

Taming Your Data Assets and Delivering Real Business Outcomes



About NEC

NEC has delivered world-class technology solutions and services to customers across the globe, for more than a century. For over 50 years in Australia, NEC has built a sophisticated technology and anything-as-a-service company which brings together the best technology and the best people to ensure our customers capture maximum value from their IT and networking investments.

NEC connects people through reliable communication infrastructure while also helping to keep communities safe and secure with intelligent surveillance systems and the world's leading biometrics identification technologies.

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Introduction

Enterprises across the world are experiencing the consequences of a decade of digital disruption that has resulted in the proliferation of data at an exponential rate.

Many now want to put themselves in the best position to rapidly generate insights from this huge volume of data to gain a competitive edge through improved understanding of their customers. These insights could enable businesses to derive new business models and revenue sources as well as improve operating efficiency.

Research suggests that organisations that have the most advanced analytics capabilities tend to pull ahead of industry competitors.

Many Australian businesses already understand the power of data analytics. Gartner, for instance, says APAC technology leaders rate it as one of three game changer technologies — the others being AI and Cloud. However, there is a huge variation when it comes to how far along the data analytics maturity curve organisations have ventured.



To be in their industry's top quartile of financial performance



To make decisions faster than their market peers



To execute decisions as intended

Those at the start of their journey may well have discussed big data, but its potential is not really reflected in business objectives or strategies.

Typically, such organisations lack a single coherent data architecture.

Others may have developed a standard architecture, but find it lacks scalability and cost-effectiveness.

Even those who are further along, and have started implementing a data framework such as Hadoop, may lack a robust big data governance and security framework.

These organisations need a way forward that defines the journey towards data analytics maturity and enables them to gain better business insights from a clearer understanding of the needs of their customers.

But before they can do this, they need to identify and understand the challenges they face. These challenges include:

- The sheer volume and variety of data sources which need to be corralled;
- No coherent, scalable data infrastructure to provide a comprehensive view of the data;
- Integrating disparate sources of data;
- An inability to analyse the internal and external data for strategic decision-making;
- Poor data governance and a lack of defined policies for quality management; and
- A lack of qualified professionals with the necessary skills sets to harness big data and analytics tools effectively.

Organisations have a long history of managing the structured data that falls out of ERP, CRM and marketing applications. Systems for managing unstructured data such as documents, videos or sound recordings, and even log files, have matured in recent years — as have solutions for data compression in response to the explosion of new data sources.

And while data warehouses have been around for decades, data lakes have emerged as a way to consolidate both structured and unstructured data.

Despite this, too few companies have managed to tame these ever-growing sources of data.

That's a problem that prevents them from getting a 360-degree view of any particular customer. For instance, while a customer name might be stored one way in one system, it might be recorded slightly differently in another, even though it represents the same person.

The best outcome for both the customer and the organisation is achieved by consolidating the view across all of these entities in a way that provides the richest and most complete picture of interaction with the customer.

To complicate matters further, it is fairly typical for larger business units within organisations to use different technologies to store and manage data. One



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business unit might be operating a DB2 database while another utilises Oracle, and a third is using SQL Server.

Furthermore, documents might be stored in multiple formats — some of them are PDFs while others are Word or Pages documents — and these may or may not be attached to a database.

All this unstructured data needs to be assigned to specific customers. And it might also be necessary to have the same record repeated multiple times over a period of time with just a single differentiator between each record to enable auditing.

The key challenge is to consolidate all this data without actually making any destructive changes to those existing systems.

Section One: Getting started

An optimal outcome for a business combines structured and unstructured data and delivers a single view irrespective of the many sources.

The process of creating a centralised repository starts with understanding where your data is coming from. During this time the goal is to answer a few key questions — typically, what is the data used for, who owns the data, and who can access the data.

By answering these questions, organisations can build up a picture of what the situation looks like at ground level. After this is in place, it is important to determine what you want to do with the consolidated data.

And of course all this needs to be done in a context where, typically, organisations are contending with different sets of users who all require different levels of access to the consolidated data.

Security and privacy are critical issues when it comes to data consolidation. When one of several disparate data sources is compromised, just the data in that system is compromised. However, if an organisation's data lake or data warehouse is compromised, then the exposure is much larger and the potential damage more significant.

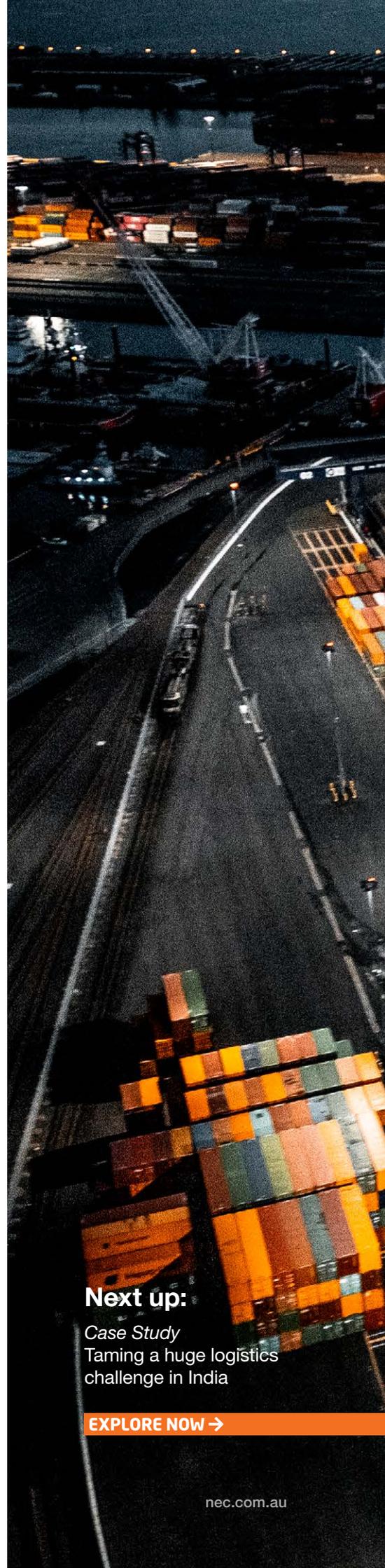
So it is important to also have a regulatory view of how the data will be used very early in the project — especially where the data is related to elements that affect privacy.

External data

Increasingly, companies also use third-party data from external sources.

Take marketing, for instance. It might use external data from an agency, or a company like Google or Facebook. In this context the marketing department doesn't own the data, but gets access to it as part of its campaign management.

Again, it is important to understand how the centralised depository will handle this. In a well-architected solution, it should not matter — the third party should just be one more source of data.



Next up:

Case Study
Taming a huge logistics challenge in India

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Case Study

Taming a huge logistics challenge in India

Logistics as a sector plays a critical role in defining the domestic and international competitiveness of the Indian economy.

India's National Industrial Corridor Development and Implementation Trust and NEC partnered to form DMICDC Logistics Data Services (DLDS). This organisation provides an end-to-end tracking system of container movement across all ports to the inland container depots, container freight stations and end-users via toll plazas and railway movement on an integrated basis.

The problem was that the business intelligence team was taking two weeks (161,280 minutes) to create business-critical reports such as container information. This was due to use of manual processes and batch processing.

As a solution the partners used Data Platform for Hadoop (DPH) to capture real-time location information of the container through RFID, resulting in faster identification of status.

To enable real-time tracking, a magnetic RFID tag is attached to a container. Every time the container passes through a toll plaza its movement is recorded by the RFID reader and shared with the system until it reaches the inland container depot or container freight station.

For users of the system, the experience is transformative. Anyone can check the container status and location online by entering the container number in the portal. Any delays are identified and alert notifications are sent to the user.

DLDS logistics databank services are currently providing container visibility services for approximately 70 per cent of India's EXIM container volume.

The DLDS analytics reports help identify inefficiencies and bottlenecks, bringing operational efficiencies through visibility and resulting in reduced dwell time, transit time and congestion across the supply chain.

Analytics provided through these reports help bridge the information gap and enable better communication between stakeholders.

[WATCH THE VIDEO](#) 

Section Two: Better decision-making

The better decision-making drives sales growth. It also increases profitability, reducing operating costs as bottlenecks and redundancies are identified and business risks are mitigated.

But it also builds business agility and helps the organisation to better understand their customers' needs, which in turn improves customer experience through data-driven discovery of hidden customer insights.

By understanding the customer better through sophisticated data analytics, companies are better placed to identify the ideal path forward for the organisation.

The ultimate goal of a centralised depository is to increase the effectiveness and efficiency of an organisation, and improve the experience of customers by allowing for better decision-making through the use of sophisticated analytics.

Whereas in the past, companies may have applied analytics tools at a business level or even application level, the single unified and centralised repository allows analytics to build a more systemic understanding.

National and international organisations will often utilise best of breed solutions for multiple vendors. That means they may have numerous ERP systems, several different CRM systems, and perhaps a marketing tech stack with 50 to 60 applications — and all of these need to feed into a single source of the truth.

Any centralised repository of data must therefore seamlessly ingest data from many sources in a standardised way that allows for sophisticated analysis by the business's analytics teams or partners.

Trying to understand customer behaviour is a typical use case for almost every organisation. What are they trying to do? How are customers interacting with you across different channels? What are the services they have with you, and how are you serving them?

There will often be multiple systems generating data, which help answer these questions.

Let's look at a typical use case. A marketing campaign generates data that feeds into the CRM, and that might indicate that you are regularly interacting with the customer. However, unbeknownst to the marketer, the company's order fulfilment system might be taking too long to respond, meaning the customer may have logged multiple support tickets while they are looking for answers.

The marketing department, looking at the data in isolation, may get the wrong view. They do not understand that the campaign is failing because the business is not able to serve the customer or meet the customer's requirements in a timely fashion due to a failure of fulfilment.

Without a consolidated view, the marketing department does not recognise that the customer is having a poor experience and that this is damaging their perception of the brand.

On the other hand, a consolidated view of data would expose the problem clearly and also offer the potential for operational efficiencies.

In this example, the Data Analyst might start with the knowledge that it takes three hours to fulfil an order. But by analysing all the available data, they discover it is taking two hours and 40 minutes to source one component while everything else is completed in just 20 minutes. Having identified the problem, remedial action can be applied where it will have the biggest and most immediate impact.

Business analysis

A single source of the truth via a centralised data repository is essential if data analytics is to provide the best return on investment to the business.

When creating a data lake or data warehouse, organisations do not want to forfeit the benefits of the capabilities they have already developed through

earlier investments in business analysis capabilities. Instead, they want to leverage that capability, or even complement it with external professional services.

For Business Analysts skilled in tools like Power BI or Tableau, the only “new” element as far as they are concerned should be the new single data source. Fortunately, most tools provide SQL interfaces across both structured and unstructured data.

Section Three: The solution

NEC’s Data & Analytics services provide end-to-end capabilities that address a variety of use cases and business challenges across industries. Leveraging cutting-edge technologies, processes, and frameworks, NEC enables organisations to analyse both their operational and strategic data and their external data such as that which they hold on customers and competitors. From this they can extract meaningful insights that include a deeper understanding of customers, greater business efficiency and improved products and services.



NEC provides a full suite of services to help customers on their data & analytics journey.

This includes:

Consulting

This begins with mapping the people, processes, and digital technology landscape of an organisation to identify the key pain points. From this, the digital transformation strategy can be developed.

Design and integration

This involves the design of both operational and business systems, integration plans and business applications, and delivery of management tools and frameworks.

Data platform

This phase involves building and deploying the highly scalable data analytics platform, whether on-premises, hybrid or multi-cloud, as well as deploying tools for continuous development, automated testing and agile project management. And of course addresses critical data governance and security issues.

Analytics

Advanced analytics-driven solutions are implemented for both predictive and real-time solutions, as well as the deployment of AI and machine-learning solutions where appropriate.

Managed services

Includes providing monitoring and support, on-premise and cloud integration, network management and backup and disaster recovery.



We also provide services both to get the data in and to maintain it. Just as importantly we help organisations analyse the data.

Business Technology and Advisory (BTA) services provide consulting, maturity assessments, governance, analysis and full Data Life-cycle Management (DLM). By utilising NEC’s DLM framework, it provides the foundations for data sovereignty, privacy, security classifications, posture and policies using a seven-step process.

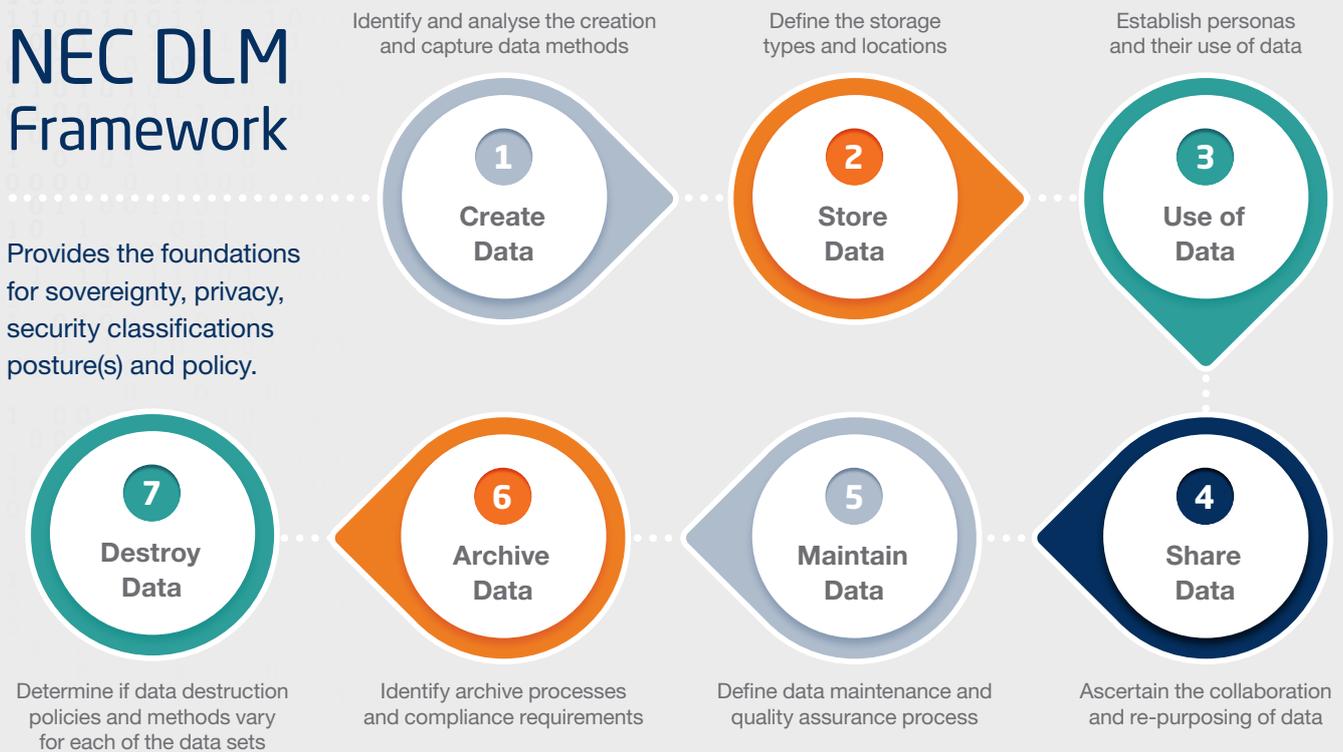
NEC's Implementation Service helps you design, build and maintain the NEC Data Analytics platform, which is a highly scalable and modular platform that enables organisations to consolidate structured and unstructured data from multiple sources. The consulting and implementation team works with customers to support their data-driven digital initiatives, providing a one-stop end-to-end service — from planning and design to implementation and support.

The key component of the NEC solution is the data storage platform, which could be either a data warehouse or a data lake as the platform supports both.

NEC's Data Consolidation Platform utilises Cloudera's Distribution of Hadoop (CDH). Cloudera has its own version of Hadoop, but an important differentiator to other solutions is that Cloudera also has its own tools that are enhanced versions of what was available out of the box.

NEC DLM Framework

Provides the foundations for sovereignty, privacy, security classifications posture(s) and policy.



Why Hadoop?

Hadoop is a highly scalable, secured, platform which operates across Cloud-only, on-premise and hybrid, or even multi-Cloud environments. That is a key advantage over other vendor specific cloud-based hyper-scale solutions in the market. In practical terms that means an organisation could use cheap storage on whichever platform best suits its needs.

CDH doesn't care where the data or computing is physically stored. This is important especially in government departments, or in highly regulated markets where there is an insistence that most of the data must be on-premise with just some passive storage allowed on the Cloud.

NEC's Professional Services team not only bring strong technical knowledge, but also strong business practice knowledge in specific verticals, whether in transport & logistics, health, government or other sectors.

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Conclusion

The ability to derive and act upon insights from data is a key competitive advantage for business, and a necessary customer service requirement for public sector organisations.

To succeed, organisations need the right tools and frameworks so they can identify all the sources of both structured and unstructured data that can aid better decision-making.

Next, they need to design and deploy a modular data warehouse or data lake to consolidate and store big data. This single source of the truth is then available to support enterprise analytical and reporting needs.

And all of this needs to be enabled with configurable data governance, accessibility and security policies.

Data extraction and transformation tools can then ingest and integrate massive amounts of data from heterogeneous data sources into a common and scalable data infrastructure.

And finally, advanced analytics can be implemented against this centralised repository of data to generate business-critical reports that provide executives with the information they need to make crucial business decisions.

With digital transformation pushing organisations to revamp their business models, riding the data analytics capability wave is critical to enabling

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businesses to develop new competitive strategies, optimise their operations and provide differentiated services.

Data analytics is poised to become an integral part of corporate strategy — to obtain critical insights that can effectively target customers, increase sales and gain a competitive edge. With generation of massive volumes and variety of fragmented data, organisations often face challenges with respect to developing and implementing an efficient data management strategy.

But with the right tools, skills and business partners, all these challenges can be overcome and data can be put to the best use to drive the business forward.

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