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Innovating Public Service: The System Thinking Approach*

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Abstract

Public services are the product of the state to safeguard citizens' entitlements, delivered either directly by the public sector or provisioned through other entities. The challenges for maintaining quality in public services are multifaceted, demanding a holistic approach for innovation. Nepal, an emerging economy, is struggling to institutionalize the political transformation enshrined through the Constitution of Nepal 2015. The Constitution has recognized the quality of public services as the fundamental rights of the people and the state is obliged to deliver it. The changing landscape with the advancement in science and technology, people's knowledge, diversity and expansion of the public services, it is apparent to adopt innovative approaches to improve overall quality of the services that public sector delivers. Without an open thinking and applying ideas like system thinking and design thinking in the public service reform, it will be a daunting challenge for the government to meet the public expectations of quality services. This article presents the idea of innovating public services through the system and design thinking citing examples from Nepal's public sector. Drawing a base from Bason's *Leading Public Sector Innovation: Co-creating for a Better Society*, this article offers framework for innovation in Nepal's public sector.

***Keywords**: Innovation, public sector, system thinking, design thinking*

1. Public Service Reform and Innovation

Public Service Reform and Innovation basically aims to make public service more transparent, accountable and service delivery more effective so that people feel better access to and easier to receive the services in their daily life. Service innovation is a specific tool through which public service agents think differently and implement the ideas purposefully to exploit the opportunities for making public services better, efficient and transparent to a larger public. It also involves continuous learning, testing and retesting, and capacity of practicing. It requires a wider perspective from generating ideas to build strategies for successful implementation, understanding the context, stakeholders and assessment of

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possible risks of while implementing reforms. In other words, it demands holistic thinking and understanding the complete ecosystem of innovation and service reform. The basics of service innovation and reform are; understanding context, understanding the stakeholders, identifying real barriers (structural or functional).

1.1 The Innovation Ecosystem

Figure I: The Innovation Ecosystem

Source: Adapted from Bason (2010)

Innovation in public sector happens in a social lab, which has its own eco-system. The innovation ecosystem as described by Bason (2010) has four core constituencies- consciousness, capacity, co-creation and courage, as displayed in figure I. Often innovation in public sectors is hard to achieve because we fail to understand this ecosystem. Generally, we hear that in public sectors the senior officials claim that they want to solve the problems in an innovative way but the team with whom they are working with has apathy towards innovation. This reminds us to explore several important

Case 1: Woes of Driving License

Driving license has been a basic life skill. Every qualified citizen is eligible for having driving license. Recent statistics from the Department of Transportation has following facts:

- Approximately 450 thousand applicants are waiting for driving license since the last two years. This figure has come down from as high as 900 thousand two years back.
- Approximately 600 thousand applicants are waiting for trial examination.
- Dates for examination have a lag of at least six to eight months. An applicant who applied for driving license exam in March 2021 received a date of January 2022*.
- The purchase and registration of vehicle is increasing. In 2016, 456 thousand vehicles were registered. The number is expected to increase continuously.
- The department is able to receive 5000 applications per day for driving license, which is less than a half of demand. Managing 5000 applications in itself is a challenge.

Several initiatives have been taken to reform the driving license distribution system, but public grievances are escalating. Public trust towards the license system is not satisfactory. In 2015, the government decided to replace the paper-based driving license to electronic 'smart license', although the term 'smart' still needs to be qualified, without a transition plan. This transformation was a welcome move but created woes for both service receivers and the government, in the absence of system thinking of reform. Meanwhile, the Constitution of Nepal (2015) federalized the unitary governance system assigning the transportation related functions to the provincial governments, making intergovernmental relation more important for delivering the driving license more effectively.

questions before we deal with the innovation. Did we understand the ecosystem of innovation? How do we prepare our system for innovation? Maybe we are aware of ecosystem. Before jumping into the brilliant idea that we think of, do we make an authorizing environment by educating the team, understanding their interests and respecting their knowledge?

1.2 Consciousness: The Innovation landscapes

There is no specific reason what triggers innovation. But a climate and awareness of innovation among the innovation actors would be the starting point. In an organization, we find staff of different interests-some have high energy; some have moderate and some have less. But the senior management has to have an orientation how this diverse staff can be mobilized. Orienting the staff about the innovation, helping them to build a common language and recognizing their skill and ability is important. No organization is problem free. No organization has hundred percent good, motivated and pro-active staff. Creating an environment for interaction, discourse and motivating staff for innovation is essential.

Case 2: Small Initiative Matters

The Director General of Foreign Employment Department, heavy loaded government agency that serves in an average 1500 service users per day, saw his staff working late-night every day. Usually, in winter the office closes by 4 PM but the staff were working until 8 PM to complete the assignment of the day. It was not a case of specific day. He thought how this late-night working could be reduced. He found that one of the reasons for lengthy working process was more layers of decision-making. He decided to reduce the three-layer decision-making to two layers. In a few days he saw an amazing result. Staff started completing their pending works within the office hours. Wow! A small initiative could save time and effort and make the service delivery efficient.

Based on interaction with the Director General of Foreign Employment Department, Nepal on Dec 14, 2021.

For making the innovation happen, public organizations have to be conscious about the working environment, capacity and attitude of the staff, resource availability, experiences both successful and failures, and external knowledge and practices. The following guiding questions provide impetus for assessing the innovation landscapes and improve consciousness:

- Do the functionaries have awareness about innovation?
- Do we recognize innovation as a part of the organization culture?
- Do we learn from our practices?
- Are we open to innovation?
- Do we have innovation environment?
- How can we promote collective thinking?

The popular Chinese Yin-Yang concept, derived from ancient Yin and Yang philosophy, describes that for every concept there could be a counter-concept. For example, if there is light, there is dark; if there is positive, there is negative; if there is barrier, there is opportunity. However, these are not opposite but largely complementary. Existence of light is complimented by darkness. Negative compliments positive, barriers lead to opportunities. For every innovation, it has both barriers and

potentials. There are potentials because there are barriers. If we have not considered the potentials of reforming the immigration system at the Tribhuvan International Airport, we would not have seen the shining outface today; we would not have made attempts to replace paper-based license by 'smart license'. We need to have an approach to see potentials in the barriers.

1.3 Capacity: Building innovation potential

Case 3: Making Immigration Smart

Clearing immigration was a cumbersome process at the Tribhuvan International Airport, the only international airport of Nepal. Service process was not efficient because of manual work process causing hassles to the service recipients. In order to improve the service, the Department of Immigration introduced immigration reform plan in 2019 at the Tribhuvan International Airport. The plan automated the immigration service process and also introduced bio-metric record system. This reform was expected to make the immigration service efficient and faster. However, the reform did not make the service efficient as expected. On an average, it took around 12 minutes to complete the immigration process for a person. The Department wanted to have a significant reduction in this processing time. They realized that the bio-metric process was lengthy because they had a system of recording prints of six fingers. The Department thought that it was unnecessary and, therefore, decided to capture the prints of two fingers only. This decision reduced the processing time from as high as average of 12 minutes to an average of two minutes per person. It saved time of both the travelers and service providers. Renovation of physical infrastructures and improvements in service process have given the immigration a positive outlook.

Based on the discussion with the Director General of Department of Immigration, on Dec 14, 2021

Why some organizations are considered innovative? Why we have a high trust towards some organizations? In the same environment, why some organizations perform better? This is about the culture and values, structure and performance that organization has admired and inculcated. Organizations that have an attitude of taking innovation as an opportunity, appreciate the innovative thinking, integrated practice of reflecting on experiences and thinking for continuous reform would stand in front (Rothman, 2020). For building innovation potential of any organization, we need to consider the following aspects:

- Does the organization have innovation strategy in place?
- Can government alone lead the innovation?
- How do we create a collaborative framework for innovation?
- Do we think and plan for transition between the current approach and innovative approach?
- Do we have innovation lab?
- Are functionaries well prepared for the innovation? How do we prepare the functionaries for innovation?
- Do we have a plan to engage, motivate and hold the staff accountable?

Bason (2010) suggests that building innovation potential should be considered in different levels- context, strategy, organization, and people and culture. At the context level, we need to see about the innovation legislation, innovation incubators, availability of risk capital and conducive political climate. It is recommended that the organization should develop innovation strategy to foster the

culture of innovation. This does not mean a lengthy written wish-lists but a concise practical guide that encourages and provides framework for the organization to develop innovation as a practice. The organization is considered as the structure for innovation. There could be silos, no place for innovation, lack of system thinking or random interventions as considered by the top-management. These barriers are to be replaced with the idea of innovation lab and creating an innovation environment where collective efforts are made.

Analyzing and Addressing Quickly

One of the main characteristics of successful implementation of reforms is to immediately address the dislikes of the costumers. When reform does not address the need and interests of its targeted population, it is necessary to analyze weaknesses of reform innovation. And it is important to make the organizations functionaries ready to immediately address the hesitations. We can take an example of Facebook, how it started and how it improved. In the beginning Facebook had both like and dislike options. People used to post their photos. When people had dislikes in their photos, many of them left out the platform. Immediately, Facebook learned that many people have left the platform due to dislikes they had in pictures, it removed the dislike button. Regular analysis and immediately addressing the dark sides of reform innovation is a must for successful implementation of public service reforms and innovation.

Innovation and Transition Planning

For innovation and implementation of service innovation, it is important to have the innovation lab, transition planning and strategies in place. Howard Schultz was director of retail operations and marketing at Starbucks, which used to sell whole bean coffee. When he saw coffee in Italy, he had a click in his mind and tried to persuade company holders for investment in selling traditional espresso. However, he failed to do so. Later, Schultz bought Starbucks and started selling coffee beverage. His visit to Italy provided him an opportunity to observe and envision the possibility of making coffeehouse chain. It is important to continuously think and observe how things are going on around the world. Learning and observing the things and continuously adding values makes the innovation and reform sustainable. Therefore, innovation is not a one-time event, it is continuous learning and commitment to do something better every time. The ideas of innovation and possible risk factors should be addressed with alternative plans and untiredly efforts, which make our reform and innovation implementable.

The people and cultural aspects should be given higher attention for attaining the sustainable approach of innovation. In many cases, public sector innovations are top-management driven. In a hierarchical organization, the staff make their ideas congruent to the thinking of senior management. Such practice would restrict innovation. In fact, innovation does not have hierarchy, rather it is a collective team effort. There is also a 'zero-error culture', like the example of driving license trail test (Case 4). This is another challenge for innovation. We need to adopt 'learning by doing' adaptive approach. This encourages us to apply 'design thinking approach', which allows for preparing prototypes and testing of reform, before going into roll-out. Preparing functionaries for innovation, is therefore always a critical intervention, without this we can make fancy decisions but cannot go for a long race as the staff hold information and have experiences.

1.4 Co-creation: Designing and Learning

A popular national daily made a cover news on its Dec 23, 2021 edition challenging the performance of mobile applications introduced by the government organizations of Nepal (Baral, 2021). The main allegation was about the poor performance and absence of user-friendly interface. In fact, rampant use of technology would not solve the problem but creates frustration among the users.

Case 4: 'Zero-Error to Some Errors' Driving License Exam System

Driving license examination is a cumbersome process, ever criticized. With the increase in demand of driving license by many folds, the capacity of the transport office for holding written and practical examination has not been expanded concurrently. In addition, the trial examination was more clinical where the examinee should have 100 percent accuracy, zero-error, in all steps of the trial test. This clinical examination system was criticized for not being congruent with the real-life practices. The Department of Transport Management was struggling to improve the trial examination system and make it more practical. Several rounds of discussions were held with the stakeholders and different alternatives were prepared. Finally, the Department reached to a conclusion to relax the trial examination without compromising the basic quality. In response, in April 1, 2021, the Department introduced a new guideline for trial examination of Class A (two wheelers) and B (light four wheelers) type of license. According to the new system, the examinee should score at least 70 points out of 100, unless stated otherwise. A scoring system has been developed in all elements of the trial test and license was awarded based on the cumulative points. This new system gave a great relief to the examinee, while the Department saw a considerable reduction in the workload.

Based on the discussion with the Director General of Department of Transportation, on Dec 14,

In many cases, the main problem with innovation is it is top-down or authority led approach. For making innovation sustainable, we need to be adaptive, come out of position and authority, and work in a group. The tendency of considering innovation as a 'black box' (Grandvoinnet, Aslam, & Raha, 2015) should be replaced with the understanding that it is a 'co-creation' where the engagement of team is essential. The 'co-creation' is a systematic approach of learning the problems, designing the solutions, implementation and creating impact (Ansell & Torfing, 2021). In Nepal's public sector, the top management is relatively unstable and has frequent inter-agency mobility. With the change in leadership, the thinking and orientation keeps changing. Innovation has to be considered in a calculated cycle and more concerned about producing results. This is possible if we adopt the concept of 'co-creation' and involve a team in the process. It will provide a continuity for reform initiatives, have organizational ownership and keep institutional memory. We need to consider following aspects for making reform happen:

- Do we appreciate 'design thinking'?
- Do we have plan to involve people in designing the solutions?
- Do we have choice of public engagement tools?
- Do we consider 'zero failure' or 'allow for mistakes' and 'learning from every effort'?
- Do we consider to earn 'legitimacy' through citizen engagement in designing solutions?

The authority driven innovation is poor in generating ownership and providing continuity. The decisions may be fast but the implementation suffers several challenges. You need to continuously exert authority throughout the implementation, which seems impractical in an open and democratic system. Instead, when we adopt 'co-creation', decisions may take time but it will provide a legitimacy to exercise authority throughout the implementation. Legitimacy is important for ensuring the successful implementation of innovation.

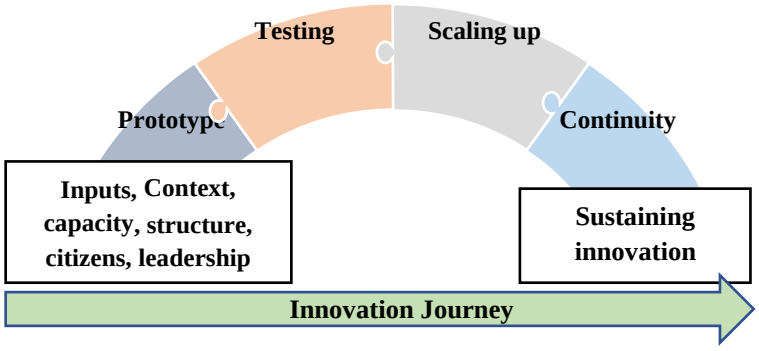
Innovation: Associating with Existing

It is not necessary that innovation should be completely different. It can be associated with the existing products and services. The idea of Nepali brand '*Talo*' (a Nepali name for a piece of cloth used for wiping out vehicles and utensils) is simply emerged from demand of customers. The *Talo* is popular for wiping out the smears and spots of vehicles. There are variety of cloth pieces in market to do so, however *Talo* is little different from them. The unique characteristics of *Talo* is its softness and capacity to suck more water. The idea emerged when a costumer having a high price car arrived at car wash center for his car washed. While taking informal chats, he expressed his inquisitiveness if there are high brand cloth pieces which suck more water and does not scratch the car while wiping. The owner of the car wash center tried to find such pieces of cloths however he did not find in the market. He immediately thought, if such piece of cloths has a market, why not to design and produce one. He did some market research and produced a piece of cloths, called *Talo*, for wiping cars. Now this brand is very popular. He can make two businesses at a time; washing cars and also selling *Talo*. For making change and reforms, very small things can contribute if we can align the ideas with people's demands and existing services, too.

1.5 Courage: Leading the Public Sector of Tomorrow

There is a criticism that public sector survives on the past. We cherish our past performance and would encourage others to think similar. However, innovation is always for future. We need to project the future scenario. The Department of Transport has to take reform initiatives to manage the problems of driving license that would come in next five or ten years. What will be the demand- both in quantity and quality- at that time? How long will the reform that we are taking now serve in the future? The Department of Immigration has to think the flow of people at the immigration desk in next three years or five years or so on. The newly expanded waiting hall of Tribhuvan International Airport can accommodate more than 200 people. There is only one water dispenser installed to serve the 200 people. The current toilet facilities can serve hardly 15 people at a time, already constrained. What will happen if the flow of passengers increased to 300 or more? How will we expand the facilities?

Figure II: Sustaining innovation



The public sector needs to display courage to lead the innovation. The innovation environment may have odds, constraints and pressures. The manager and staff should have ability to deal with these challenges and prepare the team for working in the odds. In fact, innovation comes from these challenges. Bason (2010) suggests four leadership roles – the visionary, the enabler, the 360-degree innovator and the knowledge engineer- that are important for leading innovation.

Often innovation does not reach to conclusion or fail to produce desired result mainly because we fail to prepare ourselves for the future. Many of the government organizations have prepared mobile applications for easing the services but they are not updated for long time. For this, they cite reasons as lack of budget and accountability. It makes the reform as an ad-hoc decision, not having a plan for sustaining. Practicing innovation as a discrete effort has been a reason of inefficiency for many noble reform initiatives. Figure II below shows how the innovation can be sustained and practiced in a continuum.

Sustaining innovation is to develop culture and values that through the implementation of innovation strategies. Making a clean city is not possible only by putting bans on throwing garbage haphazardly. Unless we develop managing garbage is basic culture and every citizen is responsible for it, it is challenging to have a clean city. For this the concerned authorities need to have a strategic plan that will provide a roadmap to transform an untidy city to a neat and clean city where every citizen demonstrates environment friendly behaviour. Sustaining innovation has four building blocks- prototype, testing, scaling and continuity. Some blocks of this framework resemble with the design thinking and explained in details in the respective section. Prototype allows to understand problem from different perspectives and designing solution accordingly. The prototype then has to go for testing, reflecting and revising the prototype. Once we are assured that the solution works and acceptable, we need to have a plan of scaling it up. Together with roll-out, a plan is to be in place to give a continuity unless the innovation transforms into culture and values. It requires a systematic approach to change the public behaviour.

Case 5: COVID Vaccine Digital Record: What Next?

The Department of Health Services, a central agency responsible for containing COVID-19, is also responsible for certifying the COVID vaccination. The Department could have prepared a system of certifying vaccination on real-time basis. The opportunity was missed mainly because the Department did not realize that such record would be required. Or the focus at the beginning was on the distribution of vaccine. When there was a requirement of certifying vaccination, it started with manual process and only one government health facility was allowed to certify. It created a woe for both service seekers and the certifying agency. People were forced to stay in queue for long time. The officials tried to expediate process and provide more efficient services, but it did not solve the problem. Later, the Department prepared an online platform where the service seekers could make online application and get the certified report back after a certain day. It is an appreciative effort. However, we need to consider that who require such certification? What proportion of people have access to the internet? Do they understand the requirements to be submitted while applying? Are they feeling comfortable to use the system? How can we make the system further user friendly? How will we accommodate the future vaccination plan?

Innovation does not have any end. It is in fact a continuous evolution. Therefore, innovation is not an event but a process that requires continuous thinking and preparing for future. For making innovation a sustainable effort, we need to consider the following aspects:

- Do we prepare innovation champions for tomorrow?
- Do we plan for continuity of innovation?
- How do we identify and engage leadership roles in innovation?
- Do we create institutional memory of innovation?
- Do we consider innovation as open and evolving approach?

2. Design Thinking

Many reform initiatives, in the absence of innovation blueprint that describes the elements and stages of reform, create further hassles, loss of state energy and reduction in trust towards the system. Hence, both the state and people suffer. The design thinking is as approach of reform which therefore, would allow the reform champions to think, iterate, plan, implement and sustain reform in a holistic manner (Global Centre for Public Service Excellence , 2014).

Making traffic rules effective is not only the function of traffic police but a collective action achieved through the status of road infrastructures, traffic signals, education of drivers and pedestrians. A student learns about traffic rules in the classroom and earns excellent grade in the examination explaining those rules. Ironically, when he/she has to test his/her idea on the road, while travelling to and forth to the school, does not find any opportunity to correlate those learning in real life. Nobody cares traffic rules. Later, the same student gets driving license. What behaviour do we expect from him/her towards adherence to traffic rules? It means that there is a big gap between education and real-life behaviour testing lab. In order to ensure traffic discipline, we need to ensure that what we learn, we will have opportunity to realize and practice, and we will make it a part of culture and values- from violation to adhering traffic rules.

Case 6: Unistructural Thinking- Simple Solution

A truck driver tried to pass under a low bridge, but miscalculated the height and wedged the truck underneath the bridge by few inches, unable to move.

Emergency services, firefighters, and engineers arrived on the spot to find a solution to the traffic jam being caused, they debated — should they dismantle the truck? Knock off parts of the bridge?

A young man passing by saw the commotion, he said — *why not just let air out of the tires?*

Source:Sharma, 2020

Design thinking is a systematic process of innovating services in a way that considers solving problem of end users as the prerequisite of innovation and ensure that the innovation will eventually transform into a values and culture, making it a way of life (Chang, 2019). Ideally, in design thinking, we start thinking from the user's perspective, challenge existing underlying assumptions, think for alternative solution, test the idea, inbuilt feedback process and plan for sustaining the reform. It is a team-based

approach where all stakeholders are considered as the important actors and their engagement would be ensured at different stages. At the same time, these stakeholders are held accountable for their responsibility. It is therefore a basic tenet of co-creation of the service (Bason, 2010), a fundamental approach of designing public services.

A quick and fantastic solution would wither as quickly as it emerged. In April 1, 2015, the Government of Nepal (GoN) announced a ban on the plastic bags in the capital city below the certain specification through publishing a public notice. Although it was a welcome decision, given the deteriorating environmental state of the city, its implementation was crunching from the beginning, in which the April 25 Gorkha earthquake became one of the good excuses. Subsequently, the fiscal year 2016/17 budget announced ban on the plastic bags, but it did not come into effect. Meanwhile, the Supreme Court in August 2016 issued an order to impose ban on plastic bags that do not qualify for environment, but it also went unimplemented. As the latest move, government re-announced to ban plastic bags through the fiscal year 2021/22 annual budget. The recent notice, published on the Nepal Gazette in September 13, 2021, has imposed restriction on the use of plastic bags below 40 microns. However, the implementation of this decision is still at wary for several reasons, especially the preparation of functionaries, alternative solution and managing the stakeholders.

Why is the government making several decisions for a single reform? What was missing in the process? Why there is still not a confidence that the decisions will be implemented? A simple approach that we are missing is the 'design thinking'. Making decisions is important but more important is to uphold the decisions and create impact through effective implementation. For this, we need a design thinking approach where we would see the problems from holistic dimensions, from the perspectives of the end-users, look at the several alternatives, design a prototype, test and finally scale it up. Instead of making steadfast decision, the authorities should spend considerable amount of time to understand the problems, the political-economy of the problems, make authorizing environment beforehand, take the stakeholders into confidence, find and rationalize alternatives and provide options and then finally push it up for test and scale-up the implementation.

Case 7: How was Victorian Public Service Innovation Plan made?

In late February 2010, the Department of Premier and Cabinet and the Victorian Public Service (VPS) brought together hundreds of public servants from across the state administration for four days of presentations, seminars and workshops. According to Maria Katsonis, a senior official and one of the key officers charged with the plan's implementation, the Action Plan was the first document that had been signed by every chief executive of the VPS. Aiming at bringing the public service's innovation efforts to a new level, the Action Plan addresses four interrelated themes: a) creating stronger networks between people, ideas and opportunities (through new collaboration software and by creating an Advisory Group to steer the implementation of the plan); b) building innovation capability (through recruitment, skills development and making innovation tools available); c) enhanced reward of best practice (through challenge and awards programmes); and, finally, d) opening up and sharing information and data across the state government. The ambition of the plan is clear: 'Making innovation an integral part of how we approach our day-to-day work will result in better policies, better services and better value for the community'.

Source: Bason, 2010

Innovation in public sector, therefore, should begin from the design thinking, backed up by the authority to implement the decisions. Many decisions of the government, therefore, fail as they completely ignore the social and stakeholders' concerns and largely rely on the authority. In order to avoid the divergence in the thinking and prolonged decision-making process, we are inclined to make decisions through authoritative perspective. It may have liberty of making decisions at the choice of decision makers but will have to face several levels of internal and external resistance during implementation, which at any stage of implementation may create barrier to produce results.

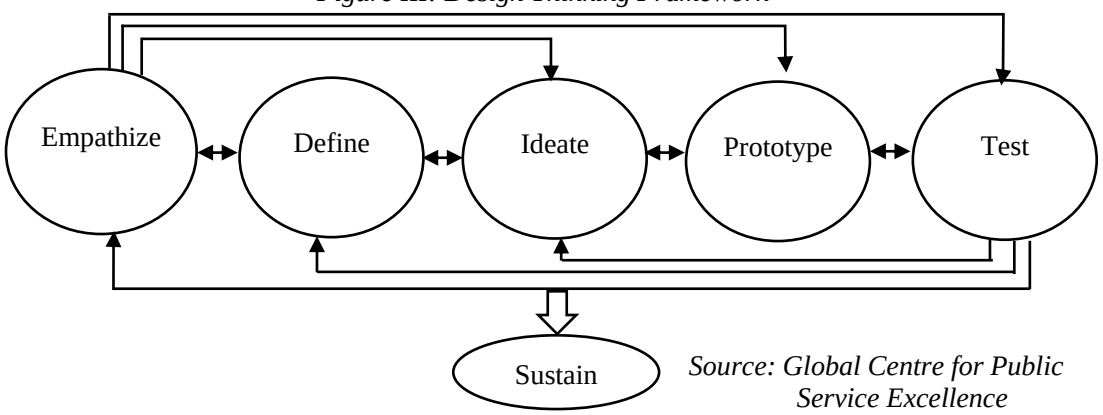
2.1 The Design Thinking Framework

The concept of design thinking was proposed by the Stanford University Institute of Design. The design thinking framework, human centric approach, has generally five stages (shown in figure III), which then can be subdivided into several micro elements. The sixth element is added to emphasize on creating the impact of reform.

Empathize: Understand the problem from the user's perspective. This requires doing research and embracing the problem as our own problem. Looking the problem from the perspective of the users would allow the decision makers to move away from the position and authority fallacy and understand the wicked problem through different lens.

Define: Once the problem is broadly realized, it is necessary to define what it means in terms of reform. We may need to dissect it into many sub-problems, define priorities and understand the interconnectedness of the problems as the social problems do not stand alone. There could be an ecosystem of the problems. From the ecosystem, it is necessary to identify the big problem and define appropriately from user's perspective.

Figure III: Design Thinking Framework



Source: Global Centre for Public Service Excellence (2014)

***Ideate*:** Defining problem would lead to thinking for solution. We need to think on several alternatives of the solution together with cost-benefit analysis, capacity of the organizations, the attitude and thinking of functionaries, background of the users and their capacity, perspective and demands. This may go several rounds of iterative process before arriving at a conclusion. We also need to question on our assumptions. When asked in a class of senior officials taking course at Nepal Administrative Staff College, 'is it possible to make a restaurant at the top of a clock tower (*ghantaghar)*?'. Almost

all the officials quickly replied 'NO'. Then a follow-up question was asked 'which clock tower (*ghantaghar*) were they referring to?' They referenced to a clock tower (*ghantaghar*) built by Bir Shumsher and standing in the middle of city of Kathmandu, at Tri-Chandra College. This is the clock tower that most of us have seen and have been conditioned that clock tower is a narrow-base artistic pillar having a clock hanged at a certain height. Could we think that the clock tower is nothing but a high-rise building having a clock hanged somewhere like a Makkah Clock Royal Tower which is 601 m tall and has 120 floors?

Case 8: Technology Leverages Innovation

The Government of Nepal has taken significant initiatives in recent years to transform service processes through ICT interventions. Automation of business process in the area of public service recruitment, customs, land records management, passports are few successful examples. Public Service Commission (PSC) has completely automated the recruitment system so as to eliminate all the hassles of thousands of applicants traveling to PSC regional offices and queuing for hours to submit applications. This has contributed significantly to reduce hassle on both side – PSC and applicants.

Department of Customs is now in the process of full fledge implementation of Nepal National Single Window (NNSW) system to facilitate foreign trade with the integration of UNCTAD Automated System for Customs Data (ASYCUDA) software, an application system used worldwide for customs solutions. The single window system brings together 46 entities with facilities of faceless transactions including online payment and digital signatures. Now, 32 entities are already providing services through this system and the project is expected to complete within July 2022. Currently, Connect IPS is used for online payment in coordination with Nepal Clearing House. The Department has formulated five years Custom Reform Plan to sustain reforms having further avenues of innovation.

The Department of Land Records Management and Archives has been using Land Records Management Information System (LRMIS) in 126 land revenue offices across the country. It has not only made the land registration, ownership transfer and other service related to land records efficient and effective, it has also facilitated to ensure compliance of *hadbandi* and sourcing capital gain tax in the system. The system has feature to monitor transactions through internet-based close-circuit camera. Although yet to be used by the citizens widely, the system has Public Access Module (PAM) where service recipients may carryout transaction through online. Citizens can get updates of their land records with registered Landowner's Identification Number (LIN). The Department is working on to fully automate the *Rokka Fukuwa* process, which accounts for about 60 percent transaction of Land Revenue Offices. The system is linked with *Nagarik App* (one stop online platform for accessing public services for people) but the inter-system document verification is yet to be resolved. The system also coordinates with local governments through *Bhu Sewa* app. The department is now working on to create linkages with Nepal Land Information System (NELIS) launched by Department of Survey. Document Management System has been developed to digitize the land records- (*Shrestas)* and historic documents by scanning, microfilming and archive.

***Prototype*:** How does the solution look like? We should then prepare a specification of the solution in an implementable terms. Reducing bigger idea into specific doable framework requires experimentation. Without preparing a prototype of the solution and testing, the cost of failure may be costly. The prototype allows the decision makers to learn about the challenges of implementation, the recovery plan and providing backstopping support.

***Test*:** Before launching the prototype in a mass scale, it is wiser to test in a small scale. The test will provide evidence on the effectiveness of the reform, the accuracy and acceptance of the reform initiatives. It may then encoruage us to revise our reform plan. Once, we are ascertian that the initiative would work, we have to prepare a roll-out plan to reachout the larger group of the users.

***Sustain*:** The reform does end with the roll-out. For ensuring traffic discipline, we need to develop a culture of appreciating traffic rules and demonstrating the traffic discipline congruent behaviour. We need to think on how can we sustain the innovation. Sustaining innovating requires a long-term plan and consistent efforts. Often reform does not provide intended impact or it would take longer time to produce impact as we fail to prepare a plan for sustaining it.

2.2 The System Thinking in Innovation: A Holistic Approach of Service Reform

In earlier two section, we discussed about two fundamental approaches of innovation in public sector- the innovation ecosystem and design thinking. The innovation eco-system provides an overall framework to understand innovation and make it happen. In addition, the public managers have to look at the social problems from a holistic approach, understand the multi-disciplinary nature of the problems, think in a comprehensive way and design solution accordingly. The design thinking is a tool which provides a framework on identifying a specific problem and designing solution in a more systematic manner, applying human centric approach. The design thinking is a bottom-up approach where the innovation journey begins from understanding problem from citizen's perspective and designing solution accordingly that has to solve their problem.

Building a road is not merely a technical issue. The engineers make a technical specification or design but at the same time, road is a social facility. It impacts the social, economic and environmental aspects. Therefore, design of a road is as complex as our society is. The engineers should have

Case 10: Thinking Holistically

Gwarko, an emerging traffic hub of Lalitpur and a cross-road that brings together many connecting roads, is a fine example of traffic congestion these days. Passing a distance of 200 meter through the *Gwarko* junction in less than 10 minutes is nearly impossible. The traffic polices seem to be helpless, fatigue and frustrated for managing the traffic. The drivers have similar experiences. Major reason for congestion is expansion of settlements outside the ring road. The settlements outside the ring road are expanding so rapidly that we have never thought of. Hundred meters east of the *Gwarko* chowk is a river having a narrow bridge which is hardly a two-lane. Expansion of the bridge is as urgent as providing a dehydrant to a diarrheal patient. The Mahalaxmi Municipality constructed bridges on two sides of the main bridge but not for vehicle movements, only pedestrians can commute. These bridges stand odd and thus are creating further problem of managing traffic. What we lack here is the system thinking of managing road traffic.

knowledge of the society, economy, environment and many other aspects of human lives. Enforcing traffic rules is not only the responsibility of traffic police. If the traffic infrastructure is not well placed, traffic polices become helpless.

As defined by Arnold & Wade (2015), system thinking has three components- purpose, elements, interconnectedness. For every system thinking, purpose is needed. Depending on the purpose, the system may be different. For example, the system of road governance may be different than the system of immigration services. However, clearly defined purpose relates the system thinking to everyday life. The elements of system could be different stakeholders, agencies or actors that have some concerns or stakes in the purpose. It is necessary to identify and understand the elements of a system. The interconnectedness brings the elements together to serve the purpose.

The originator of system thinking, Barry Richmond, defines system thinking as 'the art and science of making reliable inferences about be
haviour by developing an increasingly deep understanding of underlying structure' (Richmond, 1994). This definition has been further elaborated in different ways, providing more opportunities to relate in designing reform strategy.

For production of hydroelectricity, the producers have to start thinking from the end-users. How the electricity will be consumed by the consumers and what are their requirements? How do we supply the electricity to the end-users? How do we produce electricity? How do we make the production and supply of electricity reliable? What are market opportunities and barriers? What is the law of country that governs the production and supply? Is there any issue of local residents? What about environment and aquatic eco-system? The system thinking is to bring all these elements into the design plan before starting the hydroelectricity project. In the absence of such integrated thinking, the performance of the project may suffer at any time.

The system thinking is an interactive and iterative model for planning. We need to plan reform from macro, meso and micro perspectives (Stanton, Salmon, & Walker, 2018). The marco perspectives is more about the political economy analysis where the broader issues of actors, their interactions and incentives have to be considered. It also calls for looking at the macro-economy and political aspects of the reform. The meso level is mainly with the organization that is leading the reform. The reform leading organization has its own eco-system and context. While designing a reform we must assess the organization level eco-system, identify barriers and potentials and devise reform informed with the organization level environment. The micro level system thinking is about the implementation level analysis. The Department of Transportation has to manage number of actors for the implementation of new driving license trial examination system. The Department has to assess the capacity and interest of the staff working at the front line. The Department has to learn about the attitude and interests of the examinees. How will the record be kept? Do we require to train the staff for implementing the changing rules? Informed with these micro issues, the Department has to develop a plan to implement the new driving license trial examination.

The rampant production of mobile application by the public organization is a fine example of lack of system thinking. We are considering technology as the only solution, which may not be true in all cases. Organizations having a very few numbers of users may think of other better solution than designing mobile application. Or, even we need to develop mobile application, we could have done a

system analysis and conclude how many such applications are required to provide services. How could we connect these applications to reduce hassle for users to login in plethora of online gateway and provide same information several times? We have narrowly defined the use of technology and wasting public resources and degenerating trust towards the system.

The writer of the popular book 'The Fifth Discipline', Peter M. Senge argues the system thinking is the fifth discipline, earlier four are personal mastery, mental models, building shared vision and team learning. He defines system thinking as 'a discipline for seeing wholes rather than parts, for seeing patterns rather than static snapshots, and for understanding the subtle interconnectedness that gives living systems their unique character' (Senge, 2010). This definition reminds us that in the absence of system thinking, other competency may not produce a desired result.
In order to have an impactful innovation, the public sector organizations, therefore, has to consider the following aspects while designing a solution:

- Have deeper understanding of the broader dynamics of issues – political, social, economic, cultural, technical, legal, environmental etc.
- Decompose the issues at different levels – macro, meso and micro and have deeper understanding
- Understand the interconnectedness of the issue
- Learn about the innovation ecosystem
- Apply design thinking model to design the solution
- Think and plan for sustaining the innovation and creating impact

3. Roadmap for Innovation in Nepal's Public Sector

Can we imagine that someone from the driving license office will knock at our door to deliver the driving license and we will exchange a big thank? Can we imagine our roads will be efficiently managed without making the traffic standing on the roads for the irritating job? Can we imagine people will have a single gateway to access all the government services? Yes, we can. And this is possible. For this to happen, we need to have a system thinking and solutions are designed through design thinking. The government will have an innovation lab that will continuously research and find areas for innovation. The public organizations will make innovation as a basic culture and values.
We conclude by saying the following points for making public service innovation a sustained strategy.

Define key imperatives of innovation: A public service innovation strategy will provide a framework for thinking innovation in a systemic approach. The framework will define key imperatives of the public service innovation and create an environment for rethinking the process and quality of the public services. The government has to prepare a broader framework for public sector innovation. Disintegrated and discrete efforts of the innovation would not produce the expected results. We need to consider making a collaborative effort of innovation through a nationally defined framework.

The innovation lab: The innovation lab is both a concept and practice. Government has to establish an innovation lab that will prepare an innovation framework, continuous research and design, review, monitor and document the innovative ideas. The MindLab of Denmark is a cross-governmental innovation unit that work closely with the public entities to design innovative solutions by engaging the multi-stakeholders. The Helsinki Design Lab is another example how innovation labs are becoming a part of public sector reform. Should we have an innovation lab, we would have prepared

a blue print for 'Nagarik App' (a public interface online platform providing access of public services to the citizens), prepared prototype, research, improve and solve the emerging issues from the perspectives of the citizens.

Ensure consistent support: Innovation is not an event, nor it is impulsive. It is a calculated intervention with defined objectives and deliberate results. Several well-wished innovative ideas do not produce results as we fail to provide consistent support to the innovation. The plethora of mobile applications prepared by the public institutions are almost non-functional mainly because there is absence of a post-support plan. For any innovation to produce result direct or indirect support system has to be in place and we need to keep communicating to the concerned.

Ensure the innovation adaptive culture and values: Developing innovation culture in the public sector should receive top-priority. For this public organizations have to train, educate and encourage the functionaries to embrace innovative ideas. In order to sustain the reform, it has to be translated into culture and values. The road traffic reform plan has to ensure that people will transform from the non-compliance to compliance of the rules. For developing traffic rules abiding culture, a collective effort including civic education, infrastructures and compliance is required.

Research and development: Innovation does not end; we need to keep thinking for the next level innovation. Continuous research and development in the public sector would be essential for making next level innovation. Government has to invest on the research and development and mobilize the research institutions for continuous research and development in the aspects of public services. Nepal needs to prepare a research and development investment plan and motivate for innovators to work for offering solutions for public problems.

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