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Technology Acceptance Model: Understanding Local Government Employees Intention in Social Cash Transfer through Branchless Banking in Nepal

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Abstract— Government of Nepal has been providing social security allowance to its target group since 1994/95 in the form of cash and kind. Huge amount of money has been distributed by local government employees on manual basis. The needy and targeted poor people have been missed and high chance of double benefits by clever and ghost beneficiaries. The demand of social security allowance grant has been increasing every year. With proper use of ICT, service delivery of local government has become fast, efficient and reliable. Those missing people can be easily captured by use of ICT and branchless banking. Branchless banking is an innovative idea to provide financial facilities to poor people of rural areas. The primary data have been collected from field level through survey method. The research has used Technology Acceptance Model (TAM) to understand intention of local government employees in social cash transfer through branchless banking. The result of the research shows that local employees are very much interested and eager to adopt branchless banking technology for social cash transfer so that real beneficiaries can feel good governance and access banking facilities.

Keywords— ICT, TAM, Local Governance, Branchless Banking, Social Cash Transfer

I. INTRODUCTION

The government has been providing different types of social security allowances to target groups like senior citizens, single women, etc. Through social security programme, life style of poor people can be changed [1]. The government of Nepal has started distributing social security allowance from 1994/95 A.D [2]. The number of beneficiaries has been increasing each year and the beneficiaries list is being maintained manually. Because of manual process, actual beneficiaries may be missing where as ghost beneficiaries may be benefitted twice [3]. In rural areas, direct cash payment to the beneficiaries is a common practice through manual process. In urban areas where there are banking facilities, local government employees have started distributing social security allowance to beneficiaries through banking channel with or without beneficiaries' personal bank accounts and transfer cash into accounts [3]. Most of the beneficiaries are out of banking facilities and are below poverty line. The branchless banking is a new innovative idea to reach to poor and unbanked people of rural areas.

The concept of branchless banking has been booming in developing countries. It has a huge potential to provide financial services to low-income households of remote and rural areas that are not reached by traditional banks [7]. It is the use of technology, such as mobile phones and bank cards to conduct financial transactions electronically and remotely using third party outlets known as agents, financial services provider that allows customers to use financial services without going to bank branches [4]. In addition to transactional services, it also provides basic cash deposit and withdrawal and also government remittances for the poor [5]. It has great potential to extend the distribution of financial services with lower cost both to banks for building and maintaining a delivery channel and to customers for accessing services [6].

The government of Nepal has piloted social cash transfer and payment through branchless banking. The educational cash transfer was carried out in Dadeldhura and Kanchanpur districts and social grant cash transfer in Baglung, Banke and Surkhet districts. The main objective of the pilot is to improve the effectiveness and efficiency of cash transfer payments, moving from manual to electronic distribution of payments. The agents of bank opened personnel saving account of each beneficiary, collected fingerprint (biometrics) data of the beneficiaries and entered into Core Banking System (CBS) during enrollment process. Each beneficiary has been provided smart card. The beneficiary could easily withdraw money from agent through the smart card and fingerprint check as proof of payment [9].

Business Correspondent (BC) agents have been a key resource in ensuring the unbanked population receives banking facilities and thus financial services help poor and unbanked people economic stimulus and security [5]. Since payments are made directly into beneficiaries' personal saving account, it provides beneficiaries with access to modern financial system and prospect for future financial inclusion [9]. In future, branchless banks should also offer services like life and non-life insurance, accept investment in financial and commodity markets and also in other saving instruments like mutual funds and bonds to the poor [5].

Potential users have to accept and use emerging information technologies to deliver and improve organizational effectiveness. Technology Acceptance Model (TAM) is one of the most influential models widely used in the studies of the determinant of IS/IT acceptance [10].

II. PROBLEM STATEMENT

Based on social security programme operation work procedure prepared by Government of Nepal [8], VDC secretaries are distributing social security allowance to the target group beneficiaries on manual basis. There is a problem of identifying the beneficiaries and beneficiaries having multiple registrations. Besides, frequent changes in the records due to political reasons are creating a challenge to the effective distribution and implementation of the social security allowance distribution [3].

There has been a provision of payment to beneficiaries through bank with opening personal bank account of the beneficiaries [8]. But access of bank is very much minimal at most VDCs of Nepal. The VDC secretaries have to carry huge amount of money from district headquarter to VDC office, which is always a high risk.

III.OBJECTIVE

The main objective of this research is to understand intention of local government employees in social cash transfer through branchless banking.

IV.LITERATURE REVIEW

Potential users have to accept and use emerging information technologies to deliver and improve organizational effectiveness. TAM was developed to evaluate market potential for different PC-based applications to guide investments in new product under contract with IBM

Canada, Ltd. in the mid-1980s. It is one of the most influential models widely used in the studies of the determinant of IS/IT acceptance [10]. What causes people to accept or reject information technology and Information System? Among the many variables that may influence system use, the two most important variables are "Perceived usefulness" and "Perceived ease of use". Perceived usefulness is defined as "the degree to which an individual believes that using a particular system would enhance his or her productivity" while perceived ease of use is defined as " the degree an individual believes that using a particular system would be free of effort" [11].

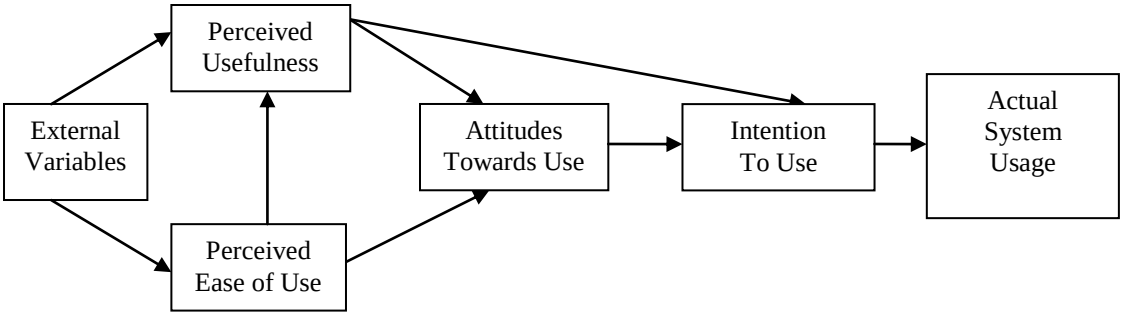

Figure 1: Original Technology Acceptance Model (TAM) [10]

There have been some recent attempts to gain a better understanding of the cognitive processes people use to respond to survey questions regarding beliefs, attitudes, intentions, and behaviour, and how these may be affected by item context [10].

The proper use of IT and ICT has transformed the way people live, work and spend money. Public sector organizations have focused their efforts towards digitalizing their services so that customers or citizens can easily use the available services whatever and whenever they require through the use of internet [12]. Developing countries have been using IT and ICT as potentially useful tools for social improvements as well as to improve efficiency of government services. Nepal is also extending its services to communicate with poor people of mountain regions [13]. The use of ICTs increases the performance of social security agencies as a result services and delivery mechanism have been improved [14].

In South Africa, branchless banking has been deployed as a means to distribute government subsidies and pensions. In order to ensure distribution to the right person, they implemented biometric verification using Point of Sales (POS) terminals [15]. Government of Nepal has piloted social cash transfer through branchless banking with close co-ordination of local government employees. And it can be easily used to distribute social security cash transfer efficiently and effectively [9]. The POS terminal is a must for branchless banking. It is easy to carry around and provides a convenient easy-to-use interface for both customer and agent. The POS machine is very much popular for branchless banking because of its special characteristics such as light weight, resistant, equipped with printer and fingerprint sensor, online and offline mode of transaction and easy card reader [15]. A smartcard holds complete information of a beneficiary like current balance, entire transaction history and fingerprint. Whenever a POS terminal that can read smartcards is used, users do not need to be connected to a central server. They can operate completely offline and still use a fingerprint for verification [16].

Biometrics is one of the best ways to identify an individual. It uses physiological and behaviour characteristics of an individual, which are unique to individual only. The use of biometrics to authenticate an individual instead of passwords is now being studied as a way

to improve security to protect the increased amount of sensitive data [17]. The biometrics is a feature measured from the human body that is distinguishing enough to be used for user authentication [18]. The use of fingerprints has been largely used for law enforcement applications ranging from small and inexpensive fingerprint capture device to fast computing hardware and internet applications [19]. So, as to better deal with illiterate people and to protect them against potential scams, the POS terminal with audio messages for confirmation of transaction and amount withdraw/deposit by beneficiaries may be enhanced [15].

V. METHODOLOGY

The research paper is based on quantitative method. The researcher has adopted survey method to collect primary data from grass root level and secondary sources of information from related books, articles, publications and research papers. A questionnaire elicited information about demographic, physical facilities, nature of beneficiaries data, nature of cash transfer, perceived usefulness, perceived ease of use and intention to use. The research participants were Village Development Committee (VDC)/Municipalities employees. Research participants were asked to rate their opinion using a 5-point Likert scale ranging from 1= Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly agree, for perceived ease of use and perceived usefulness. The collected data have been entered into SPSS 22 and data analysis has been done. For preparing charts Microsoft Excel 2007 has also been used.

VI. RESULT AND DISCUSSION

The primary data have been collected from 10 districts of Nepal. The total number of research participants was 211, out of them 195 (92%) were male and 16 (8%) were female. District wise no of research participants has been show in TABLE 1.

TABLE 1
DISTRICT WISE NO OF RESEARCH PARTICIPANTS

S.N	District Name	Gender		Total
		Male	Female	
1	Kailali	12	0	12
2	Ilam	20	1	21
3	Rupendehi	26	3	29
4	Dang	26	8	34
5	Jhapa	37	0	37
6	Kanchanpur	5	0	5
7	Rautahat	6	1	7
8	Mustang	6	2	8
9	Dhankuta	28	0	28
10	Lalitpur	29	1	30
Total		195	16	211

Table 2 shows district wise ethnicity of research participants. The ethnicity of research participants has been categorized into Dalit, Janajati, Bharmin/Chettri, Newar and Others. The highest no. of research participants were found to be of Bharmin/Chettri i.e. 115 (55%) and Dalit were found to be the lowest i.e 5 (2%).

TABLE 2
DISTRICT WISE ETHNICITY OF RESEARCH PARTICIPANTS

S.N	District Name	Ethnicity					Total
		Dalit	Janajati	Bharmin/Chettri	Newar	Others	
1	Kailali	0	6	5	0	1	12
2	Ilam	0	7	13	1	0	21
3	Rupendehi	1	7	15	0	6	29
4	Dang	1	12	16	2	3	34
5	Jhapa	0	3	32	1	1	37
6	Kanchanpur	0	0	5	0	0	5
7	Rautahat	0	0	0	0	7	7
8	Mustang	2	2	4	0	0	8
9	Dhankuta	1	9	16	2	0	28
10	Lalitpur	0	1	9	20	0	30
Total		5	47	115	26	18	211

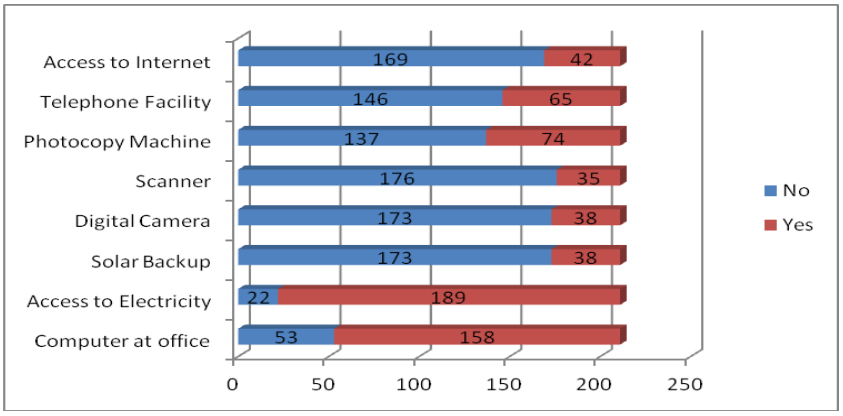

Fig. 1 Physical Infrastructre of reseach participants office.

Fig. 1 shows the physical infrastructure available at VDC/Municipality offices. The figure clearly shows that the physical infrastructure is not sufficient. In order to provide electronic services to citizens, there should be computer with proper solar back and internet facilities. The outreach of internet facilities is very much minimal i.e. 20%.

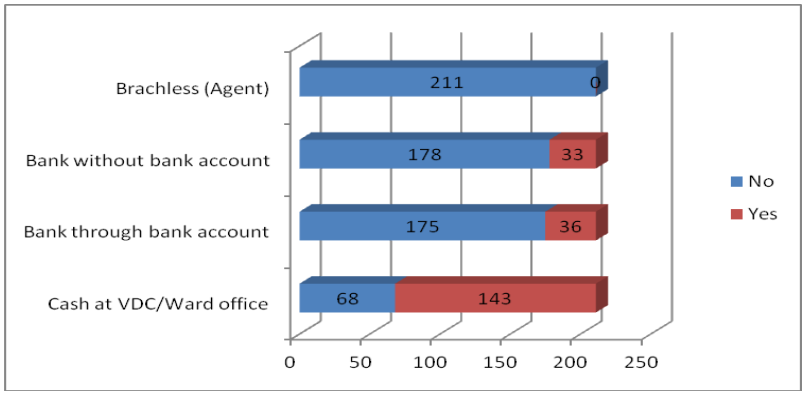

Fig. 2 Nature of Cash Transfer to Beneficiaries

Fig. 2 shows the nature of cash transfer to beneficiaries.68% of VDC offices have been distributing direct cash to beneficiaries. Likewise, 17% are distributing through banking channel transferring into personal account of beneficiaries and 16% are distributing through banking channel without transferring into personal bank account of beneficiaries. None of the offices have facilities of branchless banking.

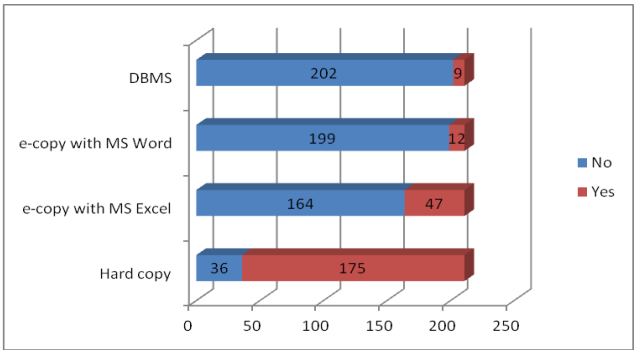

Fig. 3 Nature of Data Management of Beneficiaires

Fig. 3 shows the nature of nature of data management of beneficiaries. 83% of VDC offices are maintaining beneficiaries' data in hard copy. Likewise, 22% are maintaining data in e-copy using Microsoft Excel application and 6% are maintaining data in e-copy using Microsoft Word application. Only 4% are using database management system to maintain social security beneficiaries' data.

TABLE 3 clearly shows that local level employees are very much positive towards new innovative technology and eager to use it. The result shows that proper use of electronic database increases the efficiency of office that can easily tackle ghost social beneficiaries. In order to make more transparency, they need computer, biometrics capturing machine and reliable MIS to maintain proper database of beneficiaries. Besides, they need reliable data/internet connectivity to carry out online cash transfer through machine and submission of reports to central government.

TABLE 3
RESULT TOWARDS DIFFERENT VARIABLES

S.N	Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Sufficient no of capable human resources	4	14	10	67	116
2	Sufficient no of computers and peripherals	4	7	13	67	120
3	Computer for my official purpose	3	4	21	77	106
4	Computer to store data of social security beneficiaries	4	4	40	32	131
5	Reliable MIS of social security beneficiaries	3	4	12	67	125
6	Reliable Data/ Internet connectivity	4	9	5	57	136
7	Biometrics capturing machine to capture finger print of beneficiary	3	6	25	68	109
8	Electronic database that increases efficiency of office	3	6	39	58	105
9	Electronic database that tackles ghost beneficiaries	4	6	11	74	116

VII. CONCLUSION

Government of Nepal is distributing social grant to its target groups in cash since two decades. Since the programme is very much popular and is of huge amount, different level of people has been trying to get maximum benefits. In order to increase transparency in cash transfer, government has been searching for different models like cash transfer into personal account of beneficiaries, branchless banking, etc. The traditional banking is not able to provide regular banking facilities to rural areas of beneficiaries. The new concept of branchless banking is an innovative idea to cover rural beneficiaries. TAM is a proven model for study of acceptance of any information system. In this research, TAM has been applied to study intention of local employees towards social cash transfer through branchless banking in Nepal. The result has showed that local level employees are very much impressed with new technology of branchless banking for cash transfer. However, physical infrastructure is not sufficient to provide electronic services to citizens. Therefore, the research recommends providing more physical infrastructures like computers, access to internet, solar backup, etc. Moreover, regular capacity building packages on operation of different technologies and regular monitoring on social cash transfer is compulsory.

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REFERENCES

[1] World Bank, Safety Net Programs and Poverty Reduction: Lessons from Cross Country Experiences, Washington, D.C., 1997.
[2] S. I. Rajan, Old Age Allowance Program in Nepal, Centre for Development Studies, Trivandrum, Kerala, India, n.d.
[3] National Planning Commission, Assessment of Social Security Allowance Program in Nepal. Kathmandu, Nepal, 2012.
[4] M. Cohen, D. Hopkins, and J. Lee, Financial Education: A Bridge between Branchless Banking and Low-Income Clients, Microfinance Opportunities, August 2008 Working Paper No. 4, 2008.
[5] L. Subramanian, A Study of Branchless Banking in Achieving Financial Inclusion in India, n.d.
[6] G. Ivatury, and I. Mas, The Early Experience with Branchless Banking, CGAP Focus Notes, April 2008 No 14, 2008.
[7] D. Mauricio, and M. Mandrile, A New Agent for Branchless Banking in Colombia, International Development Law Organization, n.d.
[8] MLD/GON, Social Security Program Operation Work Procedure, Ministry of Local Development, Kathmandu, 2012.
[9] J. Pandey and P. Joshi, Testing Branchless Banking to Deliver Cash Transfers, UNDP Nepal Development Advocate Nepal, April-September 2014.
[10] F. D. Davis and V. Venkatesh, A Critical Assessment of Potential Measurement Biases in the Technology Acceptance Model-three experiments, 1995.
[11] F. D. Davis, Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology, MIS Quarterly, Vol. 13, No. 3, pp. 319-340, 1989.
[12] P. Upadhyaya, S. Shakya, and M. Pokharel, "Information Security Framework for E-Government Implementation in Nepal", Journal of Emerging Trends in Computing and Information Sciences, Vol. 3, No. 7, ISSN 2079-8407, 2012.
[13] L. Burton,The Development of Nepal's IT policy, IDRC, 2003.
[14] S. Sahu, Mainstreaming Information and Communication Technology (ICT) for Social Protection Challenges and Opportunities in Asia and the Pacific, 2011.

[15] M. Leger, Bringing Financial Services to Emerging Countries, 2012.
[16] M. Pickens, D. Porteous, and S. Rotman,"Banking the Poor via G2P Payments", CGAP, No. 58, Dec 2009.
[17] L. Long, Biometrics: The Future of Mobile Phones, n.d.
[18] L. O. Gorman, "Comparing Passwords, Tokens, and Biometrics for User Authentication", Proceedings of the IEEE, VOL. 91, No. 12, Dec 2003.
[19] L.O. Gorman, Fingerprint Verification, n.d.

