

# Case study

## Laos – Ministry of Health

»This is a historic and very important event in introducing new technology into the healthcare system. This will cut the costs involved in transferring patients to the capital... Doctors will also be able to continually improve their skills without having to wait for training courses to be organized centrally.«

Dr. Eksavang Vongvichith, Minister of Health, Lao People's Democratic Republic



### The customer

The Ministry of Health in the Lao People's Democratic Republic is constantly striving to boost medical standards and improve the quality of patient care for all citizens. This is a particular challenge in remote areas where access can be difficult and costly. The relatively low level of national income also places constraints on all government spending, which has a direct impact on healthcare outcomes. The rates of maternal and child mortality in Laos are similar to those in Cambodia, which are among the highest in Asia, and are considerably higher than the rates in other neighboring countries – China, Thailand and even Vietnam. Innovative, cost-effective healthcare solutions are vital to the future well-being of the nation and its people.

### The challenge

The comparatively small number of experienced doctors in provincial areas means that there is often no alternative but to airlift seriously ill patients to major city hospitals. Patient welfare is always the top priority, but this level of care comes at a considerable cost to patient convenience and to the state's finances. When Fujitsu became involved in a development program to identify ways that information and communications technology (ICT) could benefit medical services in Laos, the company's consultants devised a remote link to bridge the gap between the provinces and the capital. The Ministry of Health stipulated three key conditions that had to be met:

- Transfer of skills to the Ministry's information systems staff
- In-depth training for users of the system
- Display of on-screen information in Laotian

### The solution

The pilot system developed by Fujitsu relied on stable network infrastructure to provide a realtime link between servers in the distant hospitals so that text, voice and video data could be shared instantaneously. The first hurdle to overcome was an incomplete telecommunications link between Vientiane and Luangphabang – the location of the provincial hospital to be linked in the trial. An urgent request for government support led to approval to use the dedicated network of a communications carrier. Once the physical connection was established, one of the remote PCs refused to "talk" to a server in the Central Hospital. Following numerous failed tests, Fujitsu built a similar environment in Japan and eventually resolved the problem. After much trial-and-error refinement, the pilot system was successfully launched.

### The customer

Country: Laos  
(Lao People's Democratic Republic)  
Industry: Healthcare  
Population: 6.4 million  
Website: <http://www.laopdr.gov.la/>



### The challenge

The mountainous, heavily forested nation of Laos faces many challenges in the delivery of healthcare. Doctors in remote areas often lack the expertise to treat their patients – especially those with serious conditions. As a result, many patients are flown to the national capital so that experienced doctors can make an accurate diagnosis and commence the appropriate treatment. This is obviously not an ideal situation for the patients and their families and it places a heavy burden on the national healthcare budget.

### The solution

Although doctors in outlying areas would frequently call their colleagues in Vientiane for advice, it is not easy to effectively relay detailed medical information over the phone. Fujitsu devised a pilot system with an online connection that allows videoconferencing and the sharing of diagnostic data. With realtime access to clinical databases and the ability to view patient symptoms on the screen, doctors can collaborate and consult much more effectively. This leads to improved patient outcomes and enhanced knowledge transfer.

### The benefit

- Realtime linkage between hospitals enables many patients to be treated without flying from their regional center to the national capital – reducing stress for themselves and their families.
- Provincial doctors receive instantaneous feedback and advice onscreen from experienced colleagues in Vientiane. Fewer doctors now need to travel to the Central Hospital for training sessions.
- Having fewer medical staff and patients flying around the country helps to cut government spending and also reduces the carbon footprint by an estimated 16.5 tons of CO<sub>2</sub> per year.
- The system infrastructure and design is a suitable match for the needs of a country such as Laos, because it is not overly complex or costly.

### The benefit

The obvious benefit of this system to patients is that they can start receiving appropriate treatment without delay in or near their hometown, resulting in improved health outcomes as well as less cost and disruption for themselves and their families. From the provincial doctors' viewpoint, there are numerous benefits. They can make decisions regarding patient care more confidently after consulting online with their experienced colleagues in the national capital, aided by live video streaming and detailed data support. Their knowledge is enhanced instantly via input about their own patients. On average, about 10 doctors per month visit Vientiane from regional areas for training and seminars. The use of this new system is expected to trim that number to around six visits per month.

*"This was our first experience with using ICT on the front lines of healthcare. We discovered that, compared with explaining over a telephone line, it was possible to provide the Central Hospital in Vientiane with a much more accurate and detailed description of a patient's condition. This really exemplifies effective communication. I would like to see the infrastructure expanded so that doctors at many more remote hospitals can take advantage of this system."*

*Dr. Phanomsay Phakan, Deputy Director, Luangphabang Provincial Hospital*

In terms of usability, Fujitsu put a lot of time and effort into staff training and also created clear guidelines and a detailed user manual. For example, basic patient information and vital statistics must be relayed in a standard report prior to any online consultation to ensure efficient system utilization and smooth communication. Initially documentation was prepared in English, but Fujitsu later provided two versions after doctors and nurses advised that they would prefer all documents in Laotian. Computer awareness is not at an advanced level in Laos, so it was critical for a successful implementation to ensure that all users were well trained. Feedback showed that staff feel very comfortable using the system and it has enjoyed great acceptance.

### Products and services

- Pilot System for Remote Medical Care, incorporating:
- Online conferencing and image-sharing service
  - PCs
  - Servers
  - Cameras
  - Scanners

### Conclusion

Ministry of Health officials were highly appreciative of Fujitsu's tenacious efforts and thorough testing to overcome technical issues during the deployment phase. They were also pleased with the effectiveness of the system and with the healthcare outcomes.

*"The pilot system linking the Central Hospital with Luangphabang Provincial Hospital helped our doctors to streamline the opinion-sharing and decision-making processes. This also led to more efficient operations because of the reduced need to transport patients to Vientiane. I believe that we need to implement more such systems and expand the service from a Central Hospital-Provincial Hospital link to encompass many Provincial Hospital-Local Clinic links."*

*Dr. Bounfeng Phoummalaysith, Deputy Director General of Cabinet, Ministry of Health, Lao People's Democratic Republic*

In addition to cost savings, the reduced requirement for doctors, patients and their relatives to travel between provincial areas and the capital is estimated to cut carbon emissions by 30%, or by 16.5 tons of CO<sub>2</sub> per year. This innovative application of ICT is therefore good for the environment as well as helping the nation's budget and boosting the quality of healthcare provision for citizens. However, this pilot system is simply the beginning of a journey. Fujitsu is keen to continue working with the Ministry and with doctors to extend such systems and help benefit the lives of many more people in remote areas of Laos.

### About Fujitsu

Fujitsu is the leading Japanese information and communication technology (ICT) company offering a full range of technology products, solutions and services. Over 170,000 Fujitsu people support customers in more than 100 countries. We use our experience and the power of ICT to shape the future of society with our customers. Fujitsu Limited (TSE:6702) reported consolidated revenues of 4.5 trillion yen (US\$54 billion) for the fiscal year ended March 31, 2012. For more information, please see <http://www.fujitsu.com>.

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