

The Growing Use of Videoconferencing in the Healthcare Market



A Frost & Sullivan White Paper

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Abstract

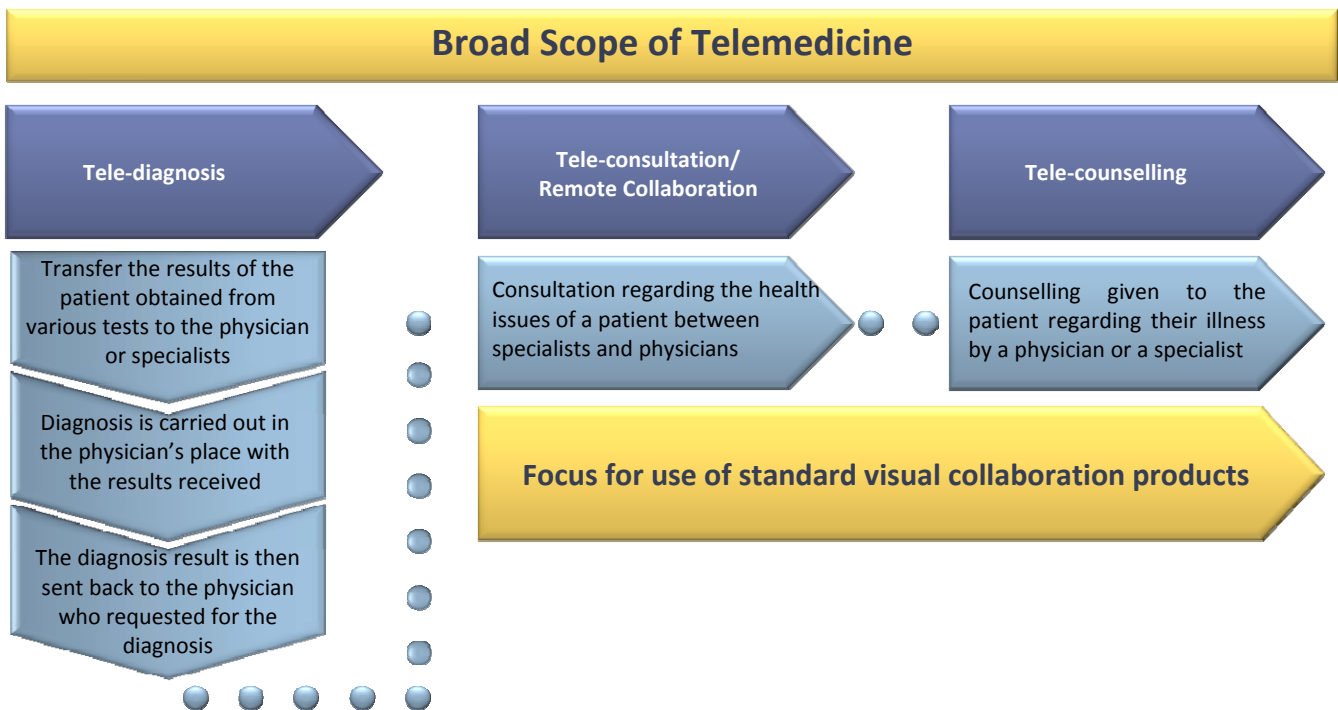
The increasing demand for the services of both public and private healthcare organizations is being driven by factors including the aging population in Western countries and the need to access remote populations from centralized facilities.

Communications technology is playing an increasingly important role in allowing healthcare providers to extend the reach of scarce or expensive expertise, and videoconferencing technology is contributing directly in applications such as patient monitoring, consultation and counseling.

Both healthcare organizations and videoconferencing vendors are realizing the potential in using inexpensive standard 'off-the-shelf' videoconferencing products in these types of applications, helping providers achieve immediate saving benefits, and helping vendors develop both knowledge and specialized product offers in the growing market segment.

Executive Summary

The practice of telemedicine is undergoing significant evolution along with the advances taking place in the overall videoconferencing market. These changes are creating new challenges for videoconferencing service providers as they continue to address a market that remains highly under penetrated. For these reasons, healthcare practitioners are increasingly adopting interactive video or videoconferencing applications to deliver enhanced access to healthcare as well as to improve the quality of that care at reduced prices across the globe.



Source: Frost & Sullivan

Visual Collaboration in the Broader Context of Telemedicine

The number of telemedicine programs around the country is growing, and they are encompassing an increasing number of medical fields. A few years back the costs of telemedicine videoconferencing systems and transmission services were a major barrier to deployments. In the last two years, equipment prices have come down dramatically while endpoint functionality, particularly video quality, has improved substantially.

Telemedicine is unique among all videoconferencing end user applications in the fact that it involves the most critical and sensitive cases. There has been resistance from physicians, healthcare staff as well as patients due to a lack of confidence in the technology and due to cultural and behavioral factors. Doctors who have traditionally considered face-to-face contact with patient as a primary mode of treatment have yet to accept telemedicine as a proper standard of medical care.

While videoconferencing remains a primary telemedicine technology, several other communication elements such as Internet communications, teleradiology and telepathology equipment, store-and-forward video or video-on-demand (VOD) are increasingly being used as primary information delivery sources for the telemedicine industry.

There are still significant obstacles to full acceptance and widespread use of telemedicine technologies. However, once the obstacles are overcome, there exists a large potential for growth. The success of videoconferencing in telemedicine environments in the future will depend mostly on how well it can be aligned with the specific needs of the healthcare institutions.

Some of the most significant benefits of telemedicine are demonstrated in its ability to extend the geographic reach of medical care and provide access to medical specialists in remote and rural areas. However, restrictive reimbursement and legislative policies are limiting the reach of existing telemedicine programs.

Since telemedicine technology offers training and educational benefits to medical professionals and organizations at reduced costs, there is great interest in the medical community regarding telemedicine. However, there remains a resistance from traditional healthcare facilities that are unfamiliar with new technologies. In addition, many potential adopters of telemedicine are seeing resistance from their medical staff fearing that they will be replaced by new and more efficient practices brought by telemedicine programs.

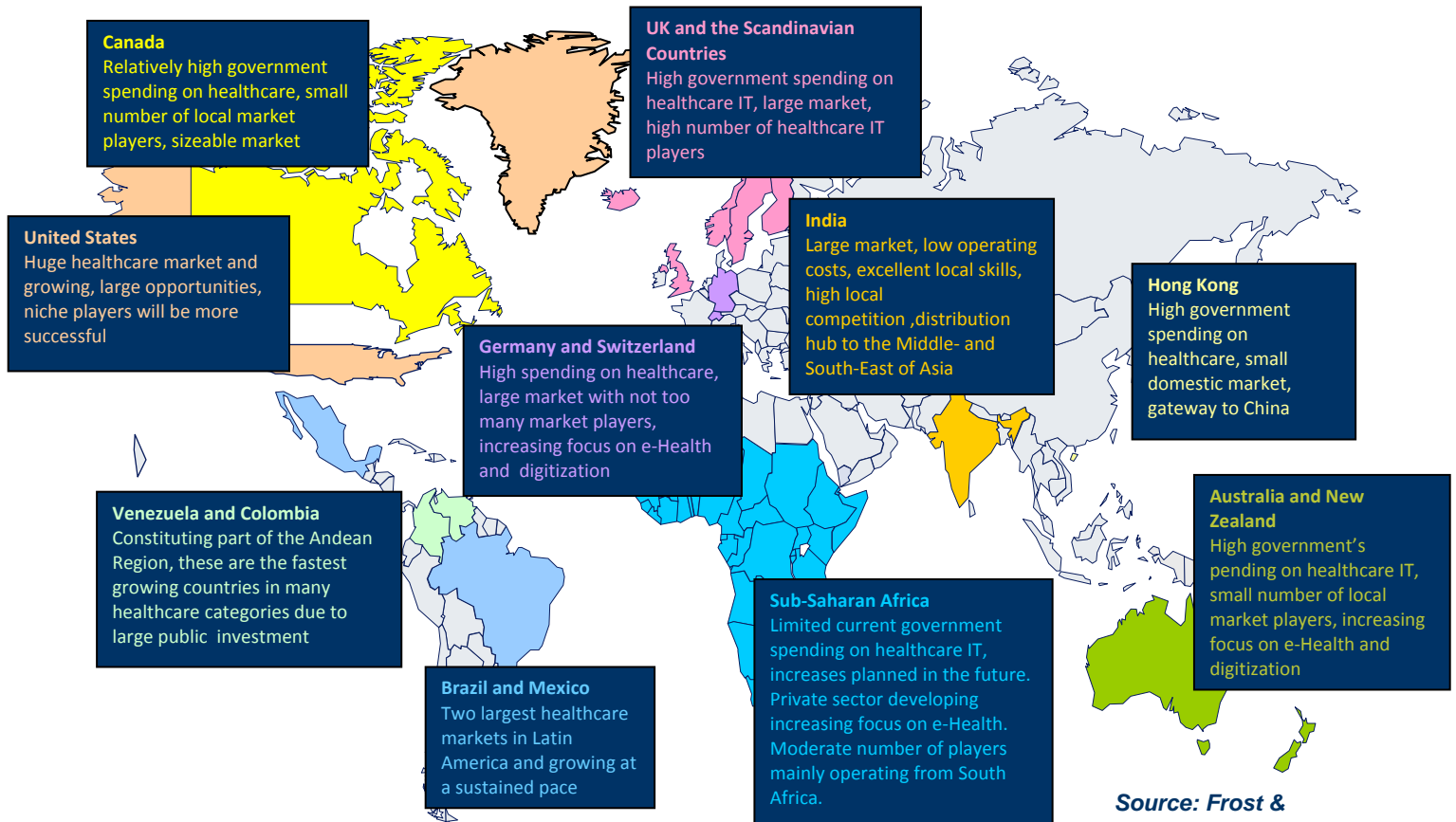
The Aging Population

The rising median ages of the world's population is caused mainly by a decline in the fertility rate and a rise in average life span.

Increase in the percent of individuals who remain unmarried or do not have children is one of the main reasons in the decline of fertility rate, and by the same token – the decline in birth rate. Moreover, average lifespan or the life expectancy increased over the last decades thanks to significant improvements in health condition, mainly due to advances in medical technology.

By 2010, the first baby boom generation will reach 65 years of age and by 2030, it will be in their 80s and the second baby boom generation will be in their 60s. Despite great successes in extending peoples' lives, the aging the population creates major challenges to

countries' economic conditions, as it financing is putting a strain on the sustainability of public funds in countries around the world.



Key Factors in the Global Healthcare Market

The disparity in numbers between retirees and active workers will magnify spending on public pensions, health and long-term care and will put great pressure on legislative branches to keep a balance between increasing public spending and tax revenues. The social implication would include long term elderly care mainly due to the changing disease profile from chronic and infectious diseases to non-communicable diseases which prolongs a patient's life.

As a result of trends like falling birth rate and rising life expectancy, the total world's population will decline and the percent of people aged 65 years and above will increase. In economic term, the working-age population in the 15 to 64 year age group will decrease. The dependency ratio of people aged 65 years and above relative to those aged 15 to 64 years will increase by 2050.

For examples, in Europe the demand for labor will grow, as 20.0 million workers will leave the workforce between 2008 and 2050. This implies that there will be two persons instead of four in the working age for every citizen aged 65 and above.

In Japan the healthcare cost is rising with the increase in elderly population. Around 40.0 percent of the healthcare cost goes toward elderly healthcare. The Japanese Government's spending on medical insurance and pension benefits is expected to grow significantly by 2030.

Currently, the U.S. Government's expenditures on those aged 65 years and above are 3.9 times higher than that on children aged under 18 years. The next three decades will pose significant challenges for the Social Security program, the federal Government, and the U.S. economy, with the retirement of the 77.0 million baby boomers who will soon begin to draw benefits.

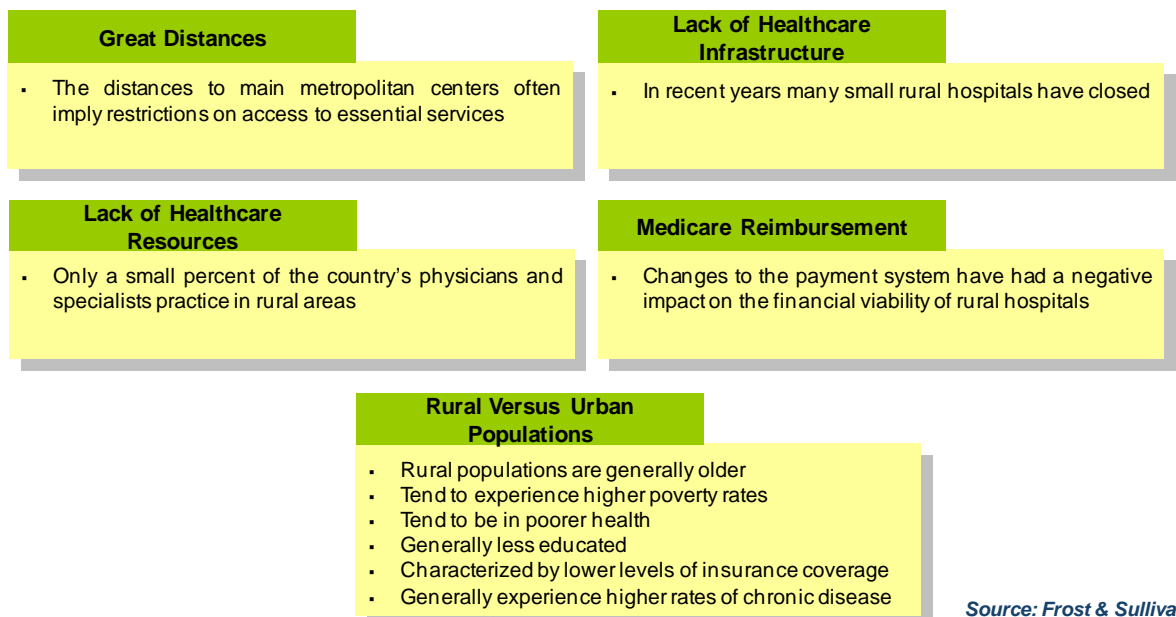
Populations Living in Remote Areas

One of major issues the world healthcare market is facing is the high number of populations living in remote areas. For example, in India, 72.0 percent of the population lives in rural areas.

Vast land area with difficult / inaccessible terrain makes it conducive for technology to be accepted as a method of healthcare. Seasonal isolation of some tracts of land due to floods, snow and other factors are severely limiting access to medical in-person care.

Healthcare professionals located in rural communities need to maintain their skills through continuing education. They also face significant barriers, since they often do not have the time to travel to cities where continuing education is offered and they often lack the required communications infrastructure to access training sessions remotely.

Another challenge that remote areas are dealing with is that small rural hospitals are being closed, while others reduce the level of service and the number of beds. Additionally many rural healthcare facilities are facing considerable financial restraints. This is partly because these hospitals are small, offer a limited scope of specialty services, and are especially vulnerable to policy and market changes.



Source: Frost & Sullivan

Factor Affecting Remote Populations

Information and Communication Technologies in Healthcare

Information and communication technologies (ICT) are a major tool for information-intensive sectors that handle, store, share and process massive amounts of data, information and knowledge.

Telehealth is a combination of telemedicine and telecare along with the management of healthcare services. This acts as an umbrella to define all the services that have resulted in revolutionizing the healthcare sector which is being facilitated by the innovations in ICT. Once patients become acquainted with a new technology, the concept of 'virtual doctor' will become more acceptable. Issues like the need to take time off to go to a doctor or a general reluctance towards healthcare providers will likely lessen among patients.

According to the World Health Organization, telemedicine is "the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information, for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities."

CHALLENGE		1-3 YEARS	4-5 YEARS	6-7 YEARS
Financial	• Research funding	High	High	Medium
	• Reimbursement	High	High	Medium
Technological	• Limited access to equipment	High	High	Medium
	• Need for interoperability	High	High	Medium
Medico-legal	• Security and confidentiality	Medium	Medium	Medium
	• Risk of malpractice	Medium	Medium	Medium
Human	• Patient/provider reluctance	Medium	Medium	Low

Source: Frost & Sullivan

Top Industry Challenges to Visual Collaboration in Healthcare

The most commonly used telemedicine technologies include videoconferencing, mobile and wireless, and network technologies. These technologies are used for various telemedicine activities. Some of the most specialized ones include medical informatics and bioinformatics, defense against bio-terrorism, protection against natural disasters such as tsunami or earthquakes, and medical education.

Videoconferencing technologies include audio, video, and sometimes documents transfer from one destination to another through technologies such as plain old telephone service (POTS), integrated services delivery network (ISDN), and Internet protocol (IP) that are used to connect local area networks (LANs) globally, which can be used for videoconferencing. The H.323 and H.324 are the videoconferencing standards that are used most commonly in almost all the industry sectors including videoconferencing, as well as home telehealth systems for communications through videophones.

Telemedicine can help ensure delivery of right medical advice at the right place and at the right time. It comes as a great help to a vast majority of population with inequitable distribution of resources.

About 60% of the world's population lives in rural areas whereas 75% of the qualified consultants practice in urban centers.

Telemedicine Benefits Overview

Telemedicine can facilitate more accurate and timely diagnoses by making available specialist opinions where this was previously not possible. Telemedicine facilitates patient education and can support continuing education for healthcare professionals.

The use of telemedicine for educational purposes can also foster improved preventive care measures. Telemedicine enables more frequent and higher-quality monitoring of chronic cases. It enables enhanced levels of domiciliary care. By reducing the need for specialists to be based on-site, telemedicine can improve the financial viability of placing medical facilities in rural communities and in underserved areas.

On-site care providers can also benefit from telemedicine, since it allows them to receive quick consultations from remotely-based clinicians. Telemedicine can reduce the frequency and duration of hospital stays.

Telemedicine can be thought of as one factor that aids in reducing rural out-migration, particularly among frequent users of healthcare services. Telemedicine also helps strengthen rural economies by keeping the flow of resources in local communities.

Studies have demonstrated that, when consulting remotely with a specialist located in an urban, academic medical center, high levels of both patient and physician satisfaction in rural settings can be achieved.

Conclusions

Evolving patients' needs, limited number of medical specialists in remote areas, and the technological advances are some of the most important factors driving interest in visual collaboration in healthcare. Patients are becoming keener to get faster access to professional advice and are striving to achieve the same convenience in healthcare they benefit from in other service industries.

There are several issues that the market of visual collaboration in healthcare must overcome to achieve a wider adoption. The financial challenges involve reimbursement of funds, issues of how to pay doctors for longer-term care, and how to justify use of telemedicine in hospitals when the end result will be a cut in hospital stays.

Additionally, on the technology side, the telemedicine will have to be integrated with the electronic medical records, as well as system interoperability issues will have to be resolved. Moreover, medical staff will have to be trained to be able to coordinate remote care, and will have to cope with legal liability, accreditation and licensing issues.

It is a fact that information and communication technologies have tremendous potential for improving health care, but it should be borne in mind that to take advantage of that potential, adequate infrastructure is necessary. In the rural areas of many developing countries, the lack of the infrastructure is more evident. Not only is there not a high rate of broadband access; even the more basic amenities and telecommunications modalities, including telephone networks, computers and electricity, can be scarce.

Another important factor is the often deficient and inadequate transportation infrastructure. The negative consequences of these deficiencies include poorly trained personnel, inappropriate maintenance and control systems and limited ability to gain access to expensive telecommunication infrastructure.

Visual collaboration vendors are finding that there is an opportunity for 'off the shelf' videoconferencing products as an entry point into the healthcare market. It is a cheaper option for healthcare professionals, as they are not purchasing dedicated carts, but standard videoconferencing systems, which are more price-effective and easier to use. It is a 'foot in a door' for visual collaboration manufacturers because they are not only familiarizing the healthcare professionals with videoconferencing, but also are introducing their dedicated pieces of equipment. Effectively, as the market becomes more commoditized and more competitive, the direction that visual collaboration vendors need to take in order to avoid this commoditization is to add value into certain vertical markets.

Key Industry Challenges Addressed by Price Performance Leadership

The global healthcare market is undergoing a rapid evolution, with new technologies introduced constantly. Now, conducting a surgery remotely across countries or even continents is not a dream any more, it is a reality thanks to visual collaboration technologies.

Despite rising popularity, there are several issues that the market of visual collaboration in healthcare must overcome to achieve a wider adoption. The financial challenges involve reimbursement of funds, issues of how to pay doctors for long-term care, and how to justify the use of telemedicine in hospitals when the end result will be a reduction in hospital stays.

Additionally, on the technology side, the telemedicine will have to be integrated with the electronic medical records, and the issues of needed accessibility and bandwidth infrastructure, as well as system interoperability will have to be resolved. Moreover, medical staff will have to be trained to be able to coordinate remote care, and will have to cope with legal liability, accreditation and licensing issues.

The lack of interoperability between some video endpoints, poor infrastructure in certain regions in the world and a general mistrust of the technology by those who have experienced previous generations of videoconferencing and find it is difficult to use, pricey, and not matching their needs, also hinders the visual collaboration market.

In such situations, effective pricing strategies are of paramount importance, as they better position visual collaboration vendors to meet the market needs. The ability to provide visual collaboration technologies at a lower price will likely leverage their use in providing healthcare services, as more facilities will be able to afford them, and thus be more inclined to use them.

About LifeSize

LifeSize is the first company to develop and deliver high definition video communications products. Founded in 2003 by industry veterans and headquartered in Austin, Texas, LifeSize's award winning solutions combine superior quality of experience, unique flexibility and unmatched price performance to make communicating at a distance as natural and effective as being in the same room, for anyone, anywhere.

LifeSize became a division of Logitech in December 2009, sharing a vision of everywhere there is voice there should be video. The company has subsidiaries in Europe and Asia Pacific, and a network of channel partners reaching more than 80 countries.





Measurement of 1–10 (1 = lowest; 10 = highest)	Award Criteria					Weighted Rating
	Price	Features	Ease of Use	Service Effectiveness	Product Matched to Client Needs	
Relative Weight (%)	20%	20%	20%	20%	20%	100%
LifeSize	9	9	8	7	6	7.8
Competitor 1	6	8	8	7	7	7.2
Competitor 2	6	8	8	7	7	7.2

Criterion 1: Price Competitiveness

Rising interest in high-definition and immersive visual collaboration, as well as the market consolidation, are leading to increased competition among value-added resellers and equipment vendors, fuelling pricing pressure.

To address this trend, LifeSize offers one of the most price-effective products, while at the same time providing its clients with the best performance-price ratio. These attractively priced solutions offer not only lowest acquisition costs, but also a low total cost of ownership. LifeSize products start at \$2,499, which places them at about 1/3 of the price of their competitors' most closely matched solutions.

Criterion 2: Features

Rising competition in the visual collaboration market drives companies to constantly fight for new customers by offering innovative features that will better suit their clients' needs. LifeSize is overcoming this challenge with providing High Definition equipment that requires lower bandwidth than its competitors' products. It is especially important in regions that face the issues of the needed accessibility and have poorly developed bandwidth infrastructure. From a HD call at 1.1MB to a crystal clear, 30 frames per second call at 384KB, LifeSize delivers perfect wideband audio quality and full motion video from 128KB up.

One of several hindering factors that visual collaboration in healthcare is also facing is the adoption standards related to legal, cultural, administrative, financial, and technical issues. In the last case the most important is the issue of interoperability between other collaboration systems and medical devices like medical scopes, cameras, mobile medical carts, and digital stethoscopes. LifeSize was able to overcome this challenge by allowing for a seamless interoperability with the Avaya Aura unified communications platform. The platform is able to reduce costs through process integration and equipment tracking, increase efficiency of clinical staff - recoup up to 4 hours of administrative time per nurse, and increase revenue with communications-enabled admittance and discharge.

Criterion 3: Ease of Use

The LifeSize intuitive, color-coded remote control and onscreen menu allows non-technical users to use the system without the need for IT staff to be on assistance. The benefit of such simple operation of LifeSize tools and its impressive price-performance is appealing to healthcare professionals. With access to visual collaboration these healthcare workers can reach out to patients at home and in more remote areas - indirectly reducing costs of hospital stays - and continue their medical education without the disruption of physically attending seminars.

Criterion 4: Service Support

As with any technological solution, service support is an important aspect for any vendor. The case is no different for LifeSize – it provides excellent support to its clients via help desk, Global Deployment Program (GPS), remote installation, and extended warranty and advanced replacement. The service support is especially critical in healthcare services, where timely troubleshooting can sometimes mean someone's life. Worth focusing on here are the Help Desk Assurance Service program and the Global Deployment Program.

The LifeSize Helpdesk Assurance Service program provides core services intended to provide organizations with direct phone and video access to LifeSize service and solution engineers. LifeSize has developed an expertise in troubleshooting and diagnosing the IP and ISDN based technologies. Helpdesk Assurance Service in combination with LifeSize Warranty Assurance service provides access to the latest software, knowledge base, software email notifications and the LifeSize service and support organization.

The LifeSize Global Deployment Program is designed to remove the barriers related to global implementations including scheduling delays, higher product and installation costs and excessive coordination efforts. Without these barriers, LifeSize solutions are deployed in a timely and effective manner, enabling the customer's immediate return on their investment and achieving productivity benefits.

Criterion 5: Product Matched to Clients Needs

With millions of baby boomers now retiring, technology innovators are designing and building a new market for them that will allow those senior citizens to communicate with healthcare providers and their family members from their homes. That creates a need for remote healthcare - or at least the ability to go to a medical center that supports the visual collaboration between them and the doctors.

Because of the challenges from regulatory issues, some client's needs remain unmet. LifeSize, like other companies is restricted by country-level issues, as each country has different policies and regulations on implementing visual collaboration in healthcare and other sectors, and, as mentioned above, the technological barrier continues to be a major obstacle, as many regions in the world have poorly developed infrastructure, preventing them from taking full advantages of visual collaboration.

ABOUT FROST & SULLIVAN

Based in Mountain View, California, Frost & Sullivan is a global leader in strategic growth consulting. This white paper is part of Frost & Sullivan's ongoing strategic research into the Information Technology industries. Frost & Sullivan regularly publishes strategic analyses of the major markets for products that encompass storage, management, and security of data. Frost & Sullivan also provides custom growth consulting to a variety of national and international companies.

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