The Data
Playbook
For wine connoisseurs

Research Reports   August 22

CIONET
What's next.

HITACHI
Inspire the Next

The wine
menu

Executive summary

We are all aware that data volumes are exploding in our modern, hyper-connected and increasingly hyper-personalised world. But our ability to harness value from such data remains elusive, with market estimates suggesting

fail to deliver tangible business outcomes.

What we must acknowledge is that data alone has no intrinsic value. Only when it is applied to solving real business problems can it achieve the outcomes we seek.

Failure to deliver value from data projects is not an option. Traditional organisations are under increasing pressure to compete with digital natives in every sector. While the challenge from these fast-moving upstarts is huge, blue-chip enterprises hold a trump card. By harnessing data assets accumulated over decades, incumbents should have an unassailable advantage against digital newcomers. So, how can C-suite executives at major companies realise full value from their currently fragmented data assets?

true mixologists

In this paper, we examine why data assets and related analytics are crucial to success in a rapidly changing and uncertain economy. We look at the key business outcomes that organisations are seeking and link these to the critical decision-making processes that data can help to transform.

Hitachi Vantara has much to offer C-suite executives who want to create value from data. Its *Data Fabric architecture* gives simple, rapid and reliable access to all relevant data assets. Its *DataOps framework* combines technology, culture and organisational design to ensure speed to value in every data project, however large and complex.

During this playbook, we consider how the right architecture and framework can help CIOs and their C-suite colleagues to harvest game-changing insight from data. Our contention is that business leaders who develop a mature approach to data become wine connoisseurs. Across the full insight-generation journey – from fermentation to blending and onto tasting – we show how the generation of valuable data is like the creation of a fine wine.

Our research includes what we refer to as 'wine words' from our sommelier, Adrian Bucknall of Wine Unearthed. Our aim – using a mixture of research, case study and these wine words – is to help practitioners reach a more conducive state of mind. We want to help you embrace the opportunities that information holds and to become true *mixologists* for the emerging data-driven economy.

We conclude the playbook with five recommendations that will help you overcome current obstacles and barriers. By doing this, we hope you develop a taste for data-led change.
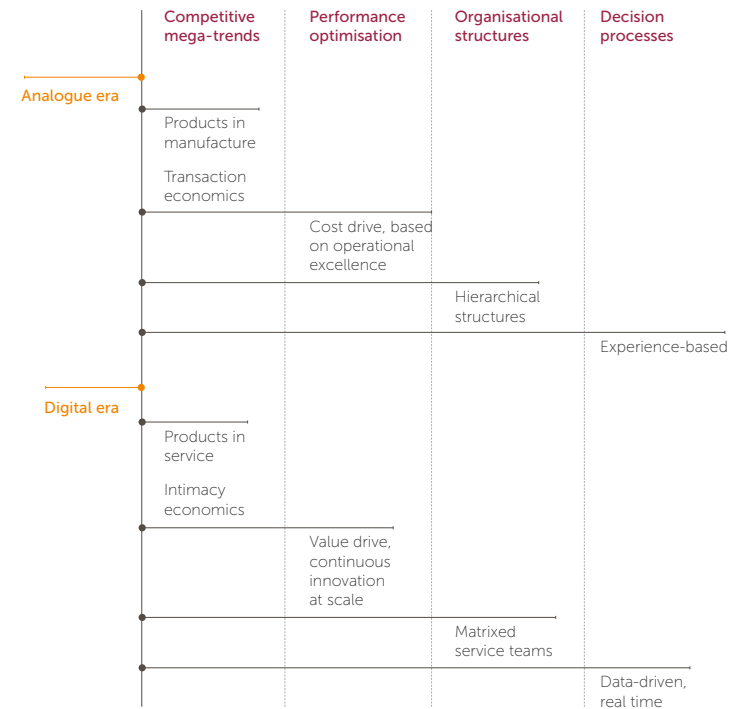
A changing business context

As we accelerate through a period of dramatic technological change, we are witnessing a global transition from 'analogue' to 'digital' organisations. Our contention is that this transition is changing every business process (see Figure 1).

Figure 1
Transition from analogue to digital era

	Competitive mega-trends	Performance optimisation	Organisational structures	Decision processes
Analogue era				
	Products in manufacture			
	Transaction economics			
		Cost drive, based on operational excellence		
			Hierarchical structures	
				Experience-based
Digital era				
	Products in service			
	Intimacy economics			
		Value drive, continuous innovation at scale		
			Matrixed service teams	
				Data-driven, real time

You might feel your organisation has not transitioned to the digital era. If so, you're not alone. Few members of the Global 1000 conform to this new digital norm. Yet at the same time, digital-native behemoths, such as the FAANG (Facebook, Apple, Amazon, Netflix and Google) group, have adopted structures and services that allow them to hyper-scale and innovate continuously due to their data-centric business models.

Traditional organisations need to evolve rapidly from analogue to digital to survive and flourish. Mastering data assets is at the heart of their future success.

Wine words:
Harvesting new opportunities

Sales of UK wines increased by 30% in 2020 to reach 7.1 million bottles. Wine GB's long-term strategy Is to grow sales to over £1bn by 2040. Exports currently account for 10% of sales, with Scandinavia being the biggest market by far. The amount of land under vine continues to grow at pace and has doubled in just eight years.
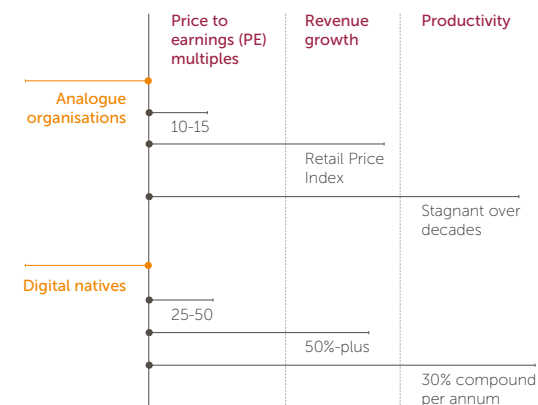
Key business metrics
that matter

When traditional organisations become data-driven, they can deliver exceptional growth, profitability and quality at the pace of the digital natives. This tight grip on data enables them to enjoy better equity returns as well as higher customer and employee satisfaction. The metrics that matter in the transition from analogue to digital are shown in Figure 2.

The definition of success in business has also changed. Before the introduction of digital technology in the 1990s, companies needed to excel in just one of three disciplines – product innovation, operational excellence, or customer intimacy – to achieve commercial success, as defined in Treacy and Wiersema's seminal work, 'Market Disciplines of Market Leaders'[1]. Today, success is multifaceted. According to Dr Joe Weinman in his recent book 'Digital Disciplines'[2], digital natives can achieve excellence in all three disciplines by creating data-centric structures and processes.

Figure 2
Key metrics that influence data-driven strategies

	Price to earnings (PE) multiples	Revenue growth	Productivity
Analogue organisations	10-15	Retail Price Index	Stagnant over decades
Digital natives	25-50	50%-plus	30% compound per annum

While digital natives have achieved new levels of success, incumbents have moved at a much slower pace. Reengineering, lean thinking, process mining and digital transformation have contributed to incremental performance improvements within analogue organisations. However, C-suite executives are rightly demanding more radical change. As Michael Hammer said in the nineties:

"It is not about the 5% but about the 500% improvement."

Progressive organisations are already making this step change. They are applying digital techniques to grow their operations rapidly while also improving outcomes for their customers (see Box 1).

Box 1
Hitachi Vantara helps Vironova improve decision-making process by 1,000%

Vironova is a Swedish biotechnology company providing comprehensive hardware, software and services to analyse nanoparticles during the drug discovery process. Its innovations help pharmaceutical companies make the right decisions quicker. Vironova uses electron microscopy, provided by Hitachi, to examine nano particles from clinical trials. The secret source here is to automate the inspection process using computer vision and advanced data analytics. By standardising this process, pharmaceutical companies can produce faster, more reliable results. Hitachi's electron microscopy was used along with Hitachi Vantara's **high-performance improvements with scale-out architecture**.

Wine words:
Fermenting data to produce great outcomes

Wine production from vine to wine is a simple process at heart. However, winemakers can manipulate the process and influence their outcomes through several means. The strain of yeast or the type and size of vessel they use have an impact. Changing the temperature or duration of fermentation can influence the style of wine produced. In recent years, 'natural wine' producers have sought to get back to basics. Sometimes the simplest processes are the best – combine grapes and yeast in a vessel to start fermentation and wait!

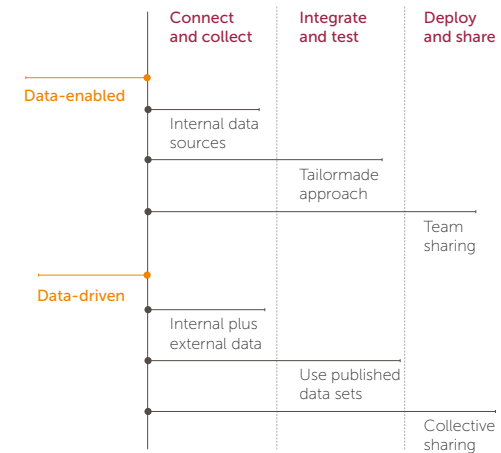# The decision-making process is the place to start

CEOs and CFOs now acknowledge that 'data-driven' decision-making processes lie at the heart of high-performance organisations. There are two stages to this journey: data-enabled and data-driven (see Figure 3).

data fabric

	Connect and collect	Integrate and test	Deploy and share
Data-enabled			
	Internal data sources		
		Tailormade approach	
			Team sharing
Data-driven			
	Internal plus external data		
		Use published data sets	
			Collective sharing

Data-driven organisations publish all their information so that it can be accessible by all parties on close to a real-time basis. Hitachi Vantara has developed a framework called 'Data Fabric' to enable this to happen, where raw data from both internal and external sources is collected and converted to a curated format. This fabric enables staff to access multiple sources of information for decision-making processes instead of restricting them to limited data sets.

17

Whether you are innovating products, streamlining operations or improving customer experiences, decision-making processes need to be close to real-time, reliable and predictive. Senior managers can't rely on historic trends or intuitions. Digital businesses depend entirely on their data to achieve excellence across all disciplines. The Optimise Prime project undertaken by Royal Mail, UK Power Networks, Centrica and Uber shows how collective decision-making processes can address a complex problem (see Box 2).

Box 2
Hitachi Vantara helps Optimise Prime deliver 2.7 million tons of savings in CO2 emissions

Optimise Prime is the largest sustainable transport project ever undertaken. Vehicles today contribute 20% of all carbon emissions worldwide. Despite the surge in electric vehicles, countries are challenged to build an optimal mix of charging points. Fleet drivers have a variety of choices, from home, depot or public charge points. Royal Mail initiated a collaborative programme, Optimise Prime, to examine the best configuration. It selected a complementary set of partners, including Centrica and Uber, to extract live data from 3,000 fleet vehicles using sensors. Hitachi Vantara provided the data analytics to help the consortium deliver potential savings of 2.7 million tons of carbon emissions, equivalent to 1.9 gigawatts of power.

Wine words:
Pressing ahead with the best data at the optimal time

Wine-harvesting tools and techniques have had to adapt over the years – and that's become an even more critical concern recently due to the challenges of rapid climate change. As wine-growing regions get warmer, one short-term coping strategy is to train the vine canopy to shade the grapes more, which slows the pace of ripening. Longer-term strategies might include ripping up perfectly good vines and replanting with more suitable grapes, which has major implications for France, Italy and Spain, with their rigid wine-quality systems.

How to redesign decision-making *processes*

As IT professionals, we have been preoccupied for decades with process reengineering and its many tools such as lean thinking, process mining and value mapping. It's time for this obsession to end. The reality today is that many process-reengineering efforts fail because they become technology-led projects. Too often, these projects focus on micro-process components rather than end-to-end workflows that deliver measurable value.

Data-driven decision making is a process. It incorporates a data pipeline that starts with data collection and data integration and ends with deployment and analytics (as shown above in Figure 3). We believe the delivery of a successful redesign requires a proven

framework, known as 'DataOps'. Employed universally by Hitachi Vantara, this framework has three key factors:
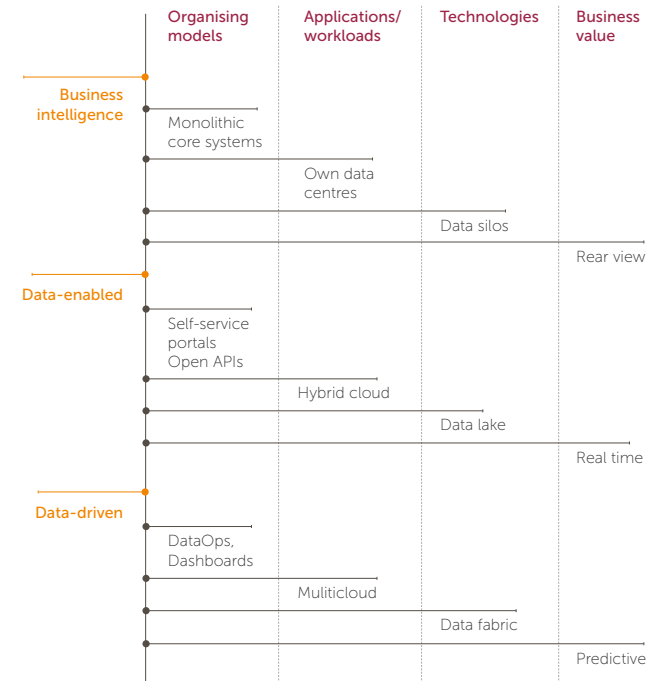
- Technologies and related tooling that supports a data-driven business model and makes data available to all employees
- A culture where everyone buys into the idea of using data to make decisions at every level of the organisation (from the front line up to the main board)
- An organisation that supports empowerment and collaboration across the organisation, especially those working on the front line

For practitioners who wants to redesign decision-making processes, Figure 4 summarises the evolutionary path towards a data-driven organisation, while Box 3 gives an example of an organisation that has already made that transition.

If you can trace a cow, you can track anything.

Gavin Devaney,
Owner & MD,
Bartle Frere Bananas

Figure 4
How DataOps helps to deliver data mastery

	Organising models	Applications/ workloads	Technologies	Business value
Business intelligence	Monolithic core systems	Own data centres	Data silos	Rear view
Data-enabled	Self-service portals Open APIs	Hybrid cloud	Data lake	Real time
Data-driven	DataOps, Dashboards	Muliticloud	Data fabric	Predictive

dataOps

"If you can trace a cow, you can track anything," says Gavin Devaney, owner and managing director of Bartle Frere Bananas in Australia. He uses data and technology to grow environmentally friendly crops. Hitachi Vantara has assisted Bartle Frere to monitor weather conditions and measure soil moisturiser by employing Internet of Things sensors and data analytics. This data-led approach has helped to optimise irrigation levels. In addition, solar-powered nitrate sensors are being used to regulate the use of fertiliser. RFID tagging is used to track fruit from crop to market to ensure timely delivery and related customer satisfaction. These types of projects are based on data insights, predictive analytics, and dashboards with recommendations for day-to-day operations.

Wine words:
Focusing on the right blend of insights

Being selective with wine reviews, points and scores is increasingly important for the savvy wine buyer. Apps such as Vivino or CellarTracker provide instant access to reams of information on your smartphone. They are extremely useful but must be used with caution. Just like a TripAdvisor review, ignore the best and the worst reviews and concentrate on the majority in the middle – read the words rather than just following a high score.

What changes are required in IT to support a data-driven approach?

DataOps is similar to its namesake DevOps – it favours multidisciplinary teams, an agile philosophy, and rapid sprints. However, DataOps is broader in its nature. First, it brings non-technical and technical people together to define a business goal. From here, DataOps helps to define objectives and capabilities. Finally, DataOps helps extract insights from data using Data Fabric processes. This combination of benefits delivers desired business outcomes.
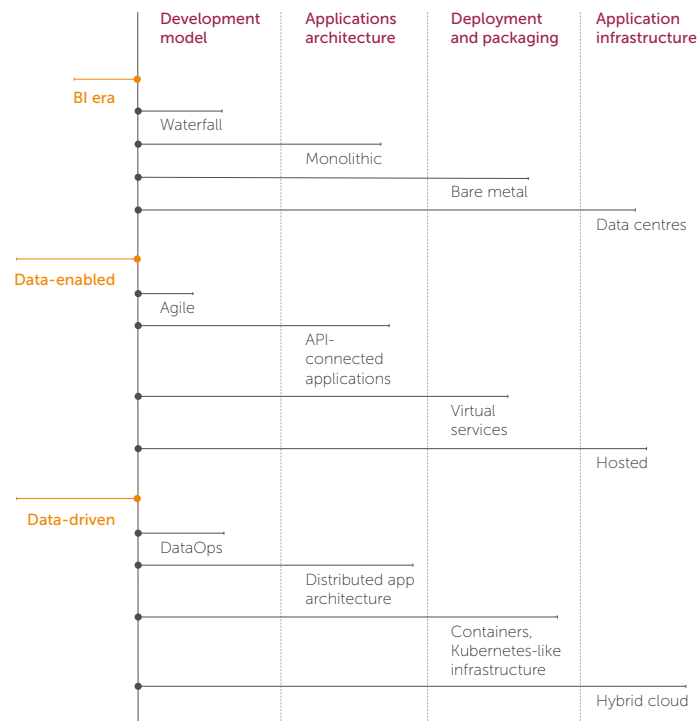
DataOps is also an umbrella term that refers to the collection of technical practices, workflows, cultural norms and architectural patterns that will allow an organisation to integrate its data assets into its business goals and processes. While each organisation's data pipelines are likely to be configured differently, DataOps enables four core capabilities within a company:

1. Rapid innovation, experimentation, and testing, to deliver data insights to users and customers
2. Improved data quality with extremely low error rates
3. Synchronized collaboration across teams of people, environments, and technologies
4. Orchestrated monitoring of data pipelines to ensure clear measurements, and transparent results

Embracing DataOps requires a fundamental shift in approach. To enable such a successful data-driven environment, an IT organisation will need to change its operating model from waterfall and on-premises to DevOps and muliticloud platforms (see Figure 5).

Figure 5
IT changes necessary to move to 'data-driven' organisations

	Development model	Applications architecture	Deployment and packaging	Application infrastructure
BI era				
	Waterfall			
		Monolithic		
			Bare metal	
				Data centres
Data-enabled				
	Agile			
		API-connected applications		
			Virtual services	
				Hosted
Data-driven				
	DataOps			
		Distributed app architecture		
			Containers, Kubernetes-like infrastructure	
				Hybrid cloud

Within this broader macro-framework, there are several other trends associated with data itself that need to be embraced in a shift to DataOps:

- Scale-up data storage is combined with scale-out data storage, enabled by graphics processing units

- Data structures move from centralised to distributed, aided by software-defined storage to edge, core and cloud

- Data analytics adopts artificial intelligence and machine learning to achieve predictive outcomes

- Data input spans verbal, visual and virtual information, aided by natural language processing and computer vision

Wine words:
Clarifying authenticity with the right framework

The French system of classifying wines by location – 'Appellation Controllée (now called Appellation d'Origine Protégée) – is the world's most famous framework for guaranteeing regional authenticity and has been mirrored in both Italy and Spain. The regulations mean that the wine must come from a specific region, which can be fairly large (such as Burgundy), or from a specific area (Chablis, within Burgundy). Each region has its own rules for permitted grapes, growing conditions and minimum quality.
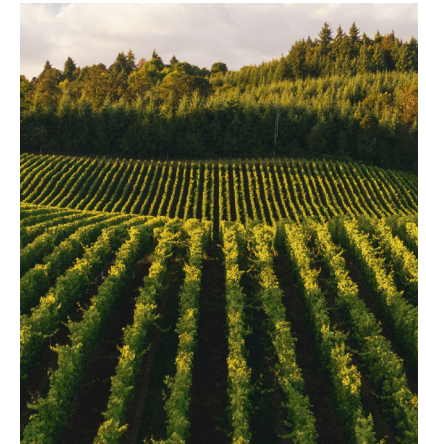
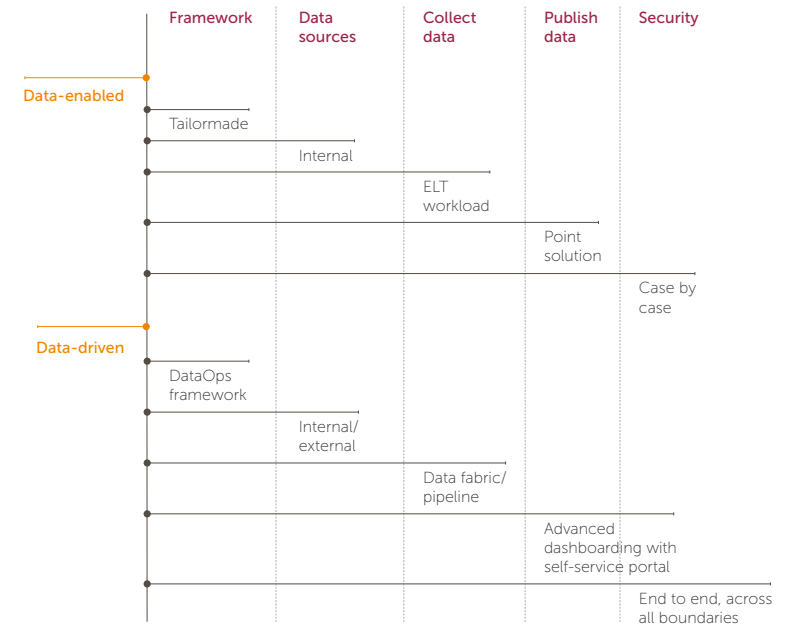# Setting yourself up for success as a *data mixologist*

The explanation for the **80%** failure rate of data projects is simple: many of these initiatives are too ambitious and lack proper orchestration between IT and lines of business. We suggest that data projects should proceed at a more incremental pace, with tighter business governance. This approach accelerates time to value and reduces the risk of failure.

Any organisation that wants to become data-enabled or data-driven must ensure the correct governance and skills are in place. Standards and frameworks also need to be defined. In addition, effective communications between IT and lines of business must be established (see Figure 6).

Figure 6
Setting up the right approach

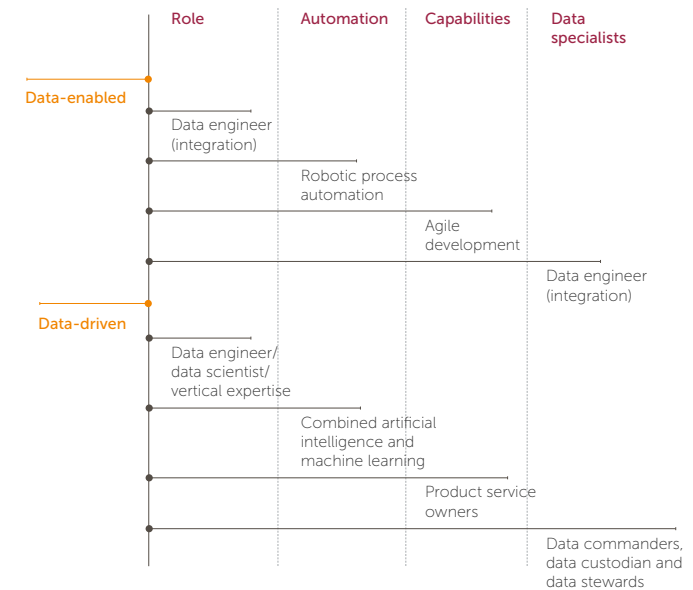|	Framework	Data sources	Collect data	Publish data	Security
Data-enabled	Tailormade	Internal	ELT workload	Point solution	Case by case
Data-driven	DataOps framework	Internal/ external	Data fabric/ pipeline	Advanced dashboarding with self-service portal	End to end, across all boundaries

Moving from a traditional on-premises and waterfall IT environment to a DataOps and Data Fabric operating model requires a wholesale transformation of business and IT resources and capabilities. For example, traditional ERP skills relating to SAP and ORACLE need to be complemented by expertise in Agile software development and data science.

Sourcing this specialist capability in today's competitive digital labour market can be extremely challenging. Help, however, is at hand: the 'CIONET Cookbook: Recipes for digital success'[3] describes the attributes of successful digital leaders and their teams in a data-driven business environment. Figure 7, meanwhile, describes the skills needed to succeed in digital business.

Figure 7
Acquiring the necessary skills and capabilities

Role	Automation	Capabilities	Data specialists
Data-enabled			
Data engineer (integration)			
	Robotic process automation		
		Agile development	
			Data engineer (integration)
Data-driven			
Data engineer/ data scientist/ vertical expertise			
	Combined artificial intelligence and machine learning		
		Product service owners	
			Data commanders, data custodian and data stewards

Data engineers and data scientist are critical to successful projects, but these individuals need to be complemented with vertical expertise to interpret the data.

Wine words:
Getting a taste for specialist knowledge

There are numerous qualifications you can aim for in the wine world these days. Retrain as a winemaker at Plumpton College, Sussex and get your hands dirty, or maybe study a Wine MBA at Bordeaux University and keep them clean! Perhaps the ultimate way to boost your standing is to join the select band of only 420 'Masters of Wine' around the world. Whichever path you choose, the old adage still remains true: 'The best way to make a small fortune in the wine world is to start off with a large one!'

Conclusion:
Five recommendations to operate data-driven business models

IT has a critical but not exclusive role in helping traditional organisations transition to a data-driven business model. Modern digital leaders (CIOs, CTOs and CDOs) must recognise their key position in achieving this vital transition.

Here are six best-practice recommendations that emerge from practical experiences drawn from Hitachi Vantara and the CIONET European community of 10,000 digital leaders:

1. Envision how businesses can move to 'everything as a service' by enhancing products and customer channels using software and data

2. Help solve wider business problems by identifying how modern tools, such as DataOps and DevOps, can generate innovative solutions

3. Promote a set of winning stories that can stimulate conversations with business partners and engender trust and confidence

4. Adopt suitable IT processes and architectures, such as DataOps and Data Fabric, that enable business staff to access the right data in the right place at the right time

5. Attract and motivate data science specialists to tackle business problems and identify opportunities with tangible outcomes in mind

6. Engage with an ecosystem of partners that includes both technical and vertical business skills

everything
as a service

Roger Camrass
Lead researcher

A pioneer of today's Internet as an ARPA research fellow at MIT in the seventies, Roger has spent over forty five years helping corporations harness the power of new technologies such as cloud, mobile communications, e-commerce, voice recognition and satellite. He was a partner at EY responsible for e-commerce during the dot. com boom. He is a graduate of Cambridge University and MIT, and a visiting professor at the University of Surrey.

rogercamrass.com

Tom Christensen
Global Technology Advisor & Executive Analyst at Hitachi Vantara

At Hitachi Vantara, Tom Christensen focuses on the information technology and services industry. He has more than 30 years of skilled experience in modernizing the data center for infrastructure including computing and storage to Hybrid-Cloud and Muliticloud, Application Modernization, Solution Applications, DataOps, and Big Data Analytics. Tom is also a blogger and advocate for Social Innovation.

tom.christensen@hitachivantara.com

Adrian Bucknall
Co founder of Wine Unearthed

Adrian Bucknall is the Co founder of Wine Unearthed - an IWC award winning provider of in person and virtual wine tasting events. He is passionate about demystifying wine and maintains that wine tastings should be a mixture of education and fun.

wineunearthed.co.uk

About CIONET

CIONET is the leading community of IT executives in Europe and LATAM. With a membership of over 7000 CIOs, CTOs and IT Directors, CIONET has the mission to help IT executives achieve their aspirations. CIONET opens up a universe of new opportunities in IT management by developing, managing and moderating an integrated array of both offline and online tools and services designed to provide real support for IT executives, so they can do more than just keep up with change but ultimately define it.

cionet.com

About Hitachi

Hitachi Vantara, a wholly-owned subsidiary of Hitachi, Ltd., guides our customers from what's now to what's next by solving their digital challenges. Working alongside each customer, we apply our unmatched industrial and digital capabilities to their data and applications to benefit both business and society. More than 80% of the Fortune 100 trust Hitachi Vantara to help them develop new revenue streams, unlock competitive advantages, lower costs, enhance customer experiences, and deliver social and environmental value.

To discover more visit
Hitachivantara.com

CIONET
What's next.