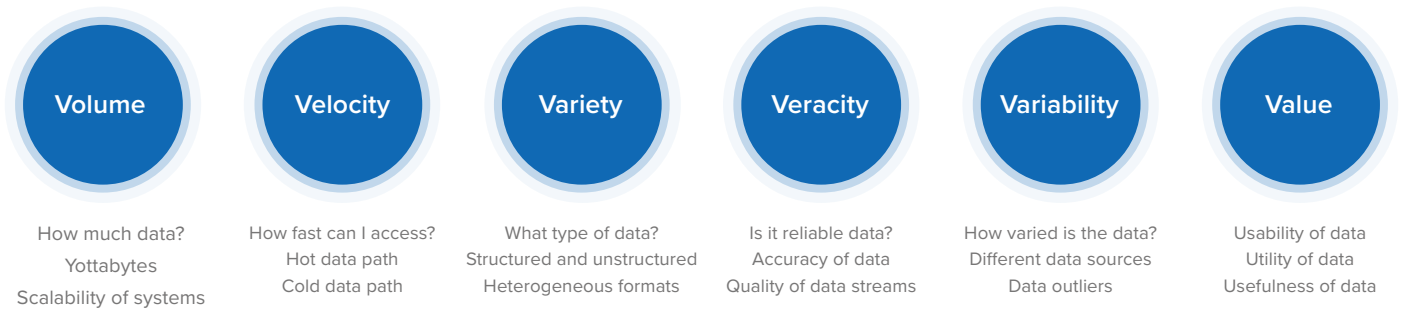# HCL Technologies and Denodo

Since 2016, HCL Technologies and Denodo have been partnering to enable companies to successfully engage in profound digital transformations that improve agility, streamline cross-channel customer responsiveness, and accelerate time-to-market.

Why HCL Technologies and Denodo?

Today's customers are mobile, empowered, and demanding. They expect fluid, seamless interactions across channels and geographical boundaries, and if they cannot get their needs met from one provider, they can easily switch to another. In this climate, smoothly interacting digital services are not simply "nice to have," they are the exact difference between success and failure. Digital transformation is not a luxury; it is a core requirement.

Digital transformation is not trivial, and companies that wish to engage in such transformations will have to overcome a number of challenges, including:

1. **Legacy systems.** Companies have made heavy investments in technology designed to operate for many years. Unfortunately, many legacy systems simply lack the flexibility to support the requirements of digital transformation. Unlike many cloud-based systems, for example, they cannot easily scale up or down to support dynamically changing workloads, and many cannot support today's new data types (see #3 below). However, they often cannot easily be upgraded, especially when they are made up from interfaces built over other interfaces over time, and lack a central core from which the whole can be easily maintained.

2. **Complex corporate cultures and business processes.** All companies and organizations, no matter how well established, are somewhat resistant to change, and digital transformation affects not only technology but ways of doing business. Pricing models will change, as will service level agreements (SLAs) and roles. In managing a digital transformation, companies will need to start with a view of what to expect and how each team is likely to be affected, roll out the changes in a coordinated fashion, mobilize the organization for an efficient, successful transformation, and set up structures for continued success.

3. **Large (and growing) heterogeneous data sources.** Big data has fundamentally shaken the notion that "data" means a finite number of static, structured databases housed on-premises. Today, data is both on-premises and in the cloud, it is both historical and transactional, and with real-time sensor data as part of the Internet of Things (IoT), it is also highly dynamic. With the prevalence of social media and user-generated content, data is just as likely to be unstructured as it is to be structured. Every company needs the ability to handle the "six v's" of big data: tremendous and growing volumes, the accelerating velocity of incoming data as well as the expectations for delivering it, increasing variety of data types, the growing need for veracity and value, and finally, the diverse variability of sources.

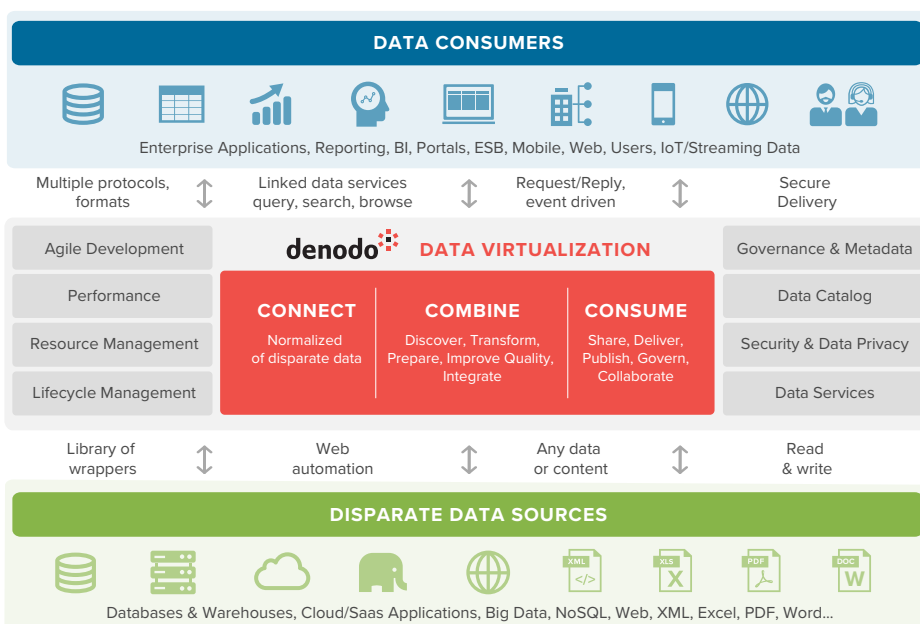| Volume	Velocity	Variety	Veracity	Variability	Value
How much data? Yottabytes Scalability of systems	How fast can I access? Hot data path Cold data path	What type of data? Structured and unstructured Heterogeneous formats	Is it reliable data? Accuracy of data Quality of data streams	How varied is the data? Different data sources Data outliers	Usability of data Utility of data Usefulness of data

Working together, HCL Technologies and Denodo enable companies to overcome each of these challenges, so that they can engage in successful digital transformations to gain all of the expected benefits.

What Denodo Brings

The Denodo Platform sits in a layer between data consumers and the actual sources of that data. The platform contains no data, but only the access information required by each source, and the platform shields consumers from this complexity. By presenting data consumers with a single virtual data layer, which provides a real-time view across myriad disparate sources, data consumers can access a single version of the truth and query across the heterogeneous sources without having to understand their different requirements. With the Denodo Platform, new sources can be added relatively quickly, including emerging data storage architectures such as cloud or big data sources. Because the Denodo Platform supports a wide variety of legacy and modern data sources, it modernizes data infrastructures without forcing organizations to replace existing investments, including traditional data warehouses, data marts, or ETL processes.
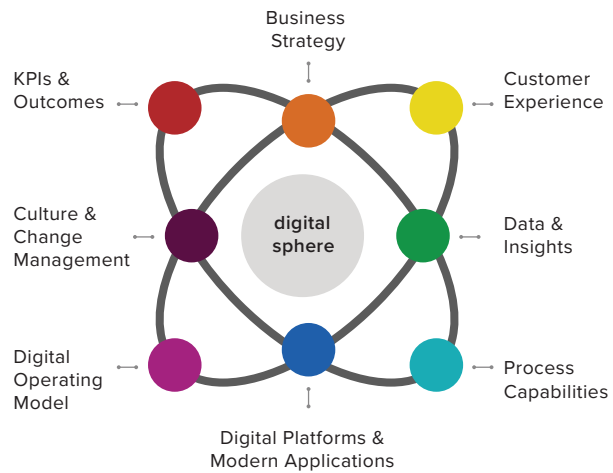
What HCL Technologies Brings

HCL Technologies is a next-generation global technology company that helps enterprises to reimagine their businesses for the digital age. Originally the research and development division of HCL, a company that was founded in 1976, HCL Technologies emerged as an independent company in 1991. Today, operating out of a worldwide network of R&D, innovation labs, and delivery centers with over 149,000+ "Ideapreneurs" (empowered employees) working across 45 countries, HCL Technologies serves 250 of the Fortune 500 and 650 of the Global 2000. HCL Technologies builds software that is relied upon by some of the most well-known technology brands in the world today. The company's leadership has deep expertise in technical infrastructure, and can guide companies through every step of their digital transformations, from implementing the right technology the right way, to managing the necessary cultural changes across the applicable teams and stakeholders.

DATA CONSUMERS

Enterprise Applications, Reporting, BI, Portals, ESB, Mobile, Web, Users, IoT/Streaming Data

Multiple protocols, formats ⇕ Linked data services query, search, browse ⇕ Request/Reply, event driven ⇕ Secure Delivery

Agile Development	denodo **DATA VIRTUALIZATION**			Governance & Metadata
Performance	**CONNECT**	**COMBINE**	**CONSUME**	Data Catalog
Resource Management	Normalized of disparate data	Discover, Transform, Prepare, Improve Quality, Integrate	Share, Deliver, Publish, Govern, Collaborate	Security & Data Privacy
Lifecycle Management				Data Services

Library of wrappers ⇕ Web automation ⇕ Any data or content ⇕ Read & write

DISPARATE DATA SOURCES

Databases & Warehouses, Cloud/Saas Applications, Big Data, NoSQL, Web, XML, Excel, PDF, Word...

HCL's DIGITAL SPHERE℠

Looks at an organization's digital strategy through key guiding principles that enable successful scaled digital programs.

Eight dimensions of a successful digital transformation program

Business Strategy
Customer Experience
Data & Insights
Process Capabilities
Digital Platforms & Modern Applications
Digital Operating Model
Culture & Change Management
KPIs & Outcomes
digital sphere

What can you do with HCL Technologies and Denodo?

- **Modernize legacy systems without replacing them.** HCL Technologies and Denodo leverage data virtualization to modernize legacy systems, like traditional data warehouses, enabling them to easily scale by offloading data to the cloud, for example, without replacing these critical systems or tearing out existing business processes.

- **Successfully manage digital transformations across the organization.** HCL Technologies, with over 8,000 expert consultants working in over 200 customer engagements, has overseen myriad digital transformations and has the expertise to facilitate digital transformations across diverse corporate environments.

- **Integrate large heterogeneous data sources in real time without physically replicating them.** Because it uses data virtualization, the Denodo Platform enables real-time data views, across a diverse variety of data sources, while leaving the source data exactly where it is. This enables companies to gain all of the benefits of real-time data access without having to copy, transform, or move the data to a new location.

Customer Snapshots

By leveraging HCL Technologies and Denodo:

A leading telecom provider created a data marketplace, thereby publishing data assets as services which were consumed by internal and external users.

A worldwide clothing and accessories retailer modernized its data infrastructure with data virtualization to gain real-time data access.

A national broadcasting company established a unified foundation for content that provided insights on invested amount vs. revenue generated for broadcast content.

A leading pharmaceutical company set up a high-availability platform and derived an integrated view of good practice (GxP) compliance data.

A Malaysian bank gained a single view of the customer across diverse systems and customer touchpoints. The bank established a single go-to layer across the enterprise for business and IT teams to access data in real time.