

Consumer Behavior and E-Commerce

Brazilian Case Study

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Abstract

This study aimed to analyze Management graduating students' buying comportment of a Brazilian Federal Center of Technological Education as online-consumers in relation with the traditional buying and their possible compulsive comportment. This is a descriptive research of quantitative nature, using a structured questionnaire to extract the data that was given to 191 students.

The data handling was made through a statistical analyze of the buying comportment-frequency, through the T tests, of Kolmogorov-Smirnov and correlation. The main results are: the students participating in the test had more propensities for savings in the two mentioned forms of buying, didn't show the tendency to behave themselves in an impulsive or compulsive manner in their buying, and preferred doing it in the traditional way, rather than online. It is also suggested to include in the questionnaire some demographic data such as: age, income and education, to permit a deeper analyze and comparison of the behavior related to these three constructs.

Keywords: Internet; Electronic Commerce; Consuming; Buying Behavior; Buying Compulsion

Introduction

Consuming as a way to exchange goods exists since humanity appeared. In the length of time, the production and commercialization relations were formalized. "Consume is one of the most important phenomenon of modern societies" (D'Angelo, 2004, p.8). Analyzed under different forms, one sees that the persons are involved in the consume system: through the purchase of goods is it possible to satisfy the various necessities of the people, from the simplest to the most complexes, and at the same time, this relation maintains the whole economy on the move.

The intensive use of information and communication technologies, and in particular e-commerce through the Internet, are important factors influencing the consumers (Brynjolfsson; Kahin, 2000; Rodríguez-Ardura; Meseguer-Artola, 2010; Sharma; Sheth, 2004; Sheth; Sharma, 2005). It occurs because of the number of e-commerce advantages: the consumers could find information about a much wider range of products and also make

comparisons (Alba *et al.* 1997; Bakos 1997; Häubl; Trifts, 2000; Smith, 2002), and also emotional advantages as Childers *et al.* (2001), Xia (2002) and Martínez-López *et al.* (2006) pointed out.

With all these benefits, the people consuming goods through the net shows characteristics that indicate an online comportment, i.e. connected to the profile and individuality of this new kind of consumer, and also demonstrates how purchasing through the net is done (Morgado, 2003).

Brazil is a promising country in this field, leading the online commerce in Latin America and was responsible for 61% of the shopping expenses through the net in 2009 (Turchi, 2010). The E-commerce shopping showed expressive results in 2010, following the Webshoppers' site (2011), the bill of sales through Internet was of R\$ 14,8 billions, showing a superavit of 40% over 2009. The number of consumers doing a minimum of one virtual purchase summed 23 millions in 2010, the medium value of this purchase was R\$ 373,00 and 49% of these consumers were females. The buying was aroused by the World-Cup, by incoming of new players, through the consolidation of great retail enterprises and also by the higher rents of the buyers. For 2011, one expects a billing of R\$20 billions with a number of buyers amounting to 27 millions (Webshoppers, 2011).

In this scenario, considering that impulsive buying is a pervasive and growing phenomenon among consumers (Baumeister, 2002; Vohs and Faber, 2007), and also in which new consuming channels are opening using the Web, this paper focus the consumer of goods through the Internet and find the possible differences between the traditional buying comportment, the online one and the buying compulsion.

The aim of this paper was to analyze the buying comportment of management graduating students graduating of campus II of a Brazilian Federal Center of Technological Education of Minas Gerais State (CEFET-MG) as online consumers in relation to the traditional buying and possible compulsive comportment.

Specifically, this paper wanted to a) Identify the traditional buying comportment versus the on-line buying comportment; b) Find the relation of the main compulsive buying comportments to the characteristics pointed out by the most important authors of studies on this theme; c) Find and analyze the differences between traditional and online buying comportment of the students, and; d) Analyze the correlation between the buying compulsion and the traditional buying' behavior versus the online buying one.

Procedures for collecting data

This research is a descriptive study using a quantitative nature. To collect the data, it was used a structured questionnaire based on a research and scale validated by Valence, d'Astous and Fortier (1988) and Faber and O'Guinn (1992), exposed in the work of Cole and Sherrel (1995). These are two separate scales, originally jointed in a unique questionnaire, used in the article *Tendency to purchase through Internet versus purchase through traditional means: an exploratory study* by Barros, De Muylder and Oliveira (2007).

For this research, a precision range of $D=0,10$ is adequate, showing practically no difference between the adopted scale for the sample results and the population. The confidence scale was 95% and, because the σ was unknown, one used the deviation standard (s) found for the sample collected until that moment, being it of 191 respondents, to see if it was enough to find the desired conclusion.

Having 27 variables, their medium deviation standard, i.e. 1, 01 was used. So, with the base of the formula suggested by Malhotra (2006), to calculate the sample (formula I), one reached the sum of 392 respondents. As this number was greater than the size of the population (316, total of the students in the first semester of 2011) one had to use the

correction factor for finite population, based on the formula II, also suggested by Malhotra (2006), and so reached the number of 175 respondents, smaller than the one of the already collected sample, and allowing to go further with the analyzes based on the 191 students of the databank.

The precision stage 0,02 was obtained, with a very little difference between the sample and the population, showing the truthfulness of the results of the collected sample.

This proceeding allows to ensure if two correlations (dependents, being them the buying methods) correlationated to a third variable (the compulsive buying) are different on base of a statistically significance.

Results

In relation to the sex, the sample was well divided, being 51% of the respondents male and 49% female. It was also found that 75% of the respondents are working today, and a great part of them are adding work to studies.

About the management course that the respondents are actually taking, one found it also well distributed. The percentage vary from 9% to 15% of the respondents in the eight periods, showing homogeneity in the period coursed by the students

Analysis of the frequency of the traditional buying behavior versus the online one, and of the compulsive buying behavior

The first buying behavior studied was “When I have money, I spend part or all what I have”. This behavior, is generally more common in the traditional way of buying, when compared with the *on-line* one. The sum of the categories: *Almost always* and *Always* in the traditional way gives a percentage of 32%, instead of only 3% in the electronic way. Yet, on the opposite side of the scale (adding *Never* to *Almost never*), it gave a percentage of 30% for the traditional way and 80% for the *on-line* one. Usually, the respondents show more tendencies to spare than to spend, indicated by the high number of answers; *Never* and *Almost never*. This index was so gar higher when considering the electronic way, which may show that, notwithstanding the growth of the electronic sales, according with the Webshoppers relate (2011), the students still prefer buying the traditional way, in physical stores and enterprises, instead of choosing and buying the products they need through the net.

The second buying behavior studied was “I am almost impulsive about buying”. This behavior is also, usually, more frequent in the traditional way, when compared with the *on-line* one. The sum of the categories: *Almost ever* and *Ever* in the traditional way gives a percentage of 15%, instead of only 4% in the electronic way.

Yet, the sample opposite end (adding *Never* with *Almost never*) shows a percentage of 43% for the traditional way and 85% for the *on-line* one. Only a few students related having a compulsive buying behavior, in the traditional or in the *on-line* way. It is also known, according to Solomon (2002), that impulsive buying is usually associated to extern stimulations as, for example, promotions and propaganda, and is no usual tendency.

The third buying behavior studied was “Entering in a shopping mall or a buying site, I soon find something I must buy”. This behavior is usually more frequent in the traditional way than in the *on-line* one. The sum of the *Almost always* with the *Always* categories in the traditional way gives a percentage of 20%, giving only one of 7% in the electronic way. Yet, on the opposite end of the scale (adding *Never* with *Almost never*) one finds a percentage of 45% for the traditional way against 68% for the *on-line* one. One may note that in this behavior, the difference between the buying ways is smaller.

The fourth buying behavior to be studied was “I am somebody who always buy what is in promotion”. This behavior is less frequent in the *on-line* way, compared with the

traditional one. The sum of the *Almost always* and *Always* categories in the traditional way gives a percentage of 8%, against 5% in the *on-line* one, very similar. On the other end of the scale (summing *Never* with *Almost never*), it gives a percentage of 56% for the traditional way and 80% for the *on-line* one. Noteworthy is how small this difference seems to be.

The fifth buying behavior studied was “I always buy what I don’t need, even having only a few money left”. This behavior is similar in both traditional or *on-line* ways. The sum of the *Almost always* and *Always* in the traditional way gives a percentage of 4%, and in the *on-line* way, only 3%, both practically the same. But the opposite side of the scale (adding *Never* with *Almost never*) gives a percentage of 84% for the traditional way and 92% for the *on-line* one, also very near one to the other. This result shows very similar behavior of traditional and *on-line* ways. This is another behavior showing that the students have more tendencies to spare than to spend.

The sixth buying behavior to be studied was “For me, buying is a way to face the every day stress”. This behavior is a bit different in the traditional way and in the *on-line* one. The sum of the *Almost always* and *Always* in the traditional way of buying, offers a percentage of 8%, and in the electronic way, only 2%, practically the same. However, the opposite end of the scale (adding *Never* to *Almost never*) gives 71% for the traditional way and 91% for the *on-line* one. The high percentage of respondents attesting they never had the sixth behavior in the two mentioned ways of buying proves they don’t have a compulsive behavior. According to Faber, O’Guinn and Krych (1987), the buying compulsion is related, between other factors, with the expectation to reduce the stress of the daily routines.

The seventh buying behavior to be studied was:” It seems that sometimes I am imposed to go to the Mall”. This behavior is the same in the traditional way and in the *on-line* one. The sum of the categories *Almost always* and *Always*, in the traditional way gives a percentage of 7%, and in the electronic way, only 8%, both about the same values. Yet, on the opposite end of the scale, (*Never or Almost ever*), appears a percentage of 27% for the traditional way and of 70% for the *on-line* one. Further more, the *Sometimes* category is practically 100% more important than the *on-line* one.

The eighth buying behavior investigated was “Sometimes I need to buy something”. This behavior seems different in the traditional way and in the *online* one. The sum of the categories *Almost always* and *Always* sin the traditional way gives a percentage of 21%, giving only one of 4% in the electronic way. But the other end of the scale (adding *Never* with *Almost ever*) gives a percentage of 27% for the traditional way and 70% for the *online* one. .

Furthermore, in the category *Sometimes* the percentage of traditional buying is almost the double of the mentioned in the *online* one. The ninth buying behavior studied was “Sometimes I say- I won’t do this no more”. This behavior in the traditional way is somewhat different from the *on-line* one. The sum of the categories *Almost always* and *Always* in the traditional way gives a percentage of 19% instead of only 5% in the *on-line* one. Yet the opposite end of the scale (summing *Never* with *Almost never*) gives a percentage of 48% for the traditional way and 88% for the *on-line* one.

At last, the tenth buying behavior to be studied was “Some of the things I buy, I don’t show, fearing they demonstrate my consuming behavior”. This behavior seems the same in the traditional way and in the *on-line* one. The sum of the categories *Almost always* and *Always* in the traditional way gives a percentage of 4% instead of only 2% in the one line one.

The first compulsive buying behavior investigated was:” If I have some money left from my last month payment, I have to spend it”. Apparently, the studied sample shows little use of this behavior: 28% of the respondents swear never doing that and only 11% stated to do that almost always or always. This result shows that 67% tend more to spare than to spend.

The second compulsive buying behavior investigated was:” I feel that others may be horrified to know ho much I spend each month”. Practically half of the sample (51%) stated

they never would have this kind of behavior, and 31% state that they almost never have such a feeling. Only 7% say they feel that way *Almost always or Always*.

The third compulsive buying behavior investigated was:” I bought things that I could not afford” This behavior is a bit more frequent in the sample if compared with the anterior ones. One can verify that the category *Sometimes* was used by 32% of the sample, being this percentage smaller than the ones observed before.

The fourth compulsive buying behavior investigated was: “I gave a check that I knew I had no funds to cover”. About 90% of the sample stated never to have this behavior.

The fifth compulsive buying behavior was:” I bought something to feel better” This behavior is more frequent in the investigated sample. Only 14% swear never to behave themselves this way, instead of 16% stating they behave so, *Almost always or Always*. Furthermore 42% of the respondents said they behave so *sometimes*.

The sixth compulsive buying behavior-investigated was: “I feel anxious or nervous the days I don’t buy anything “. This behavior is less frequent in the investigated sample because 69% of the respondents related they never felt that way. Only 6% mentioned they felt nervous or anxious, *sometimes*, the days they don’t buy anything, and 2% said they feel that way *Almost always* . Nobody said he feels *Always* that way. The last two results are contrary to what Faber, O’Guinn and Krych (1987) and Vieira (2006) describe as characteristic of a compulsive buying behavior. One sees that nearly all the respondents do not or seldom show compulsion in the act of consuming. According to the before mentioned authors, the persons said as compulsive use the purchasing as outlet to lessen their negative feelings and emotions, which may be anxiety or nervousness.

The seventh, and last, compulsive buying behavior investigated was: “I only pay the minimal parcel of my credit cards “. More than $\frac{3}{4}$ of the sample swears it *Never* engage in this behavior. The other categories won percentages of other behaviors, showing that only a few individuals behave frequently in this way.

Comparison of the traditional buying behavior with the buying behavior on-line

The third specific objective proposed in this study was to point out and analyze the behavior differences between the traditional and on-line purchases of the students. Therefore, one realized the test T and the test of Kolmogorov-Smirnov. The variables standard deviation of traditional and on-line buying in the sample. The media is measuring the central tendency and ,in this research, shows the frequency of the ordinary behavior of the respondents. Yet the standard-deviation indicates the variability of the data. It proves that the media really showed a consensus, or not, in the respondents answers. This way, a small standard-deviation indicates that the data were really near the media, and that existed a consensus in the respondents answers.

One must here explain that the questionnaire scale was formatted as next: 1 - Always, 2 - Almost always, 3 – Sometimes, 4 – Almost never, and 5 – Never. This modification was done for to show better that, the biggest the media, the biggest is the behavior frequency of the respondent. Furthermore, one must consider that, in a circumspect scale of five, a standard-deviation of one point, or bigger, may be considerate as high.

In the variables C3, C6 and C9, grater standard-deviation were found for the traditional buying, showing a greater variety in the data. Yet, in the electronic way, only the variable C7 showed a bigger standard-deviation, that may be associated to propaganda and promotions through *e mail*, sites and social nets.

Table 1 – Media, standard deviation, and correlation of the variables of the traditional buying and the *on-line* one.

Buying variables	Traditional buying	Online buying
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	Media	DP	Media	DP
C1. When I have money, I spend part or all I have	3,02	0,93	1,80	0,84
C2. I'm almost impulsive when I go shopping	2,66	0,89	1,71	0,84
C3. As soon I enter a shopping site, I find something I have to	2,71	1,00	2,11	0,94
C4. I am somebody who always buy what is offered as promotion	2,43	0,76	1,87	0,84
C5. I always buy what I don't need, even having fast no money left	1,84	0,78	1,55	0,73
C6. To me, buying is a manner to face the day- in- day- out stress	1,97	1,04	1,46	0,72
C7. It seems that, sometimes, something forces me to go to the shopping or buying site	2,08	0,98	1,92	1,03
C8. Sometimes I feel the necessity to buy something	2,90	0,91	1,90	0,92
C9. Sometimes I say: I will not do that again/ enter the buying site, as a way to stop spending	2,61	1,07	1,57	0,90
C10. Some of my purchases I don't show, fearing somebody may discover my consuming behavior	1,65	0,85	1,30	0,66

Legend: DP- standard-deviation

Source: Research data

One may observe that the majority of the behavior medias are related to the answers *Never* and *Almost never*, showing that most part of the respondents don't show the investigated behavior in an accentuated form, maybe bound to the fact that they don't buy through the Net.

Besides the observations about the research samples, one must also understand what these behaviors possibly mean for the studied population. Therefore was realized a test T for pared sample for the 10 buying behavior variables, comparing the traditional way of buying with the *on-line* one.

The Table 2 shows the results of the tests, besides showing also the size and standard deviation of the media difference observed in the sample, for the 10 buying variables, the confidence interval of the media differences and the statistic of the test T, as well as its significance.

Table 2 - Test of the media difference, comparing the traditional buying way with the *on-line* one

Tested Pair	Buying Variables	Dif. Media	DP	95% ICD		T
				LI	LS	
1	C1. When I ave money, I spend part or almost what I have	1,21	1,08	1,060	1,369	15,523**
2	C2. I'm almost impulsive when buying	0,95	0,97	0,810	1,086	13,551**
3	C3. Soon as I enter a Mall or Site, I find something to buy	0,60	1,18	0,434	0,770	7,062**
4	C4. I'm a person who buys always what is offered as promotion	0,55	0,84	0,435	0,674	9,161**
5	C5. I always buy what I don't need, even when money is short	0,29	0,86	0,170	0,416	4,694**
6	C6. For me, buying is a manner to face the day-in-day-out stress	0,52	1,08	0,364	0,672	6,631**
7	C7. It seems that someway I'm forced to go to a Mall or visit a site	0,16	1,26	-0,017	0,342	1,785 ^{NS}
8	C8. I feel sometimes the necessity to buy anything	1,00	1,14	0,838	1,162	12,146**
9	C9. Sometimes I say: I will not do that again: enter a buying site and spend	1,04	1,13	0,876	1,197	12,728**
10	C10. Some of my purchases I don't show, fearing that somebody may percieve my consumist behavior	0,35	0,81	0,236	0,466	6,013**

Legend: Liberty graduation: 190; Sample size: 191; *Test t was significant with 5%; ** Test t was significant with 1%; NS Test t was not significant with 5%; DP—standard deviation;ICD—trustful interval of difference; LI—Inferior limit; LS—Superior limit.
Source: Research data

The number one being between these limits means a high probability of having no differences between the tested categories, bringing no rejection of the null hypotheses i.e. it exists no difference between the medias. So, the interpretation of a result on base of an interval of confidence of 95% means that, when testing this difference on base of the sample data, exists the possibility of the media to be between the inferior and superior limits of the interval (Cohen, 1988).

One must also point out the existence of two significance types: the statistic and the management one. The statistic one is given through the *p* value in the tests, and in this research, it was ruled that significances under 5% would cause rejection of the null hypotheses. The management significance, however, shows if the result is really important in practice (Cohen, 1988; Anderson, Sweeny; Williams, 2007). Thinking in a frequency scale of the discreet type, as the one used in this research, differences equal or superior than 1, would signify great differences between the behavior frequencies of the studied ways (traditional versus *on-line*)

After these considerations, it was possible to analyze the results of the tests. In the Table 3 one sees that all null hypotheses were rejected (meaning a high probability of the population media being different), except for only the pair 7. This result reveals that one cannot sustain that a difference exists in the behavior frequency, measured by the variable C7, of the traditional or *on-line* way. For all others nine variable pairs, the null hypotheses of media equality were rejected, being always the traditional way media greater than the electronic one. The variables with more significant management differences (with a possibility of a population media difference equal or greater than 1, with a confidence interval of 95%) were in descending order: C1, C9, C8 and C2.

The variables C3, C4 and C6, however, presented probable differences in the behavior frequency of the traditional way versus the *on-line* one, statistically and practically, only with lesser intensity that the anterior variables. Two pairs of variables presenting statistically significant differences, presented lesser relevant management differences (the upper limit of the media of confidence interval was smaller than 0,500). These were C5 and C10, proving that the buying behaviors in both ways are not so different.

Correlation between the buying compulsions in the traditional way of buying with the *on-line* one

The Table 3 shows the results of the correlation tests between the compulsive buying variables with the media of the traditional buying and the media of the *on-line* one. It was chosen to count together the media of traditional buying and of *on-line* one, to make the results more revealing, because comparing 10 variables (or better, 20, when summing the traditional and the *on-line*) with the 7 variables of compulsive buying would result in an infinity of statistic tests with little practical results. Furthermore the test is also showed, that compares the correlation intensity of the media of the traditional buying behavior with the media of the on-line behavior to the variables of the compulsive buying. All these tests are shown in a simple form in the Table

Table 3 – correlation between the behavior variables (traditional and *on-line*) and the variables of the compulsive buying.

Compulsive buying	MediaCT	MediaCOL	Test de dif.
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ICG1.If I have some money left of this month payment, I have to spend	0,532**	0,223**	4, 737**
ICG 2 .I have the feeling that if other people knew how much I spend each month, they would be horrified	0,563**	0,420**	2, 252**
ICG 3. I buy things that I should not have	0,555**	0,424**	2, 252**
ICG 4. I filled a check, knowing I have no funds to cover it	0,199**	0,359**	-2, 225**
ICG 5. I bought something to feel better	0,572**	0,322*	3, 960**
ICG 6. I feel anxious or nervous the days I don't buy something	0,530**	0,409**	1,885 ^{NS}
ICG 7. I only pay the minimal parcel of my credit cards bills	0,098 ^{NS}	0,091 ^{NS}	0,130 ^{NS}

Legend: * significance up to niveau of 1% ** significance up to niveau 5% NS not significant up to niveau 5% ; MediaCT – Simple Media of the traditional buying variables; MediaCOL – Simple Media of the *on-line* buying variables.

Source: Research data

Beyond that, one may observe that the variables ICG1, ICG2, ICG3 and ICG5 present greater correlation intensity in case of traditional purchases, when compared with the *on-line* ones. Only for the ICG4 variable, was the correlation intensity for *on-line* purchases greater than the traditional ones. Yet the correlation intensity of the ICG7 variable with both buying ways didn't present a statistical significant difference up to niveau 5%.

Conclusions

The Internet offers an extent range of information to its users, allowing them to learn about the products, their characteristics, functions, advantages and disadvantages, being also possible to compare with the concurrence, verify prices, delivery, and payment standards, between others, without leaving one's home. On the other side, elevated consuming has some negative consequences. The buying compulsion is one of those. This compulsion, born out various factors inherent to the individual, like low auto-esteem, family influences, materialism, depression, necessity to be accepted and so on, is a behavior that must be profoundly studied.

And it is in this sense that the global purpose of this study was to analyze the buying behavior of CEFET management students.

The research made on 191 students in Management of the CEFET, allowed to obtain these objectives. The primary results related to the principal objective are that the respondents, having to buy goods or services, still choose the traditional way, in physical stores and enterprises, rather than to use the virtual way. This finding is divergent of the market data on sales through the Net, which show a big growth in the account of the enterprises operating this way, mostly with young people. In the two ways of buying, it appears that the students prefer sparing to spending, especially in the electronic way.

As to the compulsive behavior, very few respondents declared having this behavior, and this manifestation was even lesser significant in the *on-line* way.

The results demonstrate that the students responding the research show a very low level of buying compulsion. The analyze of the traditional way of buying frequency versus the *on-line* one showed results related to the first objective. In the same manner, analyzing the compulsive buying frequency made possible to complete the second objective, which was to relate the most important compulsive buying behaviors to the characteristics mentioned by the principal authors of studies on these cases, besides reaching the conclusion that most of the students have no compulsive buying behavior, because, in the quests characterizing this compulsion, the number of positive answers was very low.

The results of the tests of correlation gave the base to obtain the specific aim number four, which was: the analyze of the correlation of the buying compulsion with the traditional buying behavior versus the buying behavior *on-line*. Almost all variables of compulsive buying showed a significant statistic relation with the medias of traditional and *on-line*

buying. It must be stated, however, that the variables related to money at end of the month; to the fear that other people may horrify with the spending; to the fact to be buying what one cannot afford to have and to buy something to feel good, showed more intensity in the traditional way than in the *on-line* one.

Through the tests *t* and the Kolgomorov-Smirnov ones, it was possible to obtain results fulfilling the third specific aim: point out and analyze the differences between the student's traditional buying behavior and the *on-line* ones of them. The tests results showed what was already proved in the frequency analyze of the traditional behavior versus the *on-line* one, that is, that the students prefer the traditional way to buy goods and services.

The most important limitations of this research are due to the fact it was made in a specific sample, and may not, through this fact, be extended even to students of other courses of the CEFET, and never to common consumers behavior. Other limitation is that the compulsive behavior is not very well socially accepted and people are ashamed to assume it.

As suggestion for further studies, one may cite the amplifying and deepening of the research about compulsive buying. In relation to the questionnaire, it is suggested to do the questions in a projective manner, because these behaviors, objects of the research, are not socially well admitted, inhibiting the respondents to give the true answers. One must also modify the question about check payment, because few sites accept this manner of payment, and the use of credit -and debit- cards or charge in bank account is swift and interactive in this electronic universe.

It is also suggested to include in the questionnaire some demographic data such as: age, income and education, to permit a deeper analyze and comparison of the behavior related to these three quests; and furthermore remake the questionnaire for persons with higher rent, and not specifically graduation students, to make out if the compulsive buying behavior is more palpable in the higher rent class.

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