

Fujitsu's Lean Solutions Group —Lean Healthcare in Canada—

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For many years, public healthcare delivery has been in crisis mode for various reasons such as increased demand for services, demographics, waiting time concerns, rising cost of service delivery, government funding constraints, quality concerns, lack of qualified personnel, and productivity and morale issues. This situation will only get worse in the coming years. Most healthcare sectors around the globe are facing similar challenges. It is therefore only a matter of time until public healthcare sectors have to tackle these challenges with a front-line, operational approach that delivers real, short-term results to patients, clinicians, and stakeholders. This paper introduces an example of consulting based on the Lean Healthcare practiced by the Fujitsu Lean Solutions Group with Fujitsu Consulting (Canada).

1. Introduction

Of all the performance improvement approaches available on the market, Lean—built around Toyota best practices—is particularly noteworthy. Among Lean approaches, Lean Healthcare has been very positively rated by the healthcare sector and has generated significant benefits for patients, clinicians, and stakeholders over relatively short periods. It focuses on the following.

- Patient waiting times, delays, and accessibility to care
- Operational performance, costs, productivity, and capacity
- Quality of care and services
- Working environment, motivation, and culture

As a result of our Lean Healthcare performance in Canada over the last two years, the Canadian market has been positively viewed and Fujitsu's Lean Healthcare offering has been recognised as a very powerful one generating

significant, quick, measurable, and sustainable results directly in sync with current critical healthcare issues.

2. Lean Healthcare

2.1 Background

Toyota revolutionised the industrial world by developing a cutting-edge management system, the Toyota Production System. Based on an innovative concept of performance optimisation, the system propelled the car maker to the top of the automobile industry and it has become the global reference for work organisation and management.

2.2 Purpose

Stemming from the Toyota Production System, the Lean approach is adaptable and can be applied to any sector, including healthcare. Its goal is to improve performance, specifically by eliminating waste and reducing delays. It promotes innovative management and work

organisation principles that often defy traditional logic, relying instead on the elimination of non-value-adding activities, reduction of process lead times, and optimisation of operational efficiencies with the involvement of both managers and employees. The end result is the implementation of a corporate culture based on respect for people and continuous improvement.

3. Fujitsu's new Lean offering

3.1 Fujitsu Lean Solutions Group expertise

The Fujitsu Lean Solutions Group, formed as a result of an acquisition in the fall of 2007, is part of the national business solution division of Fujitsu Consulting (Canada). It has developed strategies using the Lean approach in various public and private sector initiatives since 1995. Its diverse range of experience in implementing Lean projects within multiple functional areas in both public- and private-sector organisations is shown in **Figure 1**.

3.2 Lean Healthcare: a value-added approach

Lean Healthcare is a new approach to the

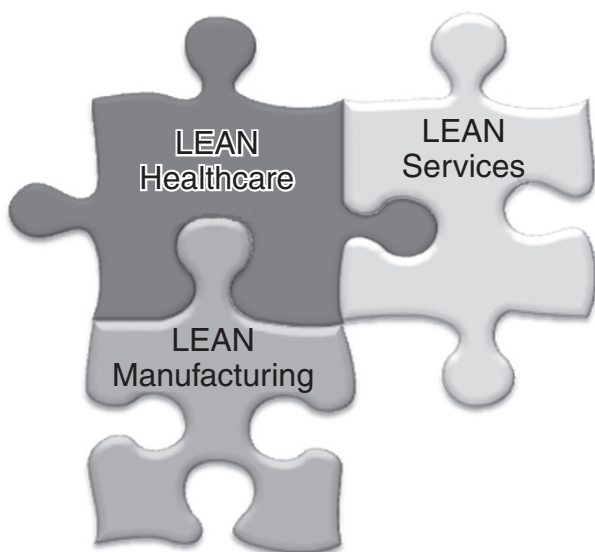


Figure 1
Lean implementation experience.

healthcare system that can redefine the way things are done and fully exploit available human and financial resources. This methodology, which is unique to Fujitsu, is the result of 15 years of experience by the Fujitsu Lean Solutions Group in implementing Lean projects in organisations. Lean Healthcare aims to optimise operational performance in the health sector. It is based upon Lean concepts gleaned from the Toyota Production System. This approach addresses waste inefficiency and delays by eliminating waste and improving lead times in the health environment. As a result, the overall quality of care received by the patient is improved more quickly and at a lower cost. The roadmap for Fujitsu's Lean methodology is outlined below and shown in **Figure 2**.

This structured and rigorous approach uses Toyota's work organisation and management best practices. It is anchored in established process optimisation principles that have proven their worth for decades in terms of effectiveness, efficiency, and productivity. The Lean Healthcare methodology is carried out in two main phases.

1) Phase I – the showcase project

Phase I concerns a showcase project in a selected sector or process to demonstrate the effectiveness and relevance of the Lean Healthcare approach. This phase should involve diagnosing the current state of the selected sector, holding a strategic work session with the management team, conducting the first process optimisation workshop, and supporting the physical implementation. Completion of this first project in a healthcare organisation will significantly improve the performance of the selected sector and improve the employees' work environment as well as the quality of services and care provided to patients. There is no room for failure or compromise in a showcase project. The significant success of the Lean Healthcare showcase project will reinforce the endorsement of the Lean approach by the organisation's management while having a positive impact

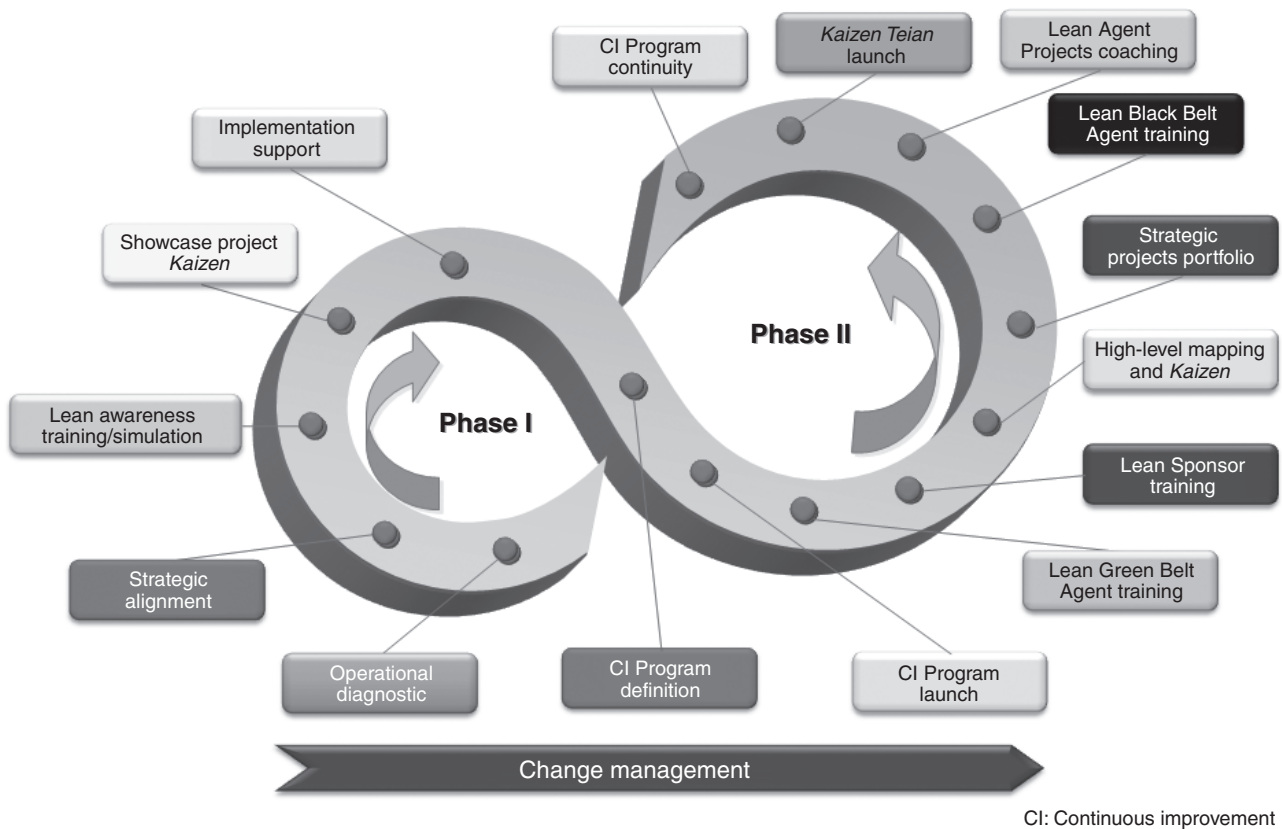


Figure 2
Lean Healthcare methodology roadmap.

on the rest of the organisation. This will foster support for the changes in corporate culture that will accompany the deployment. This phase makes it possible to realise the initial benefits quickly while defining the requirements for the next phase. Phase I normally takes less than six months, and Fujitsu Lean Solutions Group personnel act as experts in this phase together with deep employee involvement from the client organisation.

2) Phase II – Lean culture deployment

Phase II focuses on the deployment of a Lean continuous improvement culture across the organisation, including training and knowledge transfer. It normally lasts for one to three years, during which time personnel from the client organisation gradually take over leadership and independently improve performance and establish their own Lean organisation. During this phase,

Fujitsu Lean Solutions Group personnel act primarily as trainers and coaches to guarantee the organisation's improvement, performance, knowledge transfer, transformation, and sustainability.

3.3 Approach focusing on patients based on respect for people and continuous improvement

In concrete terms, Lean Healthcare can, among other things, quickly optimise processes by focusing on patient needs, waiting and lead times, care quality, employee work-life balance, and cost savings. The goal of this approach is to address and gradually introduce improvements, which are first identified—on a continuous and regular basis—by everyone impacted by the process to be improved. Lean Healthcare also relies on the participation of employees,

turning them into change agents. The *Kaizen* process optimisation methodology gives the multidisciplinary project team the key advantage of benefiting from a delegation of decision-making power to secure strong employee buy-in, which enables quick implementation of the optimised process and ensures that the changes are sustainable. In particular, the IMPACT-Kaizen method developed in Quebec by the Provincial Government, with the help of Fujitsu engineers, is a structured and effective way of quickly delivering significant results.

4. Lean Healthcare successfully introduced in Quebec

4.1 Previous situation

In almost all industrialised countries, healthcare systems face the same challenges: accessibility to care has become increasingly difficult and somewhat unacceptable, and healthcare costs have reached a critical level and are continuing to rise faster than community coffers and government revenues. The shortage of skilled healthcare labour is real and affects all staff positions and specialties. The demand for healthcare is growing rapidly as the population continues to age in all countries around the world. Furthermore, demographic data shows that these problems will only worsen in the future.

This situation also prevails in Quebec, a province in Eastern Canada. Though the Quebec healthcare system has undergone several reforms, these severe problems will simply not go away. Quebecers are also not immune to the problems faced in almost every other Canadian jurisdiction, such as overcrowded emergency rooms (ERs), long waiting lists for surgery and certain procedures, and a scarcity of beds for patients with acute and long-term needs. These problems can be traced to the healthcare system's lack of performance, which prevents it from delivering all the services on time and using available resources effectively. Given the shortage of qualified human and financial resources, more must be done with less,

but without sacrificing the work-life balance of health professionals or the improvements in working conditions that have been gained through considerable struggle over time. This is where the Lean Healthcare approach really comes into its own.

4.2 Fujitsu's strategy for creating Lean Healthcare demand

Lean Healthcare was not well known in Quebec, so much so that the Fujitsu Lean Solutions Group developed a marketing strategy not only to educate managers and professionals in Lean Healthcare, but also to demonstrate its effectiveness clearly. The Group also developed a structured implementation strategy to drive the rapid production of results and established a Lean Healthcare team.

With respect to the marketing strategy, in addition to creating promotional documents for introducing Lean Healthcare, the Fujitsu Lean Healthcare team of certified Lean and Lean Six Sigma engineers has developed a one-day Lean Healthcare training session that incorporates a powerful simulation of an ER to illustrate key Lean Healthcare principles (**Figure 3**). Besides making it easier to understand the Lean approach, the simulation allows managers and professionals in the healthcare sector to understand, in just a few hours, the effectiveness, added value, and potential of applying the Lean Healthcare approach within a familiar setting.



Figure 3
Fujitsu Lean Healthcare ER simulation patients.

The convincing one-day training session serves as a proof of concept that demonstrates the power of the Lean concept and the competency, depth, mastery, and professionalism of Fujitsu's Lean Healthcare consultants. This is a truly effective approach and the Fujitsu Lean Solutions Group received many requests for consultative services from healthcare institutions following their participation in the training sessions.

4.3 Quebec healthcare network showcase project

Since 2007, the Fujitsu Lean Solutions Group has been looking for a Quebec province showcase project to demonstrate to all healthcare network stakeholders the high efficiency and relevance of Lean Healthcare in their environment. In the spring of 2008, an opportunity arose with the nomination of Dr. Yves Bolduc (currently the Quebec Minister of Health and Social Services) as interim general manager of the Vallée-de-l'Or health and social service centre (CSSLVO). This is a general hospital in northern Quebec with 1200 employees and a capacity of over 300 beds. After an initial survey of the CSSLVO organisation, a decision was made to conduct a Lean Healthcare process optimisation in the operating rooms (ORs). The showcase project, which was conducted from April to September 2008, included activities of the Fujitsu Lean Healthcare phase I methodology such as those listed below.

1) Data collection in the OR sector

Data collection is one of the first activities in the Lean Healthcare approach. It helps identify improvement opportunities, constraints, favourable conditions, etc. for the showcase project. In this case, the data collection involved the use of Lean tools such as Process Mapping, Measure of Value Added level (MVA), Voice of Employees (VOE), Voice of Process (VOP), and Voice of Customer (VOC). These tools are used to confirm the observed improvement opportunities so that an analysis can be conducted to arrive at

recommendations to be implemented with the customer.

2) Lean Healthcare training with simulations of the multidisciplinary process optimisation team

This training is an integral part of the change management strategy. It reduces resistance to change and promotes employee and staff member adherence. The simulation is a powerful way to demonstrate the effectiveness of Lean techniques in the healthcare services community, inform staff of the Lean approach, reduce their resistance to change, and make future implementations of Lean techniques, methods, and tools easier.

3) Process optimisation using IMPACT-Kaizen methodology

Using the Lean approach and IMPACT-Kaizen methodology, the members of the multidisciplinary team, guided by the Fujitsu's Lean consultants, worked together on the ground to identify and eliminate waste and non-value-adding activities. Clinicians, nurses, and staff cooperated to build practical solutions and prepare a plan for implementing the optimised processes, which produced impressive and rapid results.

4) Support for optimised process implementation

Our extensive project experience in other business sectors demonstrated that the level of support varies considerably owing to several factors. Our Fujitsu Lean consultants provided 50 man-days of support to the CSSLVO process optimisation team for implementation of the OR-optimised processes. As noted earlier, the Lean Healthcare approach, and especially the *Kaizen* methodology, promotes employee ownership and mobilisation, thus increasing the degree of success linked to sustainability and maintenance of the optimised process. At this stage, the Lean Healthcare approach provides tools and implements certain measures to ensure the effectiveness and continuous improvement of the optimised process. This includes:

- the implementation of meaningful performance visual indicators;
- a clear action plan with a measure of advancement, a follow-up strategy, and an implementation schedule;
- an implementation strategy, including change management, transition plan, training and communication plan; and
- a control plan for verifying the process critical parameters of the new process and to ensure rigor and sustainability.

4.4 Sustainable results

The process optimisation initiative for ORs in CSSSVO produced impressive results (reaching or exceeding project objectives) in only a few weeks.

- 20% improvement in OR productivity and capacity
- 50% reduction in patient waiting lists
- 40% reduction in patient OR process time
- 30% in reduction of medical supply inventories
- Strong employee ownership of the optimised processes

The results of the CSSSVO OR showcase project together with those of a remeasurement performed in December 2009 are given in **Table 1**.

4.5 CSSSVO Lean journey continues—Lean culture deployment project (phase II)

Encouraged by the resounding success of the first Lean project, CSSSVO decided to undertake a second Lean Healthcare project at their problematic ER in the fall of 2009. The project optimisation IMPACT-Kaizen workshop was conducted with very promisingly results. The optimised ER processes have been implemented since the first quarter of 2010. In the fall of 2009, the Fujitsu Lean Solutions Group was selected, out of five Lean service providers, to assist the CSSSVO management team with the deployment of the Lean culture (our Lean Healthcare methodology phase II), which will bring them toward being a Lean hospital. This is another first for Lean Healthcare improvements in the province of Quebec.

5. Fujitsu Lean Healthcare—Greater market demand in Quebec

So far, over 25% of Quebec healthcare establishments have called upon the Fujitsu Lean Solutions Group to apply the Lean Healthcare approach when optimising ERs, ORs, short- and long-term care units, home care services, first line health and social services, and other clinical and administrative processes. As its reputation continues to grow in the Quebec market, this

Table 1
CSSSVO OR showcase project results for June 2008 and December 2009 compared with April 2008.

Objectives	April 2008	June 2008		December 2009	
	Baseline	Results	Improvement	Results	Improvement
20% increase in capacity for conducting surgery	13.0 operations per day	15.6 operations per day	20%	17.6 operations per day	35%
10% reduction in patient processing time for day-surgery	5.25 hours	3.10 hours	40%	2.75 hours	48%
50% reduction in patient waiting lists	800 patients	400 patients	50%	425 patients	47%
Reduction in the number of patient cancellations within our control	3.64%	3.17%	12%	3.30%	9%

approach continues to produce stunning results, similar to those achieved at CSSSVO.

Consider another example. The following impressive results were achieved in 2009 for a Lean project for the ER of Trois-Rivieres Health and Social Service Centre (CSSSTR).

- The average length of stay of patients on stretchers fell from 17.4 hours to 4.2 hours (compared with a provincial average of 17.5, bringing this ER from #55 in the provincial ranking to #1.
- The average length of stay of ambulatory patients fell from 4.9 hours to 1.83 hours.
- Treatment productivity and capacity increased by over 40%.
- Stock was reduced by 50%.
- Patient satisfaction grew from 76 to 95%.
- Employee satisfaction with work-life balance increased.

Dr Valérie Garneau, chief of the CSSSTR emergency department, said, “To date, we have succeeded in reducing patient waiting times by more than 50%, achieved a 95% patient satisfaction rating, reduced our stock levels by 50%, and delivered healthcare services to 40% more patients without hiring additional staff. Furthermore, the new processes and collective orders implemented have had a highly positive impact on the motivation of the medical team and have led to a significant improvement in the ER working environment. This project is an engine that will bring about changes in other sectors.”

6. Fujitsu's Lean Healthcare global offering

6.1 Quebec market potential

Recognising the effectiveness of the Lean Healthcare approach, Quebec's Ministry of Health and Social Services has also taken steps to make this approach a showcase reference in the healthcare network. Besides supporting the issuing of requests for proposals to deploy a Lean culture of continuous improvement based on Lean in some Quebec hospitals, the Ministry has

required general managers to conduct at least one Lean Healthcare project in their institutions. This requirement has recently been officially translated into law (bill #100), demonstrating that we can influence the market demand when it makes sense.

Consequently, expansion of the Lean Healthcare approach within the Quebec healthcare network has proven to be the ideal solution to its problems. If implemented on a broad scale, the Lean Healthcare approach would beyond doubt significantly help improve accessibility to care, reduce wait times throughout the network, dramatically reduce care costs, and increase patient satisfaction. In addition, it would help minimise the negative impact of an ageing population. This would result in improved productivity and effectiveness of healthcare networks and deliver high returns on investment.

6.2 Canadian market potential

In 2009, as a result of a Fujitsu Canada's Lean market development strategy, a Lean consultant group was established to support of the Western Canadian market. Since then, the Fujitsu Lean Solutions Group has won a few bids, including a public bid in the province of Alberta to optimise a human resource process in a long-term care establishment. The current demand for Lean Healthcare services in Western Canada is growing.

Later in 2009, the Fujitsu Lean Solutions Group from Quebec started to support the Fujitsu Toronto office (Ontario, Canada) to meet an impressive demand for Lean services in healthcare. In less than a few months, Fujitsu won three public bids, including a mental health process optimisation bid. Fujitsu hired a Lean Six Sigma Master Black Belt for the Fujitsu Toronto office and is in the process of hiring Lean Six Sigma Black Belts.

The Canadian Lean Healthcare resources have been supporting Fujitsu America Inc. and

the growing international business opportunities while having to meet their own market demand for expansion.

6.3 Fujitsu Global Lean Healthcare offering

In 2008, the Fujitsu Global Healthcare Group (Health Community) recognised the strong potential of the Lean offering in the healthcare sector by funding the development of Fujitsu's global Lean Healthcare methodology. This was presented to Japan on September 30th, 2009 by the Fujitsu Lean Solutions Group. Lean Healthcare was the main theme at the fourth annual Healthcare Solutions Forum (held in Japan in November 2009). More than ten countries were represented at the event and indicated their interest in Lean Healthcare offerings. As a result, a decision was made to develop a business case to recommend the global deployment of the Lean capability in healthcare in close collaboration with Fujitsu's regional offices.

The new Lean offering capability in

healthcare has the potential to enhance Fujitsu's market growth not only in the healthcare sector worldwide, but also in other industry verticals such as manufacturing, information technology (IT) services, the public sector, defence, and pharmaceuticals. As a result, the introduction of the Lean Healthcare offering has strong potential to contribute to the growth of Fujitsu's other business activities.

7. Conclusion

In this paper, I introduced an example of consulting based on Lean Healthcare practiced by Fujitsu Consulting (Canada). Lean Healthcare is an established world-class best practice that has the potential to be a strategic and competitive market advantage for resolving the crisis in the healthcare sector by providing quality and timely services to patients at lower costs as well as providing more efficient and better working environments for clinicians and employees, including a better IT offering targeting real benefits.



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Vice-President of Fujitsu Canada, he is in charge of the Lean Solutions National Practice. He is a strategic consultant who coaches clients in operational performance optimisation based on Lean, Six Sigma, and Toyota Production System worldwide best practices. He has developed the Lean Healthcare approach in Quebec.