ENVIROMENTAL INFLUENCES ON ICT ADOPTION IN UNIVERSITY LIBRARIES IN WEST BENGAL

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Abstract: This paper tries to identify the environmental factors and analyses the effect of environmental influences on ICT adoption. For this study survey method is administered with structured questionnaire, conducted among the professional staff of the university libraries as well as face to face interview were conducted for data collection. From the collected data research has analyzed the potential environmental influences like competitive pressure, external support, and institutional interventions on the adoption of ICT. Result shows the identified factors positively effect on ICT adoption

Index Terms - Market Competition, External support, ICT adoption, Intervention, environmental influence

INTRODUCTION

Adoption of ICT in the University libraries has influenced by different factors like financial factor, Technological factor, human factor, environmental factor etc. Environmental factor comprise competitive pressure, external support and institutional interventions. Universities in West Bengal have started the automation process and till now they are in different stage of completion. The application of ICT in departmental as well in central library has changed the way of providing the traditional library services but not yet in the satisfactory level as the requirement. MHRD and UGC both are providing the varied plan and fund for the modernizing the infrastructure. They are providing the online resources through the INFLIBNET and INDEST so influences of the external agency on ICT adoption is very much important. Along with the external agency market competition and institutional intervention is also very much important for successful ICT adoption.

Environmental influences comprise competitive pressure, external support and institutional interventions. Market competition is very important driving force for ICT adoption in many organizations in developed and developing country. The advancement of new digital technology has opened up new field of competition.

1 Review of related Literature:

In recent years a number of studies have been carried out on effect of various factors on ICT adoption. Eze, Sunday C., et al.(2013) investigated the effects of 13 factors in determining ICT adoption in Nigerian Universities. They prepared a theoretical framework of technology organizations environment (T-O-E) to conduct a survey. The survey adopted in -depth, unstructured and semi-structured interviews with 30 senior executives selected purposefully from at least one university in each of the five state capitals in south eastern Nigeria. Findings of the study show that, irrespective of the perceived competitive pressure and perceived benefits of ICT solutions, government aided universities are not utilizing its full potential. This is due to several factors including constant corrupt practices; unbalanced power supply and internet accessibility,

shortage of financial capacity, expert skills, managerial and technical support; and poor authoritarian. This study raised some challenges that will be guidance to future research and provide guide line for ICT adoption. Jantz, (2012) conducted structured interviews, university librarians at six institutions revealed their perspectives on innovation in academic libraries. The literature on leadership styles and organizational change provides insight into the roles of these leaders in the innovation process. Leadership was referred by many researchers as being a decisive factor for organizations to innovate. University librarians revealed a dedication to innovation, some peculiarly non-traditional innovations, and a concern for how to promote risk-taking behavior. Further insight into the innovation process was sought by interpreting the interview data within a larger theoretical context. Although leadership and management can nurture innovation in a library, researchers have reported other factors that can determine the ability to innovate, including organizational aspects - size and complexity - and environmental factors. Beyond the organizational aspects, the individual and the norms of the profession appear to create a framework with certain boundaries, some of which may impact the ability to innovate.

2 Objectives:

2.1 To know the effect of competitive pressure on ICT adoption

2.2 To know the effect of external support on ICT adoption

2.3 To know the effect of institutional intervention on ICT adoption

3. Hypotheses

H1. Competitive pressure is related to ICT adoption in positive direction

H2. External support is related to ICT adoption in positive direction

H3. Institutional intervention is related to ICT adoption in positive direction

4 Methodologies

For this study survey method is administered with structure questionnaire, conducted among the professional staff of the university libraries as well as face to face interview were conducted for gathering data. From collected data the research has analyzed the potential influences on the adoption of ICT. To obtained primary data from library professionals survey, 206 questionnaire was distributed among the librarian and library professionals and 167(81%) filled- in questionnaire are received back.

Questionnaire was prepared on the basis of research objective like environmental characteristics, external and institutional interventional characteristics to asses ICT adoption. Individual asked to tick mark against the statement which is made on the basis of objective, each statements consisted of Likert 5 point scale 'Strongly-agree'(SA), Agree.(A), nutral/nocomment(N), Disagree(D), Strongly Disagree.(SD). each response given a

numerical score [Strongly agree'(SA) =2, Agree(A) =1, nutral/nocomment(N) =0, Disagree(D) =-1, Strongly Disagree(SD) = -2] indicating its positivity and negativity and score totalled to measure the respondents attitude.

STATEMENTS	S.A (2)	.A (1)	N (0)	D. (-1)	S.D (-2)	Frequency	Score	Mean
ICT helps access information easily and quickly	120	27	11	4	5	167	253	1.51

4.1 Population

The population for this study comprised of the University library (Central library) of West Bengal , the library which was established at least ten years ago ,name of the library and number of respondent are as follows:1. University of Calcutta central library,(36) 2. Jadavpur university library, (49) 3. Rabindrabharati university library, (16) 4. presidency university library, (11) 5. st.xaviers university library,(12) 6. Kalyani University library, (11)7. North Bengal University library,(7) 8. Burdwan University library (17) 9. Viswabharati University Library (36)10.Vidyasagar University Library ,(9)) all the professional staff of the library is considered for study.

4.2 Sample Design

In order to achieve desired representation, stratified random sampling will be used. This

is because the accessible population is not homogenous in terms of the role they play in

fostering ICT adoption. The two strata namely the librarians and library assistants will be

formed from the accessible population. This is almost a census study all the librarian and professional staff has been considered from selected universities. And total 206 numbers of staff are considered

4.3 Data Collection Tools

The questionnaire method was adopted for collection of data for this study, supplemented by interviews of Librarians to gather additional information. A draft questionnaire was designed based on discussions with professional colleagues and related research studies.

Two sets of structured questionnaires were prepared; one questionnaire to the University Librarian or Librarian in Charge and another to the library professionals in the central and departmental libraries in the universities selected for the study.

5 Findings:

The research findings are summarized after the analysis of data which is collected from questionnaire related to the objective of the study, and interview method

Environmental influences comprises competitive pressure, external support and institutional interventions

5.1 Competitive pressure

Table 1 containing data on competitive pressure

Sl. no.	Statements	SDA -2	DA -1	N 0	A +1	SA +2	Score	Mean
2	Our users demand ICT services offered to them	2	8	23	32	102	224	1.34
4	The library is very alert to ICT opportunities to gain competitive advantage	7	12	25	43	80	177	1.05
3	Using ICT is important to keep up with competition environment	11	4	20	27	105	211	1.26
5	Our library responds quickly to other institutes action in ICT adoption.	9	21	32	22	83	169	1.01
1	NAAC Gradation system acts as a catalyst of ICT adoption	0	0	18	42	107	256	1.53
	Total							6.19

Competitive Pressure: Statements about competitive pressure are arranged in descending order according to their mean value. NAAC Gradation system acts as a catalyst of ICT adoption has scored 1.53 and ranked 1st. Our users demand ICT services offered to them has scored 1.34 and ranked 2nd. Using ICT is important to keep up with competition environment has scored 1.26 and ranked 3rd. The library is very alert to ICT opportunities to gain competitive advantage has scored 1.05 and ranked 4th. Our library responds quickly to other institutes' action in ICT adoption has scored 1.01 and ranked 5th.

Table 2 containing university wise mean value of the factor of competitive pressure, External support and Institutional interventions

Factors	CUL	JUL	BUL	VUL	NBUL	VBUL	RBUL	PUL	BCKVL	KUL	All
Competitive pressure	6.78	6.90	5.84	5.95	6.30	5.88	5.45	6.28	6.60	5.98	6.19
External support	8.25	8.54	6.87	7.35	7.10	7.80	6.75	7.90	7.85	7.69	7.78
Institutional interventions	7.55	7.87	7.45	6.95	7.00	7.35	6.85	6.85	6.65	7.45	7.17

For better understanding the data are represented in graphical form in the following figure.

Competitive pressure

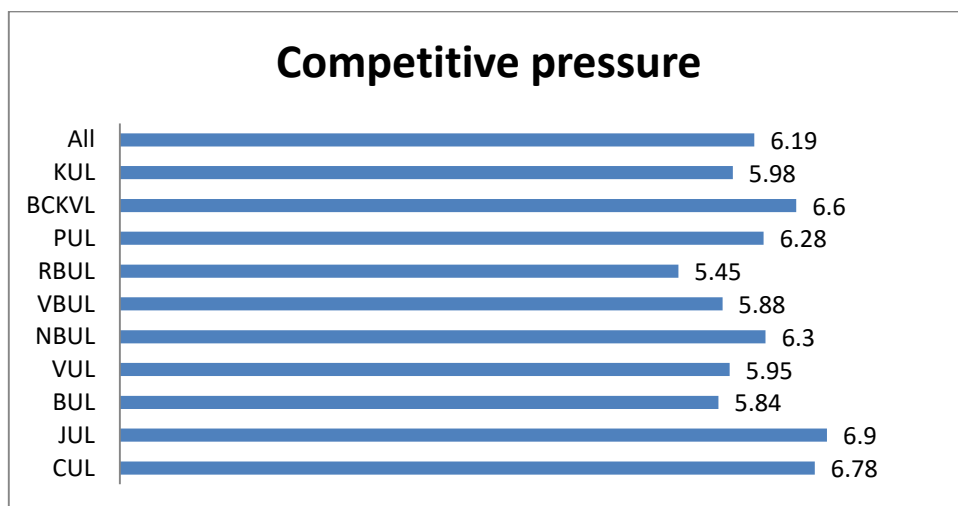| Library	Score
All	6.19
KUL	5.98
BCKVL	6.6
PUL	6.28
RBUL	5.45
VBUL	5.88
NBUL	6.3
VUL	5.95
BUL	5.84
JUL	6.9
CUL	6.78

Fig-1 Showing competitive pressure on ICT adoption by the different libraries

Mean value on Competitive Pressure scored by each university libraries are arranged in descending order. JUL scored 6.9, CUL scored 6.78, BCKVL scored 6.6, NBUL scored 6.3, PUL scored 6.28, KUL scored 5.98, VUL scored 5.95, VBUL scored 5.88, BUL scored 5.84, and RBUL scored 5.45.

From the above analysis it is found that all the statements on competitive pressure shows high mean value. Hence the Hypothesis *H. 1- "Competitive pressure is positively related to ICT adoption"*- stands as valid

5.2 External support
Table 3 Containing data on external support

Sl. no.	Statements	SDA -2	DA -1	N 0	A +1	SA +2	Score	Mean
1	Govt. agency like INFLIBNET supports ICT adoption	0	0	12	33	122	277	1.65
2	Colleagues provide information regarding ICT adoption	0	0	24	45	98	241	1.44
3	Technology vendors actively support ICT adoption	3	11	22	29	102	216	1.29
4	There are agencies in the society who provide training on ICT	1	15	30	27	94	199	1.19
6	Professional association provide training on ICT	7	23	15	41	81	166	0.99
5	The technology vendors promote ICT adoption by offering free training session	4	7	21	50	85	205	1.22
	Total							7.78

External support: The statements on external support are arranged in descending order according to their mean value and ranked accordingly. Govt. agency like INFLIBNET supports ICT adoption has scored 1.65 and ranked 1st. Colleagues provide information regarding ICT adoption has scored 1.44 and ranked 2nd. Technology vendors actively support ICT adoption has scored 1.29 and ranked 3rd. The technology vendors promote ICT adoption by offering free training session   has scored 1.22 and ranked 4th. There are agencies in the society who provide training on ICT has scored 1.19 and ranked 5th. Professional association provide training on ICT has scored 0.99 and ranked 6th.

According to Table 2 the data are represented in graphical form in the following figure for better understanding.
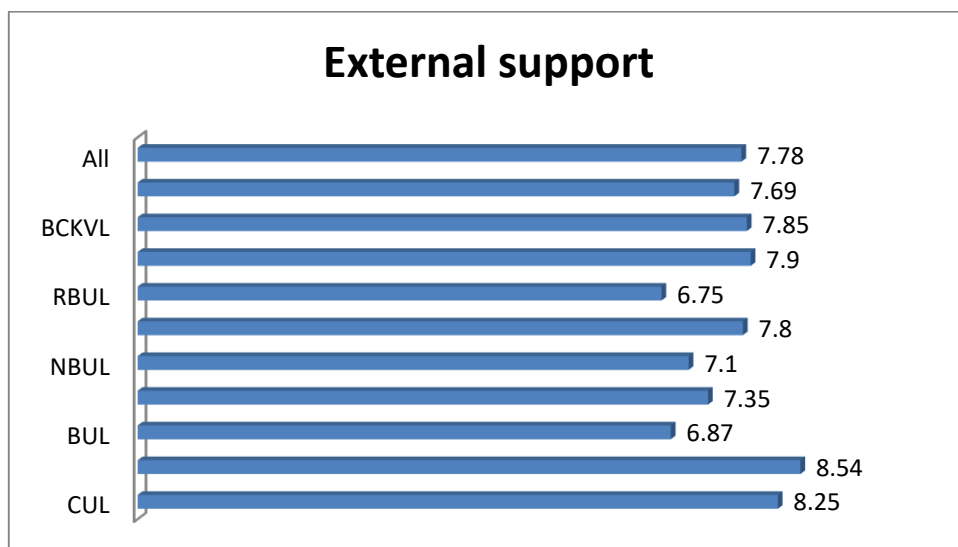

External support

Category	Value
All	7.78
	7.69
BCKVL	7.85
	7.9
RBUL	6.75
	7.8
NBUL	7.1
	7.35
BUL	6.87
	8.54
CUL	8.25

Fig-2 showing the external support on ICT adoption by the different libraries. Mean value on External support scored by each university libraries are arranged in descending order. JUL scored 8.54, CUL scored 8.25, PUL scored 7.9, BCKVL scored 7.85, VBUL scored 7.8, KUL scored 7.69, NBUL scored 7.1, BUL scored 6.87, RBUL scored 6.75

From the above analysis it is found that all the statements on external support show high mean value. Hence the Hypothesis *H.2 -"External support is positively related to ICT adoption"*- is also proved true.

5.3 Institutional Interventions

Table 4 containing data on institutional interventions

Sl. no.	Statements	SDA -2	DA -1	N 0	A +1	SA +2	Score	Mean
1	The Govt. offered grants for ICT adoption	0	0	5	56	106	272	1.62
2	The govt. regulation related to higher education favors the adoption of ICT	0	0	12	40	115	270	1.61
3	The govt. provides knowledge building capacity for ICT adoption	4	7	21	25	110	230	1.37
4	The govt. provides ICT infrastructure for ICT adoption.	7	11	10	35	104	218	1.30
5	The govt. promotes the adoption of ICT	2	15	8	52	90	213	1.27
	Total							7.17

The statements about institutional intervention are arranged in descending order according to their mean value. The Govt. offered grants for ICT adoption has scored 1.62 and ranked 1st. The govt. regulation related to higher education favours the adoption of ICT has scored 1.61 and ranked 2nd. The govt. provides knowledge building capacity for ICT adoption has scored 1.37 and ranked 3rd. The govt. provides ICT infrastructure for ICT adoption has scored 1.30 and ranked 4th. The govt. promotes the adoption of ICT has scored 1.27 and ranked 5th.

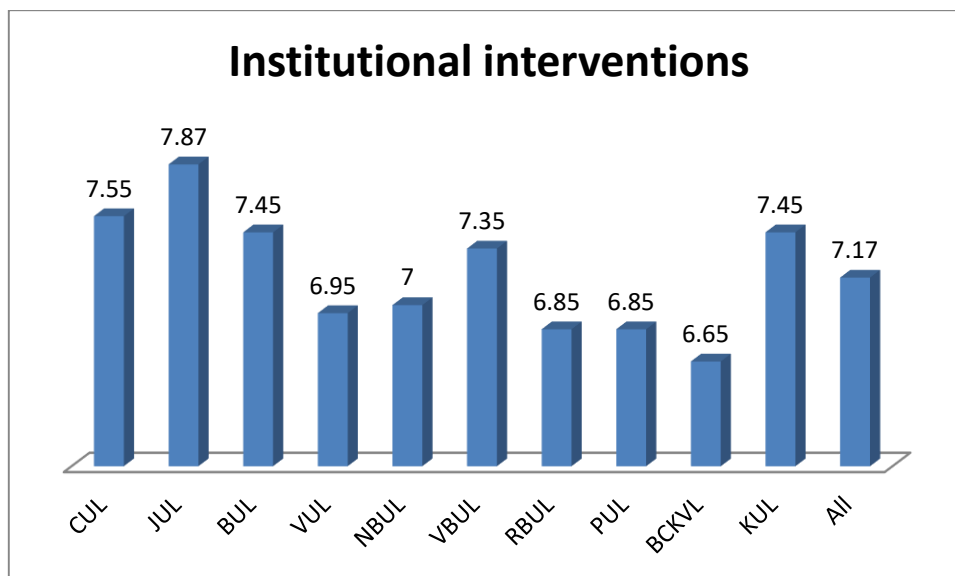According to table 2 the data are represented in graphical form in the following figure for better understanding.

Institutional interventions

Fig- 3 Showing institutional intervention on ICT adoption by the different libraries

Mean value on Institutional Interventions scored by each university libraries are arranged in descending order. JUL scored 7.87, CUL scored 7.55, BUL scored 7.45, KUL scored 7.45, VBUL scored 7.35, NBUL scored 7, VUL scored 6.95, RBUL scored 6.85, PUL scored 6.85, BCKVL scored 6.65.

From the above analysis it is found that all the statements show high mean value. Hence the Hypothesis **H.3- *"Institutional intervention is positively related to ICT adoption"-*** stands as valid**.** Study result reflects that maximum respondents' thoughts are positive about the statements on institutional intervention, as reflected by high mean value in the table 4. So this hypothesis is supported by the study results.

Conclusion:

From this study it may conclude that Adoption of ICT in the University libraries has influenced by different environmental factor comprise competitive pressure, external support and institutional interventions. Universities in West Bengal have started the automation process and till now they are in different stage of completion. Adoption of ICT in the university libraries affected by the different factors determined by the study positively among these factors NAAC Gradation system acts as positive catalyst of ICT adoption has scored 1.53 and ranked 1st. It is observed that NAAC gradation system supports the ICT adoption in the university libraries in West Bengal.

Govt. agency like INFLIBNET supports ICT adoption has scored 1.65, so govt. agency like INFLIBNET helps a lot for ICTs adoption in the university libraries in West Bengal

The Govt. offered grants for ICT adoption helps a lot has scored 1.62 and it is observed that Government Grant plays a major role on the ICT adoption in the university libraries in West Bengal. This study recommended that factors like competitive pressure, external support and institutional interventions must be promoted, as these factors act as positive catalyst on ICT adoption in the university libraries.

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