Revolutionizing the Future Workplace

By Jack Uldrich
Executive Summary
A variety of technological, demographic and cultural forces are converging at this unique moment in history and stand poised to revolutionize the workplace of the future. Customers are demanding the ability to access the marketplace from anywhere, anytime and on any device; newer employees now expect the flexibility to collaborate continuously with customers and co-workers; and the future-oriented company is striving to make customer interaction and employee communication as invisible, seamless and intuitive as possible.

The use of video and video-conferencing tools are integral to this transformation, and the CIO will be at the epicenter of this transition. Those CIOs who can shift their thinking and look to partner with established video conferencing companies such Polycom will be able harness the tools and build the solutions necessary to create the future workplace. In so doing, they will not only position their company for success by enhancing customer loyalty but by redefining the nature of the workplace so that workers can unleash and accelerate radical innovation.

Introduction
Six years ago, it would have been difficult to imagine how mobile phones—then primarily used for making calls and sending the occasional text message—would today be used by many people to listen to music, take photos, record videos, play games, pay bills, navigate directions, manage schedules, answer questions, even make face-to-face video calls. Yet, if one were to have been familiar with the coming advances in computer processing power, data storage, artificial intelligence, satellite technology and the emerging API/App infrastructure, the broad outlines of today’s world may have been visible. In this same way, the world of 2020—or six years from now—is similarly discernable and video will play an increasingly important role. Consider the following:

• 1.12 billion hours of live online video content was consumed in 2013 and this figure will double by 2016; 1
• Video is expected to be the most preferred business tool—ahead of email and voice calls—by 2016; and
• Desktop videoconferencing was the fastest growing business service in 2013 with 37.4 millions users and by 2018 this figure will grow to an estimated 238.3 million. 3
• Many of the trends that facilitated the ubiquity and utility of the smartphone are also fueling videos continued growth. Fixed broadband speeds will increase from 16 Mbps to 42 Mbps by 2018 4 and make desktop videoconferencing even more convenient, while the explosion in the number of smartphones (estimated to grow by 2.4 billion) in combination with the doubling of mobile connection speeds to 2.5 Mbps, will also expand remote videoconferencing.

Ten additional trends will also intensify the growth of video:

1. Web Real-Time Communications protocols will make it easier to make video calls through a web browser or smartphone. As a result, video customer calls—such as Amazon’s “MayDay” button, Citibank’s new video-chat function and Apple’s “Spin” video chat app—will become more popular among businesses seeking to improve customer service as well as workers looking to collaborate with their colleagues.

2. Advances in data storage technology will spur the continued growth of cloud computing and Video Conferencing as a Service (VCaaS). The latter is expected to grow at a compounded annual growth rate (CAGR) of 34% through 2020 in large part because cloud computing is lowering the financial risk to users by eliminating the need for businesses to own data storage hardware.

3. UltraHD (4K) and higher video resolution will continue to improve in terms of price, quality and performance. As it does, more users will migrate to video as a means of effective collaboration. Continued software advances will also increase the number and type of devices (e.g. PCs, tablet, smartphones, wearables, virtual reality tools, etc.) that can accommodate video.

4. Smartphone, tablets, and telepresence robots will become more widespread. In 2013, the U.S. government agreed to allow physicians to conduct remote video consultations with patients, and in the summer of 2014, a major European automobile manufacturer began allowing technicians at its headquarters to video-chat with mechanics as a way to extend top-quality service to its customers. Expect others in the agriculture, banking, government, manufacturing and retail sectors to follow suit.

5. Wearable technology. Currently best exemplified by Google Glass, Oculus Rift and Samsung’s Project Morpheus—wearable technology will grow from sales of 10 million units this year to 100 million units by 2018. These devices will increasingly integrate video. Google Glass, for example, has a new app...
that allows users to broadcast what they are seeing and it’s being used by hospitals and energy companies to educate students and engage workers in innovative ways; whereas Oculus Rift is being employed by companies such as Tesla to radically transform how industrial components are designed and manufactured.

6. Multi-core chips. 48-core—and potentially even 1000-thousand core—chips will provide smartphones and other electronic devices unparalleled video capabilities. In June of 2014, the first holographic smartphone was released, and by late 2015 next-generation smartphones and holographic tables are expected to possess the ability to show a range of motion irrespective of the viewer’s location. The latter could allow any room to become video-capable. Multi-core chips will also provide smartphones and other electronic devices the ability to perform multiple functions, including speech recognition, voice translation and improved video search.

7. The Internet of Things. By 2020, the number of physical objects connected to the Internet will grow to 50 billion and the long-term economic opportunity of “The Internet of Things” is estimated to be between $10-$15 trillion.8 While distinct from the other trends facilitating the growth of video, the Internet of Things—sometimes referred to as the “Industrial Internet” or machine-to-machine communication—will facilitate video by making it easier and more natural for people to interact with the tools and objects of the physical world.

8. Broadband and mobile will get exponentially faster. The government of South Korea, Google and a handful of other municipalities around the world are already planning for fixed Internet speeds of up to 1 gigabit, and Samsung has stated its 5G network will boost mobile speeds 100-fold. In a world where an hour of high-definition video can be downloaded in 6 seconds, new entertainment and workplace applications for video will arise. Furthermore, more video applications are likely to emerge because the flexibility of wireless networks will allow video collaboration to be conducted anywhere, anytime via mobile and wearable devices.

9. Global Internet Access. Within the next six years the expectation is that 1000 nanosats and 30,000 drones are expected to be launched. In combination with other ambitious projects such as Project Loon—Google’s plan to deploy a network of high-altitude balloons to help deliver high-speed Internet access—it is not beyond the realm of possibility that by 2020 all 7-plus billion inhabitants on the planet will have the ability to send and receive video.

10. Massive Open Online Courses (MOOCs). Increasingly popular online programs such as EdX, Udacity, Coursera and Open Education Alliance will gain in popularity—especially among younger generations—due to their growing accessibility, popularity, low-cost and ease-of-use.

A Shift in Mindset: The Periphery is the New Center

Over the past few years, a number of videos have gone viral but two reflect the broad shift that is taking place in society. The first shows a six month-old toddler rejecting a hardcover magazine in favor of a tablet computer. The second shows an elderly gentleman mistaking a tablet computer for a cutting board and then placing the item in the dishwasher. Although humorous in nature, the two videos capture how different generations are responding to—and interacting with—technological tools.

The deeper transformation taking place, however, is best captured by the old Chinese adage: “The periphery is the new center.” No longer is the physical workplace the center or focus of work. The new center is wherever the worker is located—be it in their home, local coffee shop or out in the field on the “periphery” with a customer. To bridge the gap, it is the CIO who must take the lead in steering their organizations away from yesterday’s old mindsets and toward tomorrow’s emerging realities. Below are three ways the world is shifting.

7. "Enabling the Workplace of the Future," Jim Kruger, Polycom
8. “The Industrial Internet@Work,” Marco Annunziata and Peter Evans
Shift #1: Video’s New Value is Everywhere

The old view of video and videoconferencing was that it replaced the business meeting, and the benefit was reduced travel expenses. This benefit certainly still exists (Rio Tinto and Starwood Hotels continue to use video to interview job candidates from entry-level positions to C-suite positions) but the new perspective is that video can transform the entire way an organization does business by reducing or eliminating the barriers to distance, cost, time and culture. In the process, video will enhance how organizations communicate with their customers as well as how employees collaborate among their peers.

An example of the former can be found in a Commonwealth Bank of Australia video demonstrating how prospective homeowners can not only use their smartphones to search for new homes but now also have a wealth of augmented information—such as purchase price and loan eligibility—viewable directly on their mobile devices. In the near future, the app will allow prospective buyers to speak with a mortgage loan officer and conduct the entire application process via video—no travel, no paperwork and no hassle. To this end, CIO’s must be prepared to accept that for some customers and employees, smartphones, augmented reality and video may actually be preferred over conventional business meetings and traditional practices.

Shift #2: The Future is Not Just a Place

The Commonwealth bank example speaks to a second shift CIO’s must embrace—the future does not belong to “a place.” In the past, banking, retail, healthcare and education were thought of as physical locations customers, patients and students had to travel to in order receive the product or service. This is no longer true. In Seoul, South Korea customers can now shop at virtual grocery stores through their smartphone and have the goods delivered to their homes or apartments by the end of the day. Similarly, a growing number of healthcare professionals and hospitals are now using mobile applications and video to reduce the need for patients to physically visit healthcare clinics and hospitals. And universities around the world are using online courses and video to bring the classroom to the student instead of requiring the student to travel to the classroom.

As a result of these transitions, business models are changing. Retailers are discerning innovative new ways to service existing customers and reaching out to new ones; healthcare professionals are implementing new mechanisms to keep people healthy; and schools and universities are scaling their courses to reach thousands of students on schedules that fit into the students’ lives.

Future Scenario: Instant Expertise

In mid-January of 2018, a gas leak was detected inside the utility leg of an aging oil platform in the North Sea. Unable to fly in an expert mechanic to repair the problem, due to stormy weather, another worker on the platform donned a pair of goggles with a camera to live-stream video of the leak in order to collaborate with an experienced well intervention specialist stationed on the mainland. Using the latest augmented reality technology, the specialist overlaid a blueprint of the pipe directly onto the field of vision of the repairman’s goggles and guided him through the repair. To insure the task was done correctly, the pair consulted the company’s cloud-based video library and found an archived clip of the world’s most experienced well interventionist describing his solution to a similar problem shortly before he retired in 2015.

In the workplace, video is also shifting the meaning of the business meeting room. The meeting room of the future will also no longer necessarily be a physical location. New and improved video collaboration tools are making it possible to conduct ad-hoc meetings anywhere, anytime. Audi, the German automobile manufacturer, for example, has opened a new showroom in the heart of New York City. What makes the new structure unique is that it is a fraction of the size of a conventional dealer showroom and displays only four automobiles. The absence of automobiles is overcome by using sophisticated digital tools to display virtual automobiles of any model, color or style. In addition to lowering the company’s real estate costs, the company’s inventory has been reduced by better matching supply with demand. More importantly, instead of forcing customers to travel out to dealerships, the company is using technology to bring its product closer to where the customer works and lives.

Shift #3: Connected Intelligence

As smartphones, tablets and wearable devices proliferate, and as ever more sensors and location devices are installed in—and on—physical objects, CIOs must embrace a series of related paradigm shifts. The first is the adoption of a “Connected Intelligence” mindset. In a world of 50 billion connected devices and objects the world is going to become hyper-connected and very intelligent, and how workers interact with customers, colleagues, products, machines and their physical environment will be transformed.

In addition to sensors, a combination of other technologies including cameras, robots, microprocessors and wireless communication devices will stream massive amounts of data to
the cloud where it will be converted into useful knowledge by sophisticated algorithms and redistributed back to users and objects alike in an increasingly seamless and invisible manner.

The second shift is that in this new era of “Connected Intelligence” people will come to expect that information will find them without even looking for it. To achieve this goal, companies must strive to know their customers, employees, machines and markets so well that they know what these segments want—and then deliver on these desires—before they can even articulate their own needs.

Future Scenario: A Real Doctor Will See You Now, Virtually.
At 2 a.m., a tiny medical device no larger than a grain of sand was floating through Michael’s bloodstream when it detected a protein suggestive of an impending heart attack. This information was wirelessly transmitted to his cardiologist’s office where it was instantly analyzed by cloud-based processors. By 3 a.m. a team of specialists including his cardiologist, a heart surgeon and a licensed nurse, consulted via video and, after a brief consultation, came to an agreement on the next steps. At 5 a.m., the team streamed a holographic image of Michael’s heart directly to his new video-capable glasses and explained to him why emergency surgery was necessary. At 6 a.m. an ambulance arrived at his apartment and by 8 a.m. the operation—which was viewed in real-time by Michael’s personal physician who was on holiday in Australia—had been successfully completed.

Key Take-A-Ways
- The CIO is at the center of significant technological and marketplace shifts and must take the lead in ensuring senior leaders understand how the world is changing and the role video will play in strengthening customer loyalty, optimizing resources and driving innovation.
- Soon, distance, time, cost and culture will no longer be barriers to how business is conducted, and it is imperative that organizations begin planning for this future today.
- The continued technological development of computer processing power, data storage and fixed and mobile bandwidth speeds will fuel video and videoconferencing usage. These new tools can be harnessed to connect the brainpower of an entire organization to rapidly solve problems.
- New, emerging advances in wearable technologies, multicore chips, UltraHD video resolution and Web Real-Time Communication will generate new and innovative uses for video. The physical boundaries of the workplace are evaporating and employees will expect to work anywhere, anytime and on any device, as well as collaborate with their colleagues in a seamless manner. It is the CIO’s job to make sure this technology is as invisible as possible and enhances rather than distracts from work.
- The Internet of Things and improved global Internet access technologies (e.g. satellites, drones, and balloons), in combination with improved voice translation technology, will make high quality video available to a growing global audience. The CIO will be at the center of facilitating his or her organization’s introduction to these new markets.

Conclusion
Thousands of years ago Heraclitus, the ancient Greek philosopher, noted that the “only constant is change.” Nowhere is this more true than in today’s world of technology. High-speed Internet access, cloud computing and an explosion of smartphones, tablets and wearable devices is shortening distance and space and making the world more connected. Video and video-conferencing is at the confluence of these revolutionary changes, and the innovative CIO must help their companies, corporations and organizations share knowledge, retain talent, build trust, enhance collaboration and fuel innovation by exploiting existing and emerging videoconferencing tools to create new products and services.

About the Author
Jack Uldrich is a renowned global futurist and the best-selling author of eleven books. He is a frequent guest on national media and regularly appears on the Science Channel’s television program, “FutureScape” and the Discovery Channel show “Inside Out.” He is a prolific speaker on technology, change management and leadership and has addressed Fortune 100 corporations, venture capital firms, associations, not-for-profit organizations and state and regional governments on five continents. He can be reached at jack@jackuldrich.com or 011.612.267.1212.
Resources

Books

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Presentations
66. "Enabling the Workplace of the Future,“ Jim Kruger, EVP and CMO, Polycom
About Polycom
Polycom helps organizations unleash the power of human collaboration. More than 400,000 companies and institutions worldwide defy distance with video, voice and content solutions from Polycom. Polycom and its global partner ecosystem provide flexible collaboration solutions for any environment that deliver the best user experience and unmatched investment protection.

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