

# **Systems thinking for service operations design: facilitating double loop learning in Vietnamese tourism companies during COVID-19**

*Ayham A.M. Jaaron ([Ayham.jaaron@dmu.ac.uk](mailto:Ayham.jaaron@dmu.ac.uk))*

*Department of Management and Entrepreneurship, De Montfort University  
Leicester, LE2 7BY, United Kingdom*

*Duong Thuy Pham*

*Thai Nguyen University of Economics and Business Administration  
Thai Nguyen City, Vietnam*

## **Abstract**

This study attempts to examine the impact of applying systems thinking approach for service operations design on operationalizing “double loop” learning in Vietnamese tourism companies as COVID-19 exit strategy. A case study was conducted in a leading cruise group company in Vietnam. Data were collected through in-depth interviews with 27 key informants and through archival documents collection. Results confirmed that systems thinking activated double loop learning by promoting three different drivers: systematic judges and acts, problem-based task force teams, and service innovation. This study provides several new insights and contributions to tourism research on how to deal with uncertain environments.

**Keywords:** Operations design, Systems thinking, Vietnamese tourism

## **Introduction**

With no wide scale treatment for COVID-19, movement restrictions have caused international and domestic tourism to go from over-business to almost no-business at all due to cancellations and falling demand (Gossling et al., 2020). The bad news is that COVID-19 is forecasted to have long-term effects on tourism (Anderson et al., 2020; Chang et al., 2020). Therefore, there is an urgent need for tourism companies to fundamentally transform their existing services and build highly responsive learning operations to adapt to the stressors of COVID-19. A prerequisite for organisational survival and growth in this uncertain COVID-19 environment is the ability to build highly effective learning systems to transform existing working methods and adapt to rapid changes and threats (Hannah and Lester, 2009). According to this perspective, a learning organisation is one that effectively engages with external environment to fundamentally change existing methods and internal capabilities to encourage learning (Shipton et al., 2013). Argyris and Schön (1996) have described this type of learning as “double loop” learning where long held assumptions about systems and policies are challenged by questioning existing processes and procedures. “Double loop” learning, in this sense, is

considered as a higher-level learning which requires cultural changes in the organisation (Aksu and Ozdemir, 2005, Dahanayake and Gamlath, 2013). In fact, “double loop” learning organisations involve collecting feedback from the real world that confronts mental models of managers at work. This will then lead tourism managers to think in terms of realities to identify opportunities for designing effective policies and fresh knowledge (Bagodi and Mahanty, 2013). Thus, “double loop” learning encourages system-wide thinking and continuous evaluation (Tsai et al., 2010). Hence, this study attempts to examine the impact of applying systems thinking approach for service operations design on operationalizing “double loop” learning in tourism companies as COVID-19 exit strategy.

This research reports on a case study that was conducted in a leading cruise group company in Vietnam. The company organizes private tours throughout the UNESCO’s recognized World Heritage Ha Long Bay – Lan Ha Bay in Quang Ninh Province of Vietnam. Vietnamese tourism industry was the most affected industry in the country after the collapse of arrival of international travellers (Quang et al., 2020). The paper begins by outlining the concept of “double loop” learning and systems thinking approach. Next, the research methodology is outlined, and the case study of one leading cruise company in Vietnam is presented. Finally, results are shown, and conclusions discussed.

### **The concept of double loop learning**

For an organisation to survive during unpredictable times, generating new knowledge alone is not enough; there is a need for this knowledge to be adopted in the form of system operational and behavioural changes (Dahanayake and Gamlath, 2013). This view has particularly informed and moulded an effective type of systems learning called “double loop” learning (Argyris, 1977). Argyris and Schon (1996) have outlined that organisational learning can take place at two levels: “single-loop” learning and “double loop” learning. “Single-loop” learning is denoted by error detection and correction to improve individual performance without changing organisational norms or systems. It suggests that employees understand and correct the issue without reflecting on the system that has been used for this particular transaction (Bagodi and Mahanty, 2013). However, Argyris (1977) and Argyris and Schon (1996) have explained that, to look behind mere transactional problems and errors and to dramatically improve systems, organisations need to shift to higher level learning, that is, “double loop” learning. It occurs when organisational members challenge procedures and policies in use, which will result in developing new ways of working (Shipton et al., 2013). “Double loop” learning, this way, results in fundamental shift in mental models and views of managers due to availability of evidence on system ill-behaviour. Arising from this, “double loop” learning is seen as “transformational” in nature rather than “transactional” (Lawler and Sillitoe, 2013). Therefore, the essence of “double loop” learning is in applying an appropriate form of systems thinking of having a holistic view of the organisation that guarantees the interconnectedness with the external environment (Bagodi and Mahanty, 2013).

According to Wen (2014), systems thinking application is very essential for an organisation to look at the world and be successful at learning. This would implicitly emphasise the need for open channels of communication within the organisation and with customers. Such channels facilitate the flow of customer insights from outside in to enrich internal dialogue and organisational learning (Shipton et al., 2013).

### **The systems thinking approach**

Several researchers have explained that managers of complex systems tend to manage the parts in order to control the whole (Gregory, 2007). In other words, problems arising in such systems are divided into smaller problems, then attempting to solve each smaller problem separately to provide an overall solution. Gregory (2007) argued that this reductionist approach cause silo working that limits organisational dynamic ability and necessary interaction between parts. It would be necessary, then, to avoid this reductionist view when dealing with unprecedented situations such as COVID-19 crisis, as silo working would hamper successful learning about the system and its underlying processes and governing variables. This is brought out by the new work of Seddon (2003) of implementing systems thinking principles into service organisations' operations design. Seddon's (2003) systems thinking is centred on three core elements: interrelationships, dynamics, and wholeness (Jaaron and Backhouse, 2017; Jackson et al., 2008). A detailed account of the philosophy is reported in the work of Seddon (2003) and Jackson et al. (2008), this is also explained below.

The systems thinking is built around the concept of redesigning service operations based on external environmental demands, and not around the functional hierarchies (Seddon, 2003; Jaaron and Backhouse, 2017). To deal with external environmental stressors, the systems thinking supports a culture characterised by the formulation of a self-managing teams. It is necessary that team members are front-line employees from the workplace itself as they will be the ones to lead the system intervention into business operations (Jackson et al., 2008). For this purpose, the team is encouraged to find out opportunities that can deliver solutions for the unpredictable stressors (Seddon, 2003). This process involves spending a considerable amount of time to study the problems faced at all points of contact over a period of time. The study of the problem will reveal the type and frequency of occurrence the business has to deal with. This problem analysis period will allow the team to find out what matters to customer the most, and what they really want from the system. However, as soon as the problem analysis and opportunities exploration stage is completed, the interconnections between organisational parts become the focus to deliver those solutions in response to the problem (Jackson et al., 2008). The new designing process involves removing waste found in traditional processes through redesigning of the service operations (Jackson et al., 2008), and taking into consideration the inputs required from all internal business units to deliver the solution. Seddon (2003) explained that the systems thinking, this way, becomes highly responsive to customers, and will significantly reduce the frequency of failure demand (Jaaron and Backhouse, 2017). To help maintain these achievements, team members are encouraged to continuously analyse the demand received to increase their learning in the system, as this will be the only guarantee to increase employees' capability to handle demand uncertainty (Marshall, 2010). The systems thinking embraces the principle that team members training is not the focus in the preparation process for this kind of job, it is educating employees on "why" a failure happens and then supporting them to find ways to eliminate it from the system. Therefore, managers' role shifts from command-and-control to supporters. According to Bhat et al. (2012), the capacity of an organisation to practice "double loop" learning; to change old ways of doing things, and to produce original knowledge is strongly related to interactive leadership styles.

As a result of this type of managers' role and the freedom of team members to change flawed operations, the organisation becomes organically structured (Jaaron and

Backhouse, 2017). The above philosophy of Seddon’s (2003) system thinking can be summarised in three main steps of “check-plan-do”. These steps are provided in Table 1.

*Table 1 Three stages for implementing the Vanguard Method (Jackson et al., 2008)*

<b>Stage</b>	<b>What is it?</b>	<b>What does it do?</b>
‘Check’	An analysis of what and why of the current system	Provides an understanding of the system as it is and identifies causes of problems and opportunities for solutions.
‘Plan’	Exploration of potential solutions to eliminate waste	Provides a framework to establish what the solution should be and how the flow of work can be improved to meet the solution. ‘Plan’ asks: What needs to change to adapt to requirements of external stressors? What measures are necessary to gauge improvement?
‘Do’	Implementation of solutions incrementally and by experiment	Allows for the testing and gradual introduction of changes whilst still considering further improvement. Develop redesigns with those doing the work, Experiment gradually, continue to review changes, Work with managers on their changing role.

### **Research Methodology**

To find out the impact of systems thinking approach for service operations design on combating the devastating impact of the COVID-19 pandemic on tourism industry in Vietnam, a case study methodology was conducted to collect data via interviews and archival documents from a leading Vietnamese cruise group company. Data collection took place from March to October 2020. The chosen case study company was a leading cruise group organizing private tours throughout the UNESCO’s recognized World Heritage Ha Long Bay – Lan Ha Bay. Its selection was in line with the work of Yin (2009); who suggested that when selecting a case, it is more appropriate to be of the polar type or extreme situation where the phenomenon of interest is ‘transparently observable’.

In this research, the case was selected since it adopted the principles of systems thinking as their strategy to quickly respond to the stressors of Covid-19 Pandemic crisis. The company details, as well as those of the participants, are kept anonymous throughout this paper. This 9-year-old private company with the size of 497 service employees had no way but to quickly respond to the stressors of COVID-19 Pandemic to maintain its survival.

The main sources of data were in-depth interviews with 27 key informants and internal business documents. All interviews were conducted using Zoom meeting application. Each interview lasted for 40 minutes on average. In addition to interviews, theoretical triangulation (Yin, 2009) was achieved through collecting other supplementary data such as organizational documents that provided a useful source of information. The data analysis process from in-depth interviews was guided by the steps of Bryman and Bell’s (2007) for conducting thematic analysis of interviews data.

## Research Results

Table 2 provides the coding framework and three central themes found. The interviews analysis clearly supports the ability of the systems thinking to help create a “double loop” learning organisation because of institutionalising three different themes.

*Table 2 from codes to central themes as a result of thematic analysis process.*

<b>Codes</b>	<b>Issued discussed</b>	<b>Central themes</b>
<ul style="list-style-type: none"> <li>• Interrelationships</li> <li>• Dynamics</li> </ul>	<ul style="list-style-type: none"> <li>• Interconnectedness of employees: open channels of interactions, social exchange within and across the teams</li> <li>• Readiness/ adaptiveness to respond to stressors/ shocks</li> </ul>	<ul style="list-style-type: none"> <li>• Systematic Acts</li> </ul>
<ul style="list-style-type: none"> <li>• learning at work</li> <li>• learning climate</li> <li>• learning structure</li> </ul>	<ul style="list-style-type: none"> <li>• quick response to environment volatility</li> <li>• Inter-functional coordination,</li> <li>• decentralized decision making by employees</li> </ul>	<ul style="list-style-type: none"> <li>• Problem-based Teams</li> </ul>
<ul style="list-style-type: none"> <li>• Mental models</li> <li>• Systems, operational, and behavioral changes</li> </ul>	<ul style="list-style-type: none"> <li>• management role is different.</li> <li>• employee empowerment</li> <li>• Change procedures and policies if possible</li> </ul>	<ul style="list-style-type: none"> <li>• Service Innovation</li> </ul>

### *Theme 1: systemic acts*

This theme refers to judges and acts on the system to produce an in-time response strategy for the company to survive amidst COVID-19 and beyond. Several measures were taken adaptively such as minimizing the number of crews on cruise in Bays; encouraging staff to work from home; saving energy consumption on yachts as well as cutting off all the costs related to advertising or ineffective promotions. Interviewees believed that such actions all together on the systems helped the company reduce operational costs during this crisis. Interviewees have also learned collectively from the problems that the whole company were faced with. Several multifunctional tasks have been given to the employees on boat during the time of the pandemic. This act on the whole system could contribute to both save costs and create opportunities for self- cross training for personnel. Interviewees revealed that capturing these learning opportunities with its flexibility in an organically structured organization, the cruise company have judged the situation and acted in an appropriate way to unfold new business opportunities to survive.

### *Theme 2: problem-based teams*

Majority of interviewees have regarded relocating individual employees to work within teams as the most important element in the systems thinking approach through which freedom to act on the system is achieved. Teams in the research site are now able to have freedom to test a variety of ways to solve problems creatively, through deep communication and collaborative approach. For this purpose, employees are empowered by giving them full control on what they have in hands; they rely on their innovation and intelligence to make decisions regarding environment changes and how to adapt to these

changes the best. Interviewees asserted that team working, this way, has activated individual willingness and profound dialogue that are both inevitable factors for questioning system operations when faced with problems, and eventually creating improvements in the system. The problem-based learning project was successful with high level of customer satisfaction and an acceptable profit for the company in the context of Covid-19 crisis.

### *Theme 3: service innovation*

This theme refers to service innovations that the cruise group company have created from building an organic structure in operations and a double loop learning ability from the turbulent shocks. Problem-based teams indicated “Inbound vouchers and domestic visitors are the two major sources of innovative income which can save the company life at the moment”. Accordingly, a great deal of new promotional policies and activities have been simultaneously taken to stimulate domestic demand. During this period, the company has gradually reached the break-even point and then obtained an amount of profit. Employees within their teams could test new ways of offering services. According to interviewees, this was the moment that their organization was going towards the application of systems thinking approach for its service delivery design based on new customer demands. In addition, interviewees indicated that the creation of several brand-new services by the cruise firm with the help of its problem-based teams was pivotal for its survival. One of the best –selling services now is 3-year inbound vouchers. This kind of vouchers offers international customers with super incentives, expiry date of 3 years and a variety of other beneficial customized choices for customers when they use the vouchers after the pandemic. Interviewees also explained that an organization can only give a quick response to the shocks when it is really a dynamic one, otherwise, it will take time and opportunities fly away. Interviewees also suggest if the company followed the traditional management with hierarchical or separated structures, it could not have achieved such innovations.

### **Discussion and conclusion**

This exploratory study has attempted to examine the impact of applying systems thinking approach for service delivery design on enabling “double loop” learning in a leading cruise group company in the context of the Vietnamese tourism sector as a new strategy to survive the COVID-19 crisis. The results explain that systems thinking enabled the activation of service innovation capability of the business. This was pivotal for the survival of the cruise company during the COVID-19 crisis. This is because the double loop learning operationalization of the system has successfully divert the attention of the company towards domestic tourism in the recovery process. Learning from the external environment’s shocks to navigate towards domestic market and customers and then modify the existing methods of doing the work and other related activities for suitability is congruent to double loop learning presented by Argyris and Schon (1996). Therefore, the results of the research also confirm the same ideas with Shipton et al. (2013) that the implementation of organic structure helps enable the double loop learning procedure in a service organization. In another word, systems thinking principles for service delivery design and/or redesign have made a big tourism company in Vietnam to be more structurally organic thus increasing the organization’s capability of continuously double loop learning to produce solutions and innovations in time to save life of its business and flourish.

Another interesting aspect of the results is the theme of systemic acts. This theme has explained the impact of systems thinking approach on working structure of the firm in the struggle for existence throughout the crisis time. The research case has shown that there was a variety of dramatic changes in its organizational structures and the way the work was done. It was evident in the results that the mechanistic top-down structures, which emphasise standardisation, the elimination of variation and leaders monitoring (Seddon, 2003), were not found at the case company. As stated by a middle manager: “the strict barriers between different departments have been replaced now by the soft ones of open communications, discussions and cooperation to quickly learn from each other and accomplish the tasks”. On the contrary, leaders had an active role in supporting employees to give solutions to the newly emerging problems: “we have been empowered to make decision for the specific tasks and have sufficient support from leader if needed” quoted a front-line staff.

Moreover, the results also mentioned that the team-based informal structures in the phase of operational cost reduction have led knowledge sharing and learning emergence from stressors and disruptions, which was shared by Shipton et al. (2013), who linked learning-oriented behaviour of organisations during chaotic situations with information sharing across team members. The cruise company had to become adaptive service organisation as defined “organic structures” introduced by Burns and Stalker (1961). It was recognised in this theme that when being exposed to uncertainty or randomness, any organisational changes or innovations need to be made systemically with a flexible and continuous learning ability. The results found consistent strong effects of the third theme: problem-based TFTs with engagement and readiness to learn to be survived amidst COVID-19 crisis. This result again promoted three key points, firstly decentralised team-based organic structures, secondly sharing knowledge and learning readiness, and finally, strategic response to stressors and randomness. Regarding the first point, systems thinking approach (Seddon, 2003) could explain the flat structure in operations through the work of problem-based teams. The second point was in line with the findings of Jaaron and Backhouse (2017), who stated that social relationship at the workplace is an integral part for knowledge creation- a cornerstone for organisational learning. It was also consistent with the views of Ramezan (2011), who showed that in a perceived complex system with high levels of employee interactions, it is essential for creating strength and powerfulness that could bring a great deal of innovations to the system. For the third point, it was congruent to Bhat et al. (2012) and Hannah and Lester (2009) that employee’s mentor models could translate employees’ learning into organisational learning and allowed employees to adapt to the stressors of random and unfamiliar situations using offerings of organisational system. Based on this, problem-based teams with engagement and readiness to learn could be viewed as one of the fruitful achievements of an organization, which adopted systems thinking to pursuit of an organic structure for facilitating double loop learning opportunity and capability (Jaaron and Backhouse, 2017), as a result, the company could overcome the crisis and be potential to “bloom in the desert”.

Considering this, this research has confirmed that systems thinking design constitutes a mechanism for operationalising double loop learning amidst adversity through enabling an organic structure for the tourism companies. Also, double loop learning emanating from systems thinking design promotes creation of problem-based teams in tourism companies and provides opportunities for the creation of an innovative business environment where employees have ownership on the type and shape of service innovation.

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