



Rethinking Analytics - Dealing with the K

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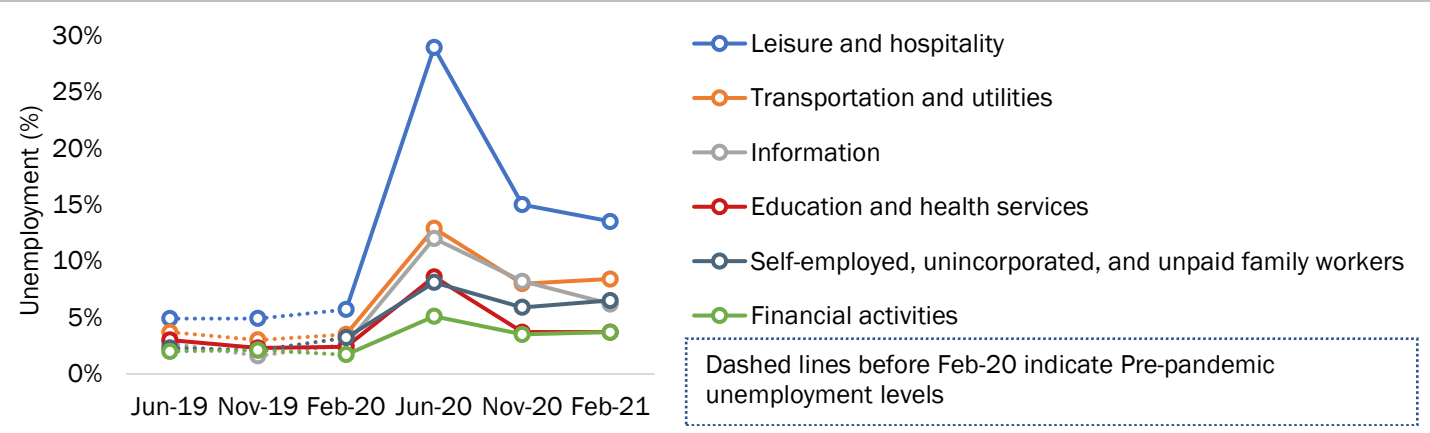
Executive Summary

Analytics is increasingly becoming the backbone of decision making across functional areas and industries the world over. We believe that this capability, which is often a key differentiator, is set to play a significant role in the new economic order established in the aftermath of the Covid-19 pandemic. The pandemic caused a physical and economic discontinuity in the marketplace, and the disruption presents new and uncharted ways for organizations to leverage analytics. In an increasingly digital world, managing these changes and rebuilding capabilities for the future will be the difference between the winners and losers, especially in the face of a steep K-shaped recovery. This white paper provides a framework for business leaders who are making critical decisions in the near term and long term regarding their analytical capabilities. **The future of businesses will be determined by how leaders can leverage analytics to make strategic decisions in the present.**

1.1. Assessing the Damage

Global GDP contracted by an annualized 4.4%³ in Q1, 2020 and then by an unprecedented **32.9%** in Q2, 2020. To put these numbers in perspective, the contraction was more than what ensued after the Great Depression and the Great Recession *combined*. The unemployment rates in the U.S. rose significantly as well. For instance, in the Travel and Leisure industry, the unemployment rate was **28.9%**⁴ in June 2020, and while it recovered to 15.9% by the end of January 2021, the magnitude is quite troubling. There are meaningful differences across other sectors as well, which we will discuss in the next section.

PANDEMIC-EFFECT ON UNEMPLOYMENT IN VARIOUS SECTORS⁴

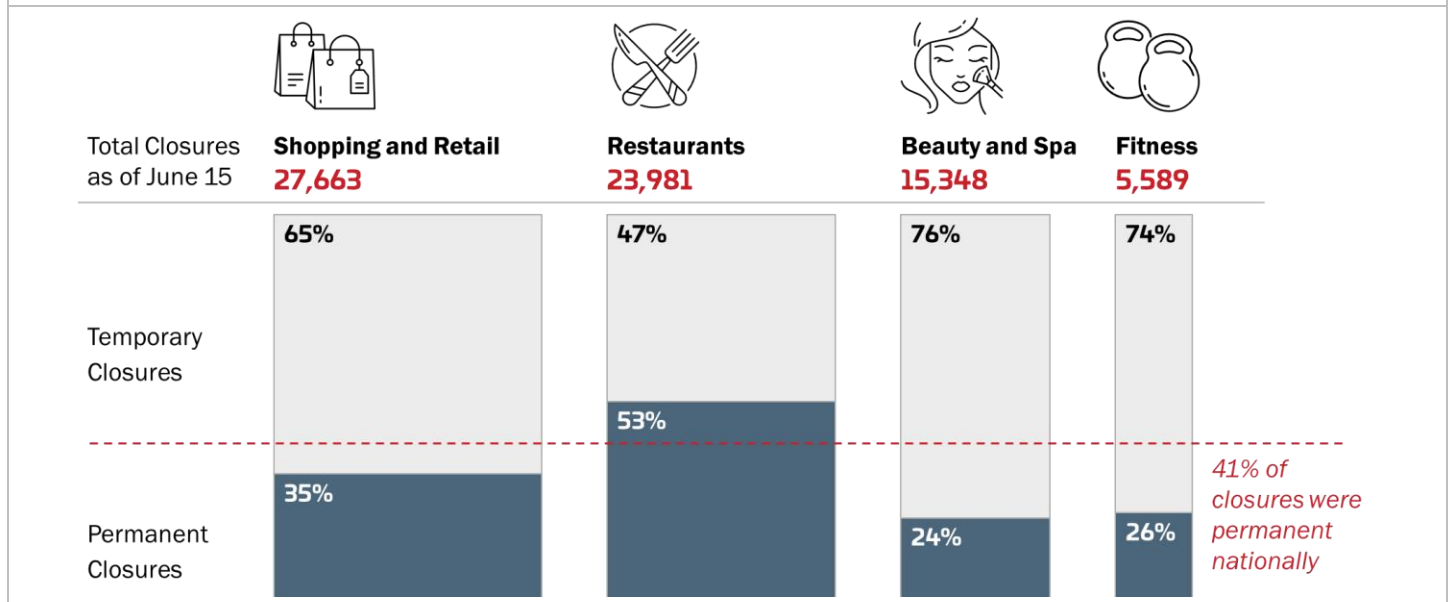


1.2. Sectoral Impact

Covid-19 impacted various sectors of the economy quite differently, and some much more severely compared to the impact of previous recessions. Consider the data below, from the peak of the pandemic:

RESTAURANTS AND RETAIL HAVE BEEN HIT HARDEST

Number of businesses marked temporarily or permanently closed on Yelp, but were open on March 1, 2020



³ U.S. White House economic data (<https://www.whitehouse.gov/articles/depth-look-covid-19s-early-effects-consumer-spending-gdp>)

⁴ U.S. Bureau of Labor Statistics (<https://www.bls.gov/news.release/empsit.t14.htm>)

If we look at the top 10 technology companies⁵ in the US, the equity value had soared 27.4% by the end of June 2020 and has risen 57% by the end of February 2021 from their respective levels at the end of February 2020, while revenues have grown 18% from the previous financial year.

On the other hand, for the top airlines⁶ in the US, the equity value had dropped 36% by the end of June 2020, recovering only marginally by 5% by the end of February 2021, from base-levels at the end of February 2020, while revenues for this cohort have seen a massive drop of 66% compared to the previous financial year.

1.3. Implication for Analytical Capabilities

The pandemic has brought about fundamental changes in the value chain of data and analytics. In an increasingly digital world, managing these changes and rebuilding capabilities for the future will be the difference between the winners and losers. We frame analytical capabilities using three pillars - descriptive (data creation), predictive (analysis) and prescriptive (action).

Raja Sengupta, Chief Executive of the Liens Solution at the market leader Wolters Kluwer, a pioneer of analytics, believes, *“Covid-19 has fractured the traditional sector or an SIC-based industry segmentation and approach to leverage data and analytics. There will be winners and losers in every industry, every geographic area, every business model. Therefore, to successfully address the post Covid-19 analytics landscape, the approach needs to be much more rigorous, far more nuanced and precisely targeted.”*

Data Creation

Data generation is directly linked to digitization (e.g., online purchases create more detail than their offline counterparts), sector dynamics (e.g., travel vs groceries) and the degree of organization in the sector (e.g., OTT vs. neighborhood restaurant). The current pandemic has created a seismic shift in consumer behavior with online and technology-oriented sectors seeing a huge spike in activity, while offline and less organized SME sectors are facing a cliff. The discontinuity caused by the pandemic has made the past a weak indicator of the future. And, as the core of all data analytics is pattern recognition, this makes an organization’s ability to absorb new data, parse, and find the lasting thread in this turbulence a key capability. As we will see in the subsequent commentary below, the impact of this dislocation in sources and types of data is far reaching.

Analysis

This is often the most talked-about part of the analytics value chain - not surprising given the exciting developments around new AI/ML capabilities. This capability is now faced with a reality in which the present is neither anchored in the past nor is it an anchor to the increasingly uncertain future. It also implies that organizations that can nimbly change their analytical “models” and dramatically shorten the cycle of “hypothesis-analysis-implementation-feedback” will emerge as leaders. Sudip Chakraborty, prior Global Head of AI and Analytics at the manufacturing giant Dupont, highlights that, *“Commercial teams have turned to a wide variety of digital technologies to enhance the relationship selling process. For example, they are using AR (Augmented Reality) and VR (Virtual Reality) technologies to provide virtual plant tours to prospects. They are also accelerating their use of AI/ML in pipeline management processes such as lead scoring.”* The shrinkage in the cycle time is a non-trivial capability as it touches on multiple facets of the organization - the way data is sourced (sources may need to be expanded and swapped frequently), how it is organized (categorization, tagging, enriching will have to be dynamic) and the way implications are drawn (what is signal and what is noise, types of errors, causality vs correlation). In addition, an agile organization would need a dynamic, scalable, and integrated technology architecture that can deal with all of the above.

Actionability

Analytics has become much more integrated with core business processes. This impact of analytics has only enhanced during the pandemic. For example, analytics is fundamental to predicting

⁵ Representative Technology companies include Apple, Microsoft, Amazon, Alphabet, Facebook, Visa, Nvidia, Mastercard, PayPal, Netflix

⁶ Representative Airline companies include Southwest Airlines, Delta Airlines, United Airlines, American Airlines, JetBlue Airlines

microchip requirements due to the spike in webcam demand and revamping of airline scheduling due to unprecedented slow-down in travel. This context of making long term decisions based on current turbulent data is akin to planning a flight without visibility of the destination. Organizations that build optimal nimbleness and forward-looking analytical infrastructure will be successful in maneuvering through the pandemic and post pandemic world. Those that establish tools and systems for dynamic resource allocation, flexible linkages with partners, responsive interface with the customers, a fluid capital structure, and a variable cost structure, stand a much better chance at success. Sengupta, a strong champion of agile infrastructure further stated, “Inter-operability, flexibility and agility in using the cloud will create winners and losers. Winners will provide fully hosted cloud solutions with 100% interoperability, standardizing data and insight interfaces so that it can be shared with high reliability, enhanced efficiency and maximum reusability.”

Sector Analysis Framework

We now dig deeper to assess the impact of leveraging analytics at a sector level. To make our analysis more actionable, we will look at the impact on the sectors across two dimensions – Data Centricity (the degree to which that sector generates and uses data in its business), and Physical Dependence (the degree of business dependence on physical interactions). The former is critical as it inherently impacts the analytical capability, while the latter captures how much the pandemic has impacted physical interactions. We will then overlay the three pillars of Data Creation, Analysis and Actionability to evaluate how each sector will need to evolve to leverage analytics for growth, and in some cases, survival, in the post pandemic world.

Classification of key sectors

EXHIBIT 1 – Classification		
Physical Dependency	<p>C</p> <ul style="list-style-type: none"> ▪ SMB Commerce ▪ Restaurants ▪ Personal Services ▪ Housing 	<p>B</p> <ul style="list-style-type: none"> ▪ Travel/ Hospitality ▪ Physical Entertainment ▪ Automotive ▪ Physical Retail
	<ul style="list-style-type: none"> ▪ Agriculture ▪ Oil and Gas ▪ Infrastructure 	<ul style="list-style-type: none"> ▪ eCommerce ▪ Financial Services ▪ Online Payments ▪ Search ▪ Social Media ▪ Gaming ▪ E-entertainment
	<p>D</p>	<p>A</p>
Data Centricity		

As noted earlier, the impact of the pandemic has been extremely divergent - Travel⁷ was still down 8.71% by the end of February 2021, from levels at the end of February 2020, while Video Communication/Digital entertainment⁸ saw a significant uptick of 92.49% for the same period. As Exhibit 1 shows, this was a direct impact of physical dependency, leading to a spike in alternate modes of communication. A distinct set of business realities have emerged, as summarized in Exhibit 2.

⁷ Representative Travel companies include United Airlines, and American Airlines

⁸ Representative Digital Entertainment / Video Communication companies include Netflix, and Zoom

EXHIBIT 2 - Implication

Physical Dependency	C	B
	<ul style="list-style-type: none"> ▪ Lower penetration of digital channels ▪ Lower capital reserves/fixed cost overhead ▪ Significant workforce displacement ▪ Demand patterns/habits changed 	<ul style="list-style-type: none"> ▪ Fundamental change/reduction in demand ▪ Economies of scale disrupted, change in infrastructure, fixed/variable costs ▪ Pandemic brought the future forward
	<ul style="list-style-type: none"> ▪ Fundamental change in the nature of demand ▪ Economies of scale disrupted ▪ Lower growth rates than historical trends 	<ul style="list-style-type: none"> ▪ Category expansion significantly faster than economy ▪ By definition, this would be a new customer base ▪ Rapid scaleup/investments needed
	D	A
Data Centricity		

Every sector will have to contend with a set of new realities, at the very least in overall economic activity (e.g., oil which is not directly impacted but demand contraction had a very severe impact) to a complete dislocation of the value proposition itself (e.g., travel, restaurants). However, the new realities are different for companies in these quadrants, as is the impact on the data analytics value chain and capabilities. Exhibit 3 summarizes these issues.

EXHIBIT 3 - Response

Physical Dependency	C (Inclusion)	B (Mitigation and Recovery)
	<ul style="list-style-type: none"> ▪ Need to rapidly embrace digital ▪ Lower fixed costs/faster adjustment to cash flow ▪ Cost effective data analysis tools needed ▪ Localization 	<ul style="list-style-type: none"> ▪ Accelerated need to model the new world ▪ Data “blackholes/turbulence” to be addressed ▪ Changing market dynamics need innovative pricing/targeting ▪ New point in fixed/variable cost
	D (Integration with Ecosystem)	A (Opportunity Grab)
	<ul style="list-style-type: none"> ▪ Integrate into the new ecosystem and data ▪ Shift in infrastructure and consumption dynamics need to be factored in ▪ Innovative analytics to address supply chains shifts 	<ul style="list-style-type: none"> ▪ Data is already a core competency - fierce competition expected ▪ Rapid scale up and expansion in capabilities ▪ Managing deluge of massive, uncharted data ▪ Models to capture share from companies in other quadrants
Data Centricity		

1.4. Quadrant A⁹ – Opportunity Grab

Stock Price since Feb 28, 2020*	Jun 30, 2020: +28.83% (Positive)	Nov 30, 2020: +56.11% (Positive)	Feb 28, 2021: +61.75% (Positive)
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As is evident from the above exhibits, sectors in this category are faced with a deluge of data, and opportunities. Between the digital access, digitization of almost all the key activities and remote work, these sectors are in the midst of a perfect tailwind. We recommend that the companies in this quadrant maximize opportunities by pursuing the following:

Creation – Scalability	The volume, breadth and novelty of data is immense for sectors in this category. At the same time, absorbing and making sense of all the data, which has spiked at an unprecedented pace during this pandemic, is critical. And if anything is more intense than the data flow in this quadrant, it is the ferocity and competence of competitors. So, we will likely see a fight for data dominance amongst these players. Given the explosive growth and relative nascent stage of companies, building a rapidly scalable data value chain will be critical.
Analysis – Nimbleness	This group is facing a breakneck pace of change in consumer demand, supply chains, product evolution and competitive landscape. This pandemic has created a discontinuity for both the past and the future. How companies deploy nimble self-learning models and applications that can deal with ever-changing context will be the key to survive and thrive.
Actionability – Innovation and Speed	These companies are digitally native, and their business model involves little physical movement. So, actionability is already quite high. Thus, while as a group the companies are very well poised, who wins among these is far from a given. These sectors are prone to a winner take all outcomes. So, in a counter intuitive way, despite being an opportunity rich quadrant, it will be a battle for survival. Innovation, digesting newer sources of data and speed will separate the winners from also-rans.

1.5. Quadrant B¹⁰ – Mitigation and Recovery

Stock Price since Feb 28, 2020*	Jun 30, 2020: -18.42% (Negative)	Nov 30, 2020: 6.21% (Positive)	Feb 28, 2021: 25.40% (Positive)
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This is the battered set, and no one knows where the chips will fall in the end. Companies from this quadrant face the exact opposite set of problems compared to those in Quadrant A. These companies have faced such a significant decline in demand that fixed costs and infrastructure are unsustainable. Additionally, future demand promises to look very different because of changes in consumer behavior. For example, global travel will likely never be the same and the growth trends for the mix of population between suburbs/urban areas has already shifted meaningfully. Here are our recommendations for players in this quadrant.

⁹ Representative companies for Quadrant A include Amazon, Walmart, The Goldman Sachs Group, JP Morgan Chase, PayPal, Facebook, Netflix, Google, Zoom, Apple

¹⁰ Representative companies for Quadrant B include Hyatt, Hilton, Marriott International, AMC Entertainment Holdings, The Walt Disney Company, General Motors Company, Ford Motor Company, United American Airlines, Johnson & Johnson, Pfizer

Creation – Prioritization With historical demand drying up, changing mix of customer base and evolving operating models, data sources are meager and in flux. For example, travel will pick up, but the mix could change; people and companies will need new real estate but in which locations is not clear. The key to managing through the pandemic and beyond is to be able cut through this current turbulence to find the thread of continuity in data and have a laser sharp focus on that.

Analysis – Dislocation modeling Separating a sustainable signal from noise is going to be key. In this quadrant, there is a long history of using data effectively and this strength will need to be re-purposed with the new normal to create relevant and sustainable insights. The companies that can marry the past with the emerging future will be the winners.

Actionability – Efficiency Companies in Quadrant B have suffered tremendous financial pressure. The stock-price of the representative companies had gone down by 18.42% by end of June, 2020 and recovered by 25.40% at the end of February, 2021 compared to February, 2020, and with increased financial pressures, these companies have to do more with less. Out of the many applications of analytics, these companies will have to pick one where the cost-benefit tradeoff makes most sense. For instance, is a 10-tier loyalty program worth it? Is that partnership with 20 credit cards impactful? Companies will succeed or fail depending on how they walk this fine line to create efficiency.

1.6. Quadrant C¹¹ – Inclusion

Stock Price since Feb 28, 2020*	Jun 30, 2020: -5.60% (Negative)	Nov 30, 2020: 3.27% (Positive)	Feb 28, 2021: 4.92% (Positive)
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Creation – Adoption and customization A large number of businesses in this quadrant are SMEs like spas and restaurants. In this segment, the key is to bring in the digital and data centric ecosystem into the business but with limited capital, unlike the larger, organized sectors of quadrants A or B. So, this sector will have to adopt standard tools rapidly and focus on cost effective customization.

Analysis – Localized Value Proposition Consumer behavior and the workforce in these sectors have been severely impacted. Additionally, the digital future has been thrust upon them. Therefore, recovery will require localized and targeted use of analytics. For example, a local restaurant is far better positioned to customize the menu for local events or demographics. So, the key will be to leverage situations unique to these companies – such as precise location data or microsegment preferences – to enhance their value proposition.

Actionability – Automation Effective recovery will require an actionable data strategy that can address the needs of customers as they go digital and the competition from centrally coordinated players, such as Amazon, intensifies. A winning strategy will essentially use a solution which is designed for a smaller scale, is cost efficient and fast. The only way to achieve such a strategy is to use better automation, whether it is around how to target customers, how to run operations, or how to price products and services.

¹¹ Representative companies for Quadrant C include *McDonald's Corporation, Yum Brands, Starbucks, American Tower Corporation, Simon Property Group*

1.7. Quadrant D¹² – Integration with the ecosystem

Stock Price since Feb 28, 2020*	Jun 30, 2020: -9.00% (Negative)	Nov 30, 2020: -0.13% (Negative)	Feb 28, 2021: 8.71% (Positive)
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Creation – **Holistic Integration**

This quadrant is unique because the sectors included here - infrastructure, oil and gas and agriculture, form the backbone of the economy. In terms of using analytics, these sectors have done so in a more or less closed system (with some exceptions). But these last few months of the pandemic have clearly shown how these sectors are interdependent with the overall economy. The top players in these sectors will have to successfully integrate their data sources with a broader ecosystem. For example, how does an oil company project their demand while factoring in the latest trends in physical infrastructure, remote working, shifting travel patterns, etc. In sum, the data sources for this quadrant will have to be more inclusive and expand to capture new signals from other industries.

Analysis – **Comprehensive**

Following up from the creation of data, the analysis will also need to incorporate indirect signals from other sectors. How does the rise in video conferencing demand connect to the demand for oil or the design of roads? The reality is that there are many indirect linkages and comprehensive analysis will require integrating external data with internal/traditional detailed data to predict demand patterns, pricing, capacity planning, logistics, supply chain etc.

Actionability – **Low Frequency/High impact**

The sectors in this quadrant have decisions that are less frequent but have very long timelines or deep capital needs– e.g., building an airport or a power station. The high impact actionability from the complex analysis as described above in this discontinuous environment will be key in deciding the high capital allocation. The analytical approach has to tie the large infrequent capital allocation decisions with frequent operational decisions (such as pricing or production volume). However, the core competence will have to be in making the right, large, irreversible decisions in the new context.

Conclusions

The trend towards increased data-centricity and closely correlated digital adoption was already rapidly growing even before the pandemic. The pandemic has drawn a striking bright line between the deep data centric sectors and those that had yet to fully absorb data and digital centricity. As it often happens, this shock has hastened the transition and enhanced the penalty to be left behind. On the surface, data natives are currently well-positioned but need to turbo-charge the transition, as the competition is fierce and the window of opportunity is shrinking, and the followers will catch up, as they almost always do. One of the great flywheels of economic and social structure is human habit and, among the many things, this pandemic has dramatically interrupted that very human habit. Since predicting human behavior is at the core of almost all business analytics, how companies transform their analytics supply chains and capabilities to address this change will decide the winners. Expect it to be an unpredictably fascinating journey.

¹² Representative companies for Quadrant D include *Exxon Mobil Corporation, Duke Energy Corporation, Archer Daniels Midland*

Sources

- i. S&P Capital IQ
- ii. Yelp Economic Coverage (<https://www.yelpeconomiccoverage.com/yelp-coronavirus-economic-impact-report.html>)
- iii. U.S. Bureau of Labor Statistics (<https://www.bls.gov/news.release/empsit.t14.htm>)
- iv. U.S. White House economic data (<https://www.whitehouse.gov/articles/depth-look-covid-19s-early-effects-consumer-spending-gdp/>)
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