



# ‘It’s practical, but no more controllable’: Social representations of the electronic purse in Austria

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## Abstract

The electronic purse (chip-card) is promoted as an option offering consumers an easy means of payment. It also offers advantages to traders and banks by reducing transaction costs. However, successful launching of the electronic purse depends mainly on consumers’ acceptance, which in the past was very low in Austria. We study consumers’ acceptance of the electronic purse, cash and established non-cash payment systems by analysing social representations of payment facilities. Semantic contents of associations raised in response to the stimulus words “means of payment in general”, “cash”, “cheque”, “ATM-card”, “credit-card” and “electronic purse” have been analysed. Overall, 264 people were studied applying two techniques: the “associative network” and the “conceptual network”. It is shown that means of payment are categorised on two dimensions: cash and non-cash. Non-cash payment facilities are characterised by high abstraction levels, and loss of subjective control over expenditures. The electronic purse is perceived as highly dissimilar to other means of payments. © 2003 Elsevier B.V. All rights reserved.

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## 1. Introduction

In 2002, more than 25 electronic purse schemes have been operating in Europe (Europay, 2002). At special cashier points, a certain amount of money is charged to the bank account and booked into the electronic purse which takes the form of a chip-card. On the banking side, the respective amount is instantly charged from the individual account and is accumulated in a virtual bank account which contains the sum of amounts of all electronic purses in use. In Austria such an electronic purse system, called "quick-card", was introduced in October 1996; it allows the electronic storage of money up to an amount of € 400 (at the time of data sampling it was approximately € 145).

The introduction of the electronic purse represents a further innovation in non-cash payment systems. Non-cash payment systems include cheques, credit- and debit-cards (such as ATM-cards) as well as electronic money. Electronic money, also called electronic cash, is the digital replacement for banknotes and coins (Guttmann, 2003). During the past years non-cash means of payment have increasingly gained importance with the consequence that the use of cash (banknotes and coins) has been declining gradually in most European countries. Nicholas Negroponde, an international IT-trendscout even predicts that electronic money will render cash obsolete (Downing, 1999).

Non-cash payment systems in general offer advantages for suppliers, banking services and also consumers. With the help of cashless payments, the transaction of money from the point of sale to the bank happens fully electronically. Moreover, electronic money enhances the security of transactions. Acceptance and usage of the credit- and ATM-cards have increased within the past years steadily, because their easy handling and user friendliness are valued (Judt & Gruber, 1995). People do not have to search for the adequate coins and notes, but accept that specific amounts are charged to their bank accounts or are accumulated on monthly credit-card receipts; one advantage which gained importance in the conversion process from national currencies to the Euro.

The electronic purse in particular was intended as a replacement for cash transactions in everyday shopping contexts and was supposed to complement established forms of non-cash payment systems, such as the ATM-card, credit-card and cheques (Bartmann & Fotschki, 1995; Förster, 1985). Comparing the electronic purse with established types of non-cash payment facilities, additional advantages can be identified: transaction costs of the electronic purse are low, anonymity of consumers can be kept during the payment process because it is not necessary to confirm the payment with a PIN-code (personal identification number), and payment is easy. In technical terms, paying with the electronic purse simplifies banking transactions because each transaction to a merchant does not have to be done immediately. Usually, at the end of a day the sum of amounts is transferred from the common bank account to the respective merchant's account. In this way, even small amounts can be paid by the electronic purse without raising high costs (Judt, 1995).

Despite the described advantages only few people in Austria are using the electronic purse as a means of payment (OeNB, 2002). In order to increase its use, it

seems necessary to take a closer look at consumers' understanding of this new form of non-cash payment. By studying social representations of the electronic purse a holistic approach to consumer's understanding of the electronic purse was applied. The social representation approach was chosen, because (1) the electronic purse is a new payment option of which at the outset only few concrete information is available. Asking people to assess the electronic purse on e.g., Likert typed scales may result in poor and superficial answers. (2) People make sense of the new object by comparing it to established means of payment. Already existing knowledge is activated and adjusted instantly to new pieces of information on the electronic purse. However, relative advantages of the electronic purse compared to established means of payment rather than distinctive features help to understand why consumers use it or not. Free associations of established means of payment and the electronic purse as stimulus concepts provide important insights into comparable and differing aspects. (3) Sense-making is not proceeded individually but in a social context. Exposure to media and discussions with relevant others shape consumers' perceptions of the electronic purse as new payment option. Especially when confronted with new, e.g. economic or societal, developments people have the need to assess, evaluate and compare their perceptions with others. Therefore, social representations appear pertinent for capturing the increased debate since they are built on socially shared knowledge. (4) Methods applied by social representation research are not limited by the subjective selection made by the researchers. They provide maximum autonomy for respondents to express their opinions. Thus they help to detect aspects significant for the consumers.

## 2. Social representations

Social representations are defined as ideas, thoughts, images and knowledge about a "social object", i.e. a subject matter of social interest (Moscovici, 1981, 1984). They constitute the commonly held knowledge and ideas of a collective or social category which allow mutual communication and behaviour. Social representations guide selection and evaluation of presented information. According to Jodelet (1993) a social representation "operates as a system of interpretation of reality, serving as a guideline in our relation to the surrounding world. Thus it orients and organizes our behavior and communication" (p. 184).

Social representations result from a dialectic process between a person and a social context (Augoustinos & Walker, 1995). Unlike lay perceptions and attitudes, which focus primarily on the individual opinion, social representations constitute social knowledge, which means that the content of knowledge and its significance for social groups are investigated. Furthermore, social representations are affected by the economic, social, political, etc. context within they emerge and are applied (Flick, 1995). Thus, the term "social" indicates the relationship between a person and an object, event or phenomenon and this relationship consequently constitutes the world of the person (Moscovici, 1988).

The theory of social representations (Moscovici, 1961) provides a conceptual framework for investigating changes and new phenomena in the economic, social,

or political environment on a collective level (Wagner, 1989). In times of change debates among social groups increase. As a result, existing social representations are often re-evaluated (Furnham, 2001) and new social representations come into being.

Social representations develop from the integration of new cognitive and/or affective elements into existing representations by means of objectification and anchoring (Abric, 1996b; Moscovici, 1984; Roland-Lévy, 2001). First, anchoring is the process by which new knowledge, ideas and opinions are proven by a social group if they fit to an already existing categorisation scheme. If the new information fit, they are integrated into the already existing social representation and the existing social representation will be reshaped. On the other hand, a new social representation develops when the new information about an unfamiliar object does not fit into the categorisation scheme because of too many new and with existing elements conflicting information. In the case of the electronic purse, the object “electronic purse” may be anchored into the social representations of cash and “wallet”, or it may be perceived as similar to social objects like “credit-cards” or “ATM-cards”. Assessment of the electronic purse will be affected by different anchoring processes.

As a second process, objectification refers to the process by which abstract ideas or concepts become concrete (Abric, 1996a, 1996b; Moscovici, 1984). Concrete objects (for example, the credit-card is the symbol of being wealthy) or pictures (for example, Dagobert Duck caressing banknotes and coins) are incorporated into the existing social representation. Anchoring and objectification are interwoven processes, which proceed rather simultaneously than in a sequential order.

Social representations consist of elements that are structurally organised (Abric, 1996a, 1996b). Two different types of elements of a social representation are distinguished: First, central elements form the nucleus of a social groups’ social representation. The nucleus aims at organising the social groups’ ideas, generating meanings for the ideas, and operates as a normative constraint for the social group. The nucleus is assumed to be rather stable over time and changes less quickly than peripheral elements. Peripheral elements, on the other hand, may change due to individual experiences and protect the nucleus (for a discussion of change in social representations see e.g., Abric, 1993).

Social representations have been studied empirically through different techniques (see Bauer & Gaskell, 1999; Doise, Clemence, & Lorenzi-Cioldi, 1993). In the present study, two dissimilar research techniques were chosen which are complementing one another: (a) the associative network technique (de Rosa, 1995) and (b) the method of the conceptual network (Vergès, 1987, 1996; Vergès & Bastounis, 2001). The associative network technique is used to investigate the semantic content of a social representation and additionally, it allows the analysis of its evaluation. The technique deals with spontaneous associations by asking respondents to write down ideas, pictures and thoughts which arise when they think of the stimulus word(s). The resulting associations are first, listed and, second, evaluated by the same respondents as positive, negative or neutral. Furthermore, respondents indicate for each association they have given, whether or not it expresses an emotion (de Rosa, 1995; de Rosa & Kirchner, 2001).

In contrast to the associative network technique, which aims to grasp the content of social representations, the method of the conceptual network is applied to analyse the structure of social representations. Several—usually about 10–20—words are presented in a circle. Participants are asked to link by a line those presented words which have something significant in common. The number of connected word pairs are counted and formed into graphs of similarity (Vergès, 1987, 1996; Vergès & Bastounis, 2001).

The present study applies social representations, as a still under-utilised approach in market psychology. On a collective level, consumers’ opinions and understanding of the Austrian electronic purse in reference to other means of payment were studied. The main research questions are to find out why the use of the electronic purse is relatively low, if and how representations of the electronic purse vary from representations of different means of payment.

### 3. Method

#### 3.1. Subjects

Two sub-samples completed a questionnaire: The first sample consisted of 134 respondents from four test-cities in Austria (Eisenstadt, Mödling, Wiener Neustadt, St. Pölten) where the electronic purse was introduced at the end of 1994 in order to test acceptance and applicability. The second sample consisted of 130 students from the University of Economics and Business Administration, Vienna. The second sub-sample was drawn because the University of Economics and Business Administration introduced the so-called Power Card for internal use, a payment system similar to the electronic purse. It can be used as a means of payment for selected university facilities (e.g., photo-copying). Table 1 shows demographic characteristics of the two sub-samples. Only few participants used the electronic purse: 2.7% of the first sample and 11.9% of the student sample.

#### 3.2. Material

The associative network was applied for detecting the semantic content and the evaluative components of the stimulus words “means of payment”, “cash”, “cheque”, “ATM-card”, “credit-card” and “electronic purse”. Each of these stimulus words was presented on a single page followed by 10 lines where respondents wrote down their free associations and indicated for each association whether they evaluated it as positive, neutral or negative and whether or not it expresses an emotion. As a second method, the method of the conceptual network was used to analyse the structure of social representations. Labels of five means of payment (cash, cheque, ATM-card, credit-card and electronic purse) were depicted in a circle together with 20 economic and social concepts that were selected after a review of relevant literature (e.g., Hallowell & Grace, 1991; Kubicek & Klein, 1995; Lea, Hussein, Snelders, & Webley, 1992; Lea, Tarry, & Webley, 1987) and secondary data research (e.g., OECD, 1989). The 20 concepts were: economy, foreign trade, consumption,

Table 1  
Sample description

Sample description	Total sample ( <i>n</i> = 264)		Residents of "pilot" cities ( <i>n</i> = 134)		Students ( <i>n</i> = 130)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age (years)	30.7	10.6	36.9	11.4	24.4	3.8
Sex						
Female		52.3		54.5		50.0
Male		47.7		45.5		50.0
Residence						100
Vienna		49.2		23.1		
Mödling		11.7		25.4		
St. Pölten		12.9		25.4		
Wt. Neustadt		12.9		26.1		
Eisenstadt		13.3				
Education						
Primary school		1.5		3.0		1.5
Secondary school		14.4		26.9		83.1
Grammar school		70.5		58.2		13.8
College		12.1		10.4		
Occupation						
Self-employed		1.1		2.2		
Entrepreneur		24.2		47.8		
Civil servant		8.7		17.2		
Housewife		3.0		6.0		100
Student		55.3		13.4		
Blue-collar worker		2.9		2.9		
Other		1.1		2.2		
Net monthly house- hold income (€)						
Less than 727		15.9		6.0		26.2
727-1453		17.8		14.9		20.8
1454-2180		23.5		31.3		15.4
2181-2907		16.3		21.6		10.8
2908-3634		12.5		14.9		10.0
More than 3635		9.1		7.5		10.8

government, taxes, debts, savings, high reputation, self-worth, family, work, leisure, waste, desires, safety, risk, trust, mistrust, loss of control, control. Participants were asked to draw a line between those concepts, which have something significant in common.

### 3.3. Procedure

Participants were contacted at the beginning of 1997 (a) at public places in the selected towns (e.g., shopping malls, offices, waiting rooms) or (b) at the university campus and asked to participate in the study. Each participant was paid approximately € 11.

## 4. Results and discussion

### 4.1. Overview

In total, 7902 words were produced as associations to the six stimulus words; 3750 (48%) of these associations were different. Associations to the stimulus-word "electronic purse - chip-card" were most varied (75%), whereas "means of payment" (26%) evoked the least different associations. The high diversity of associations was based on the minimal experience with the new electronic purse. In contrast, the general term "means of payment" was expressed in a more homogenous representation and led to the production of similar associations. Table 2 summarises the frequencies of associations by means of payment.

### 4.2. Evaluation of associations

Each association was evaluated by the respondents as positive, negative or neutral, and it was indicated whether the association described an emotion or not. Indices of polarity, neutrality and emotionality were calculated separately for the six stimulus words (de Rosa, 1995) and are depicted in Table 3. The polarity index is the difference of positively and negatively evaluated associations relative to the total number of associations. The polarity index ranges from +1 to -1; higher values expressing a positive and low values expressing a negative evaluation of the stimulus word. The neutrality index, which ranges from 0 to 1, expresses the relative frequency of neutral associations; the higher it is, the more neutral the respective stimulus word is evaluated. The emotionality index expresses the relative frequency of emotional associations in relation to all associations per stimulus-word. The higher this index, the more emotions are elicited by the respective stimulus. The emotionality index ranges from 0 to 1.

Three analyses of variance revealed that the indices of polarity ( $F(5, 1408) = 55.60$ ;  $p < 0.001$ ), neutrality ( $F(5, 1408) = 14.32$ ;  $p < 0.001$ ) and emotionality ( $F(5, 1532) = 6.53$ ;  $p < 0.001$ ) differed significantly between the six different stimulus words. In addition post-hoc tests (Scheffé) were used: The electronic purse and the

Table 2  
Frequencies of associations

Stimulus word	Number of associations		Different associations		%
	<i>f</i>	<i>f</i>	<i>f</i>	<i>f</i>	
Means of payment	1748		453		26
Cash	1389		644		46
Cheque	1293		596		46
Credit-card	1414		719		51
ATM-card	1224		717		59
Electronic purse	834		624		75
Total	7902		3753		48

Table 3  
Means and standard deviations for the indices of polarity, neutrality and emotionality

Stimulus words	Index of polarity <sup>a</sup>		Index of neutrality <sup>b</sup>		Index of emotionality <sup>c</sup>	
	M	SD	M	SD	M	SD
Means of payment	0.31	0.36	0.40	0.30	0.15	0.20
Cash	0.26	0.46	0.39	0.32	0.22	0.28
Cheque	-0.14	0.51	0.40	0.33	0.16	0.23
Credit-card	0.26	0.51	0.27	0.29	0.24	0.28
ATM-card	0.30	0.53	0.25	0.29	0.21	0.27
Electronic purse	-0.24	0.62	0.26	0.33	0.25	0.34

<sup>a</sup> Ranges from -1 (very negative) to +1 (very positive).

<sup>b</sup> Ranges from 0 (non-neutral) to 1 (neutral).

<sup>c</sup> Ranges from 0 (non-emotional) to 1 (emotional).

cheque were evaluated more negatively than the umbrella term means of payment, cash, the credit- and ATM-card. Between the electronic purse and the cheque no significant differences of polarity were found. With regard to neutrality, means of payment, cash and cheque showed higher neutrality values than credit-card, ATM-card and electronic purse. Means of payment and the cheque showed significantly lower emotionality values than credit-card and electronic purse. Summarising the results, the electronic purse was negatively assessed by respondents resulting in a high index of emotionality (Table 3).

4.3. Content of associations

Two independent raters classified the associations according to a categorisation scheme consisting of 38 categories. Inter-rater reliability was satisfactory (Cohen's Kappa  $\kappa = 0.62$ ). Associations which could not be assigned by the raters and seven categories with frequencies of less than five were excluded from further analysis. Table 4 shows labels of the 31 categories and provides examples of assigned associations.

Frequencies of associative categories by the six different means of payment and the two sub-samples were analysed by chi-square statistics. As the sub-samples did not yield different results data was accumulated across both sub-samples. Frequencies of the associative categories differed significantly between the six means of payment ( $\chi^2(165) = 2772.4; p < 0.001$ ). Frequencies and significant differences in the frequency table (six stimulus words by 31 association categories) was analysed by correspondence analysis (ANACOR; Greenacre, 1993), an exploratory method for the graphical display of multivariate categorical data. Correspondence analysis yielded two factors explaining 47% and 24% of the variance, <sup>2</sup> respectively. The overall spatial variation (total inertia) was 0.54, indicating that the correlation between row points (associative categories) and column points (means of payment) is fairly

<sup>2</sup> Factors 3, 4 and 5 explained 15%, 10% and 5% respectively.

Table 4

Frequencies of the categories for means of payment and examples of typical associations

Category	Means of payment	Cash	Cheque	Credit-card	ATM-card	Chip-card	Total
1. Means of payment (term), e.g., coins, money, cash, Euro, banknotes	261 <sup>a</sup>	205 <sup>a</sup>	171 <sup>b</sup>	148 <sup>c</sup>	63 <sup>d</sup>	42 <sup>d</sup>	890
2. Dealing with means of payment, e.g., paying non-cash, charge, barter, saving	57 <sup>a</sup>	43	66 <sup>b</sup>	30 <sup>d</sup>	38	38	272
3. Synonymous (Austrian dialect), e.g., "Kröten", "Schotter", "Mücken"	19 <sup>a</sup>	21 <sup>a</sup>	2 <sup>d</sup>	16	2 <sup>d</sup>	11	71
4. Characteristics of means of payment, e.g., PIN-Code, signature, cheque number	45 <sup>d</sup>	56	135 <sup>a</sup>	72	113 <sup>a</sup>	32 <sup>d</sup>	453
5. Piece of equipment, e.g., ATM, purse, cheque book, safe	92 <sup>a</sup>	110 <sup>a</sup>	32 <sup>d</sup>	20 <sup>d</sup>	85 <sup>a</sup>	8 <sup>d</sup>	347
6. Advertising, e.g., much advertising, slogans	8	7	1 <sup>d</sup>	18 <sup>a</sup>	0 <sup>b</sup>	18 <sup>a</sup>	52
7. Banking world, e.g., bank, rate of exchange, counter, cashier	70 <sup>a</sup>	25	29	11 <sup>d</sup>	21	3 <sup>d</sup>	159
8. Earning money, e.g., work, pocket money, salary	19 <sup>a</sup>	16 <sup>a</sup>	6	1 <sup>d</sup>	0 <sup>d</sup>	1 <sup>c</sup>	43
9. Spending money, e.g., purchasing, holidays, travel, supermarket	43	56 <sup>a</sup>	39	65	28 <sup>d</sup>	31	262
10. Charge/fee, e.g., expensive, costs, interest, liable for costs	7 <sup>d</sup>	4 <sup>d</sup>	53 <sup>a</sup>	53 <sup>a</sup>	31	8 <sup>d</sup>	156
11. Financial advantages, e.g., extend payment terms, insurance protection, no fees always available, flexible, round-the-clock	4 <sup>d</sup>	9	5 <sup>d</sup>	73 <sup>a</sup>	6 <sup>d</sup>	1 <sup>d</sup>	98
12. Universal applicability, e.g., limited, not accepted universally	4 <sup>d</sup>	13 <sup>d</sup>	23 <sup>d</sup>	82 <sup>a</sup>	105 <sup>a</sup>	10 <sup>d</sup>	237
13. Safety/trust, e.g., insurance, payments are guaranteed, low risk	0 <sup>d</sup>	11 <sup>c</sup>	57	43	59	92 <sup>a</sup>	262
14. Safety/trust, e.g., insurance, payments are guaranteed, low risk	1 <sup>d</sup>	10 <sup>d</sup>	51 <sup>a</sup>	30	21	4 <sup>d</sup>	117
15. Uncertainty/mistrust, e.g., dangerous, unsafe, forging, mistrust	4 <sup>d</sup>	12 <sup>d</sup>	54 <sup>a</sup>	18	22	27 <sup>a</sup>	137
16. Loss, e.g., theft, fraud, misuse, money is lost	5 <sup>d</sup>	38 <sup>a</sup>	48 <sup>a</sup>	32	22	26	171
17. Control, e.g., predictable, responsible, comprehensible	0 <sup>d</sup>	9	6	7	11	8	41

(continued on next page)

Table 4 (continued)

Category	Means of payment	Cash	Cheque	Credit-card	ATM-card	Chip-card	Total
18. Loss of control, e.g., not transparent, no overview, no control	1 <sup>d</sup>	2 <sup>d</sup>	19	65 <sup>a</sup>	38	30 <sup>a</sup>	155
19. One's own use, e.g., always with me, daily usage	1	3	2	10	13 <sup>a</sup>	9	38
20. Non-use, e.g., do not use it, unknown, no experience	0 <sup>d</sup>	3 <sup>d</sup>	23 <sup>a</sup>	11	10	31 <sup>a</sup>	78
21. Necessity, e.g., useful, important, indispensable	9	6	3	5	15 <sup>a</sup>	1	39
22. No necessity, e.g., not reasonable, why?, not interesting	1 <sup>d</sup>	3 <sup>d</sup>	13	10 <sup>c</sup>	5 <sup>d</sup>	62 <sup>a</sup>	94
23. User friendliness, e.g., practical, easy, comfortable, small	5 <sup>d</sup>	18 <sup>d</sup>	25 <sup>d</sup>	105 <sup>a</sup>	116 <sup>a</sup>	44	313
24. No user friendliness, e.g., complicated, difficult, limit too low	7 <sup>d</sup>	25	69 <sup>a</sup>	6 <sup>d</sup>	47	52 <sup>a</sup>	206
25. Modern, e.g., innovative, new future, progressive	1 <sup>d</sup>	1 <sup>d</sup>	0 <sup>d</sup>	9	7	34 <sup>a</sup>	52
26. Traditional, e.g., old-fashioned, antiquated, old symbol, luxury, prestige	2 <sup>d</sup>	10 <sup>a</sup>	12 <sup>a</sup>	0 <sup>d</sup>	0 <sup>d</sup>	1	25
27. Wealth, e.g., fortune, status	19 <sup>a</sup>	40 <sup>a</sup>	2 <sup>d</sup>	14	0 <sup>a</sup>	2	77
28. Poverty, e.g., too little money, overextended account	11 <sup>b</sup>	25 <sup>a</sup>	0 <sup>d</sup>	3	5	0 <sup>d</sup>	44
29. Time saving, e.g., quick, fast shopping	1	6	1 <sup>d</sup>	10	8	12 <sup>a</sup>	38
30. General positive expressions, e.g., super, good, popular, good feeling	6	8	3 <sup>d</sup>	13	20 <sup>a</sup>	10	60
31. General negative expressions, e.g., inconvenient, ridiculous, impersonal	8	12	11	12	9	18 <sup>a</sup>	70
Total	711	807	961	992	920	666	5057

Note: The frequencies of the associations of the six means of payment differ significantly in all categories (Method: cross-tabulation, chi-square test).

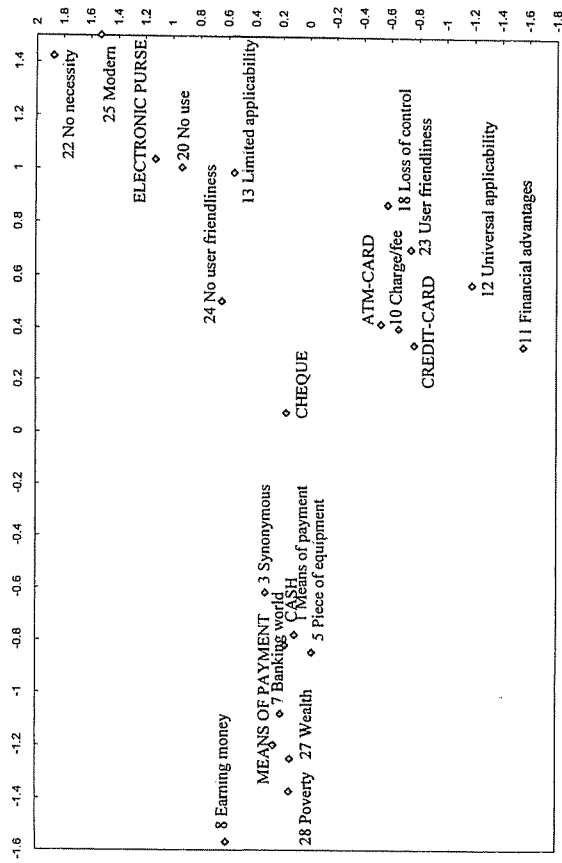
<sup>a</sup> Standard residual is higher than 2.58 ( $p < 0.01$ ).

<sup>b</sup> Standard residual is higher than 1.96 ( $p < 0.05$ ).

<sup>c</sup> Standard residual is higher than -1.96 ( $p < 0.05$ ).

<sup>d</sup> Standard residual is higher than -2.58 ( $p < 0.01$ ).

high. For interpretation of the results, the row and column points which contributed significantly to the two dimensions were taken into consideration and will be discussed in the following (relative contributions higher than 0.03 for row points,



Note: Row points (categories) and column points (means of payment) that contribute significantly to one or both dimensions are displayed. All means of payment are displayed.

Fig. 1. Result of correspondence analysis of frequencies of associative categories by means of payment.

and 0.17 for column points; Matiaske, Dobrov, & Bronner, 1994). The result of the correspondence analysis is presented in Fig. 1.

First, means of payment and cash were separated from ATM- and credit-card on the one hand and the electronic purse on the other hand. The first dimension was labelled "typicality of payment forms". The second dimension distinguished the credit- and ATM-card as established forms of electronic payment and the electronic purse as innovation. A reasonable label for the second dimension was "high versus low user-friendliness and applicability". Analysing the graphical result, three groups of payment options could be distinguished, which seem to be represented differently by the respondents: (1) the electronic purse, (2) the ATM- and credit-card and (3) cash and the general expression "means of payment".

The electronic purse stood out clearly from the other means of payment and therefore formed an opposing counterpart to cash. The electronic purse was characterised as being modern, innovative and the technique of the future, indicating that the electronic purse was perceived as a new technological "gadget". However, these positive associations contrasted with rather negatively connoted characteristics, such as the limited applicability regarding both amount and cashier points. Another aspect was the perceived low user-friendliness of the electronic purse, suggesting that it was complicated and difficult to handle. From the respondents' perspective, the electronic purse offered no additional benefit or "unique selling proposition"





or their sales training accordingly. Presented information about the product may be based on the images outlined in the social representations; ideas which are familiar to the customer.

By taking a closer look at the social representation of this new form of electronic money we aimed at identifying reasons why people increasingly prefer non-cash payment systems to cash, but remained reluctant to use the electronic purse. Three main causes crystallised due to the described analyses of the social representation of the electronic purse: (1) the electronic purse had only limited applicability and thus failed to offer the USP, (2) people had only fragmentary knowledge about how and when to use the electronic purse and (3) the electronic purse was considered to be a highly abstract means of payment, leading to low subjective control and reduced transparency of transactions.

Limited application opportunities of the electronic purse were mentioned as one reason of opposition. It seemed that consumers were not convinced of the necessity of the electronic purse as an additional payment option to ATM- and credit-cards. Currently, the electronic purse is only provided in a few stores as the single means of electronic payment. In most cases it is offered as a payment option in addition to the positively evaluated ATM-card. As Van Hove (2000) points out, utility of the electronic purse would increase with the number of acceptance points. Utility depends on the size of the network, the so-called network externalities. The more consumers accept the electronic purse and start to pay with it, the more merchants must accept it. Consequently, those consumers who remain reluctant will begin to show interest in it and start using the electronic purse.

As a second cause of limited usage of the electronic purse fragmentary knowledge about advantages of the new payment option was detected. At the moment of data sampling, the electronic purse was perceived as different to both cash and established non-cash payment options and its function as a new way to pay electronically had not yet been integrated in the social representation. As two sides of the same coin, the electronic purse presented an innovation which would be used in the future and thus the electronic purse was fairly unfamiliar and people did not have much experience with it at the time of data sampling.

As a consequence of missing knowledge misbeliefs about the complicated handling of the electronic purse were expressed by respondents. Basically, paying with the electronic purse is objectively easier than paying with the ATM- and credit-card because it does not require any authentication. In an information campaign information about handling, transaction details and applicability should be underlined. It would be necessary to spread information about the different situations where the electronic purse can be used, specific steps during the transaction should be made clear to the consumer and specific advantages of the electronic purse should be stressed, such as paying small amounts quickly and easily.

The high abstraction level of the electronic purse was found to be the third reason for opposition. In the historical development of payment facilities, the value of money has constantly decreased (from goods to natural goods to coins of gold, etc.) while at the same time transactions have become gradually more complex and abstract. In general, the higher the abstraction level of a means of payment

the more consumers and retailer have to trust in the correct procedure of the transaction. The transaction is delayed and beyond the control of the consumers and retailers. Consumers have to develop management and book-keeping abilities to trace transactions. For retailers, delay of payment requires exact planning of earnings and expenditures. For some economic agents the loss of control can be balanced by financial advantages such as the higher comfort and practicability of non-cash payment options. For others a high abstraction level and limited transparency of the transaction procedure leads to opposition towards electronic money. In our study, even established non-cash payment options such as credit- and ATM-cards were perceived as more abstract than handling with cash. In the case of the electronic purse, the abstraction level seems to be too high to make usage acceptable and therefore trust in the electronic purse was low.

To overcome mistrust and therefore to increase consumers' acceptance in the electronic purse, trustable structures have to be established by banking institutions. Trust can be built by reducing uncertainty about outcomes (Furnham & Argyle, 1998; Luhmann, 1989; Petermann, 1996; Raab, 1998). Transactions connected to the electronic purse as such as loading and debiting the amount from the bank account have to be made transparent to the consumer. Overview about transactions with the electronic purse should be facilitated. Mobile devices could be offered to obtain control over expenditures and consequently to build trust. And again, by increasing the consumers' knowledge base through information campaigns or testing points, the electronic purse might become more concrete and tangible.

To sum up, results of the present study could be applied to improve the image and the usage of the electronic purse in Austria. The social representation approach helped to identify that consumers use existing knowledge about established payment options in order to understand the electronic purse. Usage or refusal of the electronic purse depend on assessment of the new payment option in the context of established means of payment. As one major limitation of the presented study, results based on one single assessment and therefore offers only a snapshot in a dynamic process. Future research on social representations of payment systems could include a more process-oriented design. Continuously monitoring social representations might help in detecting changes in the understanding of well established payment concepts and the elaboration of new concepts.

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