



The Future of E-government

**How Polycom Solutions for the Public Sector Help Government Organizations
Improve Communication & Collaboration**

**A Strategic Whitepaper by Frost & Sullivan
in Collaboration with Polycom, Inc.**

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1. Video Collaboration Comes of Age

Market liberalisation, social and political changes, security threats, resource shortages and climate change are the global trends affecting governments across the world. To cope with these changes, various organizations and governments have invested heavily in information and communication technologies (ICT) over the years. This has transformed the method in which they operate and communicate as well as improved the access and quality of public services, safety, security, education, and healthcare.

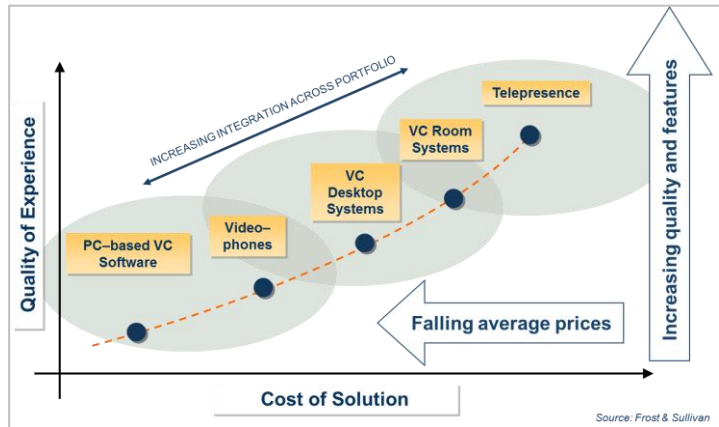


Figure 1: The full spectrum of visual collaboration solutions and how they rate on Quality of Experience versus Cost of Solution

The video collaboration markets have witnessed a newfound resurgence in popularity in the last one to two years that has set the growth level at 15 to 30 per cent year-on-year, depending on the region and type of solution. Although the global recession in 2008 led to a temporary decline worldwide, the markets bounced back strongly and grew at a rate of 16.6 percent, generating revenues of \$2.33 billion by the end of 2010. The key drivers for growth were a massive improvement in critical areas with regard to user experience, usability, and pricing and significantly reduced operational and infrastructure expenditure. Other important trends such as the entry of new market participants and advent of immersive and life-like video solutions (currently known as immersive telepresence solutions) are expected to drive the awareness and adoption of video solutions further over time. Frost & Sullivan expects the world markets for video collaboration to be worth \$4.75 billion by 2015, at a compound annual growth rate (CAGR) of 15.3 percent, with government and public enterprises expected to remain among the top three sectors that utilise video collaboration in all its forms.

2. Collaborative Government

E-government Evolution

In 1995, when the Internet was in its infancy stage and had only 16 million users worldwide,¹ governments across the world were realising the benefits of utilising new technologies to share information over private networks and deliver public services through Web portals. Over the years governments across the world have been investing in e-services to coincide with new technological advancements, from phone to computer and then to the Internet and high-speed broadband. With

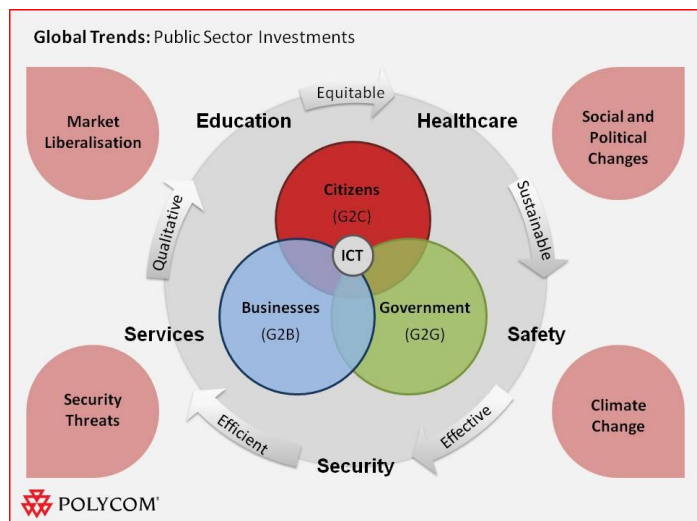


Figure 2: There are various global trends affecting the method in which governments invest in services for citizens, businesses and other government departments.

the initial goal of providing basic information through Web portals, governments worldwide soon launched more interactive services that were progressively made available across multiple communication channels, platforms and devices to keep up with social changes and improve the satisfaction of increasingly demanding businesses, tech-savvy citizens and more advanced government departments.

With an estimated 1.96 billion Internet users - roughly 43 percent of the world's online population² -and with the highest mobile phone penetration rate in the world, Asia Pacific is at the forefront of many strategic and innovative e-government initiatives. For example, the South Korean Government continues to invest in ICT, realising the value that mobile and Web applications provide in helping to improve the delivery and quality of government services to citizens. According to the 2010 UN Global E-government Survey,³ South Korea is ranked the most developed and advanced e-government state among the 192 members of the United Nations. This evaluation aims to facilitate the benchmarking and sharing of experiences by comparing the level and delivery of e-government services between countries. The evolution of services and e-government models should be analysed to understand the current and future position of South Korea. Over the years, governments had to evolve and change to become more connected to citizens and interconnected with internal administrations to compete in the global economy. So how have governments changed over the years?

In the days of fax machines and letters, we witnessed what was known as the traditional government. This approach to governance characterised by a somewhat "old fashioned" type of administration that worked through internal bureaucracy and manual processes. The delivery of services was slower than it is today/ and access to such services was limited. Citizens located in rural areas often had to travel great distances to visit a local government branch and then had to stand in long queues until they were served in person. This type of governance is becoming less common due to the widespread availability of the Internet and data networks across the world that provide citizens with immediate access to the services they need, without requiring them to travel long distances.

To address this gap, we saw the introduction of a more 'connected government'⁴ was introduced wherein government departments utilised a variety of Internet-based information technology (IT) to achieve administrative and service objectives. To speed up the administration process and prevent delays, various governments created online service portals to which all citizens had equal access. This approach consisted of interconnecting multiple government locations and databases over data networks to centralise and share information and services, which were then made available on intranet and Internet portals to citizens, businesses and other government departments.

Realising the effectiveness of such an approach, governments took it one-step further to create more of a ubiquitous and ever-present⁵ government. Typical of the existing government departments, this term is used to describe a highly wired and connected government, offering real-time access to services and information regardless of time, location or device. This approach leverages innovative communication platforms such as social networks, discussion forums and call centres to consult stakeholders and provide more interactive services and information.

E-government Transformation

As a result of this development over time, almost every country has an e-government plan and an ICT strategy in place today. However, despite the boom in the use of personal computers, the Internet and mobile device use at home, office, and around the world, governments have yet to solve the issues related to low online services utilisation and inter-agency collaboration. While certain factors like age, gender, culture or digital divide may explain some of the gaps, it all comes down to one the absence of real-time, face-to-face communication. Being connected to a Web portal, an integrated voice response server or a call centre agent, while effective in bridging the gap between citizens and government, does not replace the level of interactivity, consultation, engagement and personalisation offered by face-to-face conversations. Thus, governments have had to find a method to enable face-to-face communication in real time, over distance and in a more efficient and productive manner to make it easier for citizens, businesses and government departments to communicate and collaborate. This issue is amplified by the fact that many government departments predominantly operate in silos and have issues with regard to sharing information and knowledge in real time, leading to slower decision making and resource coordination in times of crisis. (For more information, please refer to the reference material, "Life-like Applications Help Drive Broadband Adoption and Utilization.")

Governments can address many of these challenges provided they integrate video as a core application in their unified communications strategy, which involves the convergence of data, voice, applications, services and visual communications into a single continuum or network. Technologies like immersive telepresence - visual communications that offer a true-to-life virtual meeting experience - and video content management - systems that enable the recording, archiving and streaming of video and audio footage - offer the same level of interactivity and efficiency as that of face-to-face communication without the added time and expenses incurred by travelling to a central location. This is the primary reason high-quality visual communication, powered by a high-speed IP infrastructure, has become integral to a dynamic digital economy and for maintaining international competitiveness in today's current highly globalised world. This innovative approach powered by unified communication and collaboration is known as the collaborative government. The collaborative government sees citizens as customers, businesses as partners and government departments as a single team when deciding on issues related to the economy, society, security and climate change. Using this approach, governments leverage real-time communication applications to engage and interact with various stakeholders and provide on-demand access to services across multiple locations, devices, media and channels. Being able to offer more personalised life-like interactions, high-quality audio and visual communications are the central focus of any ICT strategy because they leverage legacy government infrastructure and next-generation broadband

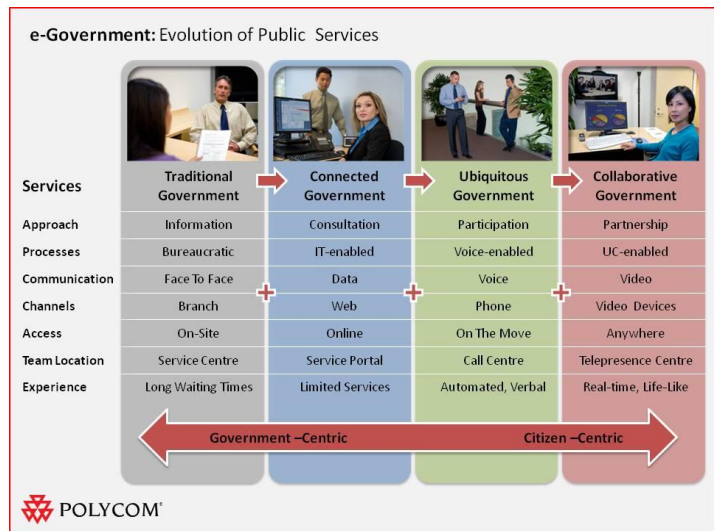


Figure 3: Governments have rapidly evolved and developed over time, introducing new and smarter methods to communicate and interact with customers, businesses and other government departments.

networks to enhance service experience, improve operational performance and ensure the availability of mission-critical communications in all situations.

So what does the collaborative government approach entail - and what benefits will it deliver to businesses, citizens, and other government departments? There are four key pillars to the collaborative government approach that address the mandates governments are driving for. We list them here

Service Experience

A collaborative government approach promotes greater interaction and engagement between a government and stakeholders, providing citizens with an on-demand access to better-quality services wherever they are located. Through the delivery of high-definition (HD) visual communication solutions across multiple media, channels and locations, governments can extend the reach and quality of services, which, in turn, helps to promote greater government responsiveness and citizen satisfaction. The [Jeollanam-Do Government](#) of South Korea recently deployed Polycom's unified collaboration technologies to improve citizen services, prevent disasters and strengthen public security. "Aside from helping the provincial government to operate more efficiently, the Polycom HD videoconferencing system promotes greater responsiveness to people's needs and higher-quality service for our citizens," said Mr. Youngchul Song, Head of the Planning Coordination Office, Jeollanam-Do Government. Adopting the collaborative government approach has enabled the regional government to shorten response times to accidents and disasters and promote closer information sharing among its dispersed communities while being environmentally responsible.

At the country level, supporting domestic companies in exporting national products and services has become a priority for many government departments, as it positively influences the balance of trade. Deploying visual communications then becomes a natural choice to support these government-to-business initiatives, as it helps break down geographical borders. For example, [UBIFRANCE](#) - a network dedicated to assisting French companies with their international development with 64 economic missions acting in 44 countries - has invested in room-based and personal telepresence solutions. It offers videoconferencing as a service to cope with the high demand for long-distance communications. Mr. Yann Danou, IT Systems Manager at UBIFRANCE explains, "We want to facilitate collaborative work and improve communication between teams in France and abroad, make savings on travel expenses and offer new services, but also fully embrace the communication tools of the future"..⁶ UBIFRANCE also demonstrates the benefits of collaborative communications by showcasing personal telepresence systems at trade shows designed to be used by local companies to talk to international companies that may be interested in doing business in France. The concept works quite well for UBIFRANCE, as it facilitates French international business activities while demonstrating a capacity for innovation.

Operational Efficiency

Governments across the world are rapidly adding video capability to their federal-, state- and city-level departments to improve the speed of communications and promote greater efficiency and collaboration. Large emerging nations like China and India as well as smaller countries like Vietnam are investing heavily in video-centric networks. For example, in India, state wide area networks (SWANs) intended to

be a converged (voice, video and data) information superhighway linking various states are being utilised to equip civil departments with videoconferencing facility. The situation is similar in China where the Government has been a top customer for major vendors for the last two to three years at multiple levels (central, provincial and city). The military and defence departments of various governments are also major buyers of videoconferencing endpoints and infrastructure, although most of the major deals go unreported due to their sensitive nature.

As can be seen from above examples, countries push for better operational performance and try to promote a government that is more responsive to citizen's needs, agile and accountable. As part of its decentralisation process, the [Peruvian Government](#) recently adopted collaborative communication technologies to facilitate faster decision making and provide distance-learning opportunities across all 24 regional governments. The national videoconferencing network has made it possible to hold real-time, interactive meetings with government officials and citizens anywhere in the country and facilitate debates on national development. "The technology will be used for training the workforce in rural areas and for virtual meetings among national, regional and local officials, facilitating discussions and decision making on local development programmes and coordination," said Ramiro Coello, INICTEL chairperson.⁷ Similarly, the Vietnamese Government recently deployed a nationwide HD videoconferencing network to meet e-government targets in the areas of cost, time saving and operational efficiency. "Videoconferencing can result in huge cost savings, up to billions of dong per year, particularly in the case of the educational sector," said Mr. Quach Tuan Ngoc, Head of the Ministry of Education and Training's IT Department, Government of Vietnam.⁸ By facilitating immediate, cost-effective intra- and inter-agency collaboration over distance, government departments can make coordinated and informed decision making and responses while promoting enhanced operational efficiency and sustainability.

Mission-critical Communications

The collaborative government approach leverages secure and reliable unified collaboration solutions to support the uninterrupted delivery of mission-critical services and maintain the transparency and continuity of government operations in all situations. When the Hong Kong City Government hosted the East Asian Games in December 2009, it turned to collaborative communication solutions to enable seamless audio-visual communication between different sports venues, key government departments and the games' command and control centre. "Controlling and monitoring work for a multiple stream of sports games located at multiple sites is a major challenge," said Ms. Wong Yuen Lee, Division Head, Contingency Planning, East Asian Games Company.⁹ "Fortunately, nowadays, it can be overcome by effective communication systems including video monitoring, videoconferencing systems, telephones, mobile phones, computerised bulletin boards and powerful trunk radio," she added. The introduction of HD videoconferencing in the East Asian Games resulted in an effective reporting of real-time scenarios and exchange of real-time situational awareness, which allowed relevant authorities to report progress as well as emergencies in a much more timely and efficient manner.

In times of crisis, telepresence helps accelerate decision-making timeframes through improved coordination with liaison officers in operational areas and enhanced multi-agency collaboration. The North Atlantic Treaty Organisation (NATO) recently deployed immersive telepresence solutions in six international locations to improve operational efficiency and inter-agency collaboration and enhance its ability to support out-of-area operations. The technology is used daily for central command communications, emergency management, critical needs assessment and communications, workgroup

collaboration and project management. "Information flow is vital to fulfilling our goals and mandates, maximising the productivity and efficiency of personnel, and ensuring the success of operations," said Malcolm Green, chief of the NATO C3 Agency's Capabilities Area Team 9 (CAT 9), Networked Information Infrastructure Communication Services.¹⁰ The technology is also helping NATO to reduce its need for travel, thereby saving money and improving productivity. The standard-based systems also interoperate securely and seamlessly with videoconferencing systems currently in-use by NATO's allied partners.

Unified Communications Strategy

A collaborative environment includes elements of a unified communication (UC) strategy like presence, instant messaging, telephony, mobility and unified messaging, in addition to Web, audio and videoconferencing, which are accessible in an ad hoc, multimodal fashion through a single client interface or within an embedded application interface. Presence is a key element to an organisation's speed and responsiveness, as it provides the status of communications or workflow tools that a person may use, along with the person's working context. By being able to see the status of the device and individual, government agencies can reduce human latency and communicate with stakeholders more effectively. With such a solution, the collaborative government can address any audience, at any time and place, by using any device. Supporting this approach, [Microsoft and Polycom](#) recently signed a multi-year strategic agreement to deliver end-to-end UC to improve users' productivity. "Microsoft's strength in a unified client that integrates e-mail, instant messaging, presence, and Web conferencing coupled with Polycom's strength in video and voice, makes for a very potent partnership that can offer a truly complete UC portfolio suitable for any government or public sector department," said Pranabesh Nath, Industry Manager of UC and Collaboration at Frost & Sullivan. "Vendors that are unable to offer tight, full-spectrum video integration in their UC portfolio may find the government markets increasingly difficult to penetrate," he warned. This strategic approach translates into an enhanced stakeholder satisfaction and productivity gains, as civil servants are able to access the right people and information in real time and then provide quality answers to citizens, businesses and other departments more efficiently and effectively, speeding decision making and enhancing response times.

The logical next step for government departments moving forward will leverage the benefits of unified collaboration by integrating visual communications to provide the level of personalisation, interactivity and responsiveness that face-to-face conversation allows, without having to travel great distances or compromise on workflow efficiency in order to do so. "By integrating video collaboration at the heart of their UC strategy, national and local government departments can enhance operational efficiency, improve productivity, accelerate decision making, engage more effectively with stakeholders, provide on-demand access to better-quality services, and offer a more personalised, immersive and life-like experience to citizens, businesses and other departments" said Marc-Alexis Remond, Global Director for Government Solutions and Market Development at Polycom. "Polycom's standards-based solutions for Public Sector provide governments with location liberation - a true enabler to their transformation - which breaks distance barriers, bridges gaps and brings people together face-to-face, helping to improve public services, safety, security, healthcare and education," Mr. Remond added.

Having said that, a government's ability to deliver HD audio and visual communication is closely aligned with the status of the nation's private and public communication networks. The latter relates to a country's next-generation broadband infrastructure, which is seen by most governments as a strategic investment to

support the social-economical development of their country. (For more information, please refer to the reference material, "Leveraging a Next-Gen Broadband Network to Deliver E-government Services.")

3. Leveraging Next-generation Broadband Networks

Most government departments understand that a national broadband network is a key building block to delivering the country's sustainable development strategy and an important factor in helping to drive. A blend of mobile and fixed broadband is expected to enable the broad delivery of public services to rural and regional areas, in addition to reducing the digital divide. For example, China has the largest fixed broadband market in the world in terms of number of subscribers.

Mobile broadband is a perfect substitute for large countries needing to service remote cities, rural communities and islands such as China, Russia, Brazil, Argentina, India, Japan, Australia, New Zealand, Malaysia, Thailand, the Philippines and Indonesia. Not to mention that, its implementation cost is lower than that of fixed broadband. However, mobile broadband is relatively slow and therefore, cannot totally replace fixed broadband. This issue is being addressed with the introduction of 3.5G and 4G wireless technologies designed to address bandwidth bottlenecks.

However, mobile and fixed broadband can be packaged and made available as a bundled offer aiming to increase the adoption of such applications through multiple access terminals and drive the market demand. This is the case in India where [Reliance Communications has forged a partnership with Polycom](#) to introduce the world's first wireless, high-resolution videoconferencing service. Bundling Polycom's easy-to-use HD videoconferencing systems with dedicated virtual private network (VPN) connectivity through the Reliance Netconnect Broadband+ wireless broadband data card, the service significantly lowers the price barrier to adopting videoconferencing and is expected to be a mass enabler of videoconferencing usage across multiple industry verticals in India. Mr. Vrajesh Shelat, Head of Wireless Data Business, Reliance Communications commented, "Our robust pan-India network is equipped to deliver a life-like video experience over a secure Virtual Private Network connectivity. Reliance Netconnect Broadband+ is well equipped to handle the taxing demands of videoconferencing. The launch of the world's first high-resolution wireless videoconferencing service further reinforces Reliance's capability of delivering innovative solutions. The corporate sector, especially the growing services and SME sectors, will expect to benefit greatly from this offering."



Figure 4: Mobile and fixed broadband are expected to enable the broad delivery of public services to rural and regional areas and instant access to online services from anywhere at any time.



Figure 5: Polycom employees connected with participants at Singapore's iExperience by using Polycom telepresence suites, demonstrating the impact of visual communication solutions on government operations.

While though high bandwidth speed and availability are a must to connect citizens and businesses with government institutions, it is not enough of a draw card for people to use the services. Similar to in the case of the mobile handset market, user applications and content is expected to drive the adoption and utilisation of government services. With HD audio and visual communication and next-generation broadband networks, the user experience is

expected to be totally transformed, opening the door to new services and capabilities. This is something that the Singapore government realized very early on. As part of the country's Intelligent Nation 2015 (iN2015) master plan, the Infocomm and Development Authority of Singapore have been tasked with transforming the city into an intelligent nation and a global hub powered by info-communications. The project, which is well underway, consists of providing a nationwide ultra high-speed broadband access to all physical addresses including homes, schools, government buildings, businesses and hospitals. By June 2012, it is anticipated 95 percent² of all homes and offices are expected to be connected to the ultra high-speed, all-fibre network. A wide range of services will be riding on Singapore's next-generation nationwide broadband network (Next Gen NBN) provides a wide range of services to empower business users, home users, schools and learning institutions.

A [key exhibit at Singapore's iExperience](#) recently demonstrated the method in which Polycom's visual communications solutions enable government departments and businesses to achieve greater productivity through improved team collaboration and more flexible, responsive workflows. At the exhibit, visitors were able to experience face-to-face meetings over distances that are as natural and life-like as when all participants are situated in the same room. The rollout of the Next Gen NBN is expected to drive the demand on services riding on Next-Gen infrastructure. As the take-up and adoption of the Next Gen NBN service increase, Singapore-based companies and multinational corporations are likely to benefit from a more robust infrastructure network, making the country an ideal hub for businesses across Asia Pacific. The ability to enjoy ultra high-speed broadband access anywhere and instantly collaborate face-to-face with colleagues, partners and customers anywhere around/ in the world provide people with the flexibility to productively work beyond the confines of their office desk. Mr. Khoong Hock Yun, Assistant Chief Executive, Infocomm Development Authority of Singapore, commented, "IDA welcomes companies like Polycom to participate in the Infocomm Experience Centre, (iExperience) and showcase interactive and engaging next-gen services. The iExperience is an exciting platform for consumers and businesses to discover the infinite possibilities brought about by the Next Gen NBN."

The use of video within an organisation varies depending on the concerned industry or department in question, though various uses can be easily identified, for example, training sessions, meetings, conferences, communications, interviewing, project management, research and development and customer-facing activities. When properly utilised, video is superior to the standard methods of communication. As a result, visual communication tools like videoconferencing, recording, and streaming are common in today's business environment.

Creating content and capturing events via video has become easier through reduced production costs by utilising videoconferencing endpoints, codecs and recording and streaming servers. Video content management links the world of videoconferencing and video streaming, allowing public institutions to create pools of information that can be repurposed and consolidated on a single storage infrastructure or repository to deliver video-on-demand services or broadcast multi-media content easily and rapidly through digital signage to a wide range of targeted viewers.



Figure 6: Videoconferencing is transforming the method in which educational institutions deliver classroom learning.



Figure 7: Visual communication technologies are revolutionizing the method in which people work, offering a more life-like service experience over distance.

4. Life-like Applications Help Drive NBN Adoption and Utilisation

There has been a need for citizens and businesses to access government institutions and services for information as old as the concept of government itself/. Even though the Internet and contact centres have transformed the method in which people interact with various government departments, e-government services today still have a low adoption and utilisation rates due to lack of face-to-face communication between public servants and citizens or businesses. Based on this observation, it would be quite unrealistic to believe that providing faster Internet connectivity alone would solve this issue.

New technologies like telepresence and video streaming solutions will truly change the way change the method in which people live, work and play while keeping the human element. Characterised by HD video, audio and content, telepresence enables government departments to offer a more life-like service experience and have face-to-face interactions with individuals or groups over distance. Here are some applications that help drive the adoption and utilisation of a country's national broadband network and government services are discussed below.

Tele-services

Over the years, government departments have been progressively setting up Web portals to provide information to the public and implementing voice self-service services with call centre agents able to handle phone enquiries or even other interactions through channels like e-mail or chat, often referred to as citizen or emergency contact centres.

In China, social security is a constant concern, and the service quality has a direct impact on social stability and prosperity. In an effort to cope with the urgent demand for labour departments to provide a unified service window to citizens, China's Liaoning provincial government set the integrated 12333 call centre system to enable the public to easily understand the new policies, rapidly familiarise themselves with procedures and better safeguard their own legitimate interests. Equipped with standard-based SIP (Session Initiation Protocol) terminals featuring superb sound quality by the Polycom® Acoustic Clarity™ technology, civil servants enjoy immersive audio effects and crystal-clear voice clarity while on phone or using the audio conferencing feature.

A natural evolution of the multimedia contact centre is the telepresence contact centre, which offers a life-like and more personal service experience to citizens by communicating with public servants over video from anywhere and through any device - be it a computer, mobile handset, game console, IP television or service kiosk - connected to either the wired or wireless broadband network. In the near future, customers and citizens are likely to be able to connect to a telepresence contact centre through HD voice and video. This concept is being explored in the private sector by the



Figure 8: Telepresence Kiosks provide citizens with better access to public services and enable to meet face-to-face with remote staff and experts.

Korea Exchange Bank (KEB) in collaboration with SK Telecom. The bank is considering implementing high-definition video remote-teller systems, which would enable clerks to communicate live with customers through video monitors in interactive kiosks.¹

Tele-medicine

HD videoconferencing can help healthcare providers increase their level of patient care, control costs, address staffing shortages and serve rural patients. In the United States, the National Intrepid Centre of Excellence (NICoE) - an institution dedicated to research, assessment and treatment of military service members and veterans suffering from traumatic brain injury (TBI) and psychological health issues - deployed a collaborative tele-medicine network to enhance its capabilities to deliver the highest quality of care for patients by supporting a wide variety of tele-medicine services, including consultation and coordination, comprehensive evaluations, coordinated research as well as caregiver training and education. "TBIs and psychological health issues represent a significant issue for returning soldiers, so the need for a centre like NICoE has never been more vital. With this support from Polycom, medical specialists and researchers from around the world will be able to come together to better understand what is needed to provide the best care to soldiers and their families," said Arnold Fisher, Honorary Chairman of the Intrepid Fallen Heroes Fund.

Specific tele-medicine solutions like [practitioner carts](#) enable medical professionals to connect with patients regardless of time or distance constraints, thereby improving the access to quality care. Medical and non-medical peripheral devices can be easily connected to the telepresence system through an integrated switch box and connection panel, allowing real-time images to be shared in a high resolution (for example, images of a patient's throat, ears or skin). Such systems interoperate with all standard-based medical peripheral devices and have the ability to run in-band stethoscopes, which provide unparalleled quality for listening to heart and lung sounds in real time while giving the clinician the ability to view the patient. Healthcare professionals can also use the tele-medicine systems for broadcasting medical procedures for educational or training purposes.



Figure 9: HD video enables healthcare professionals to deliver patient care remotely.

Tele-education

Technologies like videoconferencing and immersive telepresence are used every day by educational institutions for countless applications - alumni enrolment, interactive distance learning classes, music and art performances, remote access to subject matter expertise, research, professional development, and to conduct virtual meetings with stakeholders.

For example, when U.S. researchers and educators need to collaborate with colleagues across the country or world, they



Figure 10: Video conferencing is transforming the way educational institutions deliver classroom learning.

turn to [Internet2](#) (in cooperation with Polycom), an advanced network that delivers a 100 Gb per second bandwidth. Members of this network use the consortium's (Internet2) videoconferencing infrastructure for distance learning, remote fine arts performances, video-enriched special events and collaborative research among Internet2 members and industry partners. Universities access the network to cost-effectively deliver classes to remote students, while K-12 schools across the world engage in virtual field trips, interact with guest speakers and more. In an era of budget cuts and limited resources, Internet2 collaborates with Polycom to deliver on the concept of location liberation by enabling thousands of individuals to defy the boundaries of distance, cost and time.²

In Australia, the Department of Education in the region of Gippsland - a large rural region in Victoria - that is rich in coal, natural gas and agriculture faces challenges related to distance, shortage of skills and lack of scale. As part of its trade training initiative, the Department of Education is exploring new methods of using videoconferencing to provide the same access to knowledge and skills to students regardless of their school or location. The innovative concept consists of using a video client, whether in the classroom in a room-based system or on a laptop computer connected to Telstra's mobile broadband network, for students to learn from remote trade teachers in real time such as farmers and mechanics equipped with wireless and portable videoconferencing units. This initiative will help Gippsland provide an equitable access to education, foster a rich teaching-learning environment, and, most importantly, retain the young skilled workers in the region to contribute to the local economy.³

Tele-mentoring

High-speed IP networks also create opportunities for new kinds of real-time applications that connect artists and audiences across the world. Through its distance learning programme, the Manhattan School of Music - the first conservatory in the United States to use videoconferencing technology for music education - reaches over 1,700 students each academic year, including learners from 27 of the 50 states in the country and 16 other countries to date.

⁴ Musical applications in classical and jazz music include regular public lessons referred to as master classes, sectional rehearsals for large ensemble performances, private lessons, music clinics on performance-related techniques, instrumental and vocal coaching on musical interpretation, professional development for faculty, educational and community outreach music programmes for K-12 schools, libraries and hospitals across the country, composer colloquia with notable composers across the world, panel discussions on diverse themes and topics like copyright protection for musicians in the digital age and so on. More recent applications include simultaneous Webcasting of live, videoconference exchanges, tele-mentoring sessions on career and professional advancement and remote auditioning from far-reaching locales such as Beijing and Shanghai in the People's Republic of China. As over 40 percent of the Manhattan School of Music's student body comes from outside the United States, having the opportunity to audition for Manhattan School of Music through a live, interactive videoconference from one's home countries would provide significant savings for students and their families. It also opens up the opportunity for talented, yet economically disadvantaged, students to audition for one of the world's leading music conservatories.



Figure 11: Polycom's Music Mode technology enables Manhattan School of Music to use videoconferencing for music education and mentoring.

Tele-justice

People movement and meeting requirements in the judicial process costs time and money and poses security and information management challenges. In addition, overcrowded justice systems, jails and holding cells create dangerous and costly logistical problems. The transportation requirement for prisoners also prevents law enforcement personnel from being on the streets protecting citizens. To overcome these challenges, courts and correction institutions have developed tele-justice solutions. In the United States, Oakland County has a unique judicial arraignment system, which integrates multipoint videoconferencing with digital document management and transfer capabilities. The county is able to process an inmate or detainee from arrest through arraignment by using videoconferencing equipment and an integrated Web-based software solution. "We are saving four to six hours per arraignment and making the process far safer. Today, the arraignment process can be completed within hours instead of days," said Bob Daddow, Deputy County Executive for Special Projects, Oakland County, Michigan.⁵ The typical arraignment process used to take up to ten working days to complete with prisoner transport and the hand carrying and faxing of items like booking documents and warrants. Offenders were often transported twice or up to three times for felony charges. The custom software that enables the control of video endpoints also allows law enforcement agencies, prosecutors, community corrections and courts to save and secure case records on a centralised server that can be retrieved instantly for viewing or printing. Law enforcement personnel can also track important information, as cases are created on the system, including a specific officer and a prosecutor assigned to a case, a housing facility for the offender, and court of jurisdiction.



Figure 12: Videoconferencing can help speed up the judicial process.

Tele-work

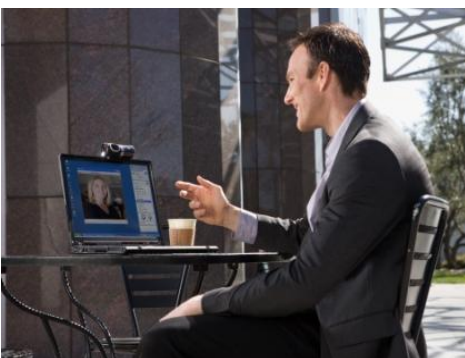


Figure 13: Many government departments support tele-working and promote work/life balance.

Tele-working is often referred to as tele-commuting, e-commuting e-working, tele-work, working at home (WAH), working from home (WFH) or smart working. In general, it is a term used to describe a work arrangement in which employees enjoy in working location and hours. In other words, the daily physical commute to a central place of work is replaced by telecommunication links. Armed with remote access to their organisation's network, with toll-free numbers, VPNs, and mobile phones, tele-workers escape from traffic jams, bad weather and high fuel prices and are able to find the right balance between personal and professional life. Many local governments embrace visual communications to support policies that ensure ratepayer accountability, cost reduction and underpin green credentials.

This is the case of the South Gloucestershire Council - located in the south west of England - that has embarked on a 'Smarter Working' initiative designed to encourage more productive working practices and reduce the impact on the environment. This implies operating a

more flexible working environment with a greater proportion of rotating home workers and a more versatile use of existing desk space. “The Council is spread across a number of locations. When meetings take place, this can lead to a number of people having to travel to the meeting with attendant costs in both time and environmental impact. This, combined with our Smarter Working initiative increasing the spread of staff, meant that we wanted a communication solution that would integrate all home-workers and remote workers with the office-based staff,” explained Tim Peters, Head of IT at the Council.⁶ Embracing visual communications also helps local governments support policies of ratepayer accountability, cost reduction, and underpin green credentials. Finally, by deploying tele-work solutions for daily communications, governments at all levels can continue to function adequately and provide essential services in the event of lengthy pandemic or other major disasters.

5. Importance of Open Standards for Unified Communication Environments

The World Wide Web - an open standard-based platform - has transformed the way we in which people live, operate and communicate, in addition to driving innovation in ICT and contributing to the overall global economic growth. According to Mr. Vint Cerf - an American computer scientist who is recognised as one of the fathers of the Internet, the Internet is “fundamentally based on the existence of open, non-proprietary standards.”¹ In the unified communication and collaboration space, open standard is an important strategic issue for any industry, customer and government.

For the ICT industry, open standards allow vendors to provide software and services that meet the current and future government and end-user requirements, today, and in the future. Non-profit alliances of worldwide communications technology leaders such as the [Unified Communications Interoperability Forum \(UCIF\)](http://www.ucif.org), of which Polycom is a founding member, collaborate to realise the potential of UC in organisations by working together to increase efficiency, decrease implementation costs and improve the interoperability experience for UC customers. Unfortunately, not all vendors take a similar approach, and some due diligence on the part of the customer is necessary. In certain parts of the world, <http://www.ucif.org/governance> plays a key role in ensuring that software interoperability standards are open, transparent and developed in a collaborative process. In March /2010, the European Commission - a long-standing supporter of open standards - finally cleared Cisco's proposed acquisition of Tandberg, but the clearance was subjected to the divestment of its TIP (Telepresence Interoperability Protocol) protocol for telepresence solutions to ensure the interoperability of its products with those of its competitors.²

For customers, open standards ensures a high degree of interoperability, flexibility and choice with regard to a visual communications solution and, more importantly, prevent them from being locked-in by a single vendor. A good example of this is [H.264 High Profile](#) - a powerful, standard-based video compression technology that reduces bandwidth requirements for HD telepresence and videoconferencing by up to 50 percent. By providing high-quality video using significantly less bandwidth, H.264 High



Figure 14: The Polycom® Open Telepresence Experience™ HD 300 (OTX™ 300) delivers the future of immersive telepresence, transforming the method in which organisations communicate and collaborate.

Profile helps drive a greater quality of experience among mobile and home workers. Through an increased adoption, it is likely to help drive greater department collaboration and efficiency. By ensuring the delivery and availability of H.264 High Profile across its entire product line and being the first to market, Polycom can deliver the lowest total cost of ownership for telepresence versus compared to that of its competitors, thereby allowing governments to free up funds to do more with less (like financing other key projects).

As central and local government agencies turn to UC to support a more productive and efficient workflow, interoperability among ICT systems will not only become critical, but also strategic. Industry initiatives like the [Polycom Open Collaboration Network](#) bring ecosystem partners together to deliver standard-based UC and collaboration systems. Many government organisations have realised the benefits of deploying interoperable UC systems. The City of Bienne in Switzerland and Mexico's Ministry of Finance have been benefiting from this collaboration since 2008. Both these government customers use Polycom® CX phones featuring [Polycom HD Voice™](#) technology, which is fully integrated and optimised for the Microsoft Office Communications Server 2007 R2 environment. From this deployment, the City of Bienne has saved \$1.8 million annually, while the Mexican Finance Ministry witnessed a reduction in the management cost by as much as 20 percent year-on-year. [Download the complete case studies here.](#)

Microsoft and Polycom are making it easier for organisations to have a true end-to-end UC environment. Recently, they have signed a multi-year strategic agreement to deliver on the promise of fully integrated communications for customers. This latest [strategic agreement](#) is another major step towards streamlining communications across messaging, video and voice with connected applications and devices. Through this partnership, Polycom is likely to develop a broad base of solutions for Lync Server 2010 and beyond, including next-generation Polycom CX series endpoints optimised for Microsoft UC environments, new, innovative room-based video systems designed specifically for enabling direct integration and additional interoperable solutions for Polycom's existing and future videoconferencing solutions. Such native integration and proven interoperability between vendors are expected to help government customers drive the operational performance by increasing productivity and reducing travel, telecom and IT operating costs.

Open standards not only foster innovation and growth, but also offer flexibility and choice to customers. As government departments move toward UC and collaboration, selecting standard-based solutions is a must to ensure interoperability among UC systems and further support mandates with regard to accountability, transparency and responsibility. Embracing such this vision, the Colorado Department of Transportation (CDOT) - responsible for a 9,134-mile (approximately 14,699 kilometres) highway system handling more than 48 billion vehicle miles of travel annually - evaluated all the major video communications vendors for their state-wide video communications network. "In researching our options, it appeared Polycom was well ahead of the market, not just in terms of a reliable, standards-based product, but also in pricing, service, and support," said Thom Rivera, enterprise architect for CDOT.³ Working with [Polycom Global Services](#) organisation, CDOT launched a multiphase effort to design and implement a video communications network to connect CDOT facilities throughout the state. "Polycom Global Services definitely saved us time and enabled us to start operating much sooner," added Dalton Brooks, video engineer, CDOT. In the long term, the video network is expected to be a core part of an agency-wide UC environment.

6. Conclusions

To better address global challenges, governments must evolve and leverage collaborative communication technologies to transform the method in which they serve, operate and communicate. Failing to do so may widen gaps between government departments and constituents, national and local governments or cities and remote areas.

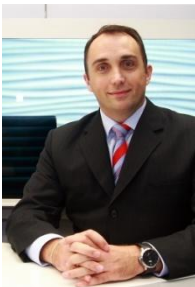
Visual communication solutions provide government agencies with location liberation - a true enabler to their transformation - which breaks down distance barriers, bridges gaps and brings people together face-to-face, thereby helping to improve public services, safety, security, healthcare and education. Next-generation broadband networks are expected help facilitate the delivery of such innovative services and accelerate technology adoption, thereby transforming the lives of citizens, businesses and government departments worldwide. With HD video and telepresence solutions at its core, the collaborative government approach enables national and local departments to enhance operational efficiency, improve productivity, accelerate decision making and engage more effectively with stakeholders at all levels by enabling an on-demand life-like communication between agencies, businesses and citizens.

While the Internet, e-mail, telephony and presence have changed the way we connect, only visual communication applications offer a truly life-like experience (eye contact, body language and multimedia content) necessary for rich communication, close collaboration and effective conversations over distance. By enabling high-quality voice and visual communications in any environment, Polycom's solutions support and promote a collaborative approach to governance, which translates into an enhanced service experience, improved operational performance and secured mission-critical communications.

About the Experts



Pranabesh Nath is an Industry Manager with the ICT Practice at Frost & Sullivan in Asia Pacific. He leads a team of analysts specializing in studying the market trends and developments in the collaboration and unified communications sectors of the enterprise communications industry. His core research areas include UC services, visual collaboration solutions, enterprise information management and cloud computing and its applications in enterprises. Pranab has authored multiple regional research papers and contributed to several global syndicated projects within his discipline. He also provides client counsel and expert advice on market penetration and expansion strategies, growth opportunities as well as implementing collaboration solutions and applications. Pranab's expert views and opinions have been featured in leading local and regional media, and he is a regular speaker at industry events across the Asia Pacific region. To contact him, please write to pranabesh.nath@frost.com



Mr. Marc-Alexis Remond is the Global Director, Government Solutions, and Market Development for Polycom, Inc. In this role, he is responsible for driving strategic business initiatives in areas of public services, safety, security and defense worldwide. Based in Singapore, Mr. Remond assists government organizations across the world to operate more efficiently and effectively, helping to transform the method in which they engage, communicate and collaborate with citizens, businesses and other government departments by leveraging Polycom's HD voice, video and telepresence solutions. Known as the collaborative government approach, Mr. Remond's latest initiative enables greater service, performance, and communication by providing citizens with an on-demand access to better-quality services wherever they may be located and enabling geographically dispersed government teams to easily collaborate to make informed decisions and respond to emergencies in a timely manner. To contact him, please write to marc-alexis.remond@polycom.com

About Frost & Sullivan

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About Polycom, Inc.

Polycom, Inc. is a global leader in unified communications solutions and the only provider of telepresence, video, voice and infrastructure solutions built on open standards. With Polycom's solutions, people in different locations can more effectively communicate, problem solve and create together. Using Polycom's UC solutions and services, people connect and collaborate with one another from anywhere at any time through their desktops, meeting rooms, classrooms and a variety of mobile settings. Through highly visual immersive experiences, teams make better decisions faster and increase their productivity. Polycom powers smarter conversations, transforming lives and businesses worldwide. For more information, please visit www.polycom.com

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