NEAT EVALUATION FOR NTT DATA:

IoT in Digital Transformation

Market Segments: Manufacturing Capability, Retail Capability, Supply Chain Capability

Introduction

This is a custom report for NTT DATA presenting the findings of the NelsonHall NEAT vendor evaluation for *IoT in Digital Transformation* in three market segments: *Manufacturing Capability*, *Retail Capability*, and *Supply Chain Capability*. It contains the NEAT graphs of vendor performance, a summary vendor analysis of NTT DATA for IoT services, and the latest market analysis summary for IoT services.

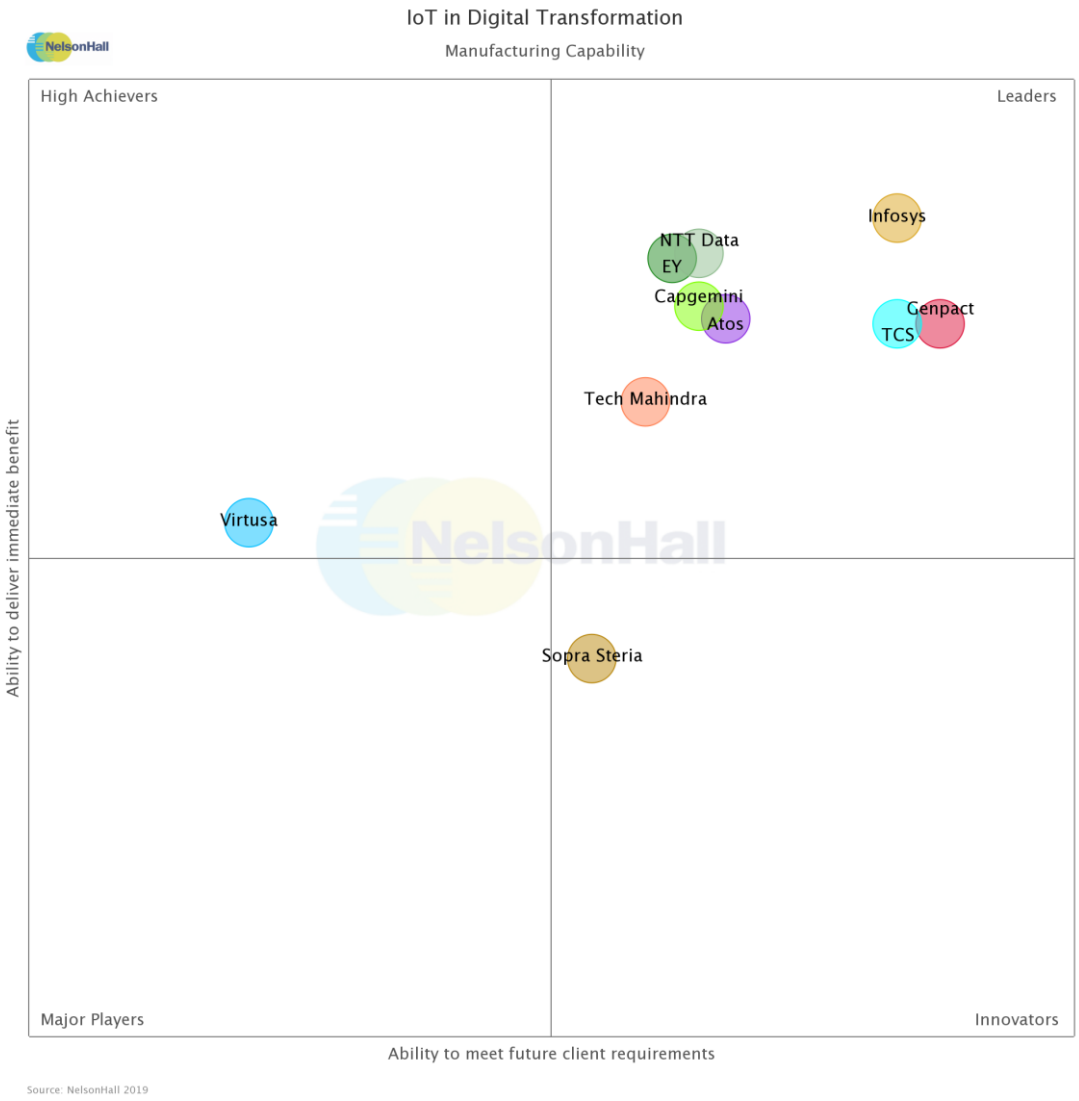
This NelsonHall Vendor Evaluation & Assessment Tool (NEAT) analyzes the performance of vendors offering IoT services in support of digital transformation. The NEAT tool allows strategic sourcing managers to assess the capability of vendors across a range of criteria and business situations and identify the best performing vendors in each of seven industry sectors: Energy & Utilities, Healthcare, Manufacturing, Retail, Supply Chain, Telecoms, and Travel, Transportation & Logistics.

Evaluating vendors on both their 'ability to deliver immediate benefit' and their 'ability to meet client future requirements', vendors are identified in one of four categories: Leaders, High Achievers, Innovators, and Major Players.

Vendors evaluated for this NEAT are: Atos, Capgemini, EY, Genpact, Infosys, NTT DATA, Sopra Steria, TCS, Tech Mahindra, and Virtusa.

Further explanation of the NEAT methodology is included at the end of the report.

NEAT Evaluation: IoT in Digital Transformation (Manufacturing Capability)

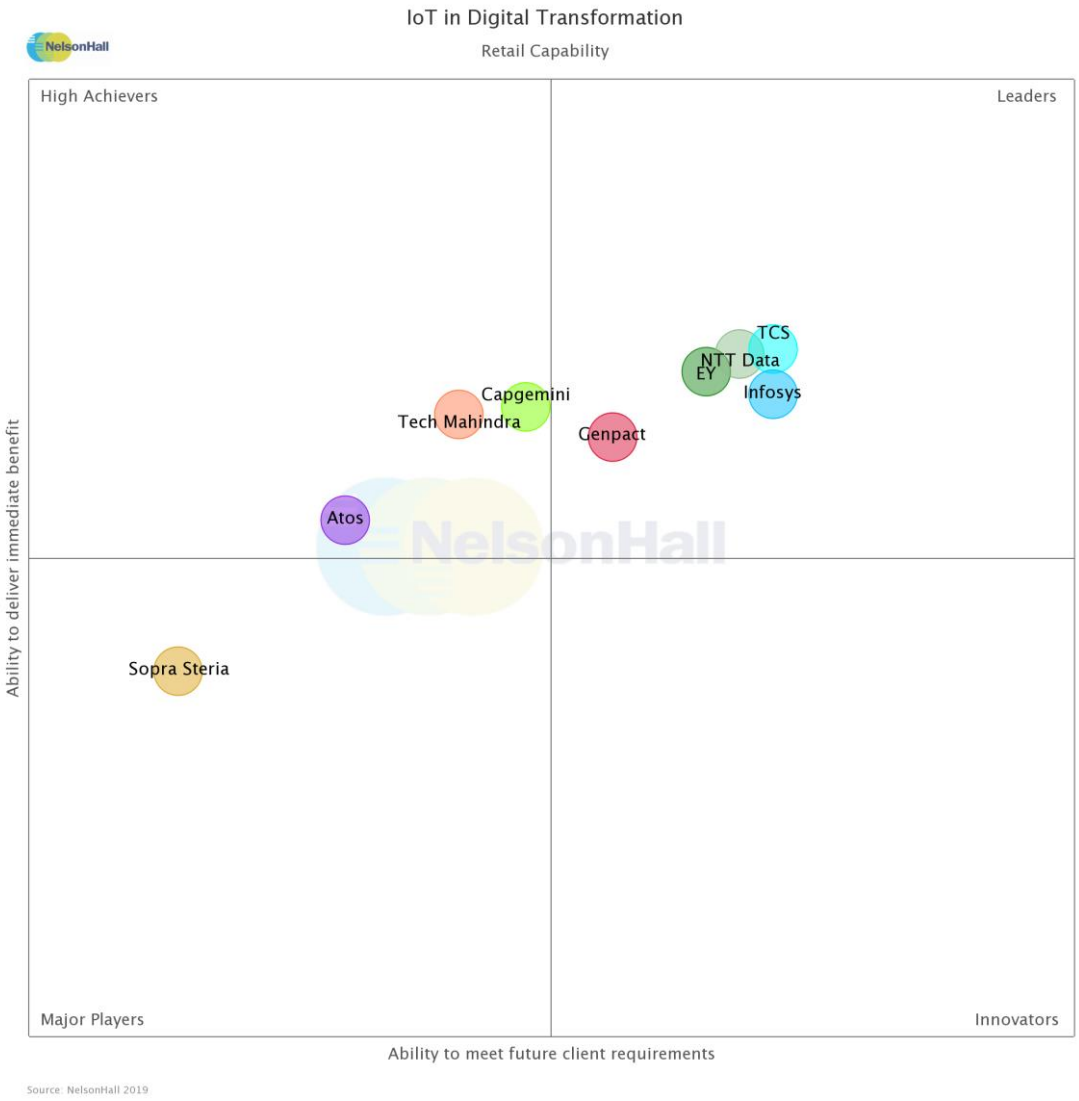


NelsonHall has identified NTT DATA as a Leader in the *Manufacturing Capability* market segment, as shown in the NEAT graph. This market segment reflects NTT DATA's ability to meet future client requirements as well as delivering immediate benefits to IoT services clients in the manufacturing sector.

Leaders are vendors that exhibit both a high ability relative to their peers to deliver immediate benefit and a high capability relative to their peers to meet client future requirements.

Buy-side organizations can access the IoT in Digital Transformation NEAT tool (Manufacturing Capability) here.

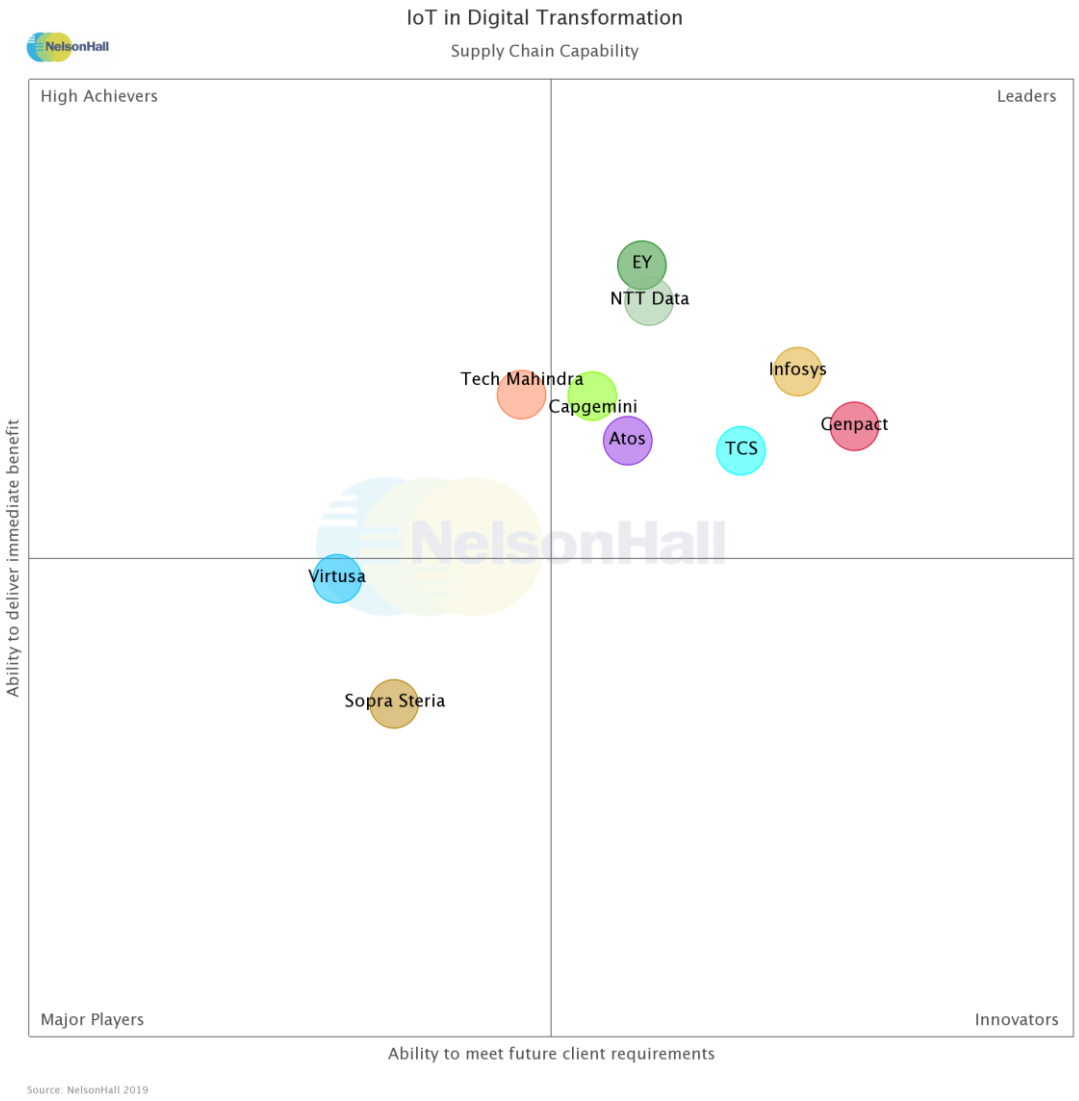
NEAT Evaluation: IoT in Digital Transformation (Retail Capability)



NelsonHall has identified NTT DATA as a Leader in the *Retail Capability* market segment, as shown in the NEAT graph. This market segment reflects NTT DATA's ability to meet future client requirements as well as delivering immediate benefits to IoT services clients in the retail sector.

Buy-side organizations can access the IoT in Digital Transformation NEAT tool (Retail Capability) here.

NEAT Evaluation: IoT in Digital Transformation (Supply Chain Capability)



NelsonHall has identified NTT DATA as a Leader in the *Supply Chain Capability* market segment, as shown in the NEAT graph. This market segment reflects NTT DATA's ability to meet future client requirements as well as delivering immediate benefits to IoT services clients in the supply chain sector.

Buy-side organizations can access the IoT in Digital Transformation NEAT tool (Supply Chain Capability) here.

Vendor Analysis Summary for NTT DATA

Overview

NTT DATA has been active in IoT solution development since 2009, but the company's approach to IoT within digital transformation projects began in 2015 and has continued to evolve as the firm's capabilities in this area have matured.

NTT DATA acquired Spanish IT provider Everis in 2013, providing the company with a mature book of Latin American business to complement its existing in-region portfolio along with an expanded presence in the banking and insurance and utility sectors. The company acquired cloud-based healthcare exchange platform InteHealth in 2015, adding capabilities in multiformat data exchange, EMR integration, and health data warehousing. In September of that same year, NTT DATA launched a payments gateway in Malaysia, establishing a foothold in the online payment business.

Financials

NTT DATA's total IoT revenues are approximately ~$400m, of which the portion specifically attributable to work in digital transformation projects is 60%, resulting in an estimate of $240m according to NelsonHall estimates.

Strengths

- Evolved technological base of offerings in IoT
- Expanding design thinking and digital transformation ideation facility footprint
- Mature book of business in key IoT-relevant industries
- Long-standing client relationships have eased digital transformation pursuit costs
- Strong in-house assets for mobility and cognitive technology
- Well-capitalized family tree with significant R&D funding for digital transformation.

Challenges

- Limited scope of industry pursuit and investment at present
- Weak brand presence outside Japan/APAC for transformative IoT work.

Strategic Direction

Going forward, NTT DATA will enhance its:

- Smart factory capabilities. Over the next eighteen months, NTT DATA has a slate of investment and R&D initiatives planned for its efforts in providing digital transformation services for smart factories. Specifically, the company intends to add new digital twinning services focused on real-time assessment of factory operations and prescriptive optimization of same using machine learning. NTT DATA expects to market these new capabilities on the potential for improved productivity and quality control in a smart factory that includes - as the firm puts it - intelligence from 'shop floor to top floor.'
- Upstream fault prediction services. Fault prediction was a staple use case in the IoT 1.0 era, but as the technology evolves, so too are the demands of clients evolving upstream from the basic promise of predicting component failure. NTT DATA is prioritizing this service area by adding new capabilities in the areas of maintenance scheduling and maintenance efficiency measurement, cognitive technology for preventative equipment care, replacement parts ordering and inventory management, and equipment usage analytics, with the overall goal of further improving the useable lifespan of plant and equipment.
- 'Systems of systems' capabilities for Smart City pursuit. NTT DATA is also evolving its urban digital transformation model to focus on integrating 'systems of systems' within Smart City initiatives. The company is adding new engagement tools to its iMobility suit to facilitate greater real-time citizen involvement in Smart City programs and pushing more capability to the edge to enable more complex M2M interactions among buildings, vehicles, facilities, and citizens. NTT DATA is also focused on moving Smart City initiatives into a higher-value ROI model by adding monetization capabilities to iMobility as well.

Outlook

NelsonHall expects that NTT DATA will:

- Leverage mix of new logos and embedded base business to grow
- Capitalize on U.S. presence through Dell Services unit
- Build out more branded solutions like iMobility.

IoT in Digital Transformation Market Summary

Overview & Success Factors

Through 2022, five factors will contribute most significantly to vendor success in the transformational IoT market sector:

- **Reach beyond the enterprise.** While data collection reach has been a proximate goal of organizations, with many now capable of extending the 'digital twinning' concept upstream into the supply chain and downstream into distribution and logistics, the ultimate development of this area is in IoT-enabled ERP – with blockchain as the transport and contracting layer. This concept is an outflow of the increasing desire for IoT to serve as the digital fabric of the full manufacturing cycle, from suppliers through end consumers.
- **Interoperability.** Interoperability subsumes characteristics of data collection, transmission, remote management, and inclusivity. The organizations that are best-positioned to succeed through 2025 are those with evolved IoT interoperability, either through partnerships with leading provider platforms like Siemens MindSphere, or through collaboration with hardware and sensor manufacturers on agnostic offerings of their own.
- **Analytics maturity.** If the sensor was the focus of IoT 1.0 deployments, analytics and cognitive reasoning are the core of IoT 2.0 solutions. Every organization in our study prioritized analytics and cognitive technology in developing their current transformational IoT offerings, in no small part due to the increased capability of measuring value delivered to the client through closer measurement.
- **Edge capability.** Sensor refreshes in broadly distributed global manufacturing and supply chain settings are a significant fiscal and process efficiency issue. Organizations undertaking transformational IoT initiatives are looking to hardware and service providers to deploy sensors that can take up the challenges of the next decade – including, potentially, blockchain and cognitive capability – without needing to be changed out yet again.
- **Digital twin resolution.** Representing a device, vehicle or component with basic digital performance and environmental parameters, at this point, table stakes. Increasingly, the market expects organizations to add more – physics-based modeling of how devices works with accompanying greater accuracy of failure prediction at stress points, as just one example.

Buy-Side Dynamics

Organizations are moving toward transformational IoT in order to:

- **Gain fine control over asset lifecycle management.** IoT 1.0 offered the promise of predicting asset failure and intervening prior to unscheduled asset outages. Transformational IoT moves beyond limiting the downside of an asset's lifecycle and toward maximizing its upside through intelligent warranty management, parts optimization, and high-resolution understanding of asset operational behavior
- **Optimize industrial and enterprise process performance.** Transformational IoT focuses on the complete relationship between and among connected devices, not just the 'hub-and-spoke' relationship between each device and the centralized data management

environment. This evolved state enables devices to work together with stack and edge technologies to intelligently self-manage processes

- **Gain cognitive awareness** and migrate the production or enterprise environment beyond HitL involvement in decision-making and federate authority to machines and vehicles to self-optimize their workflow. This extends upstream into the supply chain environment, as well – so a supplier production slowdown can change downstream production capacity planning.

Market Size & Growth

The global transformational IoT services market is worth $3.2bn (estimated in 2018), with average CAGR of 23% through 2022. The United States, UK and Continental Europe, Japan, and Middle East are the largest and fastest-growing geos.

The United States, UK and Continental Europe, Japan, and Middle East are the largest and fastest-growing geos. Vendors are focused on the high-growth geographies for their expansion and brand development efforts.

Enterprise-scale organizations of $1bn in revenue and above will continue to be the primary demand-side force in transformational IoT.

Manufacturing, healthcare, energy are the strongest demand sectors, with telecoms and logistics growing swiftly.

Outlook

Over the next few years:

- IoT interoperability will be established on a smaller number of data collection, formatting, transport, and ontology standards, and friction resulting from lack of device connectivity in a typical client environment will decline swiftly
- Primary drivers for IoT will have transitioned away from intra-organizational solutions focused on asset maintenance and replacement to vertically integrated IoT solutions enabling supply chain and distribution management in a larger, more holistic environment. At this point, the roles of IoT and blockchain will converge to mirror what we know as ERP today
- IoT will become the digital 'fabric' for manufacturing and energy firms – the basis for understanding the performance of the business and making decisions
- Deployments by industry will broaden to include more significant presence in life sciences, telecom, logistics, and travel, although manufacturing will continue to dominate the landscape
- The United States, EU and Asia/Pacific will continue to be the principal demand geographies for transformational IoT solutions.

NEAT Methodology for IoT in Digital Transformation

NelsonHall's (vendor) Evaluation & Assessment Tool (NEAT) is a method by which strategic sourcing managers can evaluate outsourcing vendors and is part of NelsonHall's *Speed-to-Source* initiative. The NEAT tool sits at the front-end of the vendor screening process and consists of a two-axis model: assessing vendors against their 'ability to deliver immediate benefit' to buy-side organizations and their 'ability to meet client future requirements'. The latter axis is a pragmatic assessment of the vendor's ability to take clients on an innovation journey over the lifetime of their next contract.

The 'ability to deliver immediate benefit' assessment is based on the criteria shown in Exhibit 1, typically reflecting the current maturity of the vendor's offerings, delivery capability, benefits achievement on behalf of clients, and customer presence.

The 'ability to meet client future requirements' assessment is based on the criteria shown in Exhibit 2, and provides a measure of the extent to which the supplier is well-positioned to support the customer journey over the life of a contract. This includes criteria such as the level of partnership established with clients, the mechanisms in place to drive innovation, the level of investment in the service, and the financial stability of the vendor.

The vendors covered in NelsonHall NEAT projects are typically the leaders in their fields. However, within this context, the categorization of vendors within NelsonHall NEAT projects is as follows:

- **Leaders**: vendors that exhibit both a high ability relative to their peers to deliver immediate benefit and a high capability relative to their peers to meet client future requirements
- **High Achievers**: vendors that exhibit a high ability relative to their peers to deliver immediate benefit but have scope to enhance their ability to meet client future requirements
- **Innovators**: vendors that exhibit a high capability relative to their peers to meet client future requirements but have scope to enhance their ability to deliver immediate benefit
- **Major Players**: other significant vendors for this service type.

The scoring of the vendors is based on a combination of analyst assessment, principally around measurements of the ability to deliver immediate benefit; and feedback from interviewing of vendor clients, principally in support of measurements of levels of partnership and ability to meet future client requirements.

Exhibit 1

'Ability to deliver immediate benefit': Assessment criteria

Assessment Category	Assessment Criteria
Offerings	Breadth of application of transformational IoT
	Integration of IoT with analytics
	Integration of IoT with AI
	Integration of IoT with automation
	Application of transformational IoT to supply chain processes
	Application of transformational IoT to healthcare & life sciences processes
	Application of transformational IoT to telecoms processes
	Application of transformational IoT to government processes
	Application of transformational IoT to manufacturing processes
	Application of transformational IoT to retail processes
	Application of transformational IoT to travel, transportation & logistics processes
	Application of transformational IoT to energy & utility processes
	Application of transformational IoT to drive new digital process models
	Transformational IoT consulting capability
	Ability to combine transformational IoT with BPS Services
Delivery	Scale of transformational IoT delivery capability
	Maturity of transformational IoT IP overall
	Maturity of delivery framework overall
	Maturity of MES/SCADA connectivity
	Maturity of accelerators overall
	Maturity of accelerators - supply chain
	Maturity of accelerators - healthcare and life sciences
	Maturity of accelerators - telecoms
	Maturity of accelerators - government
	Maturity of accelerators - manufacturing
	Maturity of accelerators - retail
	Maturity of accelerators - travel, transportation & logistics
	Maturity of accelerators - energy & utilities
	Extent of major transformational IoT partnerships
	Extent of transformational IoT technology partnerships
Presence	Overall transformational IoT presence

Exhibit 2

'Ability to meet client future requirements': Assessment criteria

Assessment Category	Assessment Criteria
Level of Investment	In proprietary transformational IoT tools
	Ability to introduce new digital business models
Sector Emphasis	Supply chain process emphasis
	Healthcare and life sciences process emphasis
	Telecoms process emphasis
	Government process emphasis
	Manufacturing process emphasis
	Retail process emphasis
	Travel, transportation & logistics process emphasis
	Energy & utility process emphasis

For more information on other NelsonHall NEAT evaluations, please contact the NelsonHall relationship manager listed below.

research.nelson-hall.com

Sales Enquiries

NelsonHall will be pleased to discuss how we can bring benefit to your organization. You can contact us via the following relationship manager:

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