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AN INFLUENTIAL ANALYSIS OF THE IMPACT OF INFORMATION TECHNOLOGY (IT) ON COOPERATIVE SERVICES IN NIGERIA:

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ABSTRACT: *Cooperative societies are designed as individual self-help and empowerment vehicles for micro-credit delivery. Testing the impact of IT on Cooperative operational activities and service delivery in Nigeria is expected to give insight into the state of cashlessness of the African economy and provide measuring guide to organization relating to electronic commerce. This paper attempts to investigate the impact of information technology on cooperative services as a basis for attainment of MDG objective relating to E-commerce. Data collected from the stakeholders in cooperative organizations in Nigeria was analyzed using frequency table, percentage and non-parametric statistical test, ANOVA was used to test the formulated hypothesis using STATA 10 data analysis package/software. The result of the finding shows that information technology is positively significant to cooperative service in Nigeria. Investment in IT by Cooperative organisations will improve their performance through high level of patronage by members. The paper recommends that the cooperative management should provide adequate IT facilities to the cooperative staff and proper training should be given to the employee in other to meet the quality of service needed by the members. Also there should be free flow of information between the cooperative organizations and their members. The cashless policy should also be extended to Cooperative organizations that account for seventy percent of the low income group to facilitate the MDG objective relating to e-commerce.*

KEYWORDS*:* E-commerce; Cooperative Service; Information Technology; MDG relating to e-commerce

INTRODUCTION

In Nigeria, both the governmental and non-governmental organizations are now placing much emphasis on group approach in extending credits to the low income producers as observed by Olomola (2002).Looking at the cooperative method one observes voluntary membership, group concept, openness of operation, member's patronage and less stringent conditions of access to credit unlike formal approach to purveying credit to the poor and low income group. According to Narayan and Petesch (2009) Co-operatives are in many countries as significant social and economic actors in national economies, thus making not only personal development a reality, but contributing to the well-being of entire populations at the national level. Co-operatives have significantly contributed to economic growth throughout the world. The United Nations estimated in 1994 that the livelihood of nearly 3 billion people, or half of the world's population, was made secured by co-operative enterprises. Nearly 800 million individuals are members of cooperatives today, compared with about 184 million in 1960. They account for an estimated 100 million jobs and are economically significant in a large number of countries providing foodstuffs, housing,

financial and a wide variety of consumer services as put by International Labour Conference, Report (2001). Furthermore, through their capacity to involve all sectors of the economy, their democratic organization based on its "one member, one vote" rule, and through their capacity to convert individual risks into collective risks ,Co-operatives are the only form of organization meeting so concretely all dimensions of poverty.

The current wave of Information Technology calls for the attention of cooperatives accountants, scholars and practitioners. E-commerce, according to Bansal and Sharma (2006), is rapidly transforming the way accounting functions are performed, posing new challenges to the accounting profession. This view is further corroborated by Olivier (2000) that one of the most important current influences on the accounting profession is the development of new information technology. Traditional business models are increasingly coming up against their limits while innovative payment solutions are urgently required to boost internationally oriented e-commerce. Payment system providers, service providers, network operators and financial institutions pin great hopes on new payment systems (Heng, 2008).

Prior to the emergence of electronic payment, banks transactions remain the widely accepted mode of payment in business, thus cash payment was only popular where it became inevitable especially in transactions dealing with minimum price such as foods, groceries etc where electronic payments may not be convenient. Cashless economy has always been the advocacy of most countries of the world where carriage of cash at effecting transactions are utterly discouraged. Money in the traditional sense no longer exists at present times. Today, technology has made the need to carry heavy cash outdated, inconvenient and of no use (Popoola, 2010; Odior and Banuso, 2012; AlGhamdi, Nguyen, Nguyen & Drew, 2012)). Along with the information technology, the Internet high speed development, electronic commerce has caused the current distribution realm significant transformation gradually as observed by Liang and Yang, (2009).

Experiences from practices of cooperatives over the world and hypotheses derived from institutional economics and the theory of collective action, as observed by Hannisch (2009), suggest that taking advantage from Information Technology diffusion is possible for cooperatives. The study by Oladelo and Adereti (2010) concludes that Information Technology has impact on the microfinance banking services, the principal impact being better management efficiency and service delivery, increased profit for shareholders, customer satisfaction and sustainability in financial Institutions in Nigeria. The recent observed upsurge in the bank efficiency and effectiveness in the insurance industry as well as MFBs in Nigeria could be attributable to their high investment on information technology. The influence of Information Technology on cooperative operations for better performance is worthy of exploration in this current move to cashless economy. Evidence of studies in this regards is scarce in a developing economy like Nigeria characterized by the predominance of Cooperative organizations. All these put together form the thrust of this paper with a focus on how cooperatives can benefit from the development in payment technology innovations.

Statement of the problem

Studies over the years have shown the positive impact of cooperative societies as micro credit delivery channel and vehicle for poverty alleviation (Costa 1984; Reeves 2003; Asaolu 2004;

Oladejo 2008). However, there is the need for changing roles of cooperatives to meet the global challenges. Increasing competition within national and global players pushes regionally based cooperatives to develop innovative strategies in order to become part of a wider value added chain. In developing countries, a cooperative's ability to continuously upgrade functions, processes and products becomes a matter not only of innovativeness but ultimately one of survival. The observation of Borzaja et al (2008) that unless the Cooperatives can meet this competition, they will end up in down-turn spirals of decreasing volumes of business, deteriorating profitability of their operations and provide useful services to their members calls for empirical investigation. This has implications for the development of e- accounting theories and principles for globalised cooperative operations. The paper remains germane by exploring the roles of cooperatives in a globalised economy like Nigeria and how Information Technology can influence cooperatives service delivery to members and contribute to the nation's economic development.

Objectives of the Study

The main thrust of this paper is to investigate the Impact of Information Technology (IT) on Cooperative services.

The paper will provide answers to the following questions:

- What is the impact of Information Technology on cooperatives services?
- How does Information Technology influence cooperative service delivery?
- What are the problems and challenges of adopting IT method by Cooperatives?

Research Hypothesis

The hypothesis for this study are stated in the null form

Ho: Information technology has no significant impact on the Cooperative services in Nigeria.

Conceptual Clarifications and Literature Review

Recent changes in ICT have been followed by significant economic outcome. The development of the internet and its commercialization has transformed traditional methods of commerce in recent decades. The rapid growth of the internet since last decade has basically changed the world economy. Business has invested heavily in ICT, primarily to automated internal process such as payroll accounting, finance human resources and manufacturing. Abbasi (2007) believed that E-commerce is an outcome of ICT revolution in economic field or the most visible way of contribution of ICT to economic growth. ICT as a tool of socio- economic development is a significant issue for developing countries as Odedra (1996) put it. Highlighting the impact of ICT in recent years, Rao, Metts and Mong (2003) observed that the 1990s witness the proliferation and hyper growth of internet and internet technologies, which together are creating a global and cost-effective platform for business to communicate and conduct commerce.

The Information Technology concept is a new development that has changed ways and manner of doing things, in commerce, trade, agriculture, and manufacturing and government services. It is to be adopted by business as a matter of responding to world dynamics. Highlighting the impact of ICT in recent years, Rao, Metts and Mong (2003) observed that the 1990s witness the proliferation and hyper growth of internet and internet technologies, which together are creating a global and cost-effective platform for business to communicate and conduct commerce. The Information Technology concept is a new development that has changed ways and manner of doing things, in

commerce, trade, agriculture, and manufacturing and government services. It is to be adopted by business as a matter of responding to world dynamics. Despite the enormous investment in IT during recent years, demonstrating the effect on such on organizational performance has proven extremely difficult (Mahmood and Mann, 2000). Nigeria is largely a cash-based economy with over 90 percent of funds residing outside the banking sector as against the developed world where the money in circulation is 4 percent in US and 9 percent in U.K as submitted by Ovia 2002 and Ojo 2004. Whereas the cash-based economy is characterized by the psychology to physically hold and touch cash a culture informed by ignorance, illiteracy, and lack of security consciousness and appreciation of the merit of digital payment (Ovia 2002).

The major emphasis in Cooperative according to Akinwunmi, (2006) is oneself-help, thus people cooperate because they realize that it is extremely difficult to achieve some goals by doing it alone. Asaolu (2004) also argued that the cooperative society is potentially an important instrument of social transformation, especially in the rural areas as they have proved to be useful in achieving increasing domestic production of food, industrial raw materials, manufactured products and equitable distribution of farm inputs, farm products and other commodities that are central to MDGs. Onaolapo and Oladejo (2011) believes that Cooperative financing are the most practical tools to adopt to meet the needs of the people in all spheres of development. Hanisch, (2009) observed that current examples of real life cooperatives of the western world and those in developing countries which act on an international level show that linking up regional membership organizations with globally integrated value chains may attenuate cooperative principles and create incentives to change an organization by laws up to a point where most cooperative principles are given up.

Measurement of Information Technology (IT) Effect on Performance

All researchers agreed on the importance of IT for further developments of the banking industry, but some of them have found lack of proportionality between the increase in the scale IT utilization and the increase in banks profitability (Olazabal, 2002). To this end Kozak (2005) addressed the problem testing correlation of the level of IT progress and assets profitability – ROA and cost efficiency for the U.S banking sector for the period of 1992 to 2003. To compare relationships between these variables regression line program and correlation were applied. The research shows a positive correlation between the level of implemented IT and both assets profitability and cost savings. Although for all banks the efficiency has increased, the improvements of the cost efficiency were relatively much smaller than in the case of the profit efficiency. These results indicate that introduction of the new range of services at a bank, on one hand, generate additional revenues, but, on the other hand imply new, significant cost charges.

Researchers using field studies examining the link between investment and information technology and changes in organization structure agreed on the potentials of IT but have come to diverse and contradictory conclusions on its measurement, (see Robinson, 1999) for a review. Some recent studies of relationship between investment in IT and organizational performance and productivity (kozak, 2005; abassi, 2007) have reported positive and significant effects of such investments. Some researchers question these results on the grounds that the studies involved examination of primarily cross sectional data. This criticism, according to Mahmood and Mann 2000, stems at least in part from the premise that the benefits of IT investment can be realized only over longer

periods of time. However it is possible indeed likely, that in many instances IT has the potential to provide important benefits within the same year the investment is made. In any event, research reflecting relationship between IT investment and organizational performance and productivity might be more convincing if it were based on IT investments in both current and earlier periods. It has also been emphasized that causality cannot be established by using conventional statistical techniques. Hence use of canonical correlation analysis as well as non-parametric analysis like data envelopment analysis methods have been suggested (Manmood and Man 2008). This opposed more general commonly used methods such as correlation and regression analysis to enable researchers infer causality if present between IT investment and organizational performance and productivity.

Perhaps a more valid method of determining whether IT is living up to expectations is through analysis involving both cross-sectional and longitudinal data bases involving hundreds or even thousands of data points from various industries. This is because large data bases would serve to average out extremes and provide a clearer picture of the underlying relationship between IT investment and organizational performance as put by Mahmood and Iman (2000).

It has also been argued that the traditional IT investment – performance analyses have not been very successful in the past because of their over reliance on financial data. Some researchers (Birchall, et al 2009) have called for additional research to identify "hidden cost and benefits" that a typically net included in the traditional analysis of IT investment relationship with organizational performance and productivity. However the divide between the different groups of researchers is rather common knowledge. One group emphasizing the need for use of qualitative analysis, believes that quantitative measures have received preferential consideration in the research performed to date. The quantitative group is somewhat vocal about what it considers the superiority derived from the rigors of its approach. They argued that qualitative measures can only be used if they first concur with the quantitative measure of IT pay-offs. Ideally the works of both groups should complement the other.

METHODOLOGY

The South-Western States have been chosen because cooperative movement started in the geographical zone. The zone is richer in cooperative culture and practice than any other parts of the country. The first cooperative Law emanated from the south-western parts of the country. It would be recall that the first indigenous cooperative movement in Nigeria, started in Ibadan, Oyo state. The total number of cooperative societies in the south-west was "48,856**"**as at 2012 as per information collected from the various directorates of cooperative services in the six states of the south-west. Purposive sampling technique was adopted to select the sample size. The selection of the six hundred (600) cooperative societies was done in a simple manner as such that all geo-political zones in each state were adequately represented. Six hundred (600) Questionnaires were administered and distributed to the staff of the selected cooperatives in the six states (south west), hundred (100) staff each was picked from the six (6) selected cooperatives. Four hundred and Eighty (480) were found useful for the purpose of the study representing 80% of the total questionnaire distributed. The major instrument used in the collection of data for this research work was questionnaire. The questionnaire consists of questions that are related to IT impact on

cooperatives service as identified in the literature. Closed- ended questions were designed in a simple manner and five point Likert scales ranging from 1-5(1=strongly agree a5=strongly disagree) were used where applicable. Data collected coded and analyzed using frequency table, percentage while non-parametric statistical test, ANOVA was used to test the formulated hypothesis using STATA 10 data analysis package/software.

RESULT AND DISCUSSIONS

The socio economic characteristics of the respondent cooperative staff were presented in Table I. The table I revealed that, 60% of the respondents were male, while 40% were females; showing that most cooperative staff is male. More so 16% of the respondents were of the age less than 20 years, 45% were between 20 and 40 with 35% above 40 years. The 35% of the age above 40years implies that some older personnel were still in the service of cooperative enterprises. 60% of the respondents were married, 35% single,1.25% were divorced while 3.75% were widowed this means that majority of the respondents cooperative staffs were married and were expected to matured and responsible at answering the research questions. Majority of the respondents who were cooperative staff had either NCE or OND as their highest qualification 10% had their bachelor or masters degree with no one possessing professional qualification in Nigeria like of ICAN, ANANS, NIM and so on. 40% had secondary school certified showing that 87.5% were below bachelors' degree and professional qualification. Furthermore Table I showed that 37.5% of the respondents were manager cadre of cooperative organisations, 15% were credit/investment officer 22.5% cooperative officer , 15% cooperative clerk while others of 10% were either typist attendants or computer operators. Also the table show that, 40% were in service less than 5 years, 47% had served for up to 10years while 12.5% were above 10 years in service. In Addition the table also illustrate that, 16.25% of the respondents were staff of farmers cooperative, 13.75% CICS, 25% CTCS while 40% CMS more of the respondents belong to CMS. The implication is that most of the south west cooperatives were into multipurpose activities including produce, marketing credits, loans and saving.

TABLE1: Distribution of respondent Demographic Profile

Variables	Frequency	Percentage
Sex:		
Male	288	60
Female	192	40
	480	100%
Age:		
Less than 20yrs	96	20
20-40	216	45
Above 40yrs	168	35
	480	100%
Marital Status:		
Married	288	60
Single	168	35
Divorced	6	1.25

Widowed	18 480	3.75 100%
Educational background: SSCE NCE/OND BSC/MSC Professional& other	 192 228 60 - 480	 40 47.5 12.5 -- 100%
Job position: Manager Credit/ Investment Officer Cooperative Officer Cooperative clerk Others	 180 72 108 72 48 480	 37.5 15 22.5 15 10 100%
Job Experience: Less than 5yrs 5-10 Above 10yrs	 192 228 60 480	 40 47.5 12.5 100%
Cooperative type: Farmer cooperative Co-op Investment Credit Co-op Thrift and Credit Co-op Multipurpose Co-op. Other	 78 66 120 192 24 480	 16.25 13.75 25 40 5 100%

Source: Computations and Output of STATA10 based on Authors' Field Survey (2013).

The exposure of cooperative staff to Information Technology concept and practices were analysed in Table II. The table II, reveal that 30% of cooperative transactions were done in cash with 70% through bank in term of cheques, teller, and draft e.tc. 40% of the respondents believes IT exposure means use of computer, 25% said using computer in an on-line internet connectivity means IT, 12.5% said combining computer with internet and mobile phones means of IT, 22.5% agree with all the options. This implies that majority of the respondents truly understands what it takes for an organization to be Information Technology Exposed. Also according to table2, 15% of the cooperative staff interviewed were using hands and brains with writing materials to process transactions; 40% were complementing with typewriter calculator, adding machines etc. 35% agreed to all the options. This shows that 55% of the cooperative activities were processed by without use of computers. The cooperative staffs' response implies les animation of cooperative services. Furthermore 25% of the respondents believed their cooperative was fully IT exposed,

15% believed they were partially while 60% said their cooperative were not IT exposed all. This means that less than 60% of cooperative services were IT applied. Also the table2 reveal that 70% of cooperative information is obtained by members personnel contact with the cooperative offices, 30% were giving information through text messages through use of mobile phones most members need to make personal presence at cooperative office to obtain information.

Finally, a total of 62.5 percent of cooperative staff can operate computer and have knowledge internet while 37.5% could not. This shows that most of the cooperative staffs can operate computer and have knowledge of internet if they have one.

TABLE II: Distribution of respondents on IT exposure of cooperative enterprises

Responses	Frequency	Percentage
Nature of transaction in Cooperative Organisation:		
Cash	144	30
Bank	336	70
On-Line	-	-
	480	100%
Understanding IT exposure of cooperative staffs:		
Use of Computer only	192	40
Computer/online/internet	120	25
Computer/mobile phone/internet	60	12.5
All of the above	108	22.5
	480	100%
Method of transaction processing:	72	15
Manual	192	40
Typewriter/Calculator	168	35
Computer	48	10
All the above	480	100%
Cooperative exposure to information telecommunication technology by the staff:	120	25
Fully exposed	72	15
Partially exposed	288	60
Not exposed	480	100%

Information Communication and members on cooperative service :		
Personal contact	336	70
Text message	144	30
E-mail	-	-
	480	100%
Knowledge of computer and internet by the cooperative staff:		
Very perfect	144	30
Fairly perfect	156	32.5
Not at all	180	37.5
	480	100%

Source: Computations and Output of STATA10 based on Authors' Field Survey (2013)

Possession of basic IT equipment and Internet services were analysed in Table III. Table III reveal that 40% of the respondent staff of cooperative claimed to have computers in their organization while 60% said they did not have computers meaning that less than 60% of cooperatives had computers for their operation. Also 20% of the respondents confirmed the existence of functional website by their cooperatives. 80% did not have functional website. A functional website provides connectivity for organization to operate on-line that would have made such to be more IT exposed. Thus less than 20% of cooperatives have functional websites.

TABLE3: Distribution of responses on possession of computer and internet facilities by cooperatives.

Responses	**YES**	**NO**	**TOTAL**
Possession of computer by cooperative organization	192 (40%)	288 (60%)	480 (100%)
Functional e- mail website by cooperative organization	96 (20%)	384 (80%)	480 (100%)

(*the bracket Figures indicate the percentage& figure not bracket indicate the frequency)*
Source: Computations and Output of STATA10 based on Authors' Field Survey (2013).

The influence of IT on Cooperative services was analysed in Table IV. The table IV reveal that 70% of the respondents agreed that IT exposure will improve the performance of cooperative services. 22.5% disagreed while 7.5% could not decide. 65.70% of the respondents agreed that IT are highly efficient and will improved cooperative performance while 17.5% disagreed, 16.88% were neutral. Also 60% of the despondence agreed that IT exposure has increase the level of economic activities, 27.5% disagreed while 12.5% were neutral. More so 66.25%of the despondence agree that IT will enhance cooperative operation in terms of quick service delivery 27.5% disagreed while 6.25% were neutral. Thus we agreed that the majority view that IT will enhance cooperative operation in terms of quick service delivery. In addition 67.75% of the

respondents believed that IT exposure by the cooperative society will increase level of cooperative services patronage, 27.5% disagreed while 5% were neutral. Thus we agreed that IT exposure by the cooperative society will increase level of cooperative services patronage. Also 22.5% of the respondents agreed that IT exposure of cooperative society improved the cooperative members' surplus, 60% disagree while 17.5% were neutral, thus we disagree that IT exposure of cooperative society improved cooperative members' surplus. Finally 67.5 of the respondents agreed that IT exposure of cooperative has positive effect on the cooperative management efficiency, 17.5% disagreed while 15% were neutral, and thus we agreed that IT exposure of cooperative has positive effect on the cooperative management efficiency

TABLE4: Distribution of responses on impact of IT on cooperative services

Question	SA	A	N	D	SD	TOTAL
IT exposure will improve the performance of cooperative society's services.	138 (28.75	198 (41.25)	36 (7.50)	48 (10.00)	60 (12.50)	480 (100)
Information technology are highly efficient and will improve the performance of cooperative society in Nigeria	144 (30.00	171 (35.63)	81 (16.88)	48 (10.00)	36 (7.50)	480 (100)
Information technology has increase the level of economic activities	120 (25)	168 (35)	60 (12.5)	84 (17.5)	48 (10)	480 (100)
Information technology will enhance cooperative operation in terms of quick service delivery.	120 (25.00	198 (41.25)	30 (6.25)	93 (19.38)	39 (8.13)	480 (100)
IT exposure of cooperative society will increase level of cooperative services patronage.	126 (26.5	198 (41.25	24 (5)	72 (15)	60 (12.5)	480 (100)
IT exposure of cooperative society reduced the cooperative members surplus.	36 (7.5)	72 (15)	84 (17.5)	180 (37.5)	108 (22.5)	480 (100)
IT exposure of cooperatives has negative effect on the cooperative management efficiency.	84 (30)	96 (37.5)	60 (15)	168 (10)	144 (7.5)	480 (100)

(The *bracket Figures indicate the percentage& figure not bracket indicate the frequency)*
Source: Computations and Output of STATA10 based on Authors' Field Survey (2013

Test of Hypothesis

H_0: Information technology has no significant impact on the Cooperative services in Nigeria.

The model undertakes an investigation into the impact of IT on the cooperative services in Nigeria. Findings were presented in table V below. According to the result presented in table V (a) and (b), a unit increase in questions2, 3 and4 responses over the study period resulted in a 25.8571429 per cent, 11.1917906 percent and .436363636 per cent increase on the impact of information technology on cooperatives services respectively. Furthermore in table5b the result of Breusch-Fagan/ Cook-Weisberg test for Heteroskedasticity result support that the model is significant since the Prob>Chi2 is 0.000 with Chi2 (4) =309.21.

Individually, the questions are statistically significant since their Prob>F 0.0000 with F-value 95.64, 41.40 and 3.23 respectively. But, the statistical properties of the model, however revealed that, collectively the model is statistically significant since prob>F is 0.0000 with F-value of 1381.56. Collectively the statistical properties of the model indicate that the model is statistically significant since prob>F is 0.0000 with F-value 1200.00

Due to the observed level of significance and IT impact on cooperative services through questions tested which make all the figures to be statistically significant with the probability of F = 0.000 we reject null hypothesis stated earlier that information technology has no significant impact on the Cooperative services in Nigeria. It was concluded that investment in IT by Cooperative organizations will significantly improve their performance in term of service delivery to members, improve management efficiency and increase members' surplus.

Table 5a: Analysis of Variance Result for Information Technology Impact on Cooperative services in Nigeria:

Number of obs = 480, R-squared = 0.9624

Root MSE = .259982, Adj R-squared = 0.9616

SOURCE	PARTIAL/SS	DF	MS	F VALUE	Prob>F
Model	811.225	10	81.1225	1200.20	0.0000
Q2	25.8571429	4	6.46428571	95.64	0.0000
Q3	11.1917906	4	2.79794766	41.40	0.0000
Q4	.436363636	2	.218181818	3.23	0.0405
Residual	31.7	469	.067590618		
Total	744	479	1.75975992		

Source: Computations and Out-Put of STATA 10 based on Author's Field Survey ` (2013)

TABLE5b: Heteroskedasticity Test

Breusch-Pagan / Cook-Weisberg test for Heteroskedasticity —
Ho: Constant variance
Variables: Q2 Q3 Q4

chi2(3)	309.21
Prob> chi2	0.0000

Source: Computations and Out-Put of STATA 10 based on Author's Field Survey ` (2013)

CONCLUSION AND RECOMMENDATIONS

This study concludes that Information Technology has impact on the cooperative services in Nigeria, the principal impact being better management efficiency, service delivery, increased members surplus and patronage. The result of hypothesis tested showed that, information technology has a significant impact on the Cooperative services and influence the level of economic activities. This could serve as the basis for attaining the MDG objective relating to e-commerce. In view of the above findings the following recommendations were made:

- The Cooperative management should provide adequate IT facilities to the cooperative staff and proper training should be given to the employee in other to meet the quality of service needed by the members.
- The Cooperative management should intensify investment in information technology products, to facilitate speed, convenient and accurate service
- Investment in information and communication technology should form an important component in the overall strategy of Cooperative operators to ensure effective performance.
- The cashless policy should also be extended to Cooperative organizations that account for seventy percent of the low income group to facilitate the MDG objective relating to e-commerce.

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