

ICT and e-governance: co-creation for better public service delivery

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Abstract

Service delivery is an essential function in relation between government bodies and citizens. It is a part of complex relation between government, society and citizens. The image of government depends on service delivery with quality services at affordable price to its citizens. Effective public service delivery is one of the key parameters to measure the goodness of governance. The government should be willing to formulate new strategies for effective public service delivery. With proper use of ICT, it increases efficiency, speed, and transparency in service delivery. It also assists in generation and dissemination of knowledge. The researcher reviewed different models of co-creation and proposed his own co-creation model for better public service delivery in reference to social cash transfer in Nepal. Through the proper utilization and implementation of technology and digital tools, the service delivery of government could be more effective and challenges could be minimized.

Keywords: ICT, e-governance, co-creation, service delivery

1. Introduction

ICT refers to technology that provides access to information, primarily concerned with storage, retrieval, manipulation and transmission of digital data (Aldarbesti and Saxena, 2014). It is a driving force of transformation process towards knowledge-based information society, that impacts on political, economic and social development (Armarego and Roy, 2004). It has transformed the way people live, work and spends their money. Public sector organizations have focused their efforts towards digitalizing their services to their customers or citizens through internet so that the users can get easy access to the available services from any place and at any time (Bhatnagar, 2014). Now, the public expect ICT-enabled interactions, not just with each other or with businesses, but also with public services (Loukis and Charalabidis, 2013). The role of ICT in information exchange is manifested in the way information flows faster, more generously, and less expensively for decision-making and for development (Local Government Association, 2014).

The capacity of internet and web technology has changed traditional paper/manual driven organization to information driven internet enabled digital organization. In digital organization, most of the things are electronic, use digital technologies and work on database, knowledge bases, directories and document repositories (Leipold, 2002). Globalization, increased automation of procedures and universal establishment of

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Internet technologies are the main driving forces in the service delivery procedure (Lozano and Mandrile, 2010).

E-governance is widely accepted as an effective tool of service delivery by all developed countries and developing countries. It facilitates the service delivery of government to citizens in a simple, speedy and convenient way. Besides, it improves efficiency in administration, brings about transparency and reduction of government cost (Deloitte, 2012). IT-enabled service delivery can be seen in diverse fields such as healthcare, travel, retailing, media, and entertainment. The depth and the diffusion of technology are helping to accelerate the application and use of knowledge in different ways (Mathema, 2012). It's an issue of doing things in new ways that require fundamental change in the provision of public services in the future and a complete new approach for governments to work and interact with their citizens (Lozano and Mandrile, 2010). Therefore, e-governance is the application of ICT in government functioning to bring in SMART governance implying: Simple, Moral, Accountable, Responsive and Transparent.

Social security refers to action programmes of government intended to promote the welfare of its citizens through assistance measures, guaranteeing access to sufficient resources for food and shelter and to promote citizens' life. Primarily, it is directed towards potentially vulnerable population of the country such as children, the elderly, the sick and the unemployed (Sapru and Sapru, 2014). It is a basic right of a citizen. The government of Nepal has been providing different types of social security allowances to target groups like senior citizens, single women, etc since 1994/95 and number of beneficiaries is increasing daily (Song, Baker and Davis, 2015). The data of social security beneficiaries have been maintained manually. Since the process is manual, there is high chance of missing actual beneficiaries and changes of ghost beneficiaries, who may be benefitted twice or more.

In Nepal, a universal flat pension of Rs 100 to all the elderly people above 75 years was first announced on December 26, 1994. Since 1996-97, the Ministry of Local Development has been administrating the Old Age Pension (OAP), and the allowances were distributed by the ward offices and the VDC (Village Development Committee) office in the urban areas and in the rural areas, respectively. Since 2008/09, the government has been introducing allowances to single women, endangered races and decreases the eligibility age threshold for Dalits and citizens of the Karnali zone to 60 or more than 60 years. In FY 2010/11, 3.01% of the total budget was allocated to social security programmes (Lozano and Mandrile, 2010).

Figure 1. Trend of social cash transfer

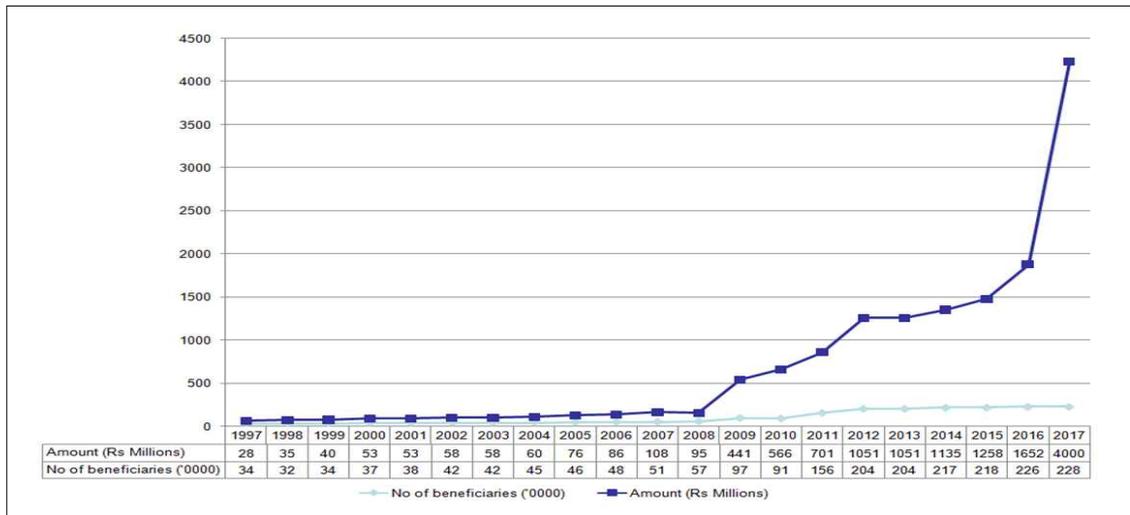


Figure 1 shows fiscal year wise number of social security allowances beneficiaries and amount distributed by the Government of Nepal, and number of beneficiaries are increasing every year. The Government of Nepal distributed Rs 28 million to 344,348 beneficiaries in 1997/1998. In 2016/2017, Rs 16.52 billion were distributed to 2.26 million of beneficiaries and for 2017/2018, Rs 40 billion for 2.28 million of beneficiaries forecasted. The budget speech of Nepal Government 2017 has declared to provide double the amount to each beneficiary. Therefore, the forecasted amount is more than double of previous year.

Pressure on the budget is high and is increasing each year. Determining how much the target groups are actually benefitting is still a challenge. As the social security programme is highly popular, political influence and pressure are widely prevalent. Sectoral ministries and central concerned agencies are not connected with the Management Information System (MIS). The dependency syndrome has been increasing (Sapru and Sapru, 2014).

Co-creation in the public sector as a process through which two or more public and private actors attempt to solve a shared problem, challenge, or task through a constructive exchange of different kinds of knowledge, resources, competences, and ideas enhances the production of public value in terms of visions, plans, policies, strategies, regulatory frameworks, or services, either through a continuous improvement of outputs or outcomes or through innovative step-changes that transform the understanding of the problem or task at hand and lead to new ways of solving it (Sahu, 2011).

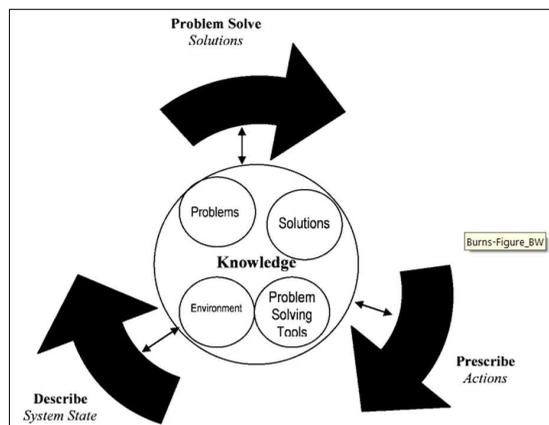
2. Objective

The main objective of this research paper is to explore co-creation models and prepare framework for better public service delivery in reference to social cash transfer in Nepal.

3. Literature review

In a digital firm, business relationships with customers, suppliers and employees are digitally enabled and mediated. Core business process is accomplished through digital networks (Eigeman, 2007). Thus, service-

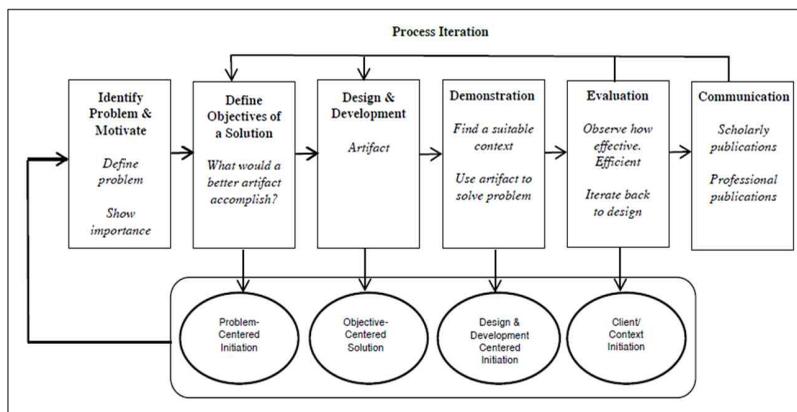
Figure 2. A practitioner based system development model (Ivatury and Mas, 2008)



oriented IT is helping to determine the directions in which numerous industries and the world economy in general will grow and develop in the future (Mathema, 2012). Business processes refer to the set of logically related tasks and behaviors that organizations and society develop over time to produce specific business results and the unique manner in which these activities are organized and coordinated (Eigeman, 2007).

Figure 2 shows that the model solves existing problem through different tools. During the iterative process to find solutions, it follows prescribe action and system state at given environment. Finally, new knowledge is generated (Ivatury and Mas, 2008).

Figure 3. Design science research methodology process (Jawadekar, 2009)



The design skills as defined by (Jones and Williams, 2005) are related to the ability to: (a) Abstract from specific cases to more general situations, (b) Recognise patterns in both process and product, (c) Apply systematic techniques to problem solving, and (d) Apply, and adapt, tools and technologies to new problems.

Digital technology is a part of people's daily lives and has been more pervasive, local government needs to explore prospective of digital technologies in innovative ways to provide services to its citizens (Dhakal and Jamil, 2010). Service delivery is an essential function in relation between government bodies and citizens. It is a part of complex relation between government, society and citizens. The government is a key public service provider, and citizens has a right to demand quality services fast, easy at moderate cost. The image of government depends on service delivery with quality services at affordable price to its citizens (Burns and Deek, 2011). Effective public service delivery is one of the key parameters to measure the goodness of governance. Therefore, government should be willing to formulate new strategies for effective public service delivery (Deloitte, 2012). The presence of computer and information technologies in today's organizations has expanded dramatically. With proper use of ICT, it increases efficiency, speed, and transparency in service delivery. It also assists in generation and dissemination of knowledge (Kokkinakos et al., 2012).

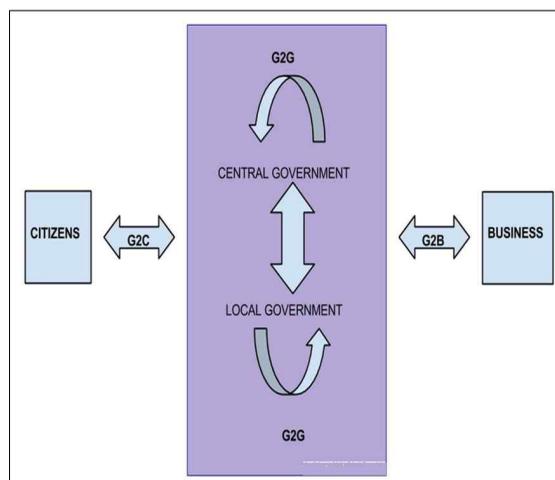
Business firms invest heavily in information systems to achieve six strategic business objectives: operational excellence; new products, services, and business models; customer and supplier intimacy; improved decision making; competitive advantage; and survival (Eigeman, 2007). According to Deloitte (2012), basic elements of successful service delivery include (a) friendly interface with service seekers, (b) sustain communication, (c) set expectations, (d) process and organisation re-engineering, (e) build staff capability to deliver services, (f) ICT as a key enabler, (g) the legal foundational structure, (h) dedicated institutional structures, and (i) continued monitoring and evaluation.

Public service is all activities that are delivered by the government to fulfill daily needs of society and people's daily life (Laudon and Laudon, 2012). A local government is more responsive to citizens' day to day activities. Therefore, the capacity of local government has to be improved for guarantee on continuity of regular service delivery. The local government is more responsible for basic services in many social areas such as education and schooling, social security and basic provisions, legal protection, housing, etc. The educational level of people is increasing and with that their capabilities and expectations are also increased (Burns and Deek, 2011). The mechanism of service delivery of local government has not been changed for decades (Kokkinakos et al., 2012). Through the proper utilization and implementation of technology and digital tools, the service delivery of local government could be more effective and challenges could be minimized (Dhakal and Jamil, 2010).

The more governments realize the importance of public participation, even in this new form, the more they are trying to re-engage citizens in the political processes in order to strengthen democracy. Every decision that governments take, increased effectiveness and efficiency along with lower budgets are what governments seek for. Individuals (e.g., citizens, businesses) can now be seen not only as simple spectators, but mostly like active participants, collaborators and creators (Samans, Schwab, and Malloch-Brown, 2010). The key stakeholders in the entire e-governance process are (a) political leaders (b) government department/agencies (c) legislative bodies (d) private sectors (e) NGOs/ INGOs and (f) citizens.

Before the era of e-governance, government delivery of services was manual and opaque which caused great difficulties to citizens. There were overcrowded government offices, long queues, employee absenteeism, etc. It appeared that the focus of employees was more on corrupt practices than on citizen's service delivery (Subbiah and Ibrahim, 2011). The benefits of e-governance are transparency and openness, reliability and predictability, accountability, efficiency and effectiveness (Ochieng and Gichoya, 2013). In addition to improving delivery of government services, e-government makes government operations more efficient. It empowers citizens by providing easy access to information and easy communication with other citizens. For example, citizens in some states can renew their driver's licenses or apply for unemployment benefits online (Eigeman, 2007). E-governance plays significant roles in the improvement of public service delivery. They are (a) increases efficiency by automation, (b) supports effective decentralization in decision making, (c) increases account

Figure 4. E-governance model (Reforming government through technology)



ability of the public service agencies to citizens, (d) improves resource management, (e) offers effective communication, (f) increases accessibility, (g) provides comprehensive database, (f) facilitate strategic planning, (g) enables reduction of paper work with the use of e-mail and electronic data interchange, and (h) supplies information related to the market (Deloitte, 2012).

Interaction between citizens and local government can be occurred in different ways such as providing information through government websites, local media, special publication, information desks, etc (Burns and Deek, 2011). Information dissemination is an important function of local government for transparency as well as effective service delivery (Ochieng and Gichoya, 2013). ICT is a potential tool of efficient public service delivery. It offers new possibilities for communication between people and organization and increases the quality and quantity of interaction with people. It enhances transparency and access to organization (Deloitte, 2012). There are several functions like electronic access, electronic authentication, unequivocal numbers, basic registration and information exchange that occurs between citizens and local government can be directly facilitated by the new information technology. With the implementation of ICT-enabled public service delivery, it improves access to public services, increases efficiency, transparency and accountability of government (Burns and Deek, 2011). The rapid development of ICT has helped in exploring new opportunities for service delivery and income generation (Pokharel, 2010).

The advanced technologies have huge potential for delivering prompt, efficient and high quality services to vulnerable, poor and needy population of society (Ochieng and Gichoya, 2013). The contribution of ICT to service delivery is particularly visible in web services, computing services, business intelligence services, and information technology infrastructure (Mathema, 2012). The rapid growing application of ICTs and their subsequent use on strengthening interaction among public entities, civil societies, communities and citizens have given rise to a new governance paradigm known as e-governance (Dhakal and Jamil, 2010)

Table 1. ICT-enabled public service delivery framework

	Performance Monitoring	Legal and Quasi-legal	Institutional Structure
Foundation Tier	<ul style="list-style-type: none"> • Well-defined service objectives • Monitoring and evaluation indicators • Monitoring mechanism 	<ul style="list-style-type: none"> • Codified laws and rules in conformity with process • Flexibility to enact rules for enhancing service delivery 	<ul style="list-style-type: none"> • Dedicated institutional structure for service delivery • Appropriately skilled and empowered • Clear responsibilities
Enabling Tier	<p>Organizational Capability</p> <ul style="list-style-type: none"> • Organizational staff strength • Staff capability-rules, process and technology • Capability-customer service 	<p>Procedures and Processes</p> <ul style="list-style-type: none"> • Re-engineered and standardized process • Clearly defined role allocations • Well-defined timelines and platform 	<p>Systems and Technologies</p> <ul style="list-style-type: none"> • Integrated data structures • Standardized applications • Omnipresent networks
Delivery Tier	<p>Service Delivery</p> <ul style="list-style-type: none"> • Service delivery principles • Service delivery parameters • Redress or escalation mechanisms 	<p>External Communication</p> <ul style="list-style-type: none"> • Regular awareness sessions • Institutionalized and customer feedback • Consultative mechanisms 	<p>Front Office or Citizen Interface</p> <ul style="list-style-type: none"> • Front office, ambience or infrastructure • Service delivery channels • Helpdesk features

ICT-enabled services can be delivered through computers, mobile devices, or by customer service personnel, regardless of the industry and manner of delivery. It seems clear that ICT plays a role in the shift from product centric to service-centric business models, and in the creation of new opportunities for businesses (Mathema, 2012). The recent development of technology has changed the way of working of the organizations. Through the use of internet, transfer of information is fast. It can now be delivered instantly without any middle person. Companies and individuals use internet to exchange business transactions, text messages, graphic images, and even video and sound (National Planning Commission, 2012).

Table 2. Differences between traditional exchange and co-creation experience (Prahalad and Ramaswamy, 2004)

	Traditional Exchange	Co-Creation Experiences
Goal of Interaction	Extraction of economic value	Co-creation of value through compelling co-creation experiences, as well as extraction of economic value
Locus of Interaction	Once at the end of the value chain	Repeatedly, anywhere, and anytime in the system
Company-Consumer Relationship	Transaction-based	Set of interactions and transactions focused on a series of co-creation experiences
View of Choice	Variety of products and services, features and functionalities, product performance, and operating procedures	Co-creation experience based on interactions across multiple channels, options, transactions, and the price-experience relationship
Pattern of Interaction between Company and Consumer	Passive, firm-initiated one-to-one	Active, initiated by either company or consumer, one-to-one or one-to-many
Focus of Quality	Quality of internal processes and company offerings	Quality of consumer-company interactions and co-creation experiences

Co-creation is an emerging concept and doesn't have a single dominant business model at present. As a result, there are many possible models that could emerge in the future. It is helpful to categorize business models of co-creation and to view the differences between them. This is necessary to understand the various aspects of the value within co-creation and observe how firms migrate from one distinct category to the next over time. Business models are the way you earn revenue from customers and are defined by these principles: target market, value proposition, position in value chain and network, revenue model and cost structure and competitive strategy.

Co-creation of value into the governance of e-government service system and use of ICT to give its citizens and businesses better access to public service applications, with a view of building an experienced environment, within which citizens are able to create their own unique personalized experiences (Prasannakumar, 2013).

Figure 5. 4-phase of co-creation

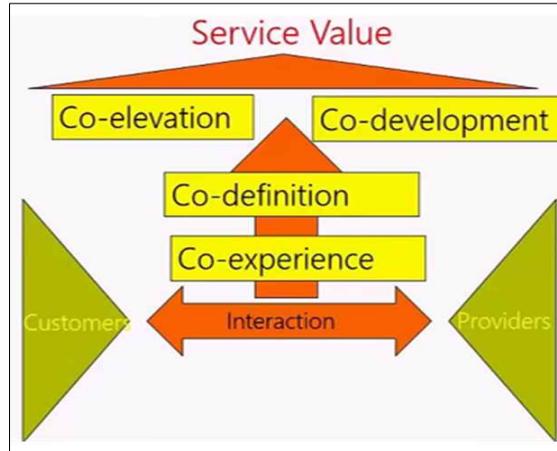


Table 3. The concept of co-creation experiences (Sahu, 2011)

What is not	What is
Customer focus	Co-creation is about joint creation of value by the company and the customer
Customer is a king/ always right	Allowing the customer to co-construct the service experience to suit his content
Product variety	Experience variety
Staging experience	Co-constructing personalized experience
Deliver good customer service	Joint problem definition and problem solving

4. Proposed framework

The government of Nepal has provided paper based identification card to its target groups like senior citizens, widows, children, etc and there is practice of direct cash distribution to the beneficiaries by Village Development Committee (VDC) office through manual process. The proposed framework for social cash transfer through branchless banking is shown in Figure 6.

Branchless banking is the use of technology, such as mobile phones and bank cards to conduct financial transactions electronically and remotely using third party outlets as agents for the financial services provider, which allows customers to use financial services without going to bank branches (Subramanian, 2013). In addition to transactional services, branchless banking provides basic cash deposit and withdrawal and also government remittances for the poor (Torfing, Sørensen and Røiseland, 2016). The financial services provider is backed by a government licensed financial institution. It has great potential to extend the distribution of financial services to poor people who are not reached by traditional bank branch network. It lowers the cost of delivery, including costs both to banks of building and maintaining a delivery channel and to customers of accessing services (Subramanian, 2013). Instead of setting up formal bank branches, these systems use a network of human agents to facilitate banking transactions, thereby reducing the cost of banking for people with

small cash holdings. In the last few years, the concept of branchless banking has been booming in developing countries. It has huge potential to provide financial services to low-income households of remote and rural areas that are not reached by traditional banks (Upadhyaya, Shakya and Pokharel, 2012).

Figure 6 shows that beneficiaries come to a VDC office with their current hand written identity card for digital registration process and biometrics enrollment. At initial stage, VDC staff check their details and cross verify with the manual register of the VDC office. If the beneficiary is true, then VDC staff/computer operator enter personal details into database and fill Know Your Customer (KYC) form to open bank account. If the beneficiary details are not sufficient then VDC staff request the beneficiary to submit the remaining document, otherwise the beneficiary will be removed from the list. Then, the beneficiary goes to bank section; bank staff opens bank account based on filled KYC form and registers biometrics (finger print) into POS (point of sales) machine. After successful registration, the beneficiary gets temporary personal card with unique ID. Later the bank provides digital smart card to individual beneficiary. The smart card consists of name, gender, address, photo along with private PIN (personal identification number) code.

Figure 6. Mechanism of collecting beneficiaries' data

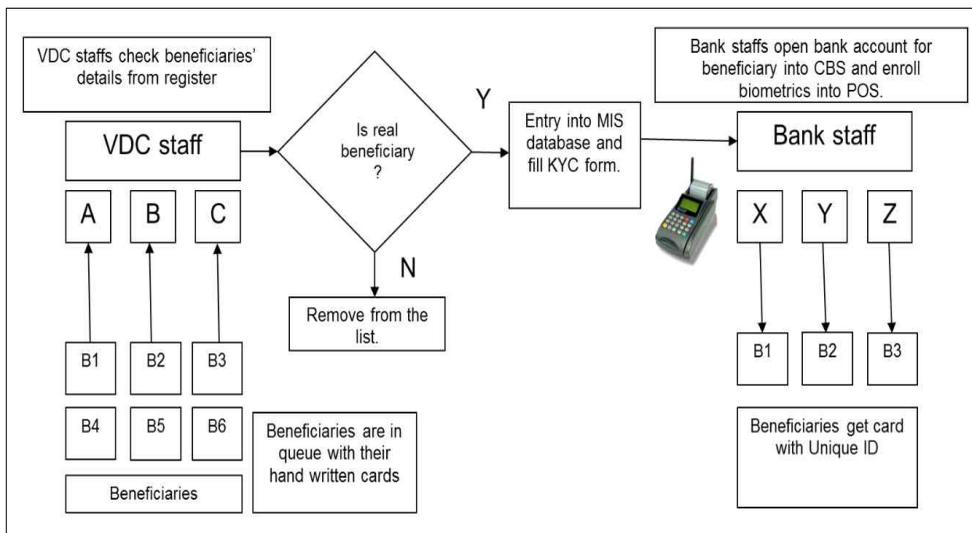
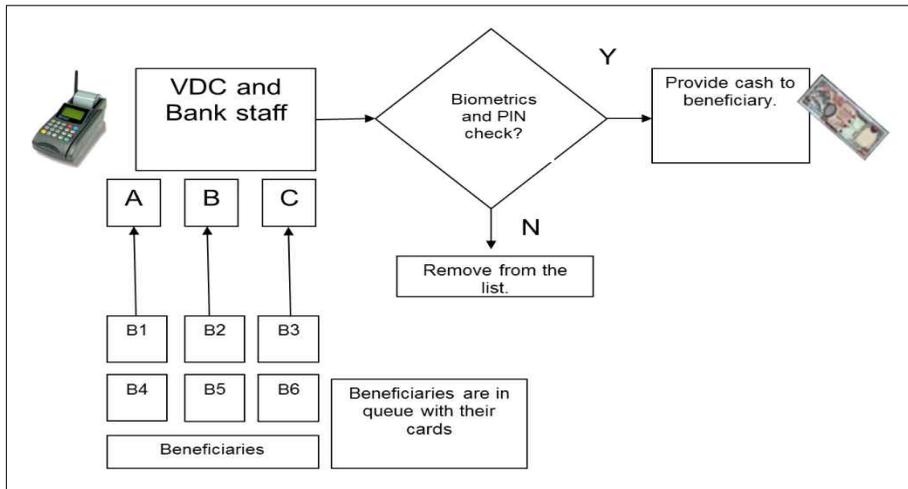


Figure 7 shows the process of cash transfer through POS machine to social security allowance beneficiaries. The beneficiaries come with cards that have been provided to them at a VDC office or any place that have been mentioned earlier so as to withdraw amount through the POS machine. The bank already has to have transferred amount into the beneficiaries' personal bank account prior distributing cash to the beneficiaries. The agent/beneficiary swipes the card into the POS machine and enters the PIN code, then for verification the beneficiary finger print is used. After successful verification, the POS machine prints receipt with details like account number, cash withdraw/deposit, amount, etc. In this way, social security allowance can be easily distributed to exact beneficiary. It helps to make social cash transfer easy and transparent. If the PIN code or fingerprint does not match then cash transfer stops here. It means that the beneficiary is not a true beneficiary rather a ghost beneficiary.

Figure 7. Process of cash transfer through POS machine



5. Conclusion

The government of Nepal has provided social cash allowances to its target groups through manual process. Since the process is manual there is high chance of double benefits by clever people whereas targeted beneficiaries may be missed in the programme. The proposed framework facilitates the government and different entities to deliver more efficient and effective public services in order to achieve better public service quality, with reduced waiting times, improved cost effectiveness, higher productivity and more transparency. Through the proper utilization and implementation of technology and digital tools, the service delivery of the government could be more effective and challenges could be minimized.

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