

Nader Sohrabi Safa¹, Maizatul Akmar Ismail²

INVESTIGATIONS ON E-TRUST AND E-SATISFACTION OF CUSTOMERS FOR E-LOYALTY: THE CASE OF IRANIAN E-COMMERCE

In this research two problems have been addressed. Firstly, companies lose their e-customers easily in today's business competitive environment. Secondly, gaining loyal customers needs a long time and high cost. These two basic problems encouraged us to research on loyalty in e-commerce and the main aim of this study is to increase trust, satisfaction and loyalty among e-customers. Our literature review and interviews with experts in this realm revealed that electronic satisfaction (e-satisfaction) and electronic trust (e-trust) are two important factors which influence electronic loyalty (e-loyalty). 6 hypotheses show relationships between technology, organization and customer factors with e-satisfaction and e-trust and two hypotheses indicate the relation between e-satisfaction, e-trust and e-loyalty. Statistical analysis is used to validate and to ensure model reliability.

Keywords: e-commerce; e-satisfaction; e-trust; e-loyalty; e-loyalty framework.

Надер Сорабі Сафа, Майзатул Акмар Ісмаїл

ВИВЧЕННЯ "ЕЛЕКТРОННОЇ ДОВІРИ" І "ЕЛЕКТРОННОЇ ЗАДОВОЛЕНОСТІ" КЛІЄНТІВ ЗАДЛЯ ФОРМУВАННЯ "ЕЛЕКТРОННОЇ ВІРНОСТІ": НА ПРИКЛАДІ ІРАНСЬКОЇ ЕЛЕКТРОННОЇ КОМЕРЦІЇ

У статті розглянуто дві проблеми. По-перше, компанії легко втрачають електронних клієнтів у сучасному конкурентному бізнесі-середовищі. По-друге, створення клієнтської бази вимагає тривалого часу і витрат. Ці дві проблеми лежать в основі даного дослідження клієнтської лояльності в електронній комерції, і основна мета статті — знайти способи збільшити довіру, задоволеність і лояльність електронних покупців. Огляд літератури і опитування експертів у цій області показали, що "електронна задоволеність" і "електронна довіра" — два найважливіші чинники впливу на "електронну лояльність". 6 гіпотез показують залежність між технологічними, організаційними, клієнтськими чинниками і "електронною задоволеністю" і "електронною довірою", дві гіпотези демонструють стосунки між "електронною задоволеністю", "електронною довірою" і "електронною лояльністю". Для перевірки надійності моделі використано статистичний аналіз.

Ключові слова: "електронна задоволеність", "електронна довіра"; "електронна лояльність"; структура "електронної лояльності".

Надер Сорабі Сафа, Майзатул Акмар Ісмаїл

ИЗУЧЕНИЕ "ЭЛЕКТРОННОГО ДОВЕРИЯ" И "ЭЛЕКТРОННОЙ УДОВЛЕТВОРЕННОСТИ" КЛИЕНТОВ В ФОРМИРОВАНИИ "ЭЛЕКТРОННОЙ ВЕРНОСТИ" НА ПРИМЕРЕ ИРАНСКОЙ ЭЛЕКТРОННОЙ КОММЕРЦИИ

¹ Department of Information Science, Faculty of Computer Science & Information Technology, University of Malaya, Kuala Lumpur, Malaysia

² Senior Lecturer, Department of Information Science, Faculty of Computer Science & Information Technology, University of Malaya, Kuala Lumpur, Malaysia

В статье рассмотрено две проблемы. Во-первых, компании легко теряют электронных клиентов в современной конкурентной бизнес-среде. Во-вторых, создание клиентской базы требует время и затрат. Эти две проблемы лежат в основе данного исследования клиентской лояльности в электронной коммерции, и основная цель статьи — найти способы увеличить доверие, удовлетворенность и лояльность электронных покупателей. Обзор литературы и опрос экспертов в этой области показали, что "электронная удовлетворенность" и "электронное доверие" — два самых важных фактора влияния на "электронную лояльность". 6 гипотез показывают зависимость между технологическими, организационными, клиентскими факторами и "электронной удовлетворенностью" и "электронным доверием", две гипотезы демонстрируют отношения между "электронной удовлетворенностью", "электронным доверием" и "электронной лояльностью". Для проверки надежности модели использован статистический анализ.

Ключевые слова: "электронная удовлетворенность", "электронное доверие"; "электронная лояльность"; структура "электронной лояльности".

Introduction. Loyalty is defined as the frequent buying manner existing over a period of time driven by a satisfactory attitude to a subject (Keller, 1993), containing both behavioral and attitudinal facets. This diverse conceptualization of loyalty is strongly discussed by two researchers who analyzed the behavioral aspect of loyalty research which focused only on frequent buying (Jacoby & Chestnut, 1978). Repeated ordering behavior only reveals the result of a decision process in which the attitudinal and emotional facets of loyalty are disregarded. For that reason, the concept of loyalty has to be distinguished from fake loyalty (false loyalty), where repeated buying behavior is driven by inertia, not based on any commitment (Dick & Basu, 1994). Factual loyalty embraces both behavioral and attitudinal preferences to a retailer (Jacoby & Chestnut, 1978). A real loyal customer was found to have attachment and commitment towards a retailer, and is hardly diverted to a somewhat more attractive alternative (Shankar, Smith, & Rangaswamy, 2003). Real loyalty comprises higher buying intent, resistance to switching, willingness to pay more, and received higher benefits from the word-of-mouth effect (Shankar et al., 2003). E-loyalty is a customer's commitment and favorable attitude in the direction of an online retailer that leads to frequent purchase behavior.

Literature review. Loyalty is not only a strong asset for firms but also leads the businesses constant growth (Jacoby & Chestnut, 1978; Oliver, 1999; F. F. Reichheld, Markey, & Hopton, 2000a). In determining the development of loyalty, satisfaction has historically been identified as the critical concept in the previous marketing literature (Anderson & Mittal, 2000; Eriksson & Vaghult, 2000; Oliver, 1997, 1999). However, this argument emphasizes a satisfaction-loyalty link which was challenged by several researches who claimed that more than half of the satisfied customers eventually switch to another retailer (Jones & Sasser, 1995). Jones and Sasser (1995) also noted that "only satisfying customers... is not enough to keep them loyal" (p.91). To fill this void in the satisfaction studies, trust was examined to play a critical role in loyalty improvement. Singh & Sirdeshmukh, (2000) proposed that trust, as a relational concept, positively effects loyalty. A hierarchical cognitive structural model consisting of personal values such as motivation, attribute evaluation, and loyal behavior has been proposed by Koo (2006).

The importance of loyalty, satisfaction and trust, and the close connections among them have also been an important issue in the studies on online selling (Park & Kim, 2003; Reichheld & Scheffer, 2000; Yang & Peterson, 2004). E-loyalty was proved to bring increase in profitability to online retailer through gaining long-time customer commitment and reducing the cost of gaining new customers (Reichheld, Markey, & Hopton, 2000b). Reichheld et al. (2000b) also noted that loyal customers are not the ones looking for lower prices, but the ones keen to pay premium prices to online retailers with whom they have good built relationships.

In the previous studies, e-satisfaction (viewed as a transaction specific characteristic) and e-trust (viewed as a relational characteristic) have been determined to influence e-loyalty. Some researchers insist that a satisfied customer is more likely to create a closer relationship with the retailer with the emphasis on the impact of e-satisfaction on e-loyalty (Anderson & Srinivasan, 2003). Several researchers concentrated on the important role of e-trust in establishing e-loyalty, insisting that its a "virtual circle". In other words, when customers trust an online retailer, they are more enthusiastic to disclose their personal information. In turn, with the collected customer information, online retailer can provide tailored services and products, thus strengthening customer e-loyalty (Reichheld & Scheffer, 2000). Few researchers have tried to examine the sequential relationship between e-satisfaction, e-trust and e-loyalty. The relationship between these 3 constructs are established as either e-satisfaction then e-trust and then e-loyalty (Rexha, Kingshott, & Aw, 2003), or e-trust, then e-satisfaction and then e-loyalty (Gummerus, Liljander, Pura, & Riel, 2004). Table 1 shows the factors which other researchers have paid attention to in their studies.

In the first step, critical factors were extracted from the literature review. In this section, the factors which were discussed by other researchers were collected and carefully categorized into 3 groups of technology, organization and customer. The Delphi method was applied to improve the classification of the critical factors and face validity during 3 months and 2 rounds. In the first round the experts added several factors which were neglected and changed the position of some factors in the research framework. Their opinions were considered in the new research structure and presented to other experts to review and for their feedback. Finally, based on all the experts' opinions, the research framework was formed.

Various researchers have studied e-loyalty in different contexts. For instance, Fang considered that information, systems and service quality influence customer satisfaction (Fang, Chiu, & Wang, 2011). Customization, interactivity, convenience and character in customer interface quality have been considered by Chang as main factors which influence e-satisfaction in e-commerce (Chang & Chen, 2008; Srinivasan, Anderson, & Ponnnavolu, 2002). These factors have been placed in a technological group. A unified model was presented for e-commerce where perceived usefulness, ease of use, belief in benevolence, competence and integrity have been considered as important factors to form e-satisfaction (Palvia, 2009). These factors have been placed in the customer group. Responsiveness, assurance and empathy of organization have been considered in the Lai framework where these factors were placed in the organization category (Lai, 2006).

Table 1. Critical factors in e-satisfaction, e-trust and e-loyalty

Authors	The factors which were discussed by the researchers
(Chiou, Lin, & Peng, 2010)	(1) Responsiveness (RS) (2) Ease of use (EU) (3) Fulfillment (FF) (4) Personalization (PL) (5) Individualized attention (IA) (6) Visual appearance (VA) (7) Information quality (IQ) (8) Trust (TT), (9) Security/Privacy (SP).
(H. Lee, Choi, & Kang, 2009)	Responsiveness, reliability and assurance, website information, e-service quality and its system satisfaction.
(S. Lee & Park, 2009)	Privacy, customer, expertise, low cost, ease, evaluation, strategy, services, speed, delivery, stability, security, variety, payment, plenty, low price.
(Jinghua Huang, Ximin Jiang, Qian Tang, 2009)	Information security, human resources, IT implementation IT strategy, IT infrastructure and IT benefits.
(Chang & Chen, 2008)	Customization, customer interface quality, convenience and character, interaction, contributes to generating e-loyalty.
(Saad & Kira, 2007)	Ease of use of information technologies, using the technology acceptance model (TAM) and effect of previous computer experience on anxiety.
(Lai, 2006)	Responsiveness, reliability, security, credibility, competence, courtesy, access, communication, understanding customers and tangibles.
(Hong & Zhu, 2006)	Web functionalities, web spending the use of EDI, greater partner, perceived obstacles, systems.
(Kearns, 2005)	Strategy types: defender, prospector, analyzer or reactor-prospecter, risk level.
(Thirumalai & Sinha, 2005)	Product selection, web-site performance, customer support, ease of ordering on-time delivery, product information, on-time delivery, price, shipping and handling.
(Ngai & Wat, 2005)	In this paper author classifies EC Development Risk in three main parts: 1- Technical factors 2- Organizational factors 3- Environmental factors.
(Oppong, Yen, & Merhout, 2005)	People, processes, culture, e-service trends, customer-oriented trends, employee megatrends, organizational trends, general technology trends, enterprise technology trends.
(J. H. Lee & Park, 2003)	Product quality, delivery time, quantity, price/cost, process transparency.
(Yu, Hsi, & Kuo, 2002)	Electronic payment systems: (1) electronic cash, (2) online credit card payment, (3) electronic checks and (4) small payments. Technological aspect, economic aspect, social aspect, institutional aspect, and regulatory aspect.

In this framework 10 technology factors such as system quality (Fang et al., 2011), information quality, personalization web future, language option, search and comparing facility, product and service information, using complementary systems, collecting and analyzing customer information, fast and easy payment, buying 7 days 24 hours (Sung, 2006) influence e-satisfaction. 4 technological factors (customer bulletin board, security of information and privacy, customer feedback facility and complaints and follow-up facility) are believed to influence e-trust. Among 14 organizational factors, 5 factors (customer segmentation, customize production, fast response to customer inquiries, variety of goods and services, rewards and discounts) are found to influence e-satisfaction and 9 factors (clear shopping process, money back warranty, contact interactivity, organization reputation, guaranty policy, selling high regarded brands, contribution with well-known company, tailored advertisement and promotion, fast and safe delivery) are identified to influence e-trust. Finally, 5 factors (perceived site quality, customer experience, less time transaction, perceived usefulness, perceived ease of use) influence e-satisfaction. 6 factors (perception of hardware

and software reliability, perception of risk, perceived market orientation, positive referrals from friends, belief in integrity and belief in competence) are found to influence e-trust. In order to measure some of these factors, several sub-factors have been considered in this framework. For instance, easy to navigate, usability, availability, reliability, adoptability, response time, fast page loading, easier to learn, visual appealing and fun are sub-factors for measuring quality of a system (Cyr, Head, & Ivanov, 2009). The sub-factors such as easy to understand, complete, information in the right place and time and update sub-factors have been considered for information quality factor. Other sub-factors such as recommended systems, decision support systems, information reporting system, barcode system and transaction processing systems have been considered for complementary systems which are embedded in a website. In the customer group factors such as fear of making mistakes, malware, denial of service, hackers, disclosure of sensitive information, natural disaster, equipment failure, wrong function and properties development, delivery failure and low quality products have been considered as sub-factors for risk (Ngai & Wat, 2005). Table 2 shows the factors which are classified into 3 groups, namely technology, organization and customer.

According to the above points, 8 hypotheses are formulated:

H1: Technology factors are positively related to e-satisfaction.

H2: Organization factors are positively related to e-satisfaction.

H3: Customer factors are positively related to e-satisfaction.

H4: Technology factors are positively related to e-trust.

H5: Organization factors are positively related to e-trust.

H6: Customer factors are positively related to e-trust.

H7: E-satisfaction is positively related to e-loyalty.

H8: E-trust is positively related to e-loyalty.

Respondents' Profile. 502 online customers responded to this survey, in which (52.4%, n=263) participants were male and (47.6%, n=239) participants were female. 27.9 % of the participants were in their 20-s and 30,46 % between 30 and 40 and 23.5 % were between 40 and 50 years old. Among the participants 40.4 % were undergraduates, 30.3 % — masters students and 29.3 % had doctorate degrees. The findings also showed that most of these e-customers do online purchasing 3-4 times per month. Table 3 describes the research sample size in terms of gender, age, education level and the frequency of purchasing.

Research Methodology. Critical factors which influence e-satisfaction and e-trust have been extracted from the literature review and interviews with experts based on the Delphi method. 3 classifications of technology, organization and customer have been considered for this conceptual framework. The participants were selected from Refah Chain Stores Company online customers in Iran in 2010. Refah Chain Stores Company is the biggest retail chain store in Iran with more than 150 store branches.

Standard error of skewness and standard error of kurtosis test have been applied for normalization test of data distribution. All standard error of skewness and kurtosis measurements were between -2 and +2. This shows that data distribution is normal (Habibpor & Safari, 2008a).

Table 2. Factors influencing E-satisfaction and E-trust

Technology Factors	Organization Factors	Customer Factors
System quality (9 Items) Information quality (5 Items) Personalized web feature Language Options Search and Comparing Facilities Product and Service Information Using other Systems (5 Items) Collecting and Analyzing Customer Information Fast and Easy Payment 24/7 Service	Customer Segmentation Customize Products Fast Response to Customer Inquiries Variety of Goods and Services Rewards and Discounts (2 Items)	Perceive Site Quality Customer Experience in E-commerce Less Time Transaction Perceived Usefulness Perceived Ease of Use
Customer Bulletin Board Security of Information and Privacy Customer Feedback Facility Complain and Follow-up Facility	Clear Shopping Process Money Back Warranty Contact Interactivity Organization Reputation Guaranty Policy Selling High Regarded Brands Contribution with Well-Known Company Tailored advertisement and Promotion Fast and Safe Delivery	Perception of Hardware and software Reliability Perception of Risk (10 items) Perceived Market Orientation Positive Referrals from Friends Belief in Integrity Belief in Competence

Table 3. Description of participants

Characteristics	Number (N=502)	%
Gender		
Male	263	52.4
Female	239	47.6
Age		
21-30	140	27.9
31-40	231	46.0
41-50	118	23.5
Education		
Undergraduate	203	40.4
Master's Degree	152	30.3
Doctorate Degree	147	29.3

Characteristics	Number (N=502)	%
Use of EC		
1 time	25	5
2 times	76	15.1
3 times	138	27.5
4 times	120	23.9
5 times	95	18.9
6 times	24	4.8
7 times	14	2.8
10 and more	10	2

Reliability indicates the stability of measure over the diversity of conditions (Nunnally, 1978). The amount of inaccuracies made by any measure is determined by Cronbach's alpha test used to inter-item scores and to the overall measures. There is no particular standard for interpreting Cronbach's alpha. Brown proposes the minimum value of 0.8 for tests which measure attitudes or values (Brown, 1983). More generally, Nunnally claims that the acceptable level of exploratory study is 0.7 or above. All Cronbach's alpha measures suffice for the Nunnally' standard and are close to Brown's recommended theories, thus reliability of measures is concluded to be satisfactory.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy test was used for data suitability. The outcomes from KMO test in all the constructs were more than

0.5. Bartlett's test is also used to confirm the possibility of creating new structure with these data. The result was significant and there is a relation between the variables tested. KMO and Bartlett's test confirm our structure and data in terms of adequacy and sphericity (Habibpor & Safari, 2008b).

Regression analysis has been applied for factors which are in the technology, organization and customer classification based on the relation between these factors with e-satisfaction and e-trust and in the next step e-satisfaction and e-trust with e-loyalty. Table 4 shows the results of correlation between technology, organization and customer factors with e-satisfaction and e-trust and also between e-satisfaction and e-trust with e-loyalty. Data in Table 4 revealed that the correlation coefficient between technology group factors and E-satisfaction and organization group factors and e-trust and also between e-satisfaction and e-loyalty are strong (more than 0.8). These data also show the relationship of organization and customer factors with E-satisfaction, technology and customer factors with e-trust and between e-trust and e-loyalty.

Table 4. Correlation Results of Hypotheses

Hypothesis	Independent Variable (IV)	Dependent Variable (DV)	Pearson Correlation
H1	Technology Factors	E-Satisfaction	0.868**
H2	Technology Factors	E-Trust	0.610**
H3	Organization Factors	E-Satisfaction	0.498**
H4	Organization Factors	E-Trust	0.822**
H5	Customer Factors	E-Satisfaction	0.791**
H6	Customer Factors	E-Trust	0.771**
H7	E-Satisfaction	E-Loyalty	0.955**
H8	E-Trust	E-Loyalty	0.746**

Table 5 shows the measure of regression, T-test, significant of T-test and co-linearity by Tolerance and Variance inflation factor (VIF) for every construct.

In terms of co-linearity, tolerance changes between 0 and 1 and the greater measure of tolerance shows low co-linearity. The tolerance of variables is generally more than 0.5. These measures demonstrate that there is no co-linearity. Minimum tolerance in this framework is 0.745. It shows that the variables are independent in terms of variance effects on each other. VIF shows the variance inflation factors and comes from $1/\text{Tolerance}$. This measure also shows co-linearity. The larger measure of VIF shows low co-linearity of variables. The VIF with measure greater than 2 shows high co-linearity among variables. The VIFs in this framework were less than 2. Figure 1 shows the effect of technology, organization and customer on e-satisfaction, e-trust and e-loyalty.

A simple version of the model is depicted in Figure 1. It exhibits the relationship between the constructs. The paths between technology factors ($\beta=0.226$, $\text{Sig}=0.000$), organization factors ($\beta=0.110$, $\text{Sig}=0.019$) and customer factors ($\beta=0.215$, $\text{Sig}=0.000$) revealed that these factors have positive relations with e-satisfaction. The results of the data analysis also show a positive relation between technology ($\beta=0.262$, $\text{Sig}=0.000$), organization ($\beta=0.112$, $\text{Sig}=0.012$), customer ($\beta=0.288$, $\text{Sig}=0.000$) factors and e-trust. Similarly, there are positive relations between e-satisfaction ($\beta=0.238$, $\text{Sig}=0.000$), e-trust ($\beta=0.548$, $\text{Sig}=0.000$) and e-loyalty. In this research one sample T-test also was applied for ranking of size effect among variables in technology, organization and customer groups.

Table 5. Regression Analysis

Technology Factors	B=0.226 T=4.489 Sig=.000 VIF=1.323 Tolerance=.756	E-satisfaction	B=0.238 T=6.721 Sig=.000 VIF=1.009 Tolerance=.991	E-loyalty
Organization Factors	B=0.110 T=2.357 Sig=.019 VIF=1.138 Tolerance=.878			
Customer Factors	B=-0.215 T=-4.279 Sig=.000 VIF=1.315 Tolerance=.760			
Technology Factors	B=0.262 T=6.125 Sig=.000 VIF=1.242 Tolerance=.805	E-trust	B=0.548 T=15.478 Sig=.000 VIF=1.009 Tolerance=.991	
Organization Factors	B=0.112 T=2.512 Sig=.012 VIF=1.342 Tolerance=.745			
Customer Factors	B=0.288 T=6.614 Sig=.000 VIF=1.287 Tolerance=.777			

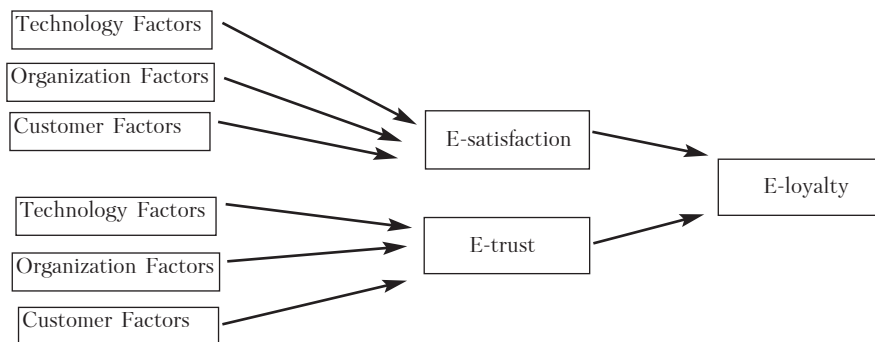


Figure 1. Framework with Regression Coefficients

Discussion and conclusion. This study shows that e-satisfaction and e-trust play an important role in forming e-loyalty. Government policies encourage people to use e-commerce in their business. Disadvantages of paper money, clearance in commerce, reduction of cost, time, errors and mistakes are examples of e-commerce advantages. On the other hand, e-commerce has become an indispensable component in the business environment, because of enormous number of transactions per day for some businesses.

On the other side, business organizations lose their e-customers easily and gaining new loyal e-customers is costly in terms of money and time. This research

attempts to answer the question of how business organizations may increase the level of e-satisfaction and e-trust among their e-customers to gain more business advantages. Previous researches on e-loyalty typically focused on particular aspects of e-loyalty and were not comprehensive. The significant aspect of this research is derived from the inclusion of diverse dimensions of technology, organization and customer factors.

The results of this study show that there are strong relations between technology group factors and e-satisfaction (correlation coefficient=0.868**), organization group factors and e-trust (correlation coefficient =0.822**) and also between e-satisfaction and e-loyalty (correlation coefficient =0.955**). The research outcomes also reveal a relation between organization (correlation coefficient =0.498**) and customer (correlation coefficient=0.791**) factors with e-satisfaction, technology (correlation coefficient =0.610**) and customer (correlation coefficient =0.771**) factors with e-trust and between e-trust and e-loyalty (correlation coefficient =0.746**). Consistently with prior research, our expectations and regression analysis from our research outcomes also show that technology factors have the most effect on e-satisfaction and organization factors that have the most effect on e-trust. Another important outcome is that e-trust ($\beta=0.548$) has the most effect on e-loyalty in comparison with e-satisfaction ($\beta=0.238$).

Limitations and future research. As with any research, scholars should consider the generalizations of the findings in their studies. This survey was conducted as a non-random sampling, because there are a few active companies in the field of e-purchasing or e-selling in the country. The generalizations could be enhanced in future research. The second limitation in this study is derived from international sanctions. The lack of international e-commerce companies in the country is the reason why the factors which we considered are at the local e-commerce scale. As mentioned before, the main difference between traditional commerce and modern commerce (e-commerce) is in their technology aspects. The effect of new technology such as touch and voice recognition devices are important in creating e-satisfaction. During this survey, anxiety among some non-educated and old people was observed when they do e-commerce. These subjects also can be considered for future research.

Despite the above limitations, this study has determined the critical factors which influence e-satisfaction, e-trust and e-loyalty and has also presented a logical and understandable framework for increasing the level of e-satisfaction, e-trust and e-loyalty in general.

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