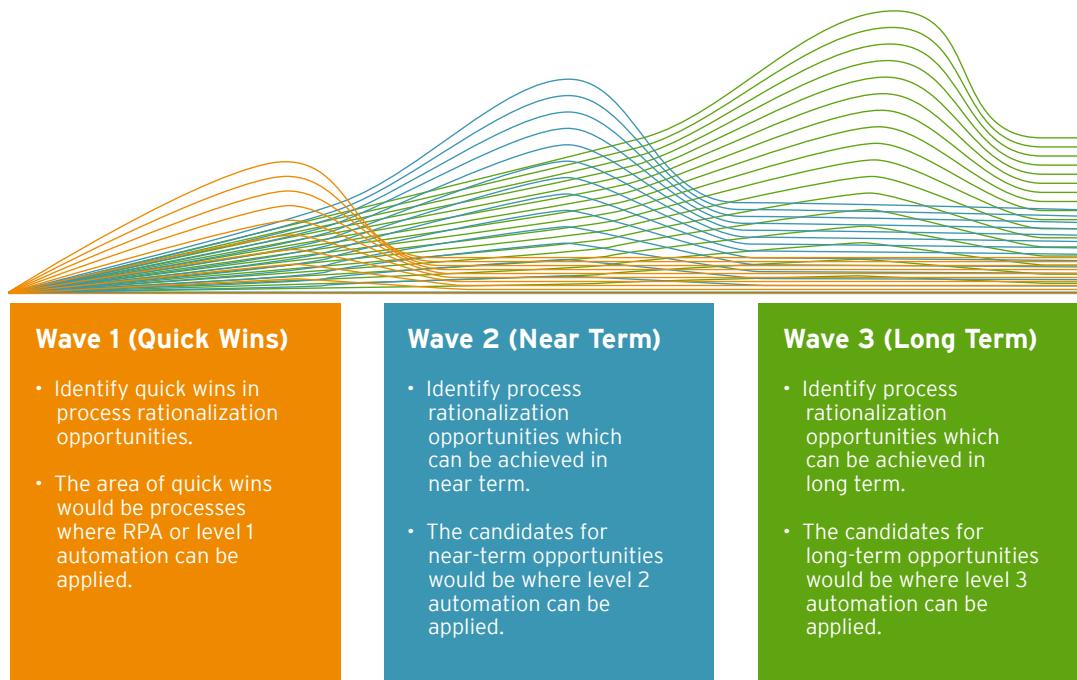


Figure 9

Based on the findings, an implementation roadmap can be produced, which can be divided into different waves. Such a roadmap should be sequenced based on business priorities in line with the organisation's strategic automation objective (see Figure 10).

If the work estimate is too exhaustive, then we recommend you select a single business function to pilot. The entire exercise should then be conducted starting with that business function.

## An Automation Roadmap



## Rollout Plan

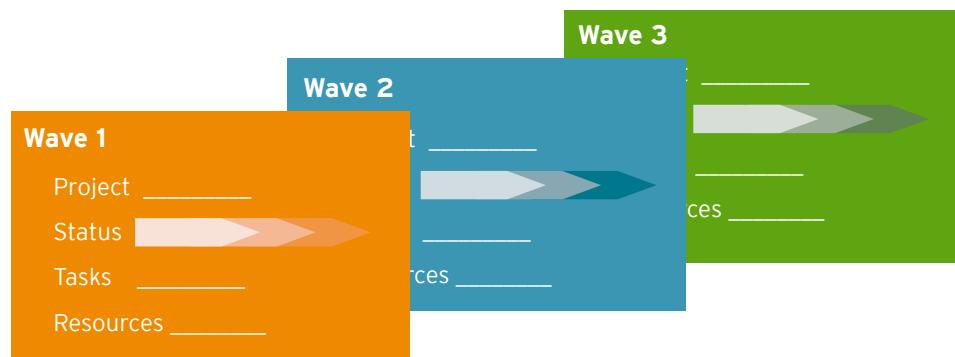


Figure 10

## KEY DRIVERS OF SUCCESS

Selection of the right processes and the right level of automation can be tricky – if executed improperly, or if unrealistic expectations were set at the outset. It is vital to get the right stakeholders committed to the program early in the game. Also essential is to define the key drivers of success for an automation program, as this ensures that team members know the value the initiative will create, and the potential challenges that can emerge (see Figure 11).

### A Winning Automation Formula

	<p><b>Identify Any Resistance to Change</b></p> <ul style="list-style-type: none"> <li>• New relationships and processes must be established to facilitate a smooth transition and support new initiatives.</li> <li>• Assess an organisation's readiness to change.</li> <li>• Continuously reinforce importance of automation for the organisation through all channels of communication.</li> </ul>
	<p><b>Alignment with Strategic Objectives &amp; Management Support</b></p> <ul style="list-style-type: none"> <li>• Important to have support from the senior management and its alignment with the organisation's overall strategic goals.</li> <li>• Identify clear automation target areas and review progress periodically to realign the objectives of the organisation.</li> </ul>
	<p><b>Clear Communication of Plans</b></p> <ul style="list-style-type: none"> <li>• Clearly and regularly convey top-priority objectives to all relevant stakeholders.</li> <li>• Objectives must be SMART: specific, measurable, achievable, realistic and time-framed.</li> <li>• Agree on the scope, size, nature of work, timelines and key success parameters before engagement starts.</li> </ul>
	<p><b>Right Team</b></p> <ul style="list-style-type: none"> <li>• Cross-functional team of experienced business consultants, domain experts, process consultants and technology architects is required for successful process rationalisation exercise.</li> <li>• Building expertise in the area of automation and its related tools can also help in driving the team towards a common goal.</li> </ul>
	<p><b>Budget &amp; Resource Availability</b></p> <ul style="list-style-type: none"> <li>• Organisations must estimate the total cost needed to run the engagement and identify resources that will have to be committed to this initiative proactively.</li> <li>• Running shorter pilot engagements can help in identifying the key change areas and taking corrective actions early in the game.</li> </ul>

Figure 11

Going forward, organisations need to view things from a dual lens: A microscopic view for achieving the low-hanging fruits of RPA, and a telescopic view for cognitive or smart automation opportunities in the not-so-distant future.

---

## A WAY FORWARD

Going forward, organisations need to view things from a dual lens: A microscopic view for achieving the low-hanging fruits of RPA, and a telescopic view for cognitive or smart automation opportunities in the not-so-distant future. A detailed plan of action should balance these two goals, because today's successful RPA initiatives can provide a foundation for tomorrow's cognitive automation. It will also help win the trust of senior management by demonstrating that the organisation is moving in the right direction.

Bear in mind that smart machines will coexist with humans in the workplace in the near future. Therefore, organisations should be proactive in smoothing the transition. If you think your business processes are not ready to be automated, then the first step should be to get them to a stage where they are. If you think your process landscape is ready to be automated, then the next step should be to identify and draw a roadmap for automation. Either way, the end goal is to become a smart organisation where business processes work optimally.

## FOOTNOTES

---

<sup>1</sup> Malcolm Frank, Paul Roehrig, Ben Pring, *What to Do When Machines Do Everything: How to Get Ahead in a World of AI, Algorithms, Bots, and Big Data*, John Wiley & Sons, Inc., February 2017. [www.wiley.com/WileyCDA/WileyTitle/productCd-111927866X.html](http://www.wiley.com/WileyCDA/WileyTitle/productCd-111927866X.html)

<sup>2</sup> [www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/](http://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/)

<sup>3</sup> [www.cognizant.com/whitepapers/intelligent-automation-exploring-enterprise-opportunities-for-systems-that-do-think-and-learn-codex2292.pdf](http://www.cognizant.com/whitepapers/intelligent-automation-exploring-enterprise-opportunities-for-systems-that-do-think-and-learn-codex2292.pdf)

<sup>4</sup> [www.huffingtonpost.co.uk/entry/japanese-insurance-firm-artificial-intelligence\\_uk\\_586e5d39e4b0c1c826fa8cc8](http://www.huffingtonpost.co.uk/entry/japanese-insurance-firm-artificial-intelligence_uk_586e5d39e4b0c1c826fa8cc8)

<sup>5</sup> [www.aerohabitat.eu/uploads/media/Automation\\_and\\_Situation\\_Awareness\\_-\\_Endsley.pdf](http://www.aerohabitat.eu/uploads/media/Automation_and_Situation_Awareness_-_Endsley.pdf)

## ABOUT THE AUTHORS

**Stuart Leask**

Director, UK Insurance Practice, Cognizant Business Consulting

Stuart Leask is a Director within Cognizant Business Consulting's UK Insurance Practice. He has 27 years of experience in the insurance sector and has held senior positions in both the industry and consulting, within the UK and on the international stage. Stuart began in reinsurance and has expanded his domain knowledge across life and pensions, commercial and personal lines, Lloyd's, the London Market and the broker market. He leads thought leadership activities for Cognizant's UK Insurance Practice. Stuart can be reached at [Stuart.Leask@cognizant.com](mailto:Stuart.Leask@cognizant.com) | <https://www.linkedin.com/in/stuartleask/>.

**Gayatri Chaudhary**

Business Analyst, UK Insurance Practice, Cognizant Business Consulting

Gayatri Chaudhary is a Business Analyst within Cognizant Business Consulting's UK Insurance Practice. She has over six years of experience in the insurance industry across functions such as insurance and broking, IT consulting and life insurance operations. Gayatri has worked with several insurers in the U.S., UK and APAC markets in multi-vendor and multiple geography engagements. She holds a PGDM from the National Insurance Academy School of Management and is a fellow member of the Insurance Institute of India. Gayatri can be reached at [Gayatri.Chaudhary@cognizant.com](mailto:Gayatri.Chaudhary@cognizant.com) | <https://www.linkedin.com/pub/gayatri-chaudhary-fiii/16/4aa/27b>.

**Abhishek Jha**

Consultant, UK Insurance Practice, Cognizant Business Consulting

Abhishek Jha is a Consultant within Cognizant Business Consulting's UK Insurance Practice. He specializes in the property and casualty domain with a special focus on commercial insurance. Abhishek has worked extensively with insurers and brokers across the U.S., APAC, UK and Latin America sectors. He holds a PGDM from National Insurance Academy School of Management, Pune. Abhishek is an associate of The Institutes (formerly the American Institute for Chartered Property and Casualty Underwriters) and is a fellow member of the Insurance Institute of India. He can be reached at [Abhishek.Jha3@cognizant.com](mailto:Abhishek.Jha3@cognizant.com) | <https://linkedin.com/in/abhishek-jha-15535915>.



---

## ABOUT COGNIZANT

Cognizant (NASDAQ-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 205 on the Fortune 500 and is consistently listed among the most admired companies in the world. Learn how Cognizant helps clients lead with digital at [www.cognizant.com](http://www.cognizant.com) or follow us @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

### European Headquarters

1 Kingdom Street  
Paddington Central  
London W2 6BD England  
Phone: +44 (0) 20 7297 7600  
Fax: +44 (0) 20 7121 0102

### 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