Collaborating Efficiently in the Rise of Remote Work

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INTRODUCTION

The onset of the COVID-19 pandemic has caused tremendous changes to the economic and social world, completely revamping the way we communicate and collaborate in the work environment. Corporations globally have been rethinking work models as we start to consider the post-pandemic world. Even as some countries start to open up gradually, more flexible work arrangements seem to be popular options going forward, and corporations will need strategies that help workers collaborate efficiently.

Enterprise collaboration might be the answer. Enterprise collaboration is a set of solutions designed to help users communicate and complete work tasks within their enterprise. It includes various tools, platforms, groupware, and networks, which are intended to empower enterprise-wide coordination. The enterprise collaboration market size is expected to grow from USD 47.2 billion in 2021 to USD 85.8 billion by 2026.[1] S&P Dow Jones Indices launched the S&P Kensho Enterprise Collaboration Index to track companies involved in the enterprise collaboration market.

From 2020 to 2022, during which 55% of global businesses offered the capacity to work from home,[2] enterprise collaboration shaped the online working style by enabling individuals and teams to work together via the internet. Since the COVID-19 outbreak, the demand for better enterprise collaboration solutions has continued to evolve and likely be a main trend for the long term.

The End of the Pandemic Is Still Unknown

The COVID-19 pandemic has had a lasting impact on how we work together. Despite the gradual reopening in some countries, many people are still cautious about returning to a physical workspace. Although countries have taken active action to prevent spreading the virus, variants and reinfections continue to push up the number of cases. According to the World Health Organization (WHO), the monthly new confirmed cases reached a new high in January 2022, up to 89 million.[3] Even with the wide

[1] Markets and Markets, "Enterprise Collaboration Market," July 2021.

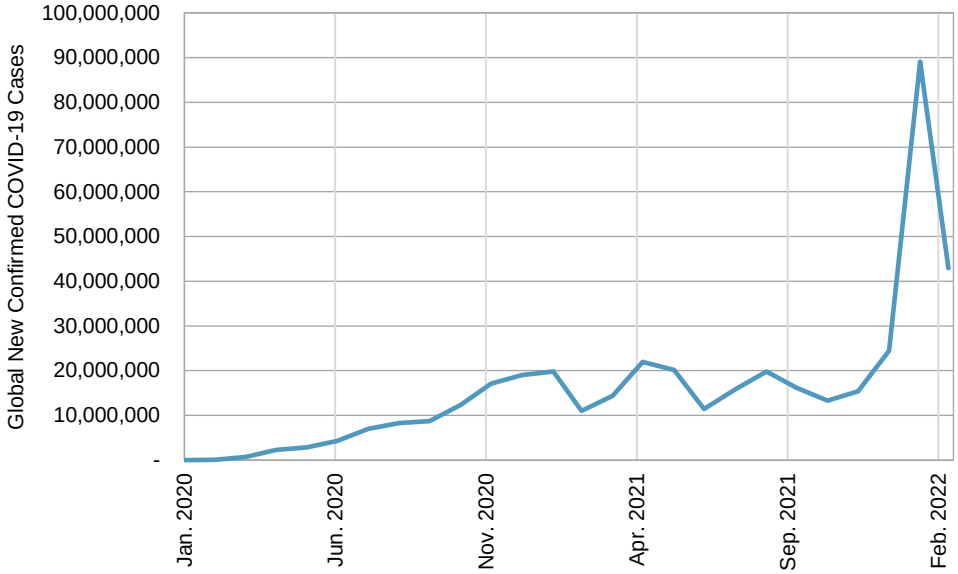
[2] Review 42, "https://review42.com/resources/remote-work-statistics/," Jan. 17, 2022.

[3] Geneva: World Health Organization, 2020. Available online: https://covid19.who.int/ (last cited: Feb. 21, 2022).

adoption of vaccinations in developed countries, the end of the pandemic is unknown.

The COVID-19 pandemic has caused tremendous changes, completely revamping the way we communicate and collaborate at work.

Exhibit 1: Global New Confirmed Cases of COVID-19 Continue to Rise



Source: World Health Organization. Data as of Feb. 21, 2022. Chart is provided for illustrative purposes.

Corporations globally have been rethinking work models as we start to consider the post-pandemic world.

People Prefer Flexible Work Model

The pandemic has also given many people the opportunity to experience working from home, which companies had been reluctant to roll out before because of concern about employees' productivity outside of the office. The pandemic forced some corporations to adopt the model. After two years of experience, we have found that people enjoy the flexibility given by working remotely. Based on a Harvard business school online survey, 81% of employees prefer working from home at least part of the week.[4] A study from Chicago Booth also found that 40% of workers reported they were more productive at home during the pandemic than they had been when in the office, and only 15% said the opposite was true.[5]

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As more companies revise their policies to accommodate employees' willingness to work remotely, the next phase of remote work will likely be a hybrid model—a blend of working remotely and in a physical workplace. The hybrid model can balance employees' need for work flexibility, as well as provide opportunities for employees to collaborate and interact face-to-face. It's up to corporations how to best implement and collaborate going forward, but it's hard to imagine us returning to the 9-5 commuter lifestyle.

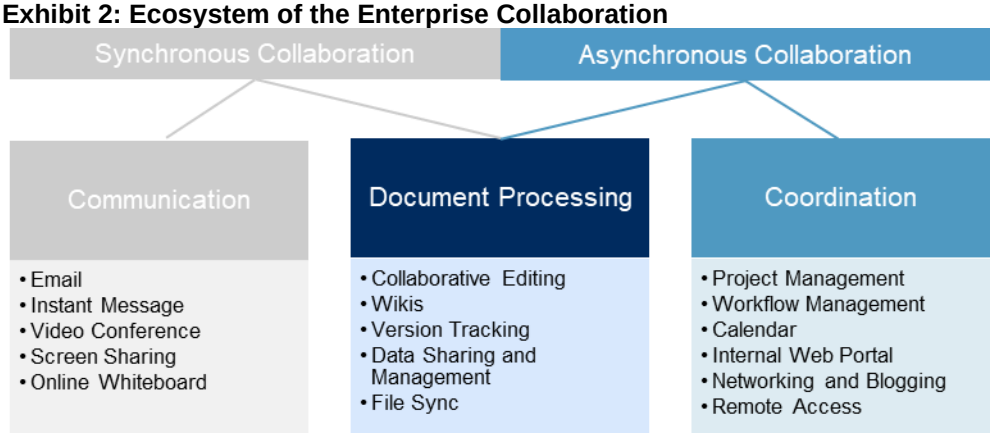
[4] Harvard Business School Online, "HBS ONLINE SURVEY SHOWS MOST PROFESSIONALS HAVE EXCELLED WHILE WORKING FROM HOME," March 25, 2021. https://online.hbs.edu/blog/post/future-of-work-from-home

[5] Stropoli, Rebecca, "Are We Really More Productive Working from Home?" Chicago Booth Review, Aug. 18, 2021. https://www.chicagobooth.edu/review/are-we-really-more-productive-working-home

In the era of the hybrid work model, enterprise collaboration solutions allow multiple people to work together remotely…

Combining the pandemic and people's preferences together, the transformation is disruptive. In the era of the hybrid work model, enterprise collaboration solutions allow multiple people to work together remotely through tools such as videoconferencing, instant messaging, document sharing, and project management platforms (see Exhibit 2). Unify Square conducted a survey in November 2020 among 556 respondents who were full-time workers at companies with more than 500 employees, and the result shows that the usage of office desk calls had dropped by 22%, while online conference calls had increased by 16%. Meanwhile, 72% of companies had rolled out at least one new collaboration application to support the remote employee.[6]

Exhibit 2: Ecosystem of the Enterprise Collaboration



Source: S&P Dow Jones Indices LLC. Chart is provided for illustrative purposes.

…through tools such as videoconferencing, instant messaging, document sharing, and project management platforms.

TECHNOLOGIES BEHIND ENTERPRISE COLLABORATION

The history of utilizing computers to collaborate on work goes back to 1986 when the phrase computer-supported collaborative work (CSCW) came out. Brian Wilson defined it as "a generic term which combines the understanding of the way people work in groups with the enabling technologies of computer networking, and associated hardware, software, services, and techniques."[7]

Since the start of computer-supported collaborative work in 1986, enterprise collaboration has gone from email to voice to video.

Since 1986, enterprise collaboration has gone from email to voice to video, and the progress never seems to stop. Disruptive technologies can be incorporated into enterprise collaboration capability and enhance the working experience. According to a PEGA survey,[8] 51% of respondents believed their organizations would invest in cloud-based solutions or artificial intelligence (AI) at work, and other top technologies on companies' lists include video conferencing software and internet of things (IoT) sensors.

[6] Unify Square, "Remote Work in 2021: Catching Up to the Evolution of Enterprise Communications and Collaboration," January 2021.

[7] Jay, Allan. History of Collaboration Software: The Evolution & Journey Towards Web 2.0. Finances Online.

[8] PEGA, "The future of work: New perspectives on disruption & transformation," April 2021.

Cloud Computing

Disruptive technologies can be incorporated into enterprise collaboration capability and enhance the working experience.

Cloud computing refers to the over-the-Internet ("the cloud") delivery of computing services, including servers, storage, databases, networking, and software.[9] Software as a service (SaaS) and platform as a service (PaaS) are widely used in enterprise collaboration.

SaaS utilizes the internet to deliver applications. Most SaaS applications run directly through a web browser. As the application is hosted through an online server, web and mobile access are both eligible, which makes communication easier for employees who use various devices at work.

PaaS delivers a framework for developers that they can use to create customized applications. Taking the communication platform as a service (CPaaS) as an example, users can customize voice, video, and messaging features to existing self-owned business software to enhance the communication experience through an application programming interface (API).

With the development of technology, the cloud collaboration system allows people to communicate, share, and manage projects in real time with fewer restrictions.

Cloud computing refers to the over-the-Internet delivery of computing services, including servers, storage, databases, networking, and software.

Artificial Intelligence

AI-enhanced collaboration tools could increase productivity and enable better communication. One of AI's applications is to create a more efficient information flow. While computers can perform data processing on a larger scale at a faster speed than humans, AI can be used to organize and categorize information. It improves workflow by reducing search time, integrating information from multiple sources, and accelerating decision making.

Augmented Reality and Virtual Reality

Augmented reality (AR) and virtual reality (VR) aim to blend physical and virtual environments and to offer immersive experiences. In addition to hearing voices and seeing faces of colleagues from conference calls, people can now have more interactive experiences with each other virtually. A holographic image can help people interact with their surroundings; facial emotion recognition technology can provide a face-to-face-like experience. Adoption of AR and VR technologies could make remote collaboration more engaging and productive.

AI-enhanced collaboration tools could increase productivity and enable better communication.

[9] Microsoft, "What is cloud computing?" https://azure.microsoft.com/en-us/overview/what-is-cloud-computing/#benefits

S&P KENSHO ENTERPRISE COLLABORATION INDEX

Augmented reality and virtual reality aim to blend physical and virtual environments and to offer immersive experiences.

The S&P Kensho Enterprise Collaboration Index is designed to measure the performance of companies that have exposure to enterprise collaboration development. This covers the main services and technology that shape the industry's present and future, including:

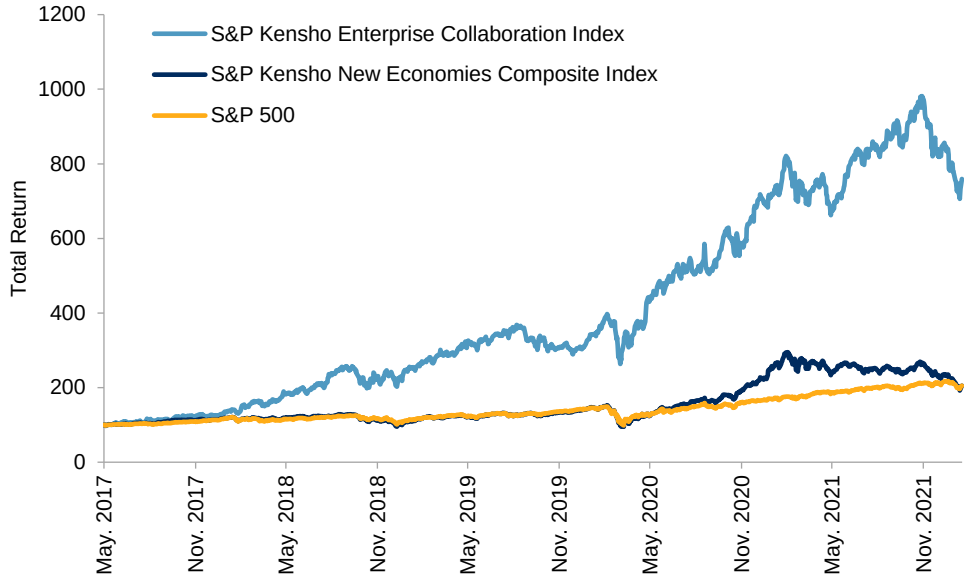
1. Collaboration Software and Application: Platforms or applications that provide integrated messaging, video, content sharing, and work management;
2. Cloud-Based Communication: Cloud-based communication platform that offer turnkey communication capabilities where users do not need to build backend infrastructure; and
3. Mobile, VR, and AR capabilities.

Performance

Thanks to the digital transformation and growth of the remote work model, the S&P Kensho Enterprise Collaboration Index generated a back-tested annualized return of 53.22% between May 2017 (its first value date) and January 2022. While the volatility was higher compared with the S&P 500®, the S&P Kensho Enterprise Collaboration Index still delivered a better risk-adjusted return (see Exhibit 3).

The S&P Kensho Enterprise Collaboration Index is designed to measure the performance of companies that have exposure to enterprise collaboration development.

Exhibit 3: Index Historical Performance



Source: S&P Dow Jones Indices LLC. Data from May 15, 2017, to Jan. 31, 2022. Index performance based on total return in USD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Thanks to the digital transformation and growth of remote work, the index generated an annualized return of 53.22% between May 2017 and January 2022.

Exhibit 4: Risk/Return Profile

PERIOD	S&P KENSHO ENTERPRISE COLLABORATION INDEX	S&P KENSHO NEW ECONOMIES COMPOSITE INDEX	S&P 500
ANNUALIZED RETURN (%)			
1-Year	6.02	-18.51	23.29
3-Year	44.00	21.60	20.71
Since May 15, 2017	53.22	16.49	16.27
ANNUALIZED VOLATILITY (%)			
1-Year	26.77	28.41	13.36
3-Year	32.45	32.45	22.46
Since May 15, 2017	32.83	25.45	19.88
RISK-ADJUSTED RETURN			
1-Year	0.22	-0.65	1.74
3-Year	1.36	0.67	0.92
Since May 15, 2017	1.62	0.65	0.82
MAXIMUM DRAWDOWN (%)			
Since May 15, 2017	-33.76	-37.69	-33.79

Source: S&P Dow Jones Indices LLC. Data from May 15, 2017, to Jan. 31, 2022. Index performance based on daily total returns in USD. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

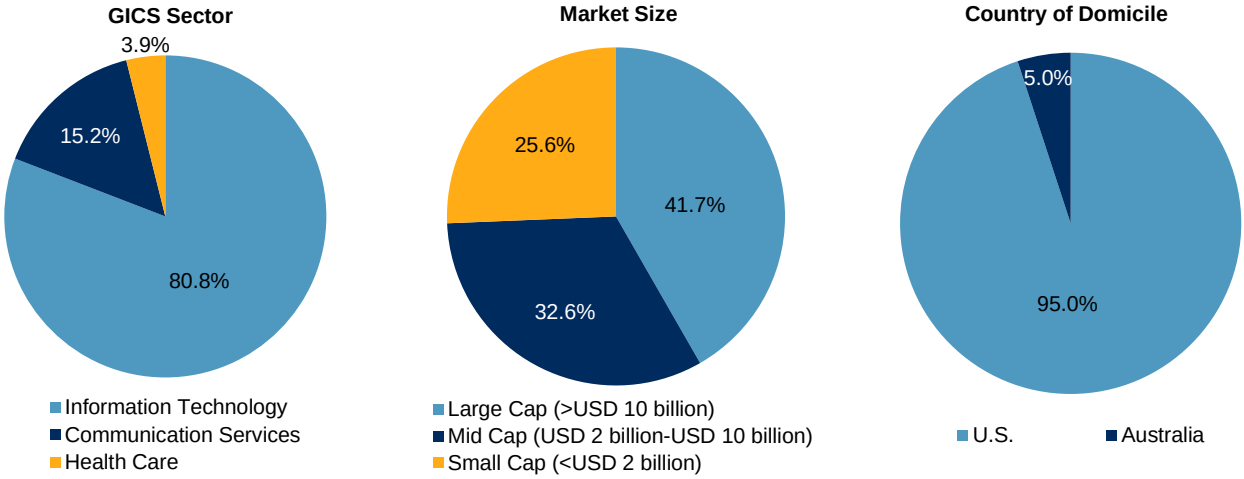
APPENDIX

Exhibit 5: Index Constituents

COMPANY	TICKER	COUNTRY OF DOMICILE
Microsoft Corp	MSFT	U.S.
Alphabet Inc C	GOOG	U.S.
Adobe Inc.	ADBE	U.S.
Cisco Systems Inc	CSCO	U.S.
Salesforce.com	CRM	U.S.
Atlassian Corporation Plc	TEAM	Australia
Zoom Video Communications, Inc.	ZM	U.S.
Twilio Inc-A	TWLO	U.S.
RingCentral Inc A	RNG	U.S.
Dropbox, Inc.	DBX	U.S.
Workiva Inc A	WK	U.S.
Vonage Holdings	VG	U.S.
Asana, Inc. Class A	ASAN	U.S.
Box Inc A	BOX	U.S.
Alteryx, Inc.	AYX	U.S.
8X8 Inc	EGHT	U.S.
Avaya Holdings Corp.	AVYA	U.S.
IDT Corp B	IDT	U.S.
SIMULATIONS PLUS	SLP	U.S.
Consolidated Communications Hldgs	CNSL	U.S.
Ooma Inc	OOMA	U.S.

Source: S&P Dow Jones Indices LLC. Data as of Jan 31, 2022. Table is provided for illustrative purposes.

Exhibit 6: Index Breakdowns



Source: S&P Dow Jones Indices LLC. Data as of Jan. 31, 2022. Charts are provided for illustrative purposes.

PERFORMANCE DISCLOSURE/BACK-TESTED DATA

The S&P Kensho Enterprise Collaboration Index was launched October 29, 2018. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spglobal.com/spdji. Past performance of the Index is not an indication of future results. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results. Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. Back-tested performance is for use with institutions only; not for use with retail investors.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate S&P DJI's ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used.

Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices maintains the index and calculates the index levels and performance shown or discussed but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US $100,000 investment for a 12-month period (or US $10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US $1,650), the net return would be 8.35% (or US $8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US $5,375, and a cumulative net return of 27.2% (or US $27,200).

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