



Building a Culture of Business Model Innovation:

Five Lessons From a Year
of Upheaval

Sponsored by



By Susan Etlinger, Altimeter

February 2, 2021

EXECUTIVE SUMMARY

Almost immediately after the 2020 global pandemic hit, the fault lines in business started to appear. Economic and political instability, climatic events, and myriad other factors destabilized markets, industries, and companies already contending with systemic change. As a result, leaders were forced to make quick decisions to enable their organizations to withstand an undetermined period of crisis, even as they assessed the long-term impact to their business models.

As we assess the lessons of 2020 and plan for the future, it becomes evident that many of the underlying assumptions about the nature of business are no longer relevant. This report, informed by a range of industry leaders and scholars drawn from the architecture, engineering manufacturing, media, and technology industries in North America, Asia Pacific, and EMEA, offers expert advice on how to approach business model innovation going forward. It includes lessons learned during the past year, implications for business model innovation, and recommendations to aid leaders in reimagining their business strategy for disruptive times and beyond.



TABLE OF CONTENTS

- EXECUTIVE SUMMARY** **1**
- INTRODUCTION** **3**
- FIVE LESSONS FROM 2020** **4**
 - Lesson 1: Instability Is a Fact of Life 4
 - Lesson 2: Even the Smallest Behavioral Changes Build Resilience and Unlock Creativity 4
 - Lesson 3: Dynamic Markets Require More Agile Organizational Models 5
 - Lesson 4: Investing in People Is Essential to Business Model Innovation 6
 - Lesson 5: Trust Is Foundational to Digital Business 7
- BUSINESS MODEL IMPLICATIONS** **9**
 - The Value Proposition 10
 - The Operating Model 11
 - Strategies for Value Capture 15
- FIVE RECOMMENDATIONS FOR LEADERS** **18**
 - 1. Business Model Innovation 18
 - 2. Strategic Planning 18
 - 3. Organizational Enablement 18
 - 4. Optimizing the Relationship Between People and Technology 19
 - 5. Data Strategy and Digital Trust 20
- METHODOLOGY** **21**
- ENDNOTES** **22**
- ABOUT US** **23**
 - About Susan Etlinger, Senior Analyst 23
- DISCLOSURE** **25**
- PERMISSIONS** **25**
- DISCLAIMER** **25**



INTRODUCTION

Even as the world grapples with the COVID-19 pandemic, the structure of business, and the way we live and work, is experiencing a massive period of upheaval. Whatever you call it — The Digital Age, The Fourth Industrial Revolution, or something entirely different — we are moving from the linear and hierarchical model of industrialization to an interconnected ecosystem of markets, regions, businesses, goods, and people.

While much of this change has been underway for some time, the pandemic exposed areas of fragility across multiple dimensions. Healthcare, education, transportation, business, commerce, technology, financial, and social systems were all affected, prompting a reevaluation of fundamental assumptions and the policies, processes, and technologies that support them.

Vaccines and other safety measures have the potential to restore some sense of stability, but there is no going back to where we

were in early 2020. There will be no “new normal”; instead, the opportunity is to use this experience to take stock of the areas of fragility in existing business models and use what we’ve learned to build more modern and resilient organizations.

But risk mitigation is only half the battle. The other half is to envision business models that not only defend against disruption, but enable innovation and value capture. To do that, we must also use this experience to reimagine new markets, new product and service offerings, new sources of revenue, and, most importantly, a new value proposition for a connected world beyond COVID-19.

It is still too early for a clear roadmap, but there are encouraging indications to be found. The following pages contain insights from leaders, scholars, and industry experts on what they’ve learned during the past year that can inform how organizations can transform their business models for greater impact and resilience in the future.

FIVE LESSONS FROM 2020

As we review the events of the past year, it is evident that the three key elements of business model innovation — value propositions, operating models and value capture imperatives — are simultaneously in a state of flux. Following are the most salient lessons.

Lesson 1: Instability Is a Fact of Life

The pandemic, in addition to political, climatic, and other factors around the world, demonstrated the importance of accounting for externalities — even unlikely ones — in the strategic planning process. “What we have seen,” says Marco Annunziata, Co-Founder at Annunziata + Desai Advisors and former Chief Economist at General Electric, “is a recognition of vulnerabilities in the current setup of globalization. Now we realize that having a very complex system of global

supply chains exposes you to a specific set of risks.”

But even the pandemic was not an isolated event. “Climate change and climate crisis,” says Mary L. Gray, Senior Principal Researcher at Microsoft and 2020 MacArthur Fellow, “mean that we will have more pandemic cycles that require us to rethink how and when we physically connect.” This means shifting the way we think about and plan for disruption from a discrete risk or crisis mindset to an ambient feature of the environment, as well as conducting more expansive scenario planning as a part of business strategy.

Lesson 2: Even the Smallest Behavioral Changes Build Resilience and Unlock Creativity

Virtually overnight, businesses from small architecture to global construction firms moved essential processes to the cloud. Companies large and small shifted to



digital collaboration, learning, design, and automation tools, in many cases more quickly and easily than they had anticipated. But while successfully adopting new tools is an important step, expanding the capabilities of the business is where real value lies.

“We saw that the tooling to do people’s jobs accelerated very fast in 2020,” says Nuzrul Haque, Vice President of Information Technology at SNC-Lavalin, “but the social aspect was exponential in its uptake as well. People really learned how to use this penknife to create a chess piece. It’s not just about the technology. That way of working — of showing documents as opposed to emailing everything to everyone — has changed. I think that’s a really good thing and can only get better, because people now see the art of the possible in using digital tools to do their everyday jobs.”

While this may seem like a small victory, it — along with digital brainstorms, collaborative design methodologies, and contextual learning — is one of many behavioral building blocks that, taken together, enable companies to build the confidence and dexterity to imagine more innovative ways of working.

Lesson 3: Dynamic Markets Require More Agile Organizational Models

It is becoming increasingly evident that the structure of business as it exists today no longer meets the demands of the digital age. While markets and industries are dynamic and interconnected, businesses for the most part still operate based on hierarchies and silos that have their roots in the Industrial Revolution. The result is a “sandwich generation” in which businesses — pressed between dynamic market imperatives and inflexible business realities — struggle in the face of constant change.

Says Amy Marks, Head of Industrialized Construction Strategy and Evangelism at Autodesk, “We are in a very siloed ecosystem. Think about those silos; it’s not like businesses can’t eliminate them. That would be easy but for the fact that business models have been set up around them. Process, tools, and training reflect this disconnect. Metrics, workflow, and even software have been set up around them — even sometimes automating inefficiencies. Varying and sometimes opposing definitions of value are stuck within these silos, creating both digital and physical waste.”



We see this rigidity play out across a number of dimensions:

- **Financial and strategic planning:** The tension between quarterly financial reporting versus long-term strategy;
- **Hiring and resourcing:** Dynamic resource needs versus rigid hiring practices;
- **Decision-making:** The need for empowered decision-making versus hierarchical organizational models;
- **Technology and data strategy:** The value of a common data environment versus siloed tools and proprietary data; and
- **Legal and contractual requirements:** The value of ecosystem development versus rigid corporate contracts.

The main barrier to changing these organizational norms, says Marks, is fear of the unknown. “Until you can help somebody understand that they can make money and generate value differently, they won’t change because it’s too scary.”

Lesson 4: Investing in People Is Essential to Business Model Innovation

The pandemic has exposed and accelerated two structural changes in our society that are 20 years in the making, according to Microsoft’s Gray:

1. Information and service-driven economies depend on legions of workers — food service, daycare, creative, manual, and healthcare workers — all of whom are essential to our economy but whose fates rise and fall with consumer demand.
2. Few businesses are using Artificial Intelligence (AI) to fully automate. They’re combining algorithms, Application Program Interfaces (APIs), and the Internet to contract work out, letting computers schedule, manage, ship, and deliver billed tasks that can be picked up by people surfing for work online 24/7 around the globe.¹

“COVID-19 has shown every business that it can meet at least some of its labor needs through these on-demand, task-based work arrangements,” says Gray. “These are not niche jobs that are going to go away when the



pandemic passes or with the advancement of AI. We are living through the tech-enabled unraveling of full-time employment itself.”

What this comes down to, says Annunziata, is a systemic undervaluing of people. “I think we underestimate the role that humans can play in pretty much any economic context,” he says. “Whether it’s a construction or manufacturing company, we tend to fall in love with the technologies, and underestimate the productivity impact that comes from human capital. On top of that — or partly because of it — we underestimate the importance of long-term investment in people.”

Annunziata believes that under-investing in people leads to a range of negative impacts. “I think we will see an acceleration of the skills gap and the inadequate growth of human capital,” he says. “So if you are a leader, another approach to business model innovation has to be, ‘how do I take greater control and responsibility for the growth and nurturing of my own human capital, whether that involves the educational system or learning and training systems at my company?’ But, ultimately, it requires leaders to figure out how to create the talent they need, both now and over the next 10 years.”

“We underestimate the role that humans can play in pretty much any economic context.”

– Marco Annunziata, Annunziata + Desai Advisors

Says Microsoft’s Gray, “If we’re moving to a world of distributed work, the best thing we could do is be really invested in individual contributors.”

Lesson 5: Trust Is Foundational to Digital Business

One of the definitive takeaways of 2020 was that it is possible for distributed work to succeed, at least in certain areas and for certain types of activities. At the same time, distributed work raises issues not only of logistics, but of culture. Trust — in several contexts — was a common thread among many of the leaders Altimeter interviewed.



Trust Among Peers, Employees, Leaders, Departments, and Teams

Even in organizations with an established history of distributed work, the change from working in remote offices to, in many cases, working from home required teams and leaders to adapt. Says Hilda Espinal, Chief Technology Officer at CannonDesign, “I remember an early call with my executive management peers at CannonDesign where there was initially real anxiety about how we would know if people were spending their time efficiently and appropriately. That was a natural response given how rapidly we were forced to change. It really was just about allowing us to build trust in each other and our new reality. And, if you look at the situation now, it’s worked. That’s not to say that it wasn’t done without some measures like increased meetings or calls, and people had different levels of comfort. It was a shift that we’ve navigated well.”

There is also the question of trust in relation to teamwork. “For us, there had been an entrenched geographical focus for building teams, so we always indexed towards building them from the people who were immediately proximate to us,” said Randy Howder, Principal and Manager Director at Gensler. “Now we

have the opportunity to deliver more value to clients by building the right team regardless of location, and there’s more openness to that. We always talked about it, but we didn’t always do it effectively — and now it’s happening.”

Data and Digital Trust

As we incorporate more digital ways of working, access to data, data integrity, and a single source of truth for the data that underlie enterprise systems become critical not only to the success of discrete projects, but to trust in the business ecosystem overall. There is also the question of responsible data use across the data value chain, from research to collection, modeling, analysis, use case decisions, intellectual property implications, and disclosure.

“We live in a world,” says Paul Murphy, Information Services Leader – Asia Pacific at GHD, “where people are not trusting some of the large data aggregators because of monopolistic behavior, and that’s a major challenge. So we need to look at questions such as how we create responsible data usage and appropriate visibility of the models that we are building with the data. And we need to do it in a way that enables people in a non-technical space to grasp some of that technical complexity.”

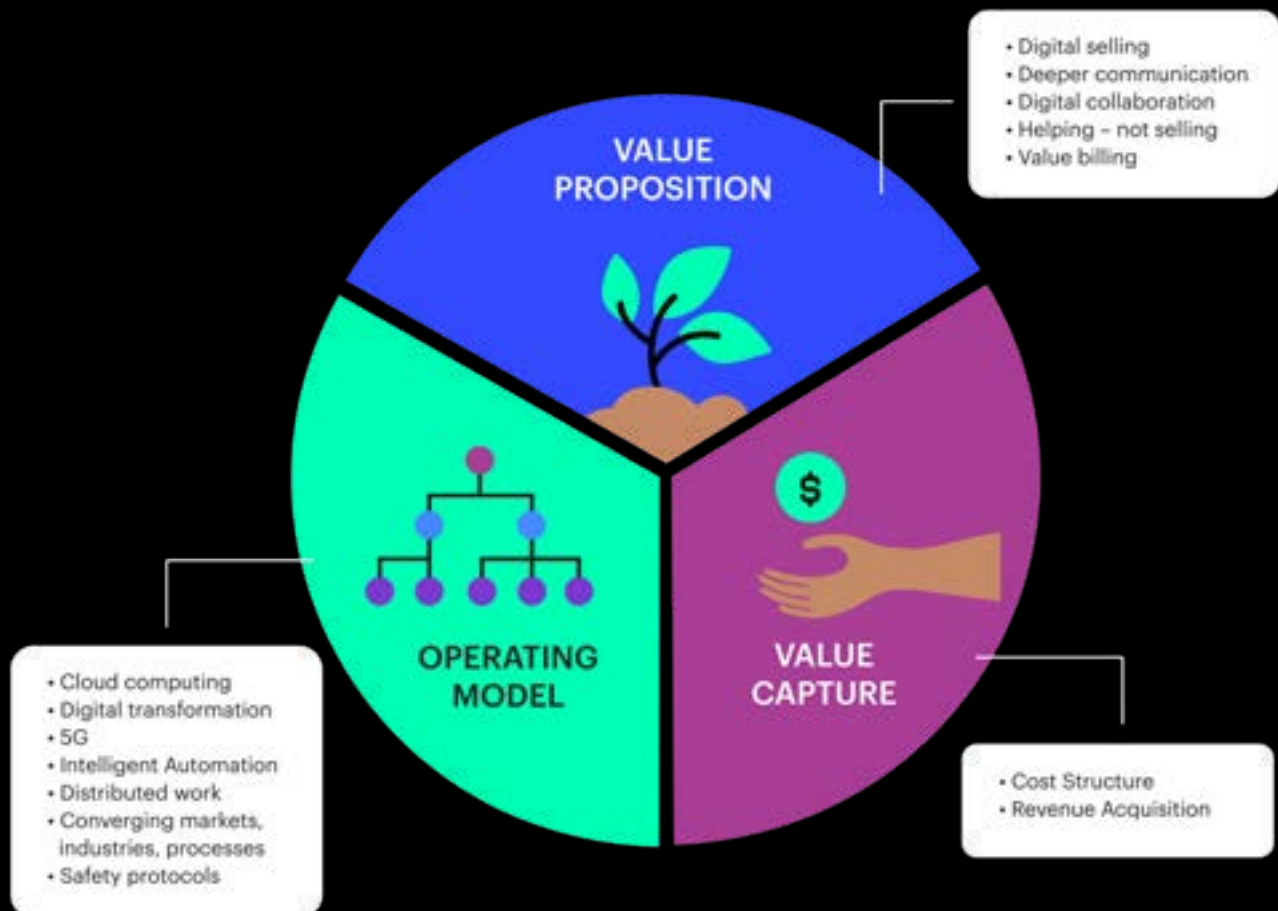
BUSINESS MODEL IMPLICATIONS

As we assess the lessons of 2020 and plan for the future, it becomes evident that many of the underlying assumptions about the nature of business are no longer relevant. Some of this change was already underway, some was in response to COVID-19, and some was exacerbated or accelerated by the pandemic. But perhaps the greatest magnitude of change is simply the sheer interconnectedness of everything: the environment, governments, markets, societies, businesses, and — as COVID-19 made clear — human beings.

While there are hundreds if not thousands of approaches to business model innovation, most tend to focus on the following elements: a **value proposition** (what is being delivered, to whom and at what cost); the **operating model** (resources and processes) needed to deliver on the value proposition; and a way for the organization to **capture value**.²

Today, all three elements — value propositions, operating models, and value capture imperatives — are simultaneously in a state of flux (see Figure 1):

Figure 1: Components of a Business Model





The Value Proposition

What business-to-business (B2B) customers want has shifted markedly in response to COVID-19 and other factors. Faced with new challenges, B2B customers today prefer digital collaboration, more insightful relationships with providers, and to be helped rather than sold to, particularly during times of instability.³ Said Takeshi Kawamoto, Corporate Officer at transcosmos: “Last year, the sense of partnership between our customers and us to work together became stronger.”⁴

At the same time, what customers need is shifting as well. Whether it is the ability to pivot to manufacture different products such as PPE; spin up a 24/7 fulfillment operation; more easily configure and sanitize space; visualize the financial, cost, and time impact of design decisions; reuse products, components, or data;

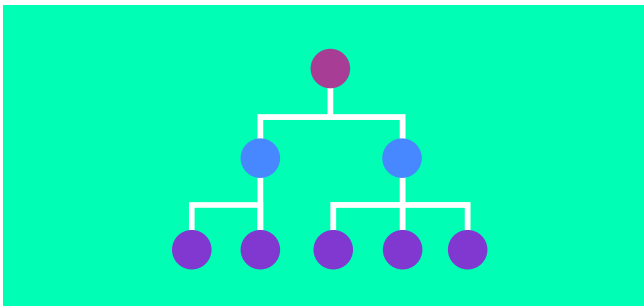
or prefabricate or mass-customize products, customers need the infrastructure, skills, and knowledge to reimagine their businesses for an unprecedented level of agility.

As markets converge and needs shift, so do expectations of exactly what customers will pay for. Says GHD’s Murphy, “Everyone is looking at this age-old question: Is billing with time obsolete? I think the bigger reality is that people will still be involved in process and delivery. So people will continue to be used, and will remain critical resources. It’s just a question of whether or not you bill and consume time as the resource or you’re billing the value that’s created by that individual within a block of time.”

“Last year, the sense of partnership between our customers and us to work together became stronger.”

– Takeshi Kawamoto, transcosmos

Value-based rather than time-based billing could become an incentive not only for vendors and partners to align their value proposition more closely with customers but also a way to more accurately assess the monetary value of upskilling and reskilling employees. Says Murphy, “You could look at it almost as having skills or capability multipliers for different types of resources.”



The Operating Model

Operating models are experiencing perhaps the greatest pressure in response to this upheaval. There is hardly a critical resource that

wasn't affected in some way by the COVID-19 pandemic or that wasn't already in flux at the beginning of 2020. Distributed work, cloud computing, digitalization, and the emergence of 5G either have radically changed or will change the structure of work and the imperatives for organizations in the future.

But while COVID-19 will eventually become less of a factor, there are a number of more durable changes to consider. One is the way technology helps to shape organizational norms, and vice versa. While technology solutions have their roots in specific departmental functions — think Customer Relationship Management (CRM) for sales or Business Intelligence (BI) for finance — the opportunity today, especially in a distributed work environment, is to enable stakeholders from different disciplines to collaborate across time and space and solve different types of problems.





“Technology is necessary, but it’s not sufficient for changing how you do the hard work of organizing inside companies and on big projects.”

– Gina Neff, Oxford University

This is not a new challenge, but it has become a critical one. The study *Innovation Through Practice: The Messy Work of Making Technology Useful for Architecture, Engineering, and Construction Teams* lays out a decade's worth of empirical research on the relationship among these disciplines.⁵ The authors analyzed the impact of technologies such as Building Information Modeling (BIM) on collaboration and decision-making among design and construction teams, finding, among other things, that visualization tools can help accelerate collaboration among stakeholders.

Technology Alone Does Not Change Practice

But while technology tools such as BIM are accelerating collaboration, there is still work to be done to enable real process innovation. Says Gina Neff, Professor of Technology and Society at the Oxford Internet Institute and one of the report’s co-authors, “Technology is necessary, but it’s not sufficient for changing how you do the hard work of organizing inside companies and on big projects.” To enable that kind of change requires organizational support for multidisciplinary teams made up of engineers, architects, construction professionals, and others who “are trained in different approaches, processes, and methods for problem solving.”⁶

Data as an Enabler of Value Creation

Another enabler of business model innovation is the way organizations treat data and how those decisions affect not only project delivery, but innovation. SNC-Lavalin’s Haque believes that the ability to generate value lies in the institutional knowledge that data preserves and the reuse it enables both during a project and over time. “We engineer bridges,” he says, “and



engineering bridges is problem solving: You have a river of this size and land of this clay or stone, and you have to work out how the bridge will be engineered.

“Now imagine that, as a company with a 100-year history, we’ve built many of the bridges. Suspension bridges may use new materials today, but they’re no different to when the Romans built them. That institutional knowledge is somewhere, but in a global organization, you don’t just have one team building all the bridges; you want to be able to exploit institutional knowledge more systematically. That comes before machine learning — that’s human learning.”

The value of data is not simply confined to its value for project delivery; it can act as an engine for value across the business, extending to the communities the data support. For example, says Wong Heang Fine, Group CEO at Surbana Jurong Private Limited, “We use data to manage some of our mission-critical facilities in Singapore more effectively. For example, we remotely monitor the quality of

the water that comes out of our treatment plant and take proactive steps so that when it exits the plant there is very little deviation from the specifications that we initially set up.

“In the past, we had to wait for the water to be fully treated, then we would test it. Now we don’t need to do that; we can intervene earlier in the process. We also monitor approximately 26,000 lifts in our public housing estates, so we’re able to predict which of the lifts will be down and use that information to develop the maintenance schedule.”

In addition to intelligent automation and prediction, organizations use data for a number of other use cases, including institutional knowledge transfer, customization and personalization, reuse, product and service innovation, and, ultimately, true business model innovation. But the ability to accomplish those goals, say the *Innovation Through Practice* report authors, requires the deliberate and sustained support of leaders.



“We don’t live in a closed world. You don’t build a bridge in one place — you build it from one place to another. All of this is about connection”

– Nuzrul Haque, SNC-Lavalin

“Data will always require some kind of work to translate from one context to another,” says Oxford’s Neff, “whether it is from architectural design to engineering design or from construction to operations. For the industry, this means that there is a need for intentional investment in both the social and technical interfaces of interaction around the exchange of data.”⁷

Reuse Requires Open Data Standards

It’s not just organizational data that is valuable. Open data is another enabler of reuse. “The AEC industry is about assets — a road, building, train station, or railway,” says SNC-Lavalin’s Haque. “And that asset has a life span. And during that lifespan someone will design it, someone will build it, and then someone will look after it. But that data is not exchanged very well because it’s not in an open data format. So if we want to have a future where we understand an asset, that data needs to be of a standard that can be reused by enterprises.

“We don’t live in a closed world,” he continues. “You don’t build a bridge in one place — you build it from one place to another. All of this is about connection. I’m quite optimistic about that future, but there are steps to get there.”



Strategies for Value Capture

One of the most significant trends of the past decade has been the shift from on-premise to cloud-based technology, whether in the form of enterprise technology platforms or consumer services such as Netflix and

Spotify. But these changes haven't simply been confined to digital products. The ability to charge for access — and the subscription model it entails — has also inspired a range of businesses, from manufacturers such as John Deere and personal care companies such as Hairstory, to think about how they capture value for their own products — whether they are crop tractors or shampoo.

Figure 2 offers some examples of business models that companies in AEC, manufacturing, automotive, media, and other industries might explore in the short and long term.⁸

Figure 2: Business Model Examples

COST STRUCTURE	
Opportunity	Impact
Prefabrication (productization and adaptive reuse of data and components)	Reducing waste, economies of scale
Workflow coordination	Reduced delivery time, improved quality, compounding advantage over time
Intelligent automation	Economies of scale, institutional knowledge, better allocation of resources
Supply chain automation and innovation	Improved resilience, reduced risk
Visualization and digital twin functionality	Accelerated design time, stakeholder alignment, reduced cost and time to completion

REVENUE	
Opportunity	Impact
Personalization and mass customization	Customer loyalty, competitive advantage, quality control, cost control
Data licensing / data as a service	Competitive advantage, customer loyalty, new market opportunities, recurring revenue
API licensing	New market opportunities, recurring revenue, ecosystem development
Peer-to-peer models that enable dynamic matching of resources and needs	New market opportunities, competitive advantage
Ecosystem/multi-brand model, bringing adjacent capabilities together via partnership	Better value proposition, competitive advantage, stronger ecosystem, resilience

The opportunity is more than just experimenting with existing business model typologies, however. It's important to imagine completely new models as well. "Subscription is a well-developed muscle," says Hilmar Koch, Director of Strategic Foresight at Autodesk, "and sometimes may hold the industry back from thinking about other types of opportunities. For example, companies are going to connect all of their manufacturing, all of their design and make, and other processes to their business systems."

And, he says, "you can instrument that which is digital. Connecting sensors with digital processes is probably even more important so business systems can understand how data flows and then find opportunities to optimize that. Once everything is digitized and connected, you can build a new kind of company — maybe take supply chain from one industry, specialization from another, and produce something that no one else can replicate."

Ultimately, says Koch, “for true business model innovation to occur, it will need to go beyond subscription. It will need to go beyond consumption. It also needs to be respectful of value that isn’t immediately monetized.”

Michael McWatters, Director, Product Design at HBO Max, observes a similar opportunity in the media industry. “If the data in GitHub, Figma, and other collaborative tools is open and accessible to your teams, then you have a historical record. You have potentially untapped institutional knowledge for the next project.

“Once you have that, you can say, ‘Well, wait a minute. We have all this data that describes this particular set of processes, but we’re not

really doing anything with it and it’s not being used as a solution for other challenges and opportunities. Why don’t we build one?”

“For business model innovation to occur, it needs to go beyond value that can be immediately monetized.”

– Hilmar Koch, Autodesk



FIVE RECOMMENDATIONS FOR LEADERS

Even — perhaps especially — in a climate of noise and distraction, there is an opportunity for leaders to think more expansively about the value their companies can provide and begin to test their hypotheses. The following are five recommendations to get started.



1. Business Model Innovation

Don't be overly constrained by business model typologies or influenced by what has worked in the past.

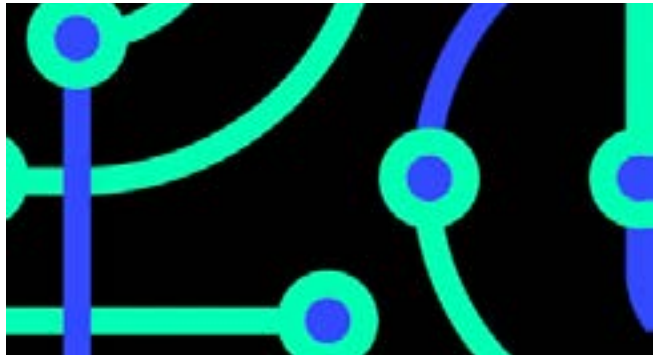
While it's important to draw inspiration from existing literature on business model innovation, the context in which organizations operate is in flux. In addition, conduct an inventory of areas of strength and fragility and take time for white space ideation. This does not have to be — nor should it be — a management-only exercise. There are likely to be many untapped creative ideas among the people who are closest to the customer, processes, and technologies and who are less constrained by the daily realities of executive leadership.



2. Strategic Planning

Foster a culture of scenario planning.

Strategic planning is not just for finance; planning against risk and opportunities needs to happen across the business. Build and scale organizational capacity for scenario planning — both risk and opportunity based — to capture and socialize topics from multiple angles. This can help surface issues much more quickly and reduce the potential for unexpected impacts.⁹



3. Organizational Enablement

Identify and prioritize areas where silos constrain distributed work and innovation.

Organizations around the world have begun to learn how to build capacity for distributed work, but truly understanding the impact of these efforts will require a concerted effort to test, measure, and learn. In 2021 and beyond, the opportunity is to collect and assess both qualitative and quantitative data on the direct

and indirect impacts of these changes to everything from the customer experience to project delivery to employee retention.



4. Optimizing the Relationship Between People and Technology

Start with strategy to determine the right balance of human and technology investment.

One of the most critical decisions to be made in digital business is about the optimal relationship between humans and intelligent automation. Says Marco Annunziata, “Think about how, looking forward, your company could produce more value and generate more money. If you

begin the conversation by asking ‘How can I introduce technology to take over a bigger piece of what I’m doing today?’ it almost by definition creates zero-sum-game thinking and pushes humans out of the equation.”

Instead, he counsels, leaders should start by assessing their product and service offering and the growth it provides, then imagine what else could be possible and where intelligent technologies or robotics could play a part. “In many cases,” he says, “the first reaction is to think that AI can be the magic solution to anything from a specific problem to most of the challenges you face within the enterprise. And it takes a little bit of learning and seeing artificial intelligence at work to better understand its limitations and, in a more thoughtful way, realize how exactly it can be applied in the business.”

Ultimately, he says, “the core is this: How do we emphasize to management that investment in human capital will pay off even more than any investment in artificial intelligence you can make?”





5. Data Strategy and Digital Trust

A culture of trustworthy data use is foundational to business strategy.

The ability to enable business model innovation and build digital systems, assets, ecosystems and ways of working relies on data quality and integrity. This necessitates understanding its provenance, the processes by which it was collected and modeled, its accessibility, terms of use, and the steps taken to ensure that it was properly collected, processed and audited for unwanted bias.

It's not unlike a water or food system; decisions made early in the process can have long-term and far-reaching effects. As a result, leaders need to approach data strategy as foundational to digital business strategy and empower the organization to treat it not as a by-product of critical processes, but as a valuable raw material.

That said, it's also important to remember that no matter how well managed, according to the authors of the *Innovation Through Practice* report, "data are not absolute; they are constructed in team and firm processes. Whether it is a BIM manager looking to consolidate a subcontractor's models, an energy modeler seeking to improve building performance, or an operations engineer looking to use design documents, they must use reflection, creativity, patience, and expertise to make data-driven tools work and create new ways of working that leverage new technologies for more effective and innovative collaboration and communication."



METHODOLOGY

This research report was developed based upon online and in-person conversations with experts, practitioners, technology vendors, investors, and others involved in architecture, manufacturing, engineering, construction, real estate, media and entertainment, and design, as well as secondary research, including relevant and timely books, articles, and news stories. Our deepest gratitude to the following:

- Annunziata + Desai Advisors, Marco Annunziata, Co-Founder
- Autodesk, Amy Marks, Head of Industrialized Construction Strategy and Evangelism; Hilmar Koch, Director, Strategic Foresight Practice Group
- CannonDesign, Hilda Espinal, Chief Technology Officer
- Gensler, Randy Howder, Principal and Managing Director; Hao Ko, Principal and Managing Director
- GHD, Paul Murphy, Information Services Leader – Asia Pacific
- HBO Max, Michael McWatters, Director, Product Design
- Microsoft Research, Mary L. Gray, Senior Principal Researcher; Fellow, Harvard Berkman Klein Center for Internet and Society; 2020 MacArthur Fellow
- SNC-Lavalin, Nuzrul Haque, Vice President, Information Technology
- Surbana Jurong Private Limited, Wong Heang Fine, Group Chief Executive Officer
- transcosmos, Takeshi Kawamoto, Corporate Officer
- University of Oxford, Gina Neff, Professor of Technology and Society, Oxford Internet Institute

All findings and analysis are independent and represent Altimeter’s body of research.

ENDNOTES

- ¹ For more on this dynamic, see Gray, Mary L. "COVID-19 Unraveled the Workforce: Here's How to Fix It." TED2020. July 6, 2020 (https://www.ted.com/talks/mary_l_gray_covid_19_unraveled_the_workforce_here_s_how_to_fix_it).
- ² This report draws from several approaches to business model frameworks as follows: Lindgardt, Zhenya; Reeves, Martin; Stalk, George; Deimler, Michael S. "Business Model Innovation: When the Game Gets Tough, Change the Game." Boston Consulting Group. December 2009 (https://image-src.bcg.com/Images/BCG_Business_Model_Innovation_Dec_09_tcm56-121706.pdf). Price, Richard. "Elements of a Business Model." Christensen Institute. October 3, 2017 (<https://www.christenseninstitute.org/blog/incentives-101-higher-eds-financially-responsible-mess/elements-of-a-business-model/>).
- ³ For a deeper analysis of the impact of COVID-19 on customer relationships, see Etlinger, Susan. *The Future Is Distributed: Customer and Employee Relationships in the Digital Age*. Altimeter. December 15, 2020 (https://damassets.autodesk.net/content/dam/autodesk/drafrtr/12384/Altimeter_2020_Strategies%20for%20Resilience%20in%20Disruptive%20Times_v5.0.pdf?av=20201210211435).
- ⁴ For a more detailed analysis of the impacts both to people and the workplace, see the first two reports in this series: Etlinger, Susan. *Strategies for Growth in the Reimagined Workplace* and *The Future is Distributed: Customer and Employee Relationships in the Digital Age*. (<https://www.autodesk.com/campaigns/altimeter-report>)
- ⁵ Dossick, Carrie; Osburn, Laura; Neff, Gina. "Innovation Through Practice: The Messy Work of Making Technology Useful for Architecture, Engineering, and Construction Teams." *Engineering Construction and Architectural Management*. February 21, 2019 (<https://www.emerald.com/insight/content/doi/10.1108/ECAM-12-2017-0272/full/html>).
- ⁶ Ibid.
- ⁷ Ibid.
- ⁸ Business Strategy Hub offers a useful list of 50 types of business models, which may inspire additional thinking: <https://bstrategyhub.com/50-types-of-business-models-the-best-examples-of-companies-using-it/>.
- ⁹ For more on scenario planning, see Etlinger, Susan. "How CFOs Orchestrate a Resilient Business at a Time of Peak Uncertainty." Redshift. October 13, 2020. (<https://redshift.autodesk.com/resilient-business/>).

ABOUT US



About Susan Etlinger, Senior Analyst

Susan Etlinger is a globally recognized expert in digital strategy, with a focus on artificial intelligence, technology ethics, and data. In addition to her work at Altimeter, Susan is a senior fellow at the Centre for International Governance Innovation, an independent, non-partisan think tank based in Canada, and a member of the United States Department of State Speaker Program. She works with clients to assess the impact of AI and other advanced technologies on business and to identify use cases, opportunities, risks, and organizational and cultural considerations. She also works with technology vendors to refine product roadmaps and strategies based on her independent research.

In 2019, Susan was named one of 100 Brilliant Women in AI Ethics by Lighthouse3, a strategic research consultancy focused on AI. Her TED talk, “What Do We Do With All This Big Data?” has been translated into 25 languages and has been viewed more than 1.3 million times. Her research is used in university curricula around the world, and she has been quoted in numerous media outlets, including *The Wall Street Journal*, *The Atlantic*, *The New York Times*, and BBC. Susan holds a bachelor’s degree in rhetoric from the University of California at Berkeley.

About Altimeter, a Prophet Company

Altimeter is a research and consulting firm owned by Prophet Brand Strategy that helps companies understand and act on technology disruption. We give business leaders the insight and confidence to help their companies thrive in the face of disruption. In addition to publishing research, Altimeter analysts speak and provide strategy consulting on trends in leadership, digital transformation, social business, data disruption, and content marketing strategy.

About Autodesk

Autodesk makes software for people who make things. If you’ve ever driven a high-performance car, admired a towering skyscraper, used a smartphone, or watched a great film, chances are you’ve experienced what millions of Autodesk customers are doing with our software. Autodesk gives you the power to make anything. For more information, visit autodesk.com or follow [@autodesk](https://twitter.com/autodesk).

About the Growth Series

As organizations adapt to a new and unfamiliar landscape, which strategies will position them for safety, resilience, and growth?

This three-part series addresses the key shifts we are seeing as a result of the COVID-19 pandemic and other macroeconomic, industry, and technology trends; identifies the key strategies leaders need to consider; and shares emerging best practices from experts in the areas of technology, workplace safety, design, and leadership.

The first two reports in this series, *Strategies for Growth in the Reimagined Workplace* and *The Future Is Distributed: Customer and Employee Relationships in the Digital Age*, focused on the changing nature of the workplace and of customer and employee relationships. The third report, *Building a Culture of Business Model Innovation*, looks at the implications of these cataclysmic changes for business model innovation. It includes insights from business leaders and scholars on the human and structural impacts of these shifts and shares strategies they are using to reimagine their businesses for a digital, post-pandemic future.

Disclosure

THIS CUSTOM RESEARCH REPORT IS SPONSORED BY AUTODESK. WHILE THE RESEARCH IN THIS REPORT MAY HAVE BEEN INFORMED BY AUTODESK, ALL FINDINGS AND ANALYSIS ARE INDEPENDENT AND REPRESENT ALTIMETER'S BODY OF RESEARCH.

Permissions

THE CREATIVE COMMONS LICENSE IS ATTRIBUTION-NONCOMMERCIALSHAREALIKE 3.0 UNITED STATES, WHICH CAN BE FOUND AT [HTTPS://CREATIVECOMMONS.ORG/LICENSES/BY-NC-SA/3.0/US/](https://creativecommons.org/licenses/by-nc-sa/3.0/us/).

Disclaimer

ALTHOUGH THE INFORMATION AND DATA USED IN THIS REPORT HAVE BEEN PRODUCED AND PROCESSED FROM SOURCES BELIEVED TO BE RELIABLE, NO WARRANTY EXPRESSED OR IMPLIED IS MADE REGARDING THE COMPLETENESS, ACCURACY, ADEQUACY, OR USE OF THE INFORMATION. THE AUTHORS AND CONTRIBUTORS OF THE INFORMATION AND DATA SHALL HAVE NO LIABILITY FOR ERRORS OR OMISSIONS CONTAINED HEREIN OR FOR INTERPRETATIONS THEREOF. REFERENCE HEREIN TO ANY SPECIFIC PRODUCT OR VENDOR BY TRADE NAME, TRADEMARK, OR OTHERWISE DOES NOT CONSTITUTE OR IMPLY ITS ENDORSEMENT, RECOMMENDATION, OR FAVORING BY THE AUTHORS OR CONTRIBUTORS AND SHALL NOT BE USED FOR ADVERTISING OR PRODUCT ENDORSEMENT PURPOSES. THE OPINIONS EXPRESSED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Altimeter, a Prophet Company

One Bush Street, 7th Floor

San Francisco, CA 94104

info@altimetergroup.com

www.altimetergroup.com

@altimetergroup

415-363-0004