

Role of trust in adoption of online tax filing system: E-governance application from tax payers' perspective

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Abstract

Among many e-government services, electronic filing (e-filing) of personal tax returns is of great demand across world. The purpose of this study is to investigate factors affecting taxpayers; intention to adopt e-file systems. This study used Technology Acceptance Model (TAM) as a conceptual framework to develop one parsimonious yet explanatory model by integrating multidimensionality of trust (i.e. trust in government and trust on the internet) with personal perceptions of risk. Usable responses of 128 tax payers from North Gujarat were collected personally through structured self-administered questionnaire. Existing scales from the literature were used to construct questionnaire. Multiple linear regression analysis was performed to test hypotheses. The results showed that intention to adopt e-filing is influenced positively by perceived usefulness (PU), perceived ease of use (PEoU), trust of the internet and negatively by perceived risk. Trust in the government failed to contribute in adoption of e-filing. Proposed model explained 51.8 per cent of variation in e-file intention. This study can help government get an insight into role of trust in internet in adoption while developing trust-based interventions for public communications. This study is a step forward in e-file adoption by adding integrated model of e-file adoption literature.

Keywords :

tax e-filing, technology acceptance model (TAM), risk, trust, e-government



Introduction

There is an apparent need to encourage business and the community participation in government activities, national governments have started utilizing internet effectively to communicate with business and the community (Wong et al., 2007). Belief is widespread about the efficiency of internet as medium in accomplishing government's daily administrative activities and transactions with business and citizens. Many national governments have changed their orientation for public service delivery to be more electronic, which is resulting from electronic revolution and governance revolution (Heeks, 2001; Al-Mamari et al., 2013).

According to UN report, e-government is defined as “the use of internet and information and communication technologies (ICT) and particularly the internet as a tool for achieving better government” (UN, 2003; cited in Wong et al., 2007). On enhancing the scope, Srivastava and Teo (2008) defined e-government as the “use of ICT and internet to enhance the access to and delivery of all facets of government services and operations for the benefits of its stakeholder groups which includes citizens, businesses, and government itself “ (cited in Rehman et al., 2012). E-government aims to make relationships such as B2C (business-to-customers), G2B (Government-to-business), G2G (government-to-government) and G2C (Government-to-customers) more transparent, cheaper, convenient and friendlier (Hussein et al., 2011).

Government departments have gone for key structural changes due to globalization and privatization in 1990-2000 in India. In integrating service platforms for citizens (G2C), ICT organization of Government of India has set up National Informatics Centre (NIC) (Bhattacharya et al., 2012) in line with National e-government plan (NeGP) proposed by The Department of Information Technology (Government of India, 2006). Currently, Government of India operates with 20,000 web sites to reach citizens effectively and efficiently. On e-Government Readiness Index, India stands on 113 and on Web Measure Index, India stands on 54 (UNDESA, 2008; Cited in Ojha et al., 2009). If citizens fail to adopt e-government, it will critically damage the process of modern governance (Gupta et al., 2004) and thus adoption of e-government is common choice in IS (information systems) research.

However, literature on adoption of e-government highlights that much emphasis has been put on analyzing information provision from government perspective (Reddick, 2005; Medaglia, 2007; Furuholt and Wahid, 2008; Lee et al., 2011) and less emphasis has been put on user perspective (Lee et al., 2011; Rana et al., 2013). It is seen that successful adoption of e-government services largely depends upon the willingness of citizens to adopt e-government (Rehman et al., 2012) and tax filing services is no exception.

Indian tax system is unique considering the country size, multilevel fiscal framework, reform experiences, and influence of political strategies (Rao and Rao, 2006) and thus provides a lesson to global tax administrative services. Considering this complexity, India Tax Department (hereafter ITD) has provided online tax filing services targeted at citizens and use of this e-government service is not always feasible to mandate its use (Ojha et al., 2009). E-filing i.e. income tax return filing through the internet is not mandatory for salaried tax payers in India and they can also submit a paper income tax return.

To achieve adoption goal of this e-government service, identification of factors is required for effective and efficient development of e-filing. Carter et al. (2011) pointed that IS adoption research is centered on technology adoption factors (Al Awadhi and Morris, 2008; Schaupp et al. 2010) as well as personal perception factors (McKnight et al., 2002; Pavlou, 2003). Technology Acceptance Model (TAM) has been widely used to understand the adoption of technology based systems and provides comprehensive research framework to study the adoption of IS. Moreover, for e-file adoption to possible, tax payers must have a level of trust in the e-file system and therefore it is important to study the role of trust in internet as well as trust of the government (Carter et al., 2011).

This study focuses on investigating the impact of the dimensions of technology acceptance model along with trust on intention to use e-filing system among tax payers in India. Following this section, literature on online tax filing behaviours with specific note on technology acceptance model as framework is provided. Next, measures with reliability and sample description along with analysis of data are presented followed by discussion, implications and limitations of the study.

Review of literature

Online tax filing in India

E-government has been an expression of how government harnessing IT which is being subject of academic research (Bhattacharya et al., 2012). Interconnected structure, electronic workflow and service delivery, accountability, transparency, effectiveness and efficiency were the key outcomes of e-government (Gupta et al., 2004; Sheridan and Riley, 2006; Yildiz, 2007; Bhattacharya et al., 2012). In many developing and developed countries, as a part of e-government services, filing of tax return with the use of internet has been recognized as a e-filing, which is an e-government application that is being utilized with increasing frequency all over the world (Lee et al., 2008; Manly et al., 2005) and India is no exception in this regard (Ojha et al., 2009; Bhattacharya et al., 2012).

Stafford and Turan (2012) defined e-filing of tax as “calculation, realization and payment by citizens to a government of accrued taxes via computers connected to the Internet or other telecommunication means”. In many ways, e-filing helps tax payers to file, pay and review taxes through information and communication technologies (Centeno, 2004) whereas from government point of view, it enables government to collect, document and observe tax of individual in more easier manner (Turner & Apelt, 2004; Gupta, 2010; Ojha et al., 2009; Fu et al., 2006). In the world, the attempt to collect taxes through ICT initiated in countries like U.S.A, Australia, Germany, Canada, Singapore, England, Taiwan and India (Turner & Apelt, 2004) but today majority of the nations have started to collect tax through ICT due to its usefulness (Stafford and Turan, 2012).

September 2004 was a month that witnessed the introduction of income tax e-filing system on voluntarily basis and made compulsory for companies to file their return online in July, 2006 and extended to all companies audited under section 44AB of Indian Income tax act from the assessment year 2007-2008 (Ojha et al., 2009). However, for salaried tax payers having taxable income more than INR 5 lacs, e-filing was made mandatory from the financial year ending 2013 by Central Board of Direct Taxes (CBDT) (The Times of India, 2013).

Past researches suggested that technology adoption factors (Gefen et al., 2003; Pavlou, 2003; Venkatesh et al., 2003; Carter and Belanger, 2005; Fu et al., 2006; Horst et al., 2007; Schaupp et al., 2010) have an impact on technology diffusion. Though the e-filing through ICT has been becoming popular in the world but still it lacks the user-friendliness from citizen's perspective (Heeks and Bailur, 2007) and studies have found out e-filing project as failure (Heeks, 2003; Schaupp and Carter, 2005; Shareef et al., 2011). As e-filing is an application of e-government it should be re-evaluated and validated with applicable theories and models of it (Siau and Long, 2005; Andersen and Henriksen, 2006).

Technology Acceptance Model (TAM)

The literature on e-filing have explored and developed four theories related to online tax filling namely diffusion of innovation theory (Rogers, 1995), social cognitive theory (Bandura, 2001), social norms (Fishbein and Ajzen, 1975; Karahanna et al., 1999) and contingency theory (Fiedler, 1967; Woodward, 1965). Theories like theory of social norm, contingency theory, and social cognitive theory are precursor to both TAM and TRA is the theory of reasoned action applied to e-government (Liang and Lu, 2013). Out of which theory of diffusion has been used along with technology acceptance model (TAM) to predict e-

government adoption (Phang et al., 2005; Belanger and Carter, 2008). As a part of using e-government services, first individual have to adopt internet service and it can be only possible with understanding the ease of usefulness of it as well as by understanding it perceived usefulness which are part of theory of TAM (Davis, 1989; Al-Adawi et al., 2005; Bhattacharya et al., 2012; Warkentin et al. 2002).

In technology acceptance model (TAM) initially proposed by Davis (1989), it was explained that behavioral intention of use of information systems depends on the perceived ease of use (PEOU) and perceived usefulness (PU) of information. This model was later modified by other researchers (Venkatesh and Davis, 2000; Venkatesh et al., 2003) to define variables, which determine PU and PEOU. The Meta analysis of TAM (King and He, 2006; Ma and Liu, 2004) and critiques of research on TAM (Lee et al., 2003; Legris et al., 2003) suggested that TAM is among most influential model on technology acceptance and intention to use (Ojha et al., 2009). Even the evidences from past research suggested that the intention of taxpayer to adopt e-filing can be predicted through applying TAM (Bhattacharya et al., 2012; Venkatesh et al., 2003; Ozha et al., 2009; Wang, 2002). Hence it can be postulated that:

H₁: Perceived usefulness is positively related to intention to use e-filing among citizens.

H₂: Perceived ease of use is positively related to intention to use e-filing among citizens.

Perceived risk

Research on Perceived risk suggests that it is important parameter in predicting intention to use e-filing (Fu et al., 2006). In this line, Warkentin and Gefen (2002) defined perceived risk as a “composition of behavioral and environmental uncertainty”. In line of e-filing, Fu et al., (2006) defined perceived risk on tax filling context as “taxpayers’ perceptions of uncertainty and expectations of adverse results arising from system usage”. It is generally believed that the use of information technology is not properly protected from various cyber related sources (Straub and Welke, 1998) and such uncertainty arises due to the unpredictable nature of Internet-based technology (Zhang and Maruping 2008). It is the risk factor which forces people not to accept e-filing quickly (Featherman and Pavlou, 2003; Fu et al. 2006). It is believed that people usually postpone the decision to use e-filing because of risk associated with relative matter (Salam et al., 2003).

H₃: Perceived risk is negatively associated with intention to use e-filing among citizens

Trust

Two dimensions namely trust and risk are very crucial in adopting technology for e-filing (Belanger and Carter, 2008; Al-Adawi et al., 2005). Trust has been studied extensively in e-commerce services (Jarvenpaa et al., 2000; McKnight et al., 2002; Gefen and Straub, 2003; Van Slyke et al., 2004) as well as in e-government services (Warkentin et al., 2002; Carter and Belanger, 2005; Schaupp and Carter, 2010). Rotter's (1971) defined trust as “an expectancy that the promise of an individual or group can be relied upon”. There is a requirement of trust when there is a presence of risk (Corritore et al.; 2003 Pavlou 2003). Trust is such element which can add value to the image of an organization and it is true for e-government also (Gefen et al. 2003). Belanger and Carter (2008) suggested two types of trusts in e-government context; namely, trust of the internet and trust on the government providing e-government service (Carter and Belanger, 2005). So that it can be postulated that:

H₄: Trust of the internet is positively related to intention to use e-filing among citizens.

H₅: Trust in the government is positively related to intention to use e-filing among citizens.

Social influence

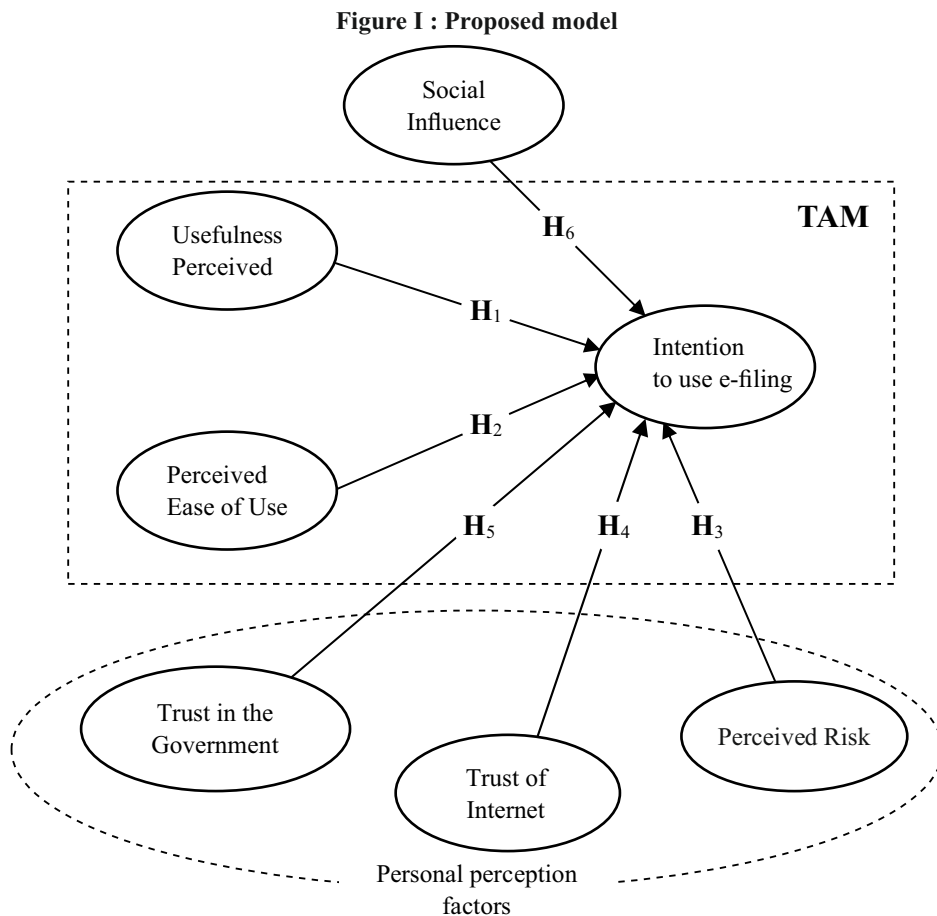
It can be postulated from the past research that individual's behaviour is highly influenced by social factors in understanding intention to use e-government services (Horst et al., 2007; Hung et al., 2007; Al Awadhi

and Morris, 2008). Social influence is a combination of social image, subjective norms, and social factors (Carter et al., 2011). Social influence is believed to influence intention to use because people may choose to perform behavior, even if they are not themselves favorable toward the behavior or the consequences (Venkatesh and Davis, 2000). This social influence or “social norms” holds the explicit or implicit notion that people's behavior is influenced by the way in which they believe others will view them as a result of having used the technology (Venkatesh et al., 2003). Hence, subjective norm is considered to be an important factor to explain one's behavioral intention to use new technology. In this regard, people will use more technology to get admired by others on doing so (Carter et al., 2011). The more social influence and individual perceive the more he or she is likely to adopt technology oriented behaviour (Stafford and Turan, 2012). Based on that, it can be postulated:

H₆: Social influence is positively related to intention to use e-filing among citizens.

Research Model

Based on the aforementioned literature, we posit that two technology acceptance factors (PU and PEoU), three personal perception factors (perceived risk, trust in the government, and trust of internet) and one social factor (social influence) have a significant impact on taxpayers' acceptance of an e-file system. The proposed model is shown in Figure I.



Research Methodology

Sample

Target population comprises of those citizens residing in North Gujarat who are aware of online tax-paying facility, must be of age group of 25 years and more (as they have income and eligible for tax payment). The present study has collected relevant primary data with the help of structured questionnaire by using non-probability convenience sampling method. Personal interview method was used to collect data from respondents who were contacted at their homes or offices. To achieve the desired objective, based upon convenience sampling, the data was collected from 128 citizens in North Gujarat which is more than the sample size calculated assuming 9% tolerance error with 95% confidence level and no strong belief about the population proportion (~threshold 119).

Measures

All TAM variables (Intention to use e-filing, PU and PEoU) were adapted from previous studies by Davis (1989), and Belanger and Carter (2008). While “trust” factor comprises two components: trust of the internet and trust in the government which were developed and taken from Belanger and Carter (2008) study and further used by Hussein et al. (2010). The measure called “perceived risk” was developed by Pavlou (2003) and further used by Hussein et al. (2010). All these constructs were measured on five-point, Likert-type scale anchored with strongly disagree (1) to strongly agree (5).

Table I: Measures Used In the Study

Variable	Source	No. of Statements	Cronbach Alpha (α)
Perceived Usefulness (PU)	Davis, 1989; Belanger and Carter, 2008	4	0.844
Perceived Ease of Use (PEoU)	Davis, 1989; Belanger and Carter, 2008	4	0.846
Perceived Risk (PR)	Pavlou, 2003; Hussein et al., 2010	2	0.855
Trust of the Internet (TI)	Belanger and Carter, 2008	3	0.721
Trust in the Government (TG)	Belanger and Carter, 2008; Hussein et al., 2010	4	0.920
Social Influence (SI)	Fishbein and Ajzen, 1975; Hussein et al., 2010	2	0.733
Intention to use (INT)	Davis, 1989; Belanger and Carter, 2008	4	0.697

Reliability Statistics

Assessment of strength of scale has been made through reliability analysis. To do so, Cronbach coefficient alpha- an indicator of internal consistency was determined (Cronbach, 1991). Cronbach's alpha indicates the degree to which items of a scale making up a variable shared a common core. As an evidence of good internal reliability, the Cronbach alpha values are required to higher than 0.6 (Nunnally, 1978). Table I indicates that the alpha values for all constructs were above than the threshold confirming that scales are reliable.

Testing of hypotheses

The relationship between factors influencing e-filing usage and intention to use e-filing was tested using a multiple regression analysis. According to Hair et al. (1998), multiple regression analysis is useful to establish the relationship between a single dependent variable and several independent variables. Regression analysis is a powerful and flexible procedure for analyzing associative relationships. In order to perform multiple regressions, all independent and single dependent variable were measured on metric interval data.

In accordance with hypotheses postulated in aforementioned section, summated scale of dependent variable (i.e. intention to use e-filing) and all independent variable (i.e. perceived usefulness, perceived ease of use, perceived risk, trust in internet, trust of the government and social influence) was calculated. Enter method was used indicating all the independent variables were considered at a same time. SPSS 16.0 windows version was used to do data analysis. Regression analysis was performed to determine (a) model fit (b) explanatory power of a model and (c) significance of each predictor used.

Table II: Model –fit statistics for intention to use f-filing

Model	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Regression	24.420	6	4.070	21.485	0.000*
Residual	22.733	120	0.189		
Total	47.153	126			

Note: *p<0.05 level; R=0.720; R-Square=0.518

Table III: Coefficient values of predictors

Model	Unstandardized		Standardized		
	B	Std. Error	Beta (β)	t	Sig.
Constant	0.875	0.213	0.236	4.115	0.000
Perceived Usefulness	0.157	0.088	0.171	1.776	0.078**
Perceived Ease of Use	0.227	0.081	0.265	2.797	0.006*
Perceived Risk	-0.073	0.039	-0.122	-1.877	0.063**
Trust of the Internet	0.278	0.098	0.301	2.830	0.005*
Trust in the Government	0.047	0.065	0.078	0.720	0.473
Social Influence	0.042	0.061	0.046	0.687	0.493

Note: *p<0.05 level; **p<0.1 level

Table II demonstrated that model is fit ($F=21.485$; $p<0.05$). It was also found that six independent variables explain 51.8 per cent of variation in intention to use e-filing. Moreover, the model revealed that two factors influencing e-filing usage namely, perceived ease of use ($\beta=0.265$, $p=0.006$) and trust in the internet (TI) ($\beta=0.301$, $p=0.005$) were found to have a significant relationship with intention to use e-filing, thus hypotheses H_2 and H_4 was confirmed. From the findings, we can conclude that the most important factor contributing to the e-filing usage intention would be trust in the internet which is to be followed by perceived ease of use. However, factors influencing e-filing usage; namely, perceived usefulness ($p=0.078<0.1$), and perceived risk ($p=0.063<0.1$) were also found to be significant, thus hypotheses H_1 and H_3 was also supported. In addition to this, trust in the govt. ($p=0.473>0.05$) and social influence ($p=0.493>0.05$) had no significant impact on citizens' intention to use e-filing (H_5 and H_6 was not supported).

After checking the significant relationship of independent variables, it is required to know the each variables importance in explaining the variation in the dependent variable. To determine the weight of each independent variable, standardized beta values are used. From above table 4.13, it was found the weight of each significant independent variable in following order: trust in the internet ($\beta=0.301$), perceived ease of use ($\beta=0.265$), perceived usefulness ($\beta=0.171$), and perceived risk ($\beta=0.122$). In order to test the direction of relation for these found significant variables, t-value is used to check. It was found that trust in the internet ($t=2.83$), perceived ease of use ($t=2.797$), and perceived usefulness ($t=1.776$) had positive impact on intention to use. While perceived risk was found to be negatively related to intention to use e- filing ($t=-1.877$).

Discussion and Implications of the study

This study was aimed to investigate predictors of intention to use e-filing among tax payers. Regression was used which showed that personal perception factors with technology acceptance model deemed fit with an explanatory power of 51.8 per cent. Put together, results of the study were as follow:

- trust in internet (significant, positive; $\beta=0.301$)
- perceived ease of use (significant, positive; $\beta=0.265$)
- perceived usefulness (significant, positive; $\beta=0.171$)
- perceived risk (significant, negative; $\beta=-0.122$)
- trust of the government (insignificant)
- social influence (insignificant)

The major construct of technology acceptance model, perceived ease of use was highly related to intention to use e-filing as consistent in past studies (Pavlou, 2003; Wuand Chen, 2005; Carter, 2008). It implies that the citizens discover the e-filing system to be easy to use, thus they will continue to perform the online tax in the future. Thus, Citizens who use internet frequently perceive this system to be ease in use and implementation. This citizen's perceptions to adopt online tax-filing would positively influenced by government interventions educating how to file tax online. In fact, citizens can share their experience with others if they find it easy (Belanger and Carter, 2008). They should first target adopters who can effectively create word of mouth. In fact, those who have filed their taxes online should be rewarded by offering cash incentives.

The other variable of TAM i.e. perceived usefulness is also positively influence the intention to use. If people find that filing online returns would be useful and beneficial in time saving and ensure control over procedures, they can easily adopt the e-filing systems. Therefore, the government should develop the interventions and communications showing the benefits of this system which will ultimately changed the citizens' perception regarding the use of such systems. Even they can pursue the utilization of online for specific income tax users. More video demonstrations on website and other social networking cite displaying utility and benefits of e-filing should be provided in order to enhance usefulness. You Tube can be great source for creating publicity and word of mouth.

Considering perceive risk-intention to use relationship, relationship was found significant and negative (consistent with Pavlou , 2003; and inconsistent with Belanger and Carter, 2008). The higher customer's perceived risk of online transaction, the lower consumer's intention to go for online transaction. This might due to the nature and the differences underlie these two technologies, e-commerce and e-government. It may be the case that citizens do not find the government trustworthy due to their non-transparent practices while delivering public services. Thus, the government should ensure some level of transparency that helps to build trust. In addition to this, citizens perceive that higher the trust of the internet, the more likely they

will adopt the e-filing practices. The main reason for this seems to be the data privacy issue. User trust in the internet is in fact critical in the countries like India wherein personal data. Privacy is the most important concern. Citizens believe that the trust in the form of technology i.e. IT infrastructure as back born of whole online process will drive more citizens to switch from traditional tax filing to online tax filing system.

Remaining two factors i.e. social influence and trust in the government were found to be non significant. People do not consider their reference groups as important in online tax filing behavior. They even do not care whether their peer that includes family members and friends approves or disapproves the online tax filing activity. Here, trust in the government was also found to be non-significant. People do not perceive any confidence in the government when they are going for income tax filing online. Trust in government can be strengthened by taking some corrective measures/enforcing the laws in case of privacy of data. They should tie up with the reputed IT services providers in order to ensure the privacy, so as perceived risk can be lowered down. The association with online security providers can help to build more positive image of e-government and thus induce more trust.

Moreover, this study also contributes to the existing literature on adoption of IS research uniquely as it takes multidimensional view of trust factor and left the priori one-dimensional view that majority of researchers have taken.

Limitations and future scope of the study

This study has several limitations listed as follow: (a) the survey was only targeting citizens residing in North Gujarat region as a sample, thus sample of respondents from various geographical areas may be able to provide clearer picture of e-filing system. (b) The focus of the study was only intention to use e-filing, so actual adoption of e-filing should be considered in further study. This is also extended to other G2C e-government application services. (c)The causal relationships between various variables have not been investigated. Future researcher can develop more specific scale by incorporating link between various variables. (d) The future researchers can determine the others important factors that influence the e- filing system practiced among taxpayers. Future research should also consider other factors that may deemed necessary to influence citizen's adoption of e-government services, such as the internet security and privacy issue, that may include data protection privacy.

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