

**Consumer Decisions under High Information Load: How can Legal Rules Improve
Search Behavior and Decision Quality?***

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Abstract

EU consumer protection legislation is designed to enable consumers to make “good” contract decisions in the market place. This legislation heavily relies on the model of rational *homo oeconomicus*: It assumes that consumers want to and can process large amounts of information in order to maximize their own outcomes, and requires businesses to provide a wealth of information to their customers. In an interdisciplinary study conducted by lawyers and psychologists we wanted to describe the precise flaws of this strategy, based on the EU consumer protection regulation presently in force, and to formulate assumptions about promising regulatory means to overcome them.

We examined search behavior and decision strategies in a sample of 363 participants who we asked to choose a cellular service contract. Participants were presented with contract offers, which reflected the demands of the law and which closely matched offers that can be found in the Austrian market. The multiple offers of 11 providers, with variation in rates and conditions, comprised each a large amount of detail and information. Hence, the choice situation was complex and information load was high. Two different user profiles were randomly assigned to the participants. Choice quality was measured on three levels (tariff quality, term quality, subjective quality). We assessed the information processing behavior (including personal and contextual variables) with a palette of measures, identified discrete choice strategies, and examined how these related to choice quality. We found that most successful search strategies were not exhaustive, but instead involved the focused selection and processing of a medium amount of information. Successful decision behavior of that kind seems to be only partly and most imperfectly supported by present regulation. Research is now underway to explore a more “ergonomic” (i.e., psychologically realistic and effective) regulation of consumer information that may lead to a higher number of “good” contract choices by cellular service customers.

I. INTRODUCTION

Every day, consumers make decisions in online or offline market places by which they bind themselves in the form of contracts. The internet is becoming an ever more important sales channel that is governed by an extensive regulatory framework. This is especially true for the consumer market of cellular (i.e., mobile communication) services.

Whereas behavioral economics research on consumer decisions examines various non-legal factors that motivate consumers to buy certain products or services, this article focuses on the present – and possible future – influence of EU consumer contract regulation on consumer decisions to choose certain products or services. Our approach suggests that legal rules aiming at the protection of consumer interests can be seen as behavioral instruments. Their effects on the behavior of consumers and businesses can be tested empirically. The results of empirical research can provide the basis for improved regulation that more effectively reaches its goal of enabling consumers to make “good” contract decisions. This approach is modeled on the approach adopted by behavioral law and economics (Jolls et al. 1998:1471; Jolls & Sunstein 2004:1; Korobkin 2011:1654; Korobkin & Ulen 2000:1051; Sunstein 2000; Sunstein 2011:1349; Thaler & Sunstein 2009), which originated in the US and was taken up by European researchers in the last decade (Alemanno et al. 2012; Alemanno & Sibony 2015; Alemanno & Spina 2014:429; Engel 2007; Engel & Gigerenzer 2006; Fleischer & Zimmer 2011). The EU endorses this approach by laying special emphasis on “smart regulation” based on empirical data “to help design smart and targeted regulations”¹. Moreover, the EU wants to empower citizens, in particular, in online market places.²

In a study we examined the search behavior and decision strategies applied by 363 participants before the simulated conclusion of a cellular service contract in the internet. The quality of the contract choice

¹ Regulation (EU) No 254/2014 of 26 February 2014 on a multiannual consumer programme for the years 2014-20, OJ 20 March 2014, L 84/42, recital 3.

² Commission Communication of 3 March 2010 “Europe 2020 – A strategy for smart, sustainable and inclusive growth” COM (2010) 2020 final; Regulation (EU) No 254/2014 of 26 February 2014 on a multiannual consumer programme for the years 2014-20, OJ 20 March 2014, L 84/42, recital 1.

was measured on three levels. We assessed the information processing behavior with a palette of measures, identified discrete choice strategies, and examined how these related to choice quality. Our main research question was: How is successful decision behavior supported or impeded by existing legal rules? Research is now underway to explore a more “ergonomic” (i.e., psychologically realistic and effective) regulation of consumer information that may lead to a higher number of “good” contract choices by cellular service customers.

A. High Information Load of Cellular Service Customers and Consumer Protection Law

In the internet, consumers who intend to conclude a cellular service contract are confronted with a wealth of information of different type, content, origin and goal. One part of this information is supplied by businesses on a voluntary basis, the other part is prescribed by law. As consumers feel addressed by this information and will attempt to read and process it, we speak of a “high information load” in the sense of a particular cognitive task. The words “high information load” do not imply a negative quality of the information itself nor a negative judgement of the quantity of information provided. The relationship to “information overload” research is explained in III.A. *infra*.

The large number of telecommunication service providers in European and other markets goes along with an ever increasing amount of tariffs and contract options. The cellular service market is an economically significant market in Austria as well as in the other EU Member States, which has been steadily increasing over the last years (see I.B. *infra*). In markets of some services, as opposed to markets of goods, consumers are confronted with a very complex informational environment for their decisions. This is mainly due to the fact that the subject matter of the contract is not any tangible product or service, but merely a set of contractual clauses determining the rights and duties of the parties. Classical examples are the markets for telecommunication services and for financial services. On the market of cellular services, the different tariffs are characterized – among others – by different rates, different modes of calculation, different amounts of services offered and different rights and duties of the parties when it comes to, for instance, termination, price changes or use in excess of fixed data or time volumes. This

means that one part of the large amount of product-attribute information that is presented to potential customers online is created by businesses themselves on a voluntary basis by offering numerous different complicated contract options – i.e., “products” – to their customers. Bar-Gill (2012) who observed a similar or even higher complexity of information for the US cellular service market concluded that service providers attempted to hide the true cost of a contract by complexity. He described – a phenomenon also observed for other markets like consumer credit and flights by airplane – that providers reduce the salient cost features of their contracts while they increase non-salient, hidden cost factors and disadvantages which will not be detected by consumers.

EU and national consumer contract regulation aims at helping consumers to make “good” decisions: These are decisions which allow consumers to realize their individual wishes and preferences (private autonomy), which do not violate their interests by inflicting pecuniary losses or other harm to them, and which eventually make them happy and satisfied. The regulatory instruments can be divided in two groups depending on the main addressee of the respective rule. Instruments of group A want to influence the behavior of consumers before and when they choose a product and bind themselves by the conclusion of a contract. Instruments of group B want to influence the behavior of the business or address state institutions or other organizations that act to protect the consumers’ interests.

Instruments of group A are mainly information rules and the consumers’ rights of withdrawal (cooling-off period after contract conclusion). Consumers shall be enabled to exercise their private autonomy more in their own interest, thus overcoming dangers that are created by themselves (brain functioning: e.g., “biases”, limits of rationality and of information processing capacity), by the market situation (e.g., lack of information) or by the other market actors (businesses) (Lurger 2014:20). This regulation heavily relies on the model of rational *homo oeconomicus*: It assumes that consumers *want to* and *can* process large amounts of information in order to maximize their own outcomes, and requires businesses to provide a wealth of information to their customers. Despite the growth of behavioral research over the last decades which shows the limited rationality (Gigerenzer & Selten 2001; Simon 1959:253) and limited capacity to grasp and process information of consumers (Jacoby et al. 1974:33; Jacoby et al. 1974:63;

Keller & Staelin 1987; Lee & Lee 2004:159),³ the information paradigm still assumes a prominent role in EU consumer protection regulation. Thus, national and, in particular, EU consumer contract regulation contribute a great deal to the high information load experienced by consumers when concluding a contract in EU markets.

Instruments of group B: A second part of EU and national consumer protection legislation consists of rules that limit or restrict the content of a contract concluded with a consumer: for instance, by inserting mandatory consumer rights (consumer warranties in sales contracts)⁴ or by eliminating unfair contract terms by outright prohibitions directed towards businesses.⁵ This second part is not directly addressed by our study, which focuses on information load and information processing strategies of consumers, but must be kept in mind as a background factor of information duties and consumer behavior: Information regulation and content regulation of consumer contracts are related to each other on a normative and on an empirical level, as will be explained in the following paragraphs.

Normative relation: Statutory lists of information (*group A*) impose duties on enterprises, but are, nevertheless, addressing the behavior of consumers as their final destination. They want to help consumers to protect their own interests by themselves when they make contract decisions. At the same time, they respect the private autonomy of the parties. Content regulation (*group B*), on the other hand, imposes severe limits on this autonomy by interfering with the content of a contract. Therefore, content regulation (*group B*) is supposed to be only justified – in the light of the fundamental rights of self-determination and private autonomy – where more moderate means, like disclosure of information (*group A*), do not reach their goal of effectively preventing harm to consumer interests. Empirical research that shows at what point moderate means, like the prescription of information in its many different

³ For further references to literature about information overload and bounded rationality, see Bettman et al. 1998; Paredes 2003, and chapter III.A. *infra*.

⁴ Directive 1999/44/EC of 25 May 1999 on certain aspects of the sale of consumer goods and associated guarantees, OJ 7 July 1999, L 171/12.

⁵ Council Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, OJ 21 April 1993, L 95/29.

forms, are no longer sufficiently effective is, therefore, pivotal for the normative decision to put content regulation, as the much sharper weapon, in place (Lurger 2014:20).

Empirical relation: Consumers who are aware of the existence of a system of state control of unfair contract terms (B) might invest less energy in protecting themselves against harmful contract clauses (A) than consumers of other countries (e.g., the USA) who are aware of the fact that no such state protection will be provided (and they are left with A). To what extent these (presumed) systemically induced differences in consumer behavior really exist, is an interesting question for future empirical studies and is not covered by the present article/study.

B. Austrian Market of Cellular Services

According to a report by the Austrian Regulatory Authority for Telecommunication Services (RTR GmbH), the so called “cellular service penetration” was at 151.2% in the first quarter of 2015 (RTR GmbH 2015a:6).⁶ Thus, every person (including legal entities) is holding one and a half cellular service contracts on average and 93% of all Austrian households possess one or more cellular phones (RTR GmbH 2015b:11). The overall turnover in the market for the reported period is numbered with EUR 560.8 Million. Those sums, which are explicitly assignable to voice calls, represent 18.7%, followed by data services with 13.3% and SMS with only 4.2%. The statistics show that especially the use of data services has been increasing exponentially year by year (about 62 billion megabyte in the first quarter of 2015).

Originally, in most EU Member States, telecommunication services in general were a matter of the state monopoly. The liberalisation of the Austrian cellular service market, which took place in 1998, was required and governed by EU law. Telecommunication services, as well as energy supply and public transport, are “services of general economic interest” in the sense of TFEU Art. 14 and 106 para. 2 (Treaty on the Functioning of the European Union). The resulting free market competition encouraged techno-

⁶ This figure describes the number of active SIM cards currently in use among the overall end-customer population (including both consumers and businesses).

logical progress (Lust 2015).⁷ EU secondary legislation was adopted to re-regulate the market in order to secure the network function and to implement the public interest in the universality of supply and in consumer protection.

Today, almost two decades after its liberalization, the Austrian cellular service market is dominated by three big enterprises (A1 Telekom Austria AG, T-Mobile Austria GmbH and Hutchinson Drei Austria GmbH), which also provide the net infrastructure for several other cellular service providers. In sum, there are currently 29 providers on the Austrian market (RTR GmbH 2015c), among these, many are operating as so called Mobile Virtual Network Operators (MNVOs) using the infrastructure of the “Big Three”.

A typical cellular service contract (the “product”) comprises the following features: Most providers offer contract models which include a certain number of minutes of voice calls, a certain number of short messages (SMS) and a certain data volume for a fixed basic rate. So-called pay-per-use tariffs are also available, but they are comparatively scarce on the market. There are also hybrid ways of charging, especially when it comes to units in excess of a pre-fixed amount. The services vary in terms of data speed, pulsing and other technical parameters. Generally, most providers offer both models on a “contract” basis and “pre-paid options”: Both have to be regarded as “contracts” in the legal sense. For convenience, complex bunched products comprising end devices (cellular phones) or services like fixed line or television services were disregarded in this study.

C. Study and Research Questions

In the main part of our study, 363 participants were asked to conclude a cellular service contract on a personal computer (in university test rooms) in an environment that closely matched offers that can be found in the Austrian online cellular service market, including a large part of its present providers, tariffs, information and website design. Two different user profiles were assigned randomly to the participants.

⁷ See recital 1 of the Directive 2002/22/EC of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) as amended by Directive 2009/136/EC, OJ 24 April 2002, L 108/51.

Each user profile comprised a certain number of voice call minutes, a certain number of short messages and a certain amount of internet data transfer. We measured the “quality” of the final contract choice of the participants on three levels (see IV.C.2. *infra*): “tariff quality” and (contract) “term quality” were assessed objectively, while the participants themselves made an *ex post* assessment of the “subjective quality” of their decisions (without any knowledge of their objective rating).

These three types of choice quality match the goals of present EU and national consumer protection regulation: According to this legislation, the choice should represent a good price/quality ratio, it should match the consumer’s needs and preferences, it should be “fair” and advantageous for the consumer, and should make her happy and satisfied.⁸ Where in the following chapters, in particular in chapter II on the regulatory framework of cellular service contracts, the “quality” of a contract or choice is mentioned (usually by using the attributes “good” or “bad”) “quality” in the sense of this definition is meant.

At the first stage, the purpose of the analysis was to identify *factors* that favor “good” contract choices. What characterizes successful and unsuccessful choosers? Factors we assumed to be potentially relevant were (among others): psychological variables (like motivation to process systematically, involvement, and the self-regulatory focus), the type and amount of information considered, the amount of time spent, the application of different information search and processing strategies, the reliance on personal experience or on other heuristics.

At the second stage, we had to narrow down the number of factors influencing the success or failure of choices to those which can eventually be created, supported, suppressed or otherwise *modified by legal regulation*: Which of the factors supporting or impeding successful contract choices can presumably be influenced by which legal rules in which ways? Where the results of the study suggest that certain modified or freshly created legal rules will re-enforce successful choices, these rules will form the subject of additional studies which are now underway.

⁸ Regulation (EU) No 254/2014 of 26 February 2014 on a multiannual consumer programme for the years 2014-20, OJ 20 March 2014, L 84/42, recitals 2,3, and Art 2 speak of the protection of the consumers’ health, safety, legal and economic interests, of a high level of consumer protection and an increase of consumer welfare.

As fields relevant for potential regulatory improvement we identified the following four (see also VI. *infra*):

A. Access to and Presentation of Relevant Information

It is important to distinguish between a category of “relevant” information and a category of “less relevant” information. “Relevant” information is information which is closely linked to the goals of consumer protection regulation as reflected by our definition of decision quality (see IV.C.2. *infra*) and which proved to be effective on decision quality in our study (see V.C.1. *infra*). The category of relevant information comprises information on the consumers’ individual use-pattern, and certain types of product-attribute information, like information on rates, services, contract termination, time of commitment, and unilateral prices increases. Relevant information has to be provided to the consumer in a privileged way: in a clear, salient and easily accessible manner. The effectiveness of different modes of presentation of relevant (and eventually also less relevant) information has to be tested by future research.

According to EU and national law, consumers have to be offered a reasonable opportunity to read the whole text of the GTC (general terms and conditions) before they conclude the respective contract. Otherwise GTC will not become part of the contract and will not be enforceable against the consumer (see II.B. *infra*). In accordance with present EU regulation, GTC are very long and complicated, and are placed and displayed on websites in a way which results in non-readership by consumers (Bakos et al. 2009:9; Becher & Unger-Aviram 2010:199; Plaut & Bartlett 2011:293). This is a result which was also confirmed by our study for cellular service contracts (see V.B. *infra*). If there is any information that proves decisive for good choices, this information should, therefore, be displayed outside the GTC in a way that motivates readership and information processing by consumers.

B. Guidance of Successful Information Processing and Search Strategies

This is an issue that goes straight to the heart of the research and debate on systematic and heuristic information processing (see III.B. *infra*) and needs further exploration in future studies. However, some preliminary conclusions can already be drawn here. In our study, we did not find any precise evidence of

successful heuristic processing (III.B. *infra*) involving only small amounts of information and simple processing strategies, but found indications for the assumption that successful searchers might have used a yet unknown shortcut to find their straight way to really relevant information, in addition to systematic processing (V.C. *infra*). We identified discrete choice strategies and examined how these related to choice quality. We found that most successful search strategies were not exhaustive, but instead involved the focused selection and processing of a medium amount of information. Thus, obviously not the quantity of information but the selection and processing strategy counts. Consumers should presumably be enabled to find a way to read fewer but more relevant information.

The results of our study seem to suggest that information regulation should not be aiming at the one-dimensional delivery of certain content, but rather at the guidance of a multi-faceted selection process. Certain informative content forms only the basis of this process. Consumers should not just receive a certain amount of information (the question of more or less), but should also receive *guidance* in how to deal with it in a successful manner. Thus, “information regulation” in the sense of rules which prescribe the delivery of certain information by businesses to consumers should be transformed into “information processing and search strategy regulation” or “*guidance regulation*” which enables consumers to apply and supports consumers in applying successful search strategies. Such strategies could imply the use of heuristic instruments (shortcuts).

For the purpose of developing a more appropriate and effective information processing and search strategy regulation, for an online purchase environment, two questions have to be answered: (1) Which information should be provided to consumers and which not (content and quantity)? (2) How shall the information processing be organized and guided? The latter question entails, for example, the following sub-questions: How should different parts of information be presented to addressees (wording, design, size, position, timing, format)? How can the decision goals be clarified for consumers? How can their search behavior be structured or better guided towards the appropriate goals? Which information should be eliminated by the legislator (question 1) and which should be selected (used or ignored) by the cus-

tomers (question 2)? And how can this latter selection process by consumers be supported by the legal framework?

C. Influence on Psychological Variables

The results of our study indicate that certain psychological variables are related to successful search behavior. Empirical research shows that even though psychological variables cannot be influenced as personal “traits”, their “state” can be modified to a certain extent (Higgins 1997:1280; Webster & Kruglanski 1994:1049; see Steyer et al. 1999:389 for an overview). Hence, an improved information processing and search strategy regulation should also target these variables in terms of “state”.

D. Regulation beyond the Contractual Relationship between Provider and Customer

The problems of consumers with the extraordinary complexity and high load of (product-attribute) information cannot only be tackled by regulation of the relationship between the contract parties, but also by more market oriented regulatory tools, like, for instance, reliable *whole-market tariff calculators* based on up-to-date data on the offers of all providers in the market. In addition, instruments reaching beyond individual contract relationships are capable of addressing consumers’ reluctance to terminate unfavorable contracts and switch providers, which is detrimental to their own economic interests.

The presentation of the methods and results of our study in chapters IV and V will be preceded by a short overview of the regulatory framework for consumer protection in the examined market in chapter II and by a summary of definitions and of existing research on key issues of social psychology (on which we based our study) in chapter III. A discussion of the results and concluding suggestions for future research will complete the paper in chapters VI and VII.

II. REGULATORY FRAMEWORK

A. Overview

For the purposes of the present study, we refer to the legislation in force in Austria (a Member State of the EU) during the performance of the study, i.e., between March and August 2015. The legal framework for the telecommunications sector, in general, and for the contractual relationships between providers and their customers, in particular, is largely based on EU legislation. The EU legislation applicable to cellular service contracts consists of two groups of acts: sector-specific telecommunication regulation and general consumer contract regulation.

Sector specific regulation: The European Commission's website on telecommunication rules states that "EU law has helped the prices of telecoms' services fall by around 30% in the past decade", praising EU rules to be "simple, flexible, and technology-neutral [...]" (European Commission 2015a). The sector specific telecommunication legislation consists of five directives and two regulations, which were updated in 2009 by the so called "Telecoms Package". Its aims were the strengthening of the European electronic communication market, to ensure more effective competition and better rights for consumers (European Commission 2009:7). The relevant instruments are the Framework Directive⁹, the Access Directive¹⁰, the Authorisation Directive¹¹, the Universal Service Directive¹², the Directive on Privacy and

⁹ Directive 2002/21/EC of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive) as amended by Directive 2009/140/EC and Regulation 544/2009, OJ 24 April 2002, L 108/33.

¹⁰ Directive 2002/19/EC of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive) as amended by Directive 2009/140/EC, OJ 24 April 2002, L 108/7.

¹¹ Directive 2002/20/EC of 7 March 2002 on the authorization of electronic communications networks and services (Authorization Directive) as amended by Directive 2009/140/EC, OJ 24 April 2002, L 108/21.

¹² Directive 2002/22/EC of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) as amended by Directive 2009/136/EC, OJ 24 April 2002, L 108/51.

Electronic Communications¹³, the Regulation on the Body of European Regulators for Electronic Communications (BEREC)¹⁴ and the Regulation on Roaming on Public Mobile Communications Networks¹⁵.

The central Austrian act of implementation is the Telekommunikationsgesetz [TKG 2003] [Telecommunication Act]¹⁶ which contains *inter alia* competition law, special easements related to infrastructure, rules on universal services, data protection and – which is of importance for this analysis – specific user rights and consumer protection rules. The whole statute is characterized by the liberalisation concept which results in various restrictions and obligations for the market dominating companies and in privileges of new suppliers (asymmetric regulation). According to TKG Section 1, its aim is to ensure the population's and the economy's supply with reliable, low-cost, high-quality and innovative communication services through the promotion of competition in the sector.

In its recital 2 the Universal Service Directive stresses that the Community (according to ex Article 153 of the EC-Treaty = TFEU Art. 169) has to contribute to the protection of consumers. The Commission underlines the necessity of protecting users from “unfair practices of the companies providing these services” noting that free competition in the sector was not able to guarantee the consumers' rights and the satisfaction of their needs (European Commission 2015b).

General regulation: General EU consumer protection legislation applying to all types of contracts is also applicable to telecommunication services. Directives of this type are in particular: the Consumer Rights Directive¹⁷, the Unfair Commercial Practices Directive¹⁸, the Unfair Contract Terms Directive¹⁹ and, in an online-contracting context, the E-Commerce Directive²⁰.

¹³ Directive 2002/58/EC of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector (Directive on privacy and electronic communications) as amended by Directive 2006/24/EC and Directive 2009/136/EC, OJ 31 July 2002, L 201/37.

¹⁴ Regulation (EC) No 1211/2009 of 25 November 2009 establishing the Body of European Regulators for Electronic Communications (BEREC) and the Office, OJ 18 December 2009, L 337/1.

¹⁵ Regulation (EU) No 531/2012 of 13 June 2012 on roaming on public mobile communications networks within the Union, OJ 30. June 2012, L 172/10.

¹⁶ Bundesgesetz, mit dem ein Telekommunikationsgesetz erlassen wird (Telekommunikationsgesetz 2003 - TKG 2003) [Telecommunication Act] Bundesgesetzblatt I [BGBl I] No. 70/2003, as amended.

¹⁷ Directive 2011/83/EU of 25 October 2011 on consumer rights, OJ 22 November 2011, L 304/64.

Both general and sector-specific rules contain consumer protection instruments of group A (see I.A. supra), i.e., information duties and rights of withdrawal, which are designed to influence the consumer's behavior in the pre-contractual phase, and instruments of group B (see I.A. supra), i.e., mandatory contractual rights of consumers that are considered part of the contract and prohibitions of unfair contract clauses.

In addition to EU consumer protection and telecommunication regulation, the general rules of Austrian contract law will apply. Under Austrian law, contracts can generally be concluded by concurring declarations of offer and acceptance without any form restrictions (Koziol et al. 2014:133) Homepages are qualified as invitations to customers to place an order. Placing the order constitutes a declaration of will by the consumer and is considered a "contract offer" (Koziol et al. 2014:411; Pinterich & Pröbsting 2009:234; Tangl 2001:896). The declaration of acceptance by the business can be effected expressly in writing (for instance by e-mail) or impliedly by certain behavior (for instance by dispatching the goods or by providing the service, (see Allgemeines Bürgerliches Gesetzbuch [ABGB] [Austrian Civil Code], Section 864 para. 1). GTC (general terms and conditions) become only part of the contract where the whole text is easily accessible for readership and reproduction by the consumer before contract conclusion and she expressly or impliedly expresses her consent (Koziol et al. 2014:146).

B. Control of Unfair Contract Terms

Under EU and Austrian law, the protection of consumers against unfair clauses in GTC (general terms and conditions) consists of two layers of control:

¹⁸ Directive 2005/29/EC of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market ('Unfair Commercial Practices Directive'), OJ 11 June 2005, L 149/22.

¹⁹ Directive 93/13/EEC of 5 April 1993 on unfair terms in consumer contracts, OJ 21 April 1993, L 95/29

²⁰ Directive 2000/31/EC of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on Electronic Commerce', 'E-Commerce Directive') OJ 17 July 2000, L 178/1.

Layer 1 – control by consumers: In the pre-contractual phase (phase 1), consumers must be informed of the GTC and must be offered a reasonable opportunity to read the whole text before consenting to it (see II.A. supra). Thus, consumers are, in this phase, invited to protect themselves.

Layer 2 – control by state and other institutions: The second control layer involves other persons and institutions than the consumer herself (phase 2). First of all, the business is addressed by the general prohibition of using unfair or unclear clauses in their GTC by the Unfair Contract Terms Directive. This prohibition, which entails the invalidity of the unfair or unclear clause, is enforced by the state independently of the consumer's motion, preventively *before* and also *after* the conclusion of individual contracts. This means that consumers who fail to protect themselves in phase 1, do not have to put up with the unfair clauses in their contracts, but can rely on the invalidity of such clauses (phase 2). Some unfair or unclear clauses will not even make it into a consumer's contract because they are controlled by collective action beforehand.

The Austrian regulatory authority RTR GmbH (see I.B. supra) has the duty to review GTC *ex-ante*, when they are reported to the authority by the provider (TKG Section 25 para. 6). Clauses which are determined to violate a legal rule (in particular because they are unfair or unclear) have to be withdrawn. Art. 7 para. 2 of the Unfair Contract Terms Directive and Konsumentenschutzgesetz [KSchG] [Austrian Consumer Protection Act] Section 28 provide for preventive collective action by consumer organizations before civil courts. In individual consumer contract litigation or enforcement proceedings, civil courts have to determine the invalidity of unfair clauses in GTC of their own motion (*ex officio*). Under Austrian law, the prohibition of unfair contract clauses also extends to clauses that are not pre-formulated in the form of GTC (see KSchG Section 6, para. 1 and ABGB Section 879).

However, the content control system of phase 2 only applies where “a term, contrary to the requirement of good faith, causes a significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer” (Unfair Contract Terms Directive Art. 3 para. 1). Therefore, a lot of pre-formulated clauses which are disadvantageous to consumers do not qualify as “unfair” in that

sense and become valid parts of the contract. An example is a contract clause that conveys the cellular service provider the right to raise the rate owed by the consumer unilaterally. Such unilateral price modification clauses are considered “fair” and valid, if some conditions are met. In this and similar cases of “fair” but nevertheless disadvantageous clauses, consumers are supposed to protect themselves (phase 1). Only protection instruments of group A (see I.A. supra), i.e., information and withdrawal rights, will be used by the regulator.

This means that self-protection and information rights play an important role when it comes to protecting consumers against unfair or disadvantageous clauses in their contracts. But the importance of this self-protection in control layer 1 (group A instruments) is qualified by the state control system (control layer 2) in cases of pre-formulated terms that are “unfair” or “unclear” in the sense of the law (in particular Art 3 of the Unfair Contract Terms Directive). Where such terms are not “unfair” or “unclear” in this sense, but nevertheless disadvantageous for consumers the means of protection available to consumers are restricted to layer 1 (regulatory instruments of group A).

C. Rules on Disclosure of Information

Our research focuses on the choice behavior and information processing strategies of consumers. Thus, legal rules that prescribe the information which has to be provided to consumers by businesses are at the center of our interest. As explained supra (I.A.), these rules are designed to enable consumers in the pre-contractual phase to protect themselves against “bad” decisions (instruments of group A).

The informational environment consumers are confronted with on a provider’s web site is shaped by mandatory legal provisions and by their practical implementation by the provider within her creative leeway. To be able to observe the practical effects of the relevant legal disclosure rules on consumers, we had to make sure that all web pages in our test environment were in compliance with the respective legal requirements. The overall empirically observed compliance of the cellular service providers concerning legal parameters turned out to be considerably high in the chosen sample of web pages.

Different categories of statutory information duties of the providers have to be distinguished: 1) the duty to provide general information, 2) the duty to provide information about “essential contract features”, 3) information duties and other rules concerning GTC (and other “fine print” documents), 4) information concerning the technical steps of the ordering process, and 5) information on the personal use-pattern and on comparisons of providers.

In many cases, it is nearly impossible to determine which information is provided due to a respective legal duty and which information is displayed on a voluntary basis due to competitive incentives. Similarly, there is sometimes no reliable way to trace which exact legal provision motivated the presentation of a certain information. Moreover, the disclosure of one piece of information may satisfy the requirements of several legal provisions at once.

1. General Information

Section 5 para. 1 of the E-Commerce-Gesetz [ECG] [E-Commerce Act]²¹, which was adopted to implement the respective provisions in the E-Commerce Directive, prescribes the provision of general information about the service provider: name, address of his establishment, contact information (mail address), information about registration and supervisory authorities, etc. ECG Section 5 para. 2 contains a special provision on price transparency. There are several other provisions about pricing that have to be observed: such as provisions in the Preisauszeichnungsgesetz [PrAG] [Pricing Act]²² and in the Fern- und Auswärtsgeschäfte-Gesetz [FAGG] [Distance and Off-Premises Contract Act]²³ implementing the Consumer Rights Directive; see II.C.2. *infra*).

²¹ Bundesgesetz, mit dem bestimmte rechtliche Aspekte des elektronischen Geschäfts- und Rechtsverkehrs geregelt werden (E-Commerce-Gesetz - ECG) [E-Commerce Act] Bundesgesetzblatt I [BGBl I] No. 152/2001, as amended

²² Bundesgesetz über die Auszeichnung von Preisen (Preisauszeichnungsgesetz - PrAG) [Pricing Act] Bundesgesetzblatt I No. 146/1992, as amended.

²³ Bundesgesetz über Fernabsatz- und außerhalb von Geschäftsräumen geschlossene Verträge (Fern- und Auswärtsgeschäfte-Gesetz – FAGG) [Distance and Off-Premises Contract Act] Bundesgesetzblatt I No. 33/2014, as amended.

According to ECG Section 5, the general information has to be easily and directly accessible. This is the case where the user can find the information "without any particular effort and without special knowledge", i.e., if she is able to find it on a website by clicking on a hyperlink containing a hint on the general information (e.g., "about us").²⁴ There are still other acts that prescribe similar information such as Section 14 of the Unternehmensgesetzbuch [UGB] [Austrian Commercial Code]²⁵ or Mediengesetz [Media Act] Section 25²⁶.

According to TKG Section 17 (see supra II.A.) providers of public communication services have to publish comparable, adequate and actual information about the quality of their services and about the measures that are taken to ensure that disabled persons have equivalent access to these services. This information provision is general and not linked to a particular contract offer: The information related to service quality is targeted at all potential readers (existing, potential future costumers, and others). Other general information duties in the TKG concern emergency call services (TKG Section 20 para. 4), public registers (TKG Section 69 para. 6) and data protection (TKG Section 96).

2. Information on "Essential Contract Features"

There is a quite uniform picture among the different web pages of various providers when it comes to the presentation of the main features of each cellular service option. We generally call these features "*basic tariff details*" (see also V.C.1. infra). They usually comprise a more or less well-arranged description of features like included voice calls minutes, short messages and internet data transfer, data speed, rates and additional charges, as well as commitment periods. The presentation of this type of information is prescribed by several legal provisions.

²⁴ See Nationalrat [NR] [National Council] Gesetzgebungsperiode [GP] 21 Beilage [Blg] No. 817, ECG Section 5.

²⁵ Bundesgesetz über besondere zivilrechtliche Vorschriften für Unternehmen (Unternehmensgesetzbuch - UGB) [Commercial Code] deutsches Reichsgesetzblatt I [dRGBI I] No. S 219/1897, as amended.

²⁶ Bundesgesetz vom 12. Juni 1981 über die Presse und andere publizistische Medien (Mediengesetz – MedienG) [Media Act] Bundesgesetzblatt [BGBl I] No. 314/1981, as amended.

Consumer Rights Directive: The information duties set out in Chapter III of the Consumer Rights Directive fully apply to online contracts on cellular services. The Austrian implementing act is the Fern- und Auswärtsgeschäfte-Gesetz [FAGG] [Distance and Off-Premises Contract Act]. According to FAGG Section 4 para. 1, the trader shall provide information about at least 19 points (expanded by sub-items) before conclusion of the contract. This information becomes part of the contract (FAGG Section 4 para. 4.) The information duties concern, among others: the main characteristics of the services offered; the name and address of the business, contact information; the total price of the services (per billing period) and the manner in which the price is to be calculated; arrangements for payment and performance; where a right of withdrawal exists, the conditions, time limit and procedures for exercising that right, or, otherwise, the statement that no right of withdrawal exists; the duration of the contract; the conditions for terminating the contract; the minimum duration of the consumer's obligations under the contract; the possibility of having recourse to an out-of-court complaint and redress mechanism, to which the trader is subject, and the methods for having access to it.

In all cases, the business has to provide the information in “clear and intelligible language” (FAGG Section 4 para. 1, Consumer Rights Directive Art. 8). The precise meaning of this requirement is left for courts to determine. FAGG Section 8 (Consumer Rights Directive Art 8) contains additional requirements for contracts concluded electronically: The business has to make the consumer aware of her obligation to pay in a clear and prominent manner directly before the consumer places her order. Otherwise the consumer shall not be bound by the contract. The website must indicate clearly and legibly at the latest at the beginning of the ordering process whether any delivery restrictions apply and which means of payment are accepted.

On the web pages of the providers, “basic tariff details” are usually displayed on the tariff description page of individual tariff/contract options. Some more specific information on, for instance, notice periods, the possibility of having recourse to an out-of-court complaint and redress mechanism or on withdrawal rights is most often displayed in other separate documents, i.e., in the GTC or similar (see point 3 *infra*).

Regardless of any prior presentation of the above mentioned information components on the tariff description pages or elsewhere, the provider is obliged to make the consumer aware in a clear and prominent manner, directly before the consumer places her order, of the information provided for in FAGG Section 4 para. 1 numerals 1, 4, 5, 14 and 15, which comprises particularly important contract features (FAGG Section 8 para. 1). According to recital 39 of the underlying directive, “it is important to ensure for distance contracts concluded through websites that the consumer is able to fully read and understand the main elements of the contract before placing her order”. The Austrian legislator stressed that an “extensive presentation of the product or service” at this point would even be “counter-productive”²⁷: Thus, the aim of this provision is to point out to the consumer only those features of the product or service that are (presumably) significant for her choice. In practice, this means that immediately before the consumer pushes the order button, she has to be provided with an overview of the main elements of her cellular service contract choice, which generally include the basic rate, included units, pay-per-use rates, potential other charges and commitment periods. This usually takes place in the “shopping cart” at the “check-out” stage of the ordering process. At this point, the consumer will also have to give her explicit consent to the inclusion of the provider’s GTC (see also point 4 *infra*).

Universal Service Directive: Art 20 of the Directive and TKG Section 25 determine the minimum content of the service contract. TKG Section 25 para. 1 obliges providers to draft and use “general terms and conditions” (GTC) and “rate provisions” (RateP) and prescribes – in two extensive lists of items – the content of each in TKG Section 25 para. 4 and 5. TKG Section 25 para. 4 requires – among others – a description of the services: Some providers offer a document that they display separately under the title of “service descriptions” (ServD). Thus, every contract option incorporates up to three separate “fine print” documents: GTC, RateP, and ServD. In some cases, where providers split these fine print texts into several subdivisions, the amount of documents may even be bigger.

²⁷ Nationalrat [NR] [National Parliament] Gesetzgebungsperiode [GP] 25 Beilage [Blg] No. 89.

TKG Section 25b, which implements Art 21 of the directive, prescribes “special information duties” for telecommunication service providers. They have to provide pre-contractual information about the so-called “essential features” of the contract which have to be extracted from the two lists of items in) TKG Section 25 para. 4 and 5. TKG Section 25b does not deliver any clarification as to which of these items are to be considered “essential features” and which not. According to TKG Section 25b, the information has to be provided in a clear form and has to be easily accessible. Art 21 of the directive prescribes that operators have to publish transparent, comparable, adequate and up-to-date information on applicable prices and tariffs, on any charges due upon termination of the contract and on standard terms and conditions in respect of access to, and use of services provided to their customers. Features like the tariff’s main characteristics (“basic tariff details”) and the contract duration are undoubtedly “essential” and are regularly displayed on the providers’ tariff description pages, whereas more specific details are generally included in the “fine print” documents, i.e., in the GTC, RateP, and ServD.

3. Rules Concerning General Terms and Conditions (GTC), Rate Provisions (RateP), and Service Descriptions (ServD)

Recital 30 of the Universal Service Directive states that “contracts are an important tool for users and consumers to ensure a minimum level of transparency of information and legal security.”²⁸ Thus, disclosure of information – not only on essential features but – on all “fine print” details of rates, charges, services, and other terms and conditions of a contract is considered important to enable consumers to make “good” contract decisions. Equally, the Court of Justice of the EU (CJEU) is convinced that consumers make their contract decisions on the basis of detailed knowledge of the terms and conditions of their contracts which makes them fully aware of the consequences of their contract conclusion.²⁹ According to TKG Section 1 para. 2 numeral 3 letter c, it is even in the interest of the “population” to receive information in form of GTC and RateP (rate provisions).

²⁸ Recital 30, Directive 2002/22/EC, OJ 24 April 2002, L 108/51..

²⁹ Case C-92/11, RWE Vertrieb AG v. Verbraucherzentrale Nordrhein-Westfalen e.V., 2013, ECLI:EU:C:2013:180, numeral 44.

Numerous features of cellular service contracts are placed exclusively in long “fine print” documents, where they are considerably less accessible than the “basic tariff details” (as “essential features”) which are placed as relatively salient information on the tariff pages of all providers. This situation is – if not triggered – at least supported by law. TKG Section 25 para. 1 prescribes the use of “general terms and conditions” (GTC) and “Rate Provisions” (RateP) and their minimum content (i.e., long lists of items and provisions in TKG Section 25 para. 4 and 5, see III.C.2. supra). For the required description of services some providers use a separate “fine print” document called “Service Descriptions” (ServD). ServDs contain largely incomprehensible, mostly technical information about the telecommunication services offered.

These texts are in most cases offered as downloadable documents (pdf-files). ECG Section 11 (E-Commerce Act implementing E-Commerce-Directive Art 10 para. 3) requires service providers to make GTC available for customers in a way that allows them to store and reproduce them.

RateP contain very detailed lists of non-recurring, recurring, and variable rates and charges and terms that govern price adjustments and modifications. They are, in many cases, accessible via a hyperlink placed in proximity to the “basic tariff details” (see II.C.2. supra).

In most cases, GTC are less easily accessible than RateP because their hyperlink is placed at the footer of the web page. GTC can contain almost everything from contract conditions to information about mere facts (e.g., about the existence of a uniform emergency call number). GTC are generally bulky texts that comprise several pages. Albeit many GTC parts are of negligible importance for consumers’ choices, there are some parts which can be presumed to have considerable impact on the quality of contract choices: These are, for instance, notice periods for contract termination or clauses³⁰ on unilateral price modification by the provider. Consumers should be aware of such points when making their contract decisions.

³⁰ The significance (and high relevance) of short notice periods for contract termination by consumers for the protection of the consumers’ economic interests was recently affirmed by the Austrian legislator: In an amendment of the TKG (BGBl I Nr. 134/2015; in force since 26 February 2016) Section 25d para. 3 provides that consumers’ notice periods for termination may not exceed one month.

GTC, RateP and ServD are generally made available once again on the last step of the ordering process. At this stage, the explicit acceptance of the GTC by the consumer is necessary to finalize the order. At this moment, many consumers become aware of these documents for the first time. However, it can be presumed that, at that point of time, most of them will already have made up their minds to choose a certain contract. Therefore, readership of these documents at this stage of the ordering process, if it occurs at all, might not be very effective in influencing the choices and thus the quality of choices made by consumers.

In general, it has to be noted that legal rules do not require a certain format, size or salience of the information contained in GTC, RateP or ServD. Therefore, providers who only display long texts in fine print and/or who make these documents accessible only at the final stage of the ordering process are fully complying with current legal requirements.

4. Information on the Steps of the Ordering Process

According to ECG Section 9 para. 1 (E-Commerce Act implementing E-Commerce Directive Art. 10 para. 1), service providers have to inform consumers prior to their contract declaration (contract offer or acceptance) about the following points in a clear, comprehensible and unambiguous way: 1. the different technical steps to follow to conclude the contract, 2. whether or not the concluded contract will be filed by the service provider and whether it will be accessible, 3. the technical means for identifying and correcting input errors prior to the placing of the order, and 4. the languages offered for the conclusion of the contract. According to the Austrian legislator, the information listed in ECG Section 9 para. 1 need not be expressed in words.³¹ The provider may also comply with the requirements by informing the consumer through symbols, layout and chronology of the different steps, as long as this is clear, comprehensible, and unambiguous. It is the aim of these provisions to make consumers fully aware of the precise act that will trigger the binding force of the contract (see Fina 2012).

³¹ See Nationalrat [NR] [National Council] Gesetzgebungsperiode [GP] 21 Beilage [Blg] No. 817, ECG Section 9.

5. Information on Personal Use-patterns and on Comparisons of Providers

The knowledge of the average personal use-pattern of cellular services per month or per year is essential for a successful search of the contract option that best fits the consumer's needs and is at the same time the cheapest in the market – in terms of a favourable price/service ratio. Consumers should, for instance, avoid contracting for costly large volumes of data transfer or voice minutes if their actual use is very low. According to TKG Section 100, the customers have the right to receive bills which break down individual fees per service. These fee-per-service bills contain information about the consumer's consumption during the billing period: e.g., the amount of data transferred, the number of SMS sent and the minutes of voice calls made by the customer. However, in the cases of some contracts, this information is not easily accessible because it has to be extracted from lists of different types of services performed.

TKG Section 25c provides that the regulatory authority (RTR GmbH) *may* offer an interactive comparison of tariffs, a so-called tariff calculator, where such service is not provided in the market free of charge or for a reasonable price. The comparison *may* also include a comparison of material clauses of the contracts offered in the market. At present (February 2016), the RTR GmbH offers no tariff calculator of its own, but displays the links to four “market” tariff calculators on its homepage.³² It has to be noted that such tariff calculators can be only used by consumers with a precise knowledge of their actual consumption of the services provided: i.e., their voice call minutes, number of short messages, and volume of internet data transfer. Thus, the precise knowledge of one's own user profile (i.e., consumption) is the prerequisite for the use of the databases of all tariff calculators.

D. Evaluation

EU consumer protection regulation and national legal rules seem to be dominated by three – partly inconsistent – approaches to the role of consumer information for “good” contract choices:

³² arbeiterkammer.at; tarif.at; durchblicker.at; smartchecker.at.

1) *Approach 1* relies on the idea of full transparency and disclosure of all contract details, even where the fine print texts are as voluminous and complicated as in cellular service contracts. Thus a whole flood of information is prescribed by law to be administered to consumers (see in particular II.C.3. supra). Even a brilliant *homo oeconomicus* (see I.A. supra) would have troubles digesting such amounts.

2) *Approach 2*: However, legislators also implement the idea that some pieces of information are more important than others and, therefore, should be displayed in a particularly clear, unambiguous and salient manner. This second approach seems to imply that information that is reduced to a few important points and presented in a particular manner (big, salient, clear, simple, etc.) will be more effective in its attempt to help consumers to make “good” contract choices (see in particular II.C.2. supra). It is obvious from the above description that this approach is fraught with inconsistency, insecurity and vagueness in its different legal sources. Some provisions mention too many items of allegedly “important” information, others are unclear in their scope. All of them lack a clear description of the exact mode of presentation that is required to make important information “effective”. They, therefore, only marginally address the question of how to guide and organize successful information processing strategies of consumers (see I.C. supra and VI.A. and B. infra).

3) *Approach 3*: Both EU and national legislators do not completely trust the consumers’ capacity to protect themselves against “bad” or “unfair” contracts after full disclosure of all sorts of information. Therefore, they put a system of state control of unfair contract terms in pre-formulated (in Austria also in other) contracts in place. The use of unfair contract terms in consumer contracts is prohibited, the respective clauses are invalid (see II.B. supra).

III. PSYCHOLOGICAL BACKGROUND

In this chapter we define psychological notions and summarize empirical research that formed the basis of our study.

A. Information Overload and Choice Overload

The psychological phenomenon of high information load is often called “information overload” and has been studied for several decades in disciplines like law, information science, psychology and economics/consumer research (Howells 2005:349; Hwang & Lin 1999:213; Jacoby et al. 1974:33; Jacoby et al. 1974:63; Malhotra et al. 1982:27). Though definitions vary across and within disciplines, the main assertions are the same: Information overload is present when the amount of information received exceeds the person’s information-processing capacity. The point of “excess” is reached even faster where the information is complex, new, uncertain or ambiguous (Lurie 2004:473; Schneider 1987:143, as cited in Eppler & Mengis 2008:271). Starting at zero information, the quality of a decision first increases with the increase of relevant information (like tariff details for cellular service options). This observation is in line with research that assumes that information processing is the basis for a good (contract) decision (Bekker 2006:1).

When a certain threshold of information quantity is reached, information overload occurs, and decision quality decreases. Studies showed that persons under information overload show less task performance in terms of speed and accuracy (Jacoby et al. 1974:33) and make worse decisions (Hwang & Lin 1999:213; Malhotra 1982:419). The search strategies applied in a decision task become less systematic (Swain & Haka 2000:171) as people try to filter larger amounts of information (Lee & Lee 2004:159). People who experience information overload feel less confident, less satisfied and more confused (Lee & Lee 2004:159). Another consequence of perceived information overload may be the change of the mode of information processing from more effortful thorough information processing to the use of simple rules of thumb, as will be explained below in III.B.

Eppler and Mengis (2008:271) suggest numerous courses of action to prevent information overload, including, among others: the improvement of personal skills, the use of simpler information-processing strategies, the use of different search strategies, the supply of simple, customized and standardized information and the display of information quality standards.

The “choice overload” hypothesis suggests that an overabundance of options to choose from causes a decrease in the motivation to choose or a decrease of satisfaction with the finally chosen option (Iyengar & Lepper 2000:995; Schwartz 2004:70). Thus, not only “information overload”, but, more specifically, an overload of options might hamper choice quality. However, an extensive meta-analysis conducted by Scheibehenne et al. (2010:409) revealed that the phenomenon of choice overload is still quite controversial: Other studies found no such effects or described even opposite effects. The authors make suggestions for future research that might explain when choice overload reliably shows the first mentioned effects.

In our study, we varied neither the information nor the choice (over)load of the participants in their decision environment, as we did, for the moment, not intend to make any contribution to the above mentioned results and debates. However, the situation examined in our study is a situation in which information and choice overload effects might occur. Therefore, the possible effects of information or choice overload on choice quality and choice behavior as established by literature must be kept in mind when analyzing the results of our study and when designing ensuing studies that might vary the amount of information and choices offered.

B. Systematic and Heuristic Information Processing

Several theories postulate that different types of information processing can be distinguished. A common distinction is the one between more superficial and more effortful deeper modes of processing. The model of Chaiken (1980:752) distinguishes between heuristic and systematic information processing. Systematic information processing is an analytical and comprehensive review of information in which individuals try to use all available information for their decision. Naturally, systematic processing requires a considerable amount of effort and time, and will only occur when both, cognitive capacity and motivation are at sufficient levels (Chen et al. 1999:44; Zuckerman & Chaiken 1998:621). By contrast, heuristic information processing is thought to need only a small amount of cognitive capacity and time and is characterized by the use of judgmental heuristics. Heuristics are simple decision rules (rules of

thumb), like stereotypes, schemes and expectations that are learned by individual experiences and stored in our memory (Bohner et al. 1995:33; Chen et al. 1996:262).

Whether individuals engage in heuristic or systematic information processing, generally depends on their capacity and motivation to process information (Chaiken et al. 1989:212; Zuckerman & Chaiken 1998:621), on other personal characteristics, like the need for cognitive closure (Kruglanski & Freund 1983:448) or the involvement into a decision (Andrews et al. 1990:27; Scholten et al. 2007:539), on different emotional processes (Wang & Lee 2006:28) and on different contextual variables, such as the available time for decision making (de Dreu 2003:280; Scholten et al. 2007:539).

Although the use of heuristics can lead to distortions in judgments (Tversky & Kahneman 1974:1124), a more recent approach assumes that, depending on the situation at hand (= "ecology"), individuals often reach good decisions by using simple rules of thumb (heuristics) instead of engaging in long deliberation processes involving all available information (Bettman et al. 1998:187; Gigerenzer 2008:20; Gigerenzer & Brighton 2009:107; Todd & Gigerenzer 2000:727). This approach assumes that the use of heuristics is "ecologically rational" in certain situations and produces better results than thorough comprehensive information processing: This applies, for instance, to situations of time pressure, lack of information or limited processing capacity. This "less-is-more" approach is becoming increasingly important, especially due to its practical relevance, for example in medical communication (Gigerenzer 1996:273) or the law (Hoffrage et al. 2000:2261).

Within the context of (consumer) choice, Sasaki et al. (2011:391) showed that consumers who were confronted with a set of information about a product that exceeded their processing capacity, exhibited compliant behavior, i.e., they chose the product that enjoyed the highest popularity. Kasper et al. (2010:140) found evidence that participants switched to simpler coping strategies when they felt overstrained by the available information. Such strategies included, for instance, the limitation to a specific provider, store, price or brand, as well as only looking at the brand or the price. Rather than processing all available information in order to make a rational choice, individuals tended to use very simple, heuris-

tic strategies. Another study found evidence that individuals who dealt very intensively with a certain choice alternative, were less satisfied with their decision and regretted the waiver of the unelected alternative stronger, although they gathered more information and processed it more intensely, compared to individuals who based their decision on simple heuristics (Carmon et al. 2003:15).

In the following parts C, D, and E we present three psychological variables, which influence the type of information processing chosen by individuals according to previous research, and for which we have obtained significant results in our study: the motivation to process systematically, the involvement in the decision, and the self-regulatory focus. With a view to possible legal intervention, it should be noted that research showed that these three psychological variables are not completely stable personal characteristics, but can be modified by external factors to a certain extent (Higgins 1997:1280; Webster & Kruglanski 1994:1049; see Steyer et al. 1999:389 for an overview).

C. Motivation to Process Systematically

The motivation to process systematically describes “the desire to develop and maintain an accurate and deep understanding of the world” (Scholten et al. 2007:539) and is a precondition for effortful systematic information processing (de Dreu & Beersma 2010:1110). According to dual-process models (e.g., Chaiken 1980:752), the motivation to process systematically depends on the decision makers’ perceived sufficiency of available information. This “sufficiency principle” assumes that the motivation to process systematically increases with the perception that the current state of knowledge is insufficient, thus, requiring more information to make a good decision. As a result, individuals are thought to be motivated to engage in systematic information processing. On the other hand, the motivation to process systematically decreases with the perception that current knowledge is sufficient to make a good choice. Thus, individuals are thought to engage in more heuristic, less effortful information processing.

In a study by Scholten et al. (2007:539), participants in several groups received identical (shared) and unique (unshared with others) pieces of information. In ensuing group discussions, individuals with a higher motivation to process systematically revealed more unshared pieces of information than individu-

als with a lower motivation to process systematically, thus contributing to the better decision results of their respective groups. Across two studies, de Dreu et al. (2000:975) found that individuals with a higher motivation to process systematically had more accurate perceptions (i.e., less fixed-pie perceptions) during a negotiation task, compared to individuals with a lower motivation to process systematically. Again, the motivation did not only affect perceptions but also the quality of the negotiation outcome.

D. Involvement in the Decision

Another psychological variable which is thought to be associated with the depth of information processing, is the personal involvement in the decision. The involvement describes the perceived relevance of a decision alternative and is based on individual interests, values and needs (Zaichowsky 1985:341). Individuals with high involvement usually take more time and effort to make a thoughtful decision and have a higher cognitive activity because they want to reduce the risk of a false decision. Individuals with low involvement typically use simpler information processing strategies and rather count on peripheral cues (Hansen 2005:420; Petty & Cacioppo 1984:69). For example, Petty and Cacioppo (1984:69) found that participants with low involvement levels were more likely to agree to the opinion of another person if many arguments were presented, independently of the quality of the presented arguments. This means that these participants not only agreed to strong but also to weak arguments, whereas participants with high involvement levels could be only convinced of another person's opinion if she was confronted with strong arguments. In addition, it was suggested that the motivation to process systematically may also be influenced by the level of involvement. Individuals who decide on highly involving issues typically have a higher motivation to process systematically and are much more likely to engage in effortful, systematic information processing when compared to individuals deciding on less involving issues (de Dreu et al. 2000:975).

By contrast, selective exposure research suggests that – under certain circumstances – a high or particularly high level of personal involvement could also lead to poorer decision outcomes (see Hart et al. 2009:555 for an overview). It has been argued that individuals who decide on highly involving topics or

who are highly involved in the subject for other reasons (e.g., feeling highly responsible for the decision outcome), are not able to evaluate information based on objective criteria. Rather, they tend to rely on information that is consistent with a preferred option. As a result, decision quality may suffer from this evaluation bias. This means that under certain circumstances or in cases of particularly deep personal involvement the high level of involvement might also hamper decision quality, whereas in many other cases it proved to increase decision quality.

E. Self-regulatory Focus

The extent to which individuals are prevention and/or promotion oriented has been shown to be associated with information processing as well (Florack et al. 2013:127; Wang & Lee 2006:28; Yoon et al. 2012:93). The concept of self-regulatory focus differentiates between promotion and prevention focus (Higgins 1997:1280). Individuals with a promotion focus try to achieve positive outcomes, whereas individuals with a prevention focus try to avoid negative outcomes. Therefore, individuals with a prevention focus try to minimize losses, use more conservative and less risky strategies for their goal attainment and focus more on the disadvantages of a purchase decision. Individuals with a promotion focus try to maximize gains, use more risky strategies for their goal attainment and focus more on the advantages of a purchase decision (Chernev 2004:557; Chernev 2004:141; Florack et al. 2013:127; Shah & Higgins 2001:693).

However, it is important to note that promotion and prevention focus do not represent a bipolar construct. Rather, both self-regulatory tendencies can be activated in an individual at the same time to different degrees. Therefore, if a person is described to have a promotion focus, this means the relative dominance against a prevention focus and vice versa (Higgins et al. 2001:3; Higgins 2002:177).

Shah and Higgins (2001:693) found that prevention-focused individuals processed prevention-consistent information faster than promotion-consistent information, whereas opposite effects were observed for promotion-focused individuals. Similarly, Wang and Lee (2006:28) found that consumers paid more attention to information that was consistent with their current self-regulatory focus. Yoon et al.

(2012:93) varied the self-regulatory focus of their participants and confronted them with the task of evaluating a (fictitious) newly established product based on a varying number of different positive and negative customer reviews (high vs. low information load). Consistent with previous research, the authors found that individuals selectively preferred information that was consistent with their experimentally induced self-regulatory focus, especially when information load was high. Under high information load promotion-focused (vs. prevention-focused) individuals paid greater attention to positive information, and consequently, had higher brand evaluations. Under low information load the reliance on positive information was greater for prevention-focused (vs. promotion-focused) individuals. Consequently, prevention-focused individuals had more positive brand evaluations under low information load.

Taken together, we found sufficient evidence to support our hypothesis that EU consumer protection regulation currently in force for cellular service contracts (see chapter II. *supra*) might fall short of its goal of effectively supporting consumers in making “good” contract choices. Although there is a large body of empirical research on information processing and online contracting behavior of consumers (see chapter III. *supra*), empirical evidence concerning the complex interplay of information processing behavior, psychological variables, legal rules and choice quality as a legal/normative measure is still lacking. Thus, the present study was designed to provide insight into the following questions: (a) How do different psychological variables relate to information search behavior and to decision strategies in a complex contract choice situation? (b) Is the quality of the contract choice (= decision quality) affected by the type of information processing applied, by different psychological variables, or by both? In order to explore factors that may contribute to the development of a more “ergonomic” (i.e., psychologically realistic and effective) regulation of consumer information, participants were asked to conclude a simulated cellular service contract in the internet. This contract situation was characterized by high information load. The following parts (IV.A.-C) describe sample and design of our study, as well as the different measures obtained. In chapter V. we will present the results.

IV. DESIGN OF STUDY AND METHOD

A. Sample

371 participants attended the study in total. Eight participants had to be excluded due to missing data or an error in the web platform, leaving a total of 363 participants in the final sample (214 female and 149 male; ages ranging from 18 to 71 years; $M = 27.51$, $SD = 9.87$). Since contract decisions affect the general population, it seemed important to have a heterogeneous sample. Therefore, we recruited nearly half of the participants (45%) via social networks, flyers and print advertisements, by broadcasting media and word-of-mouth recommendations. The other half got aware of the study due to a university newsletter (55%). Most participants had a university-entrance diploma (56.5%), whereas 16.5% of the participants had a bachelor degree, 12.4% had a diploma or master degree, 0.8% had a doctor's degree, 9.4% went to a college, 3% had a mandatory school-leaving qualification. Regarding their employment, 57% of the participants were students with a variety of different majors, 23.7% were marginally or occasionally employed, 11.3% full-time employed, 11% part-time employed, 10.5% unemployed, 2.8% were in a training course, 3.6% pupils and 3.3% self-employed. Most of the participants came from Austria (79.3%), while 9.9% came from Germany and 10.8% from other countries (e.g., Slovenia, Croatia, Romania).

The sample was checked for its familiarity with online contracts in general, and with cellular service contracts in particular, using a scale ranging from 1 (never) to 6 (very often); 27% of the participants had entered into a cellular service contract online before: Participants reported, by average, a medium high frequency of contracting online in general ($M = 3.58$, $SD = 1.66$), and a lower frequency of reading the general terms and conditions of contracts (GTC; $M = 2.85$, $SD = 1.61$). Participants also reported a medium high knowledge of the contents of concluded contracts ($M = 3.86$, $SD = 1.28$) and of the product landscape in the cellular service market before the study ($M = 3.28$, $SD = 1.40$), and a medium high willingness to conclude a cellular service contract online in the future ($M = 3.94$, $SD = 1.78$). After complet-

ing the whole experiment, participants were rewarded with 20 EUR and took part in a raffle for a tablet computer.

B. Decision Task and Procedure

The present study was divided into three parts. During the first part of the study the participants had to answer several personality questionnaires which were made accessible online after registering for the study (see IV.C. *infra* for details)³³. Moreover, the demographic data of the participants were identified. The second and main part of the study took place in the course of group-sessions in a computer-lab at the university. In this part, participants were confronted with a decision task: They were asked to choose the cellular service contract they found the most appropriate for themselves on the basis of a certain user profile for a period of two years. They were expressly asked to make the decision in the same way they would make it in reality. Participants were randomly assigned to one out of two user profiles, both containing information about a certain average monthly consumption of voice call minutes, short messages (SMS) and internet data transfer (*profile 1*: 1696 voice call minutes, 374 short messages and 980 MB internet data transfer; *profile 2*: 1909 voice call minutes, 92 short messages and 2890 MB internet data transfer). We used fictitious user profiles to avoid coincidence with the actual consumption behavior of a participant and to make sure that results were not limited to a specific pattern of consumption. As expected, we found no significant differences between these two conditions in any of the dependent measures (all p 's > .05). Therefore, the user profile was not considered any further during the analysis³⁴.

³³ The present paper reflects only one part of an interdisciplinary research project. Thus, only parts of the data collected in the study were in the scope of the present paper. For details on the other parts please refer to Vogrinic, Athenstaedt et al. (in preparation).

³⁴ Additionally, a second experimental condition was established. By means of the instruction participants were randomly assigned to one of two involvement conditions. According to previous research (e.g., Andrews et al. 1990:27; de Dreu et al. 2000:975; Scholten et al. 2007:539) participants in the high involvement condition ($N = 181$) were told that they will have to justify their decision in a group discussion after they had finished the experiment. They were also told that only some participants had been chosen for this task and that there will be a special emphasis on *how* they arrived at their decisions. It was assumed that participants in the discussion group felt more responsible for their decisions, and therefore, perceived higher levels of involvement, compared to subjects who did not receive such additional instructions (low involvement condition, $N = 182$). To check whether the manipulation worked out as intended, the average involvement scores were compared across the two involvement conditions by employing an independent samples t -test (see V.C.3.b. for details on the measure of involvement). The analysis showed that individuals in the high ($M = 4.41$, $SD = 0.65$) and low involvement condi-

After giving their informed consent, participants were directed to the web-platform, which provided them with a list of links to the available options, located on the left side of the screen. In order to avoid sequence effects, the links were presented in randomized order. Participants were confronted with a simulated environment that closely matched the offers that could be found in the Austrian online cellular service market available at the time the study was prepared (March 2015). We used the real web pages of the providers and presented them in a way similar to their actual appearance on the web, including a large part of their present tariffs, information and website design. For practical reasons, the web pages had to be simplified (e.g., irrelevant links, such as links to business tariffs, were removed). A timeline indicating the time remaining for the decision task was presented in the upper right corner of the screen. In total, the participants had the opportunity to choose among 48 different cellular service contracts on 24 different tariff pages. After confirming a certain choice, participants were directed to a shopping basket and had to run through a typical web-based contract conclusion procedure, including the possibility to displaying and accepting the general terms and conditions (GTC).

On the basis of the results of a pretest ($N = 10$, $M = 19.0$, $SD = 5.6$, range = 12 to 34 minutes), a maximum time limit of 40 minutes for the task was fixed. This limit should enable most participants to complete the task without any time pressure. After finishing the task (or after expiration of the time), participants were automatically directed to another questionnaire containing different post-decisional measures (see IV.C. *infra* for a thorough description of the measures). Participants had to answer different questions regarding, for instance, personal variables (e.g., motivation to process systematically), information perception (e.g., perceived importance of information) and individual cellular service consumption behavior (e.g., monthly usage).³⁵ At the end of the experiment, participants were fully debriefed, thanked for their participation and rewarded.

tion ($M = 4.50$, $SD = 70$) did not differ in their level of involvement, $t(361) = 1.32$, $p = .187$. Thus, the involvement condition was not considered any further during the analysis.

³⁵ See FN 33.

C. Measures

1. Measures of Information Processing

One of the most challenging tasks in the performance of the present study was to define measures that adequately described the participants' information processing behavior. To date, most research on information processing was carried out in experimental settings using "outcome-oriented" approaches in which one particular outcome inevitably implied the use of one particular processing behavior (Kahlor et al. 2003:355). Recently, the study of information processing, including the present study, has increasingly moved its focus from the lab more into the field (Kahlor et al. 2003:355). Accordingly, rather than artificially manipulating the decision alternatives in a way that strategies' predictions deviated from each other, we had to develop measures that also worked for our less controlled setting. Although there is considerable evidence demonstrating the usability of self-report measures of information processing (Kahlor et al. 2003:355), we adopted a process-oriented approach and combined different behavioral time and frequency parameters obtained from a tracking software with self-report measures.

a. Parameters of Information Processing Behavior

In order to understand the participants' information processing behavior, a tracking software was integrated into the web-platform. This enabled us to register every mouse click (event) the participants made during the task with the corresponding time. Based on the list of events from the tracking software, different parameters were calculated to reflect each participant's information processing behavior. Similar to previous research (de Dreu 2003:280; Kocher & Sutter 2006:375; Paul & Nazareth 2010:31; Rieskamp & Hoffrage 2008:258), the overall amount of clicks (*sum of clicks*) and the time the participants took to make their contract choice (*sum of time*) were calculated. Both measures were thought to reflect the amount of information processing. Furthermore, to illustrate whether the information search was (correctly) focused on or directed to the three "best" contracts for the respective user profile in terms of tariff quality (see IV.C.2. *infra* for the details on decision quality), the percentage of clicks and the percentage of time spent on the web pages of the three best contracts, were computed (*clicks on 3 best, time*

on 3 best). Additionally, the *comparison index* served as a measure of the rigor of search, as it is the sum of alternations between the three pages with the optimal cellular service contracts.

b. Complexity of Information Processing Strategy

Moreover, the complexity of the participants' information processing strategy was determined. For this purpose, participants were asked to briefly describe their individual approach in gathering information during the task. Following previous work (Korobkin 2003:1203; Rieskamp & Hoffrage 2008:258) and our own considerations, a coding scheme was developed, which reflected different possible approaches to processing information and deciding on a certain alternative. Potential information processing strategies vary depending on their level of complexity, ranging from very simple, so called "non-compensatory" strategies, to highly complex, so called "compensatory strategies" which require a complete analysis of all available information. Moreover, strategies also vary with regard to the criteria (e.g., exclusion criteria) by which the selection is made. Based on the participants' descriptions, two independent raters coded the whole sample of responses. Disagreements were resolved by discussion. 6.9% of the responses could not be clearly assigned to a single category and were, therefore, dropped from the analysis. A complete list of strategies, including their descriptions and frequencies within the experiment is depicted in Table 1.

[Insert Table 1 around here]

Afterwards, decision strategies were pooled according to their complexity. Following previous research (Rieskamp & Hoffrage 2008:258), the complexity of each information strategy was determined based on (a) the extent to which the information search was described to be selective, i.e., whether the information search consisted of an overall evaluation of all available information or whether only a small subset of information had been considered, and (b) whether a certain strategy was compensatory or not, i.e., whether a certain attribute value could be outweighed by any combination of less valid attributes or not (see Table 2 for an overview of the complexity of the information processing strategies).

[Insert Table 2 around here]

2. Measures of Decision Quality

As explained in parts I.A. and I.C. *supra*, it is the goal of EU and national consumer legislation to support consumers in making “good” contract choices and to protect them from any harm to their interests. Translated into the details of contract law, this means that the choice should represent a good price/quality ratio, it should match the consumer’s needs and preferences, it should be “fair” and advantageous for the consumer, and should make her happy and satisfied. Empirical research showed that suboptimal choices in terms of economic interests, may, in certain cases, nevertheless elicit higher satisfaction in consumers than the economically best decision. For instance, it was demonstrated that individuals prefer a flat rate tariff, although they could have saved money with a pay-per-use tariff (Lambrecht & Skiera 2006:212). The pleasant feeling of control and foreseeability associated with a stable monthly advance payment may outweigh the loss of the amount of money that could have been saved (Lambrecht & Skiera 2006:212; Prelec & Lowenstein 1998:4).

This means that – subjective – personal preferences, wishes and satisfaction are in some cases not convergent with the consumers’ economic interests which can be determined objectively. It is, however, not the goal of the legislator to judge consumer choices solely by their economic merit, but rather to support both, the consumers’ economic interests *and* their right of self-determination by realization of personal preferences which might not be in line with objective criteria. Where both, objective and subjective criteria for the quality of choices are in conflict, the latter will usually prevail and be supported by the law, if some additional conditions are met: In particular, the consumer must be aware of the objective disadvantages of her choice and not mistaken about objective choice quality, and the objective disadvantages must not be excessive.

We, therefore, assumed that the goals of current consumer protection legislation would best be reflected in its totality by measuring choice quality on three levels: (a) tariff quality, (b) term quality, and (c) subjective quality.

a. Tariff Quality

Tariff quality of the contract choice was determined on the basis of the average monthly costs of the chosen contract for a period of two years. This included, if applicable, the monthly rates, activation fees, service fees, and discounts. In order to avoid distortions due to very bad, i.e., very expensive choices, the average monthly costs were transformed into an ordinal variable containing four levels: (1) optimal choices, including the 3 best tariffs that were of identical costs; (2) tariffs that were up to a maximum of 5 EUR more expensive than the optimal choice; (3) tariffs that were between 5 and 10 EUR more expensive than the optimal choice; and (4) tariffs that were more than 10 EUR more expensive than the optimal choice. Higher scores on this variable reflect poorer tariff quality.

b. Term Quality

In order to account for possible differences of specific terms (clauses) of the available contracts, term quality was determined based on two typical and significant aspects of cellular service contracts: (a) the “flexibility” of the consumer to switch between different contracts and different providers over time (i.e., the right to terminate the contract), and (b) the risk of subsequent unilateral price increases. Both terms are standard terms and are usually laid down in the general terms and conditions (GTC), in the “rate provisions” (RateP) or in both (see II.C.3. *supra*). For the assessment of term quality, a rating system was developed which assigned a certain number of negative (risk) points to each term depending on the extent of the (eventual) negative consequences it implied for consumers. For instance, contracts which required a long term commitment and included high annual index adjustments obtained more negative points and were, therefore, supposed to be of poorer term quality compared to contracts which did not imply any commitment or index adjustments.

All ratings were carried out by a law expert who checked the terms of every single contract option and assigned between 0 and 6 negative points to each of them (a maximum of 2 plus 4 per category). Lower scores reflect a higher term quality. Although term quality was determined independently from tariff quality, there was a significant positive correlation, $r = .474$, $p = .000$. It is important to note that

this association between tariff and term quality did not necessarily indicate participants' ability to make an overall good choice, but rather reflected the market-specific fact that the most cost-efficient contracts were also the most advantageous ones on term quality. For this reason, although always analyzed separately, tariff and term quality caused each other to a certain degree.

c. Subjective Quality

The personal satisfaction with the decision was assessed as a measure of subjective decision quality using six items (e.g., "I am comfortable with my decision."). Answers were given on a 6-point-rating-scale (1 = applies not at all, 6 = applies completely) and averaged into a single measure of satisfaction with the decision ($\alpha = .76$). Participants determined their satisfaction independently of their objective decision quality (tariff and term quality), right after having completed the decision task, they were not informed of the objective quality of their decision. Thus, their scores on objective decision quality could not influence their subjective evaluation.

3. Measures of Psychological Variables

Beside the objective measures of information processing behavior (see IV.C.1.) and the objective and subjective measures of decision quality (see IV.C.2.) described above, we were also interested in psychological variables that might have been associated with the participants' information processing behavior and their decision quality (see the explanations in chapter III.C.-E. *supra*). For this purpose, participants were asked to answer different questionnaires during the course of the experiment. All questionnaires were provided online using LimeSurvey (version 2.06).

a. Motivation to Process Systematically

Following previous studies (de Dreu et al. 1999:348; de Dreu 2003:280), the motivation to process systematically was measured with three items: (a) "I tried to take into consideration all possible alternatives", (b) "I tried to process information as thorough as possible.", and (c) "I thought deeply before

making a decision.” Answers were given after participants had completed the decision task, each on a 6-point-scale (1 = applies not at all, 6 = applies completely) and averaged into one index ($\alpha = .73$).

b. Involvement in the Decision

After completing the decision task, participants had to indicate the involvement in their decision by answering nine questions (e.g., “How much do you identify with the decision” or “How much would you be concerned if your decision turned out to be wrong?”), each on a 6-point-scale (1 = applies not at all, 6 = applies completely). All items were collapsed into a single scale of involvement ($\alpha = .74$).

c. Self-regulatory Focus

Before attending the main part of the study, participants had to answer different personality questionnaires.³⁶ The extent to which participants were prevention and/or promotion oriented was assessed using a German version of the regulatory focus questionnaire (Higgins et al. 2001:3). Responses were given on a 6-point scale (1 = applies not at all/ never or seldom and 6 = applies completely/very often) and averaged into a promotion-scale (e.g., “How often have you accomplished things that got you ‘psyched’ to work even harder?”, $\alpha = .72$) and a prevention scale (e.g., “How often did you obey rules and regulations that were established by your parents?”, $\alpha = .82$).

V. RESULTS

A. General Results

57% of the participants were able to make an optimal decision ($N = 207$), i.e., they chose one of the three best cellular service contracts that were available for their respective user profile in terms of tariff quality and term quality (see IV.C.2 supra). 17.4% of the participants chose an option that was up to 5 EUR more expensive, 10.5% chose a tariff that was between 5 and 10 EUR more expensive, and 15.2% chose a contract that was more than 10 EUR more expensive than one of the three objectively best con-

³⁶ See FN 33.

tracts. The subjective decision quality (satisfaction) among participants, measured under the condition that participants were not informed about the objective quality of their choices, was rather high ($M = 5.06$; $SD = 0.74$; scale from 1 = “completely unsatisfied” to 6 = “very satisfied”) and did not show any significant relation to objective quality scores (tariff and term quality).

To give a first impression of participants’ information search behavior, different behavioral parameters were calculated from the tracking software and are presented in Table 3.

[Insert Table 3 around here]

In total, participants clicked between four and 191 times ($M = 61.49$, $SD = 26.37$) and worked on the task between 84 and 2847 seconds ($M = 1369.36$, $SD = 611.24$). Participants clicked between 1 to 120 times on tariff pages and stayed on them in total between 16 and 2548 seconds ($M = 1177.16$, $SD = 589.14$). On average, participants opened four additional documents (ranging between 0 and 20 documents), and stayed on them, on average, for 115.33 seconds. See Table 3 for more details on further information processing measures.

B. Readership of General Terms and Condition (GTC) and of Rate Provisions (RateP)

Numerous studies showed that consumers typically refuse to read their contracts in detail (e.g., (Bakos et al. 2009:9; Becher & Unger-Aviram 2010:199; Eigen 2012:291; Marotta-Wurgler 2012:94; Plaut & Bartlett 2011:293). For instance, Bakos et al. (2009:9) investigated the online behavior of 45.000 US-households and found that only a small number of consumers actually accessed the license agreements when downloading software. Those, who accessed, spent only a small amount of time “reading” them. Similar results were found by Hillman (2005:1), who focused on the online standard-form contracting practices of his respondents (e.g., frequency of contracting, the place and time of contracting, whether they read their e-forms). It was found that only 4% of the respondents indicated to generally read the GTC before accepting them. 60% reported to read their contracts, but depending on the type and price of the product at hand. Becher and Unger-Aviram (2010:199) found that across different common consumer-business scenarios (e.g., car rental) only a few consumers intended to actually read their con-

tracts (between 8% und 15%). In their second study, the authors investigated different factors that may determine whether or not potential consumers are willing to read the GTC beforehand. Among the most important factors were the cost and length of the contract and the possibility to influence or change the contract terms. Interestingly, legal jargon, print density and font size were not as important in consumers' decision as initially assumed.

In order to investigate participants' readership of GTC and of RateP (rate provisions; see II.C.3. *supra*), we first extracted from tracking software the frequency the participants clicked on and the time they stayed with each of these pieces of information that were provided as separate documents (GTC, RateP). 74% ($N = 269$) of the participants clicked on at least one of the documents, and stayed with it for a mean time of 133.21 seconds ($SD = 150.58$). We then analyzed the relationship between document readership and decision quality, in terms of tariff and term quality³⁷. Participants who clicked on GTC texts ($N = 48$) and those who did not ($N = 315$) were compared regarding the term quality of their decision by employing a *t*-test for independent measures. The analysis revealed that those who clicked on GTC made decisions of higher term quality, as indicated by the lower score of negative points ($M = 0.33$, $SD = 0.75$), compared to those who did not click on GTC ($M = 0.72$, $SD = 1.23$), $t(95) = 2.99$, $p = .004$.

However, this result must be interpreted with caution: Considering that the amount of time participants who opened GTC documents stayed on them was – on average – less than one minute ($M = 56.10$, $SD = 80.31$), it must be assumed that they were not able to read and check the numerous terms in the respective documents in that short time span. Additional evidence relating to the *point in time* GTC texts were opened confirmed our assumption that the judgment of GTC did not form part of the contract choice: 85% of the participants clicked on GTC from the shopping cart to which they had been directed *after* having made their contract choice. Only 15% ($N = 7$) of the participants clicked on GTC from one of the tariff pages. Only 5 participants (1.4%) revised their decision after clicking the GTC.

³⁷ In view of the content of each of the documents, it was assumed that reading the GTC might be associated with term quality, while reading the RateP might relate to tariff quality. No such relationship was expected for the opposite, between GTC and tariff quality, as well as between RateP and term quality and was thus not considered for analysis.

Participants who clicked on RateP ($N = 264$) and those who did not ($N = 99$) were compared in terms of the tariff quality of their choice, using a Mann-Whitney test. The analysis revealed that those who had opened RateP ($MR = 168.35$) achieved a higher tariff quality than those who had not opened RateP ($MR = 218.4$), $Z = -4.51$, $p = .000$. Again, we looked at the time participants dedicated to open RateP documents. As indicated by the mean time ($M = 125.52$, $SD = 141.52$), participants took more than twice as much time to read RateP than to read GTC. Compared to GTC, RateP are clearly arranged in a table and therefore much easier to overlook and they are, in most cases, directly linked to the tariff pages and, therefore, easier to find (see II.C.3. supra). Thus, it is more likely that RateP were taken into account in contract choices by those who opened them than this is likely for GTC. Consequently, readership of RateP can be considered to be a factor probably contributing to the tariff quality of a choice, whereas readership of GTC cannot realistically be considered such a factor with respect to term quality.

Moreover, we found some evidence that clicking on the additional documents (GTC, RateP, ServD; see II.C.3. supra) may be part of a somewhat “*more ambitious type of personality*”. When comparing those who clicked on at least one of the additional documents ($N = 269$) to those who did not ($N = 94$), we found significant differences regarding the need for cognition³⁸, $t(361) = -2.27$, $p = .024$, the promotion focus, $t(361) = -3.03$, $p = .003$, and the motivation to process systematically, $t(361) = -2.83$, $p = .005$, indicating that individuals who took the time to read the additional documents, had a higher need for cognition ($M = 4.17$, $SD = 0.74$), a more pronounced promotion focus ($M = 4.31$, $SD = 0.76$), and a higher motivation to process systematically ($M = 5.11$, $SD = 0.81$), compared to those individuals who did not click on the additional documents (need for cognition: $M = 3.96$, $SD = 0.80$; promotion focus: $M = 4.03$, $SD = 0.84$; motivation to process systematically: $M = 4.83$, $SD = 0.94$).

³⁸ Need for cognition reflects the extent to which individuals were willing to engage in effortful information processing (Cacioppo et al. 1984: 306) and was measured using the German short version of the Need for Cognition-Scale (Beißert et al. 2014:1). Responses to all items (e.g., ‘I prefer my life to be filled with puzzles that I solve.’) were given on a 6-point scale (1 = *applies not at all*, 6 = *applies completely*) and collapsed into a single index ($\alpha = .39$).

C. *Relevance of Information and Search Strategies*

We wanted to know what characterized successful and unsuccessful choosers (apart from their [non-]readership of GTC and RateP). What were the possible factors that contributed to good decisions? Therefore, we looked for relations between the type of information processing behavior applied by participants and decision quality (see this part) and for relations between their personal characteristics (psychological variables) and decision quality (see part D).

1. **Clusters Based on Decision Factors**

We wanted to find out whether several contract characteristics were perceived to be of different importance for the final decision and how these perceptions related to choice quality (see IV.C.2. supra). For this purpose, participants were asked to indicate the individual relevance of 25 different contract characteristics (e.g., monthly charge, conditions of contract termination) on a 6-point-scale ranging from 1 (not important) to 6 (very important). Not surprisingly, the amount of free units (minutes, text, data), the monthly charge, and the cost-efficiency of the chosen tariff were among the most important contract characteristics. In contrast, the personal experience with the excluded tariffs and the chosen tariff, the roaming charges, and the costs of international calls were among the less important contract characteristics. Following the results of an exploratory factor analysis³⁹, which was conducted to distinguish different *decision factors*, the individual contract characteristics could be grouped into four subordinate factors. The factors were named *basic tariff details* (e.g., monthly charge), *commitment/flexibility* (e.g., conditions of contract termination), *personal experience* (e.g., personal experience with excluded providers), and *other tariff details* (e.g., technical availability). Means and standard deviations, as well as factor loadings of the subjective relevance of each of the decision variables are depicted in Table 4.

[Insert Table 4 around here]

³⁹ The factor analysis was conducted using the principal component analysis with varimax rotation. Factors were extracted following a procedure suggested by Bühner (2005; see also Velicer et al. 2000:41) using a program provided by O'Connor (2000:396; MAP-test). Both criteria (MAP-test, scree plot) revealed four largely independent factors, which together explained 49.6% of the variance.

In a next step, we tested whether the identified decision factors differed with regard to their perceived importance. For this purpose, the single ratings of subjective relevance were averaged into a score of perceived importance of *basic tariff details*, *commitment/flexibility*, *personal experience*, and *other tariff details* and were tested for mean differences by employing an analysis of variance (ANOVA) with repeated measures. The analysis revealed that, indeed, the decision factors differed with regard to their perceived importance, $F(3, 1086) = 396.03$, $p = .000$, $\eta^2 = .522$. Pairwise comparisons⁴⁰ showed that *basic tariff details* were of greatest relevance ($M = 5.10$, $SD = 0.68$), followed by information regarding *commitment/flexibility* ($M = 3.69$, $SD = 1.17$). *Personal experience* ($M = 2.99$, $SD = 1.18$) and *other tariff details* ($M = 3.14$, $SD = 1.10$) were perceived to be significantly less important.

Moreover, we wanted to explore whether different groups of participants could be identified based on the relevance they attributed to each of the decision factors. For this purpose, a hierarchical cluster analysis⁴¹ was performed on the individual scores of subjective relevance of each of the decision factors. Following a procedure suggested by Malhotra (2010; see also Wiedenbeck & Züll 2010:525) three stable clusters were found. It is important to note that among all clusters the *basic tariff details* were perceived to be of greatest importance compared to the remaining three decision factors. Therefore, the clusters mainly differed on the subjective importance of *commitment/flexibility*, *personal experience* and *other tariff details*. More specifically, the first cluster ($N = 146$) described individuals that primarily based their decision on the *basic tariff details*, while the remaining decision factors, *commitment/flexibility*, *personal experience*, and *other tariff details* were perceived to be of less importance.

The second cluster ($N = 138$) comprised those individuals who perceived *basic tariff details* and information regarding *commitment/flexibility* to be of similar importance, while the remaining two factors were considered less relevant. Finally, the third cluster ($N = 79$) consisted of individuals who attributed

⁴⁰ Pairwise comparisons were conducted using the Bonferroni adjustment for all multiple comparisons reported in the present paper.

⁴¹ Following the suggestions of Wiedenbeck and Züll (2010:525) the cluster analysis was performed using Ward's method based on squared euclidean distances. The range of solutions was fixed, extracting between two and five clusters.

high relevance to each of the four decision factors. Figure 1 illustrates the differences in subjective relevance of the decision factors in the three clusters⁴².

[Insert Figure 1 around here]

What can be seen from this analysis is that individuals differed in what kind of information they perceived as relevant. Next and most importantly, we examined whether the identified clusters also differed with regard to the quality of their decisions, i.e., whether decision quality differed depending on the type and amount of information that had been considered by the decision makers. The analyses with the cluster assignment as the independent variable and the tariff quality, on the one hand, as well as the term quality, on the other hand, showed statistically significant differences. Tariff quality, $\chi^2(2) = 25.54, p = .000$, as well as term quality, $F(2, 360) = 9.78, p = .000, \eta^2 = .052$, significantly differed across the clus-

⁴² In order to check for statistically significant differences on the perceived importance of the decision factors *within* and *across* the identified clusters, the subjective relevance scores were subjected to a 3 (*cluster assignment: cluster 1, cluster 2, cluster 3*) x 4 (*decision factor: tariff details, commitment/flexibility, personal experience, other tariff details*) ANOVA with repeated measures on the second factor. The analysis revealed a significant main effect of the decision factor, $F(3, 381) = 444.47, p = .000, \eta^2 = .552$, as well as a significant main effect of cluster assignment, $F(2, 360) = 204.25, p = .000, \eta^2 = .532$, which were qualified by a significant interaction between both factors, $F(6, 1042) = 74.15, p = .000, \eta^2 = .292$. Next, separate analyses were conducted to check for mean differences on the subjective importance of the decision factors *within* each of the clusters. As indicated by the cluster analysis, the perceived importance of the decision factors significantly differed within each cluster: cluster 1, $F(3, 381) = 226.59, p = .000, \eta^2 = .610$, cluster 2, $F(3, 390) = 468.95, p = .000, \eta^2 = .774$, and cluster 3, $F(3, 181) = 34.73, p = .000, \eta^2 = .308$. Pairwise comparisons showed that within cluster 1, the *basic tariff details* were perceived to be of greatest importance ($M = 4.83, SD = 0.76$), compared to *commitment/flexibility* ($M = 2.59, SD = 0.72$), *personal experience* ($M = 2.77, SD = 1.14$), and *other tariff details* ($M = 2.91, SD = 0.91$). Moreover, *commitment/flexibility* and *personal experience* were perceived to be of similar importance, while the subjective importance of *other tariff details* was evaluated to be slightly more important. Within cluster 2, all conducted pairwise comparisons prove to be significant, with the highest importance ascribed to *basic tariff details*, followed by *commitment/flexibility*, *other tariff details* and *personal experience*. Within cluster 3, again the *basic tariff details* were perceived to be more important than each of the remaining decision factors, which did not differ significantly from each other. Next, another set of pairwise comparisons was conducted testing for differences on the perceived importance scores *across* the cluster. The analysis showed that cluster 1 underestimated the importance of *basic tariff details* ($M = 4.83, SD = 0.76$) and *commitment/flexibility* ($M = 2.59, SD = 0.72$), compared to both, cluster 2 (*basic tariff details*: $M = 5.26, SD = 0.56$; *commitment/flexibility*: $M = 4.36, SD = 0.71$) and cluster 3 (*basic tariff details*: $M = 5.32, SD = 0.55$; *commitment/flexibility*: $M = 4.54, SD = 0.83$), which in turn did not differ significantly from each other. Regarding the importance attributed to *personal experience*, cluster 3 scored highest ($M = 4.40, SD = 0.64$) compared to cluster 1 ($M = 2.77, SD = 1.14$) and cluster 2 ($M = 2.40, SD = 0.74$), which showed the lowest scores. Similar results were found for the *other tariff details*. Again, cluster 3 scored highest ($M = 4.19, SD = 1.00$) compared to cluster 1 ($M = 2.91, SD = 0.91$) and cluster 2 ($M = 2.79, SD = 0.99$), which did not differ significantly from each other.

ters⁴³. Subsequent pairwise comparisons indicated that individuals who based their decision on *basic tariff details* and information regarding *commitment/flexibility* (cluster 2) achieved a higher decision quality (tariff quality: $MR = 151.28$; term quality: $M = 0.32$, $SD = 0.74$) than those who based their decision solely on the basic tariff details (cluster 1; tariff quality: $MR = 194.60$; term quality: $M = 0.85$, $SD = 1.38$), and also than those who perceived all information to be of high importance (cluster 3; tariff quality: $MR = 212.38$; term quality: $M = 0.96$, $SD = 1.79$). Interestingly, cluster 1 and cluster 3 did not significantly differ from each other, neither on tariff quality, nor on term quality.

Furthermore, we were interested in whether subjective decision quality (see IV.C.2.c supra) also differed across the clusters by performing a between subjects ANOVA with the cluster assignment as the independent variable on the subjective scores of satisfaction with the decision. As indicated by the non-significant results of the analysis, satisfaction with the decision did not differ across the clusters, $F(2, 360) = 2.20$, $p = .112$.

2. Clusters Based on Information Processing Behavior

The previous analysis showed that individuals differed with regard to what kind of information they perceived to be relevant when choosing a certain cellular service contract. Additionally, we were interested in whether participants employed different *information processing strategies* during their decision process. For this purpose, again, a hierarchical cluster analysis was performed, using the z -transformed scores of the five behavioral measures of information processing (*sum of clicks*, *sum of time*, *clicks on 3 best*, *time on 3 best*, *comparison index*; see IV.C.1.a. supra). The analysis revealed three clusters which differed from each other in two ways: First, the clusters differed with regard to the *amount of information* the participants gathered, as it is indicated by the total *sum of clicks* and the *sum of time*. Second, clusters also differed with regard to the extent to which the information search was *directed to* or *focused on* the most promising (the 3 objectively best) tariffs.

⁴³ Due to different data levels, tariff and term quality were compared separately across clusters using different statistical methods. Tariff quality was compared across clusters using a Kruskal-Wallis test, with pairwise comparisons conducted by employing single Mann-Whitney tests. Term quality was compared across clusters using a between-subjects-ANOVA, with Bonferroni-adjusted pairwise comparisons.

More specifically, cluster 1 ($N = 137$) showed the lowest scores on both, the *sum of clicks* ($M = 44.3$, $SD = 18.8$) and the *sum of time* ($M = 872.3$, $SD = 40.6$) compared to each of the other clusters. Additionally, this cluster appeared to have the least focused information search, as indicated by the low scores on the *clicks on 3 best* ($M = 0.2$, $SD = 0.1$), the *time on 3 best* ($M = 0.2$, $SD = 0.1$), and the *comparison index* ($M = 1.9$, $SD = 2.2$; for the measures of information processing behavior see IV.C.1.a. supra). Since both, the amount and the focus of information search were low, the cluster was labeled *short-time incorrectly focused information seekers*.

In contrast, cluster 3 ($N = 102$) displayed the highest scores on the measures of the amount of information processing, *sum of clicks* ($M = 76.4$, $SD = 26.3$) and *sum of time* ($M = 1989.1$, $SD = 654.6$). Interestingly, cluster 3 was, similar to cluster 1, characterized by little focus in the information search, as the low scores on the measures of information processing focus, the *clicks on 3 best* ($M = 0.2$, $SD = 0.1$), the *time on 3 best* ($M = 0.2$, $SD = 0.1$), and the *comparison index* ($M = 0.2$, $SD = 0.1$) indicated. Since the amount of information search was high, while the focus was low, the cluster was labeled *long-time incorrectly focused information seekers*.

Finally, cluster 2 ($N = 124$) was represented by a moderate amount of information processing, as the intermediate scores on *sum of clicks* ($M = 68.3$, $SD = 22.1$) and *sum of time* ($M = 1408.7$, $SD = 472.9$) suggested. Additionally, cluster 2 showed the most focused information processing, as indicated by the high scores on the *clicks on 3 best* ($M = 0.4$, $SD = 0.1$), the *time on 3 best* ($M = 0.4$, $SD = 0.1$), and the *comparison index* ($M = 10.4$, $SD = 5.8$). Since the focus of information search appeared to be high with a moderate level of amounts, the cluster was labeled *medium-time correctly focused information seekers*. Cluster means and standard deviations are depicted in Figure 2⁴⁴.

[Insert Figure 2 around here]

⁴⁴ In order to check for statistically significant differences, each of the behavioral measures of information processing were subjected to a between-subjects ANOVA. The analyses revealed that the *sum of clicks*, $F(2, 360) = 67.88$, $p = .000$, $\eta^2 = .274$, *sum of time*, $F(2, 360) = 212.43$, $p = .000$, $\eta^2 = .541$, *clicks on 3 best*, $F(2, 360) = 236.22$, $p = .000$, $\eta^2 = .568$, *time on 3 best*, $F(2, 360) = 141.61$, $p = .000$, $\eta^2 = .440$, and *comparison index*, $F(2, 360) = 181.37$, $p = .000$, $\eta^2 = .502$, each significantly differed across the clusters. Pairwise comparisons confirmed the results as indicated by the cluster analysis described above.

Again, we were interested in whether the clusters based on the behavioral measures of information processing also differed with regard to their decision quality, i.e., whether a certain information processing strategy turned out to be particularly successful. To check for differences between the clusters, analyses with the cluster assignment as the independent variable were performed on tariff and term quality. The analyses on both, tariff quality, $\chi^2(2) = 98.65$, $p = .000$, and term quality, $F(2, 360) = 25.83$, $p = .000$, $\eta^2 = .125$, revealed significant differences between the clusters. Subsequent pairwise comparisons indicated that medium-time correctly focused information seekers (cluster 2) made decisions of higher quality on both, tariff quality ($MR = 115.50$) and term quality ($M = 0.13$, $SD = 0.66$), compared to short-time (tariff quality: $MR = 227.83$; term quality: $M = 1.16$, $SD = 1.55$) and long-time incorrectly focused information seekers (tariff quality: $MR = 201.29$; term quality: $M = 0.68$, $SD = 1.01$). Again, the choices of long-time incorrectly focused information seekers were of higher term quality compared to those of short-time incorrectly focused information seekers

Moreover, the subjective decision quality was compared across the clusters by performing a between subjects ANOVA with the cluster assignment as the independent variable on the subjective scores of satisfaction with the decision. The analysis revealed that the clusters turned out to be differently satisfied with their decision, $F(2, 360) = 8.19$, $p = .000$, $\eta^2 = .043$. Pairwise comparisons showed that *long-time incorrectly focused information seekers* ($M = 4.82$, $SD = 0.85$) indicated lower levels of satisfaction with the decision compared to both, *medium-time correctly focused information seekers* ($M = 5.19$, $SD = 0.67$) and *short-time incorrectly focused information seekers* ($M = 5.12$, $SD = 0.68$). Interestingly, although they made the worst decision among all groups of participants, *short-time incorrectly focused information seekers* expressed a rather high satisfaction with their decision, which did not significantly differ from that of *medium-time correctly focused information seekers*.

3. Complexity of Information Processing Strategy

Finally, we wanted to test whether the *complexity of the information processing strategy* was related to the quality of the decision. The analysis revealed that more complex information processing strategies

were associated with a higher tariff quality, $r = -.224$, $p = .000$. However, it is important to note, that participants rarely applied information processing strategies with very high or very low levels of complexity (see Table 2). Therefore, the correlation was mainly based on strategies of rather high or rather low complexity, indicating that rather complex strategies were more successful than rather simple strategies. No significant association was found between complexity and term quality, $r = -.07$, $p = .196$.

Taken together, our analyses showed that most successful search strategies (in terms of tariff and term quality) were not exhaustive, but instead involved the focused selection and processing of a medium amount of information (see III.B. *supra* on heuristic and systematic processing). Neither a very extensive information search, investing a considerable amount of effort (in terms of time and clicks), nor the use of very simple strategies (e.g., personal experience as a possible heuristic), were as successful. Although decision quality turned out to be worst for those who used very simple strategies, they were as satisfied with their decision, as those, who made an optimal decision.

D. Psychological Variables

For a description of the psychological variables discussed in the following parts 1-3 and a summary of relevant literature see III.C.-E. *supra*.

1. Motivation to Process Systematically

Across several analyses we found some evidence that information processing behavior and decision quality varied depending on the motivation to process systematically. Firstly, individuals who made an optimal decision in terms of tariff quality ($N = 207$) were compared to individuals who made a suboptimal decision ($N = 156$) with regard to their motivation to process systematically. The analysis revealed that participants who made an optimal decision ($M = 5.11$, $SD = 0.84$) were more motivated to process systematically compared to participants who did not make an optimal choice ($M = 4.94$, $SD = 0.98$), $t(361) = 1.88$, $p = .061$. Secondly, an ANOVA using the clusters based upon the *behavioral measures of information processing* (see V.C.2. *supra*) as the independent variable was computed on the motivation to process systematically. The analysis showed that *short-time incorrectly focused information seekers*

($M = 4.92$, $SD = 0.86$) indicated a slightly lower motivation to process systematically, compared to long-time incorrectly focused ($M = 5.13$, $SD = 0.87$) and medium-time correctly focused information seekers ($M = 5.10$, $SD = 0.84$), $F(2, 360) = 2.11$, $p = .123$, $\eta^2 = .012$. Interestingly, although *medium-time correctly focused* and *long-time incorrectly focused information seekers* did not differ in terms of their motivation to process systematically, the latter had a lower decision quality. Thirdly, another ANOVA using the clusters based upon the subjective importance of the *decision factors* (see V.C.1. supra) as the independent variable was computed on the motivation to process systematically. Again, the analysis revealed that participants who considered two ($M = 5.14$, $SD = 0.80$) or more ($M = 5.08$, $SD = 0.92$) decision factors to be important for their decision, indicated a higher motivation to process systematically compared to individuals who based their decision on less information ($M = 4.93$, $SD = 0.86$), $F(2, 360) = 2.35$, $p = .097$, $\eta^2 = .013$. Again, decision quality was highest when individuals considered a medium amount of information, i.e., decision factors.

Taken together, in accordance with the original assumption (de Dreu 2003:280; Scholten et al. 2007:539) we found some evidence that the willingness to engage in a complex and deep information processing was positively linked to the motivation to process systematically. However, it is important to note that, although highly motivated individuals were shown to process more information, a high motivation to process systematically did not necessarily lead to decisions of high quality. Possible reasons are discussed below in part VI.C. infra.

2. Involvement in the Decision

Participants who made an optimal decision and those who did not, were compared regarding their average involvement scores by employing an independent samples *t*-test. Consistent with the selective exposure assumption, the analysis showed that individuals who made a non-optimal decision ($M = 4.11$, $SD = 0.98$) indicated to be personally more involved (very high involvement scores) than participants with an optimal decision (still considerably high involvement scores) ($M = 3.87$, $SD = 1.01$), $t(361) = -2.24$, $p = .026$. A second comparison using the subjective relevance of the *decision factors* (V.C.1.) as

the independent variable was computed on the average level of involvement. The analysis revealed that individuals who considered most pieces of information to be important for their decision ($M = 4.28$, $SD = 1.06$), showed the highest level of personal involvement, compared to those, who found two pieces of information ($M = 3.87$, $SD = 0.97$) or less information to be important ($M = 3.92$, $SD = 0.97$) and who did not differ significantly from each other, $F(2, 360) = 4.77$, $p = .009$, $\eta^2 = .026$. Again, decision quality was not highest among those who considered most pieces of information to be important, but rather for individuals, who considered a medium amount of information to be important. An ANOVA using the clusters based upon the *behavioral measures of information processing* (V.C.2.) did not show significant results, $F(2,360) = 2.04$, ns.

3. Self-regulatory Focus

Individuals who made an optimal decision and those who did not, were compared regarding their self-regulatory focus. The analysis revealed that those who made an optimal decision had a higher promotion focus ($M = 4.31$, $SD = 0.73$), $t(361) = 2.06$, $p = .040$, and a higher prevention focus ($M = 3.89$, $SD = 1.03$), $t(361) = 2.38$, $p = .018$, than participants with a non-optimal decision ($M_{Pro} = 4.14$, $SD_{Pro} = 0.85$; $M_{Pre} = 3.63$, $SD_{Pre} = 1.06$). Another comparison using the clusters based upon the *behavioral measures of information processing* (V.C.2.) as the independent variable was computed on the regulatory focus scores by employing an ANOVA with repeated measures. The analysis revealed that *medium-time correctly focused information seekers* ($M = 4.38$, $SD = 0.76$) had a higher promotion focus than *long-time incorrectly focused* ($M = 4.17$, $SD = .077$) and *short-time incorrectly focused information seekers* ($M = 4.16$, $SD = 0.82$), which did not differ significantly, $F(2, 360) = 2.88$, $p = .057$, $\eta^2 = .016$. Correspondingly, decision quality was highest among *medium-time correctly focused information seekers*. An ANOVA using the clusters based on the subjective relevance of *decision factors* (V.C.1.) did not show significant results, neither for the promotion focus, $F(2, 360) = 1.76$, ns., nor for the prevention focus, $F(2, 360) = 0.88$, ns.

E. Real-life Consumption Behavior

Participants were also asked to answer some questions about their own cellular service consumption behavior. 98.6% of the participants owned a cellular device. 76.6% of the participants had signed a cellular service contract, whereas 18.2% had a pre-paid option. Most participants who had entered into a cellular service contract disposed of a certain amount of free units (98.8% voice call minutes, 87.9% short messages, and 79.9% internet data transfer), ranging between 100 and 5000 minutes ($M = 1334$, $SD = 648.08$) and text messages ($M = 1192$, $SD = 589.52$), as well as up to 9000 free MB data volume ($M = 1832$, $SD = 1435.19$). The estimated consumption was always lower than the free units available: minutes ($M = 601$, $SD = 721.69$), text messages ($M = 208$, $SD = 383.33$) and data volume ($M = 1181$, $SD = 1177.76$).

Participants found it difficult to estimate their own consumption, but were relatively well informed about their monthly charges: 89.7% percent of the participants felt certain about their estimation of their average monthly costs, but only 53.9% felt certain about their estimation of their actual average use of units. In general, they were more confident with their estimation of their own costs ($M = 5.22$, $SD = 1.24$), $t(358) = 14.62$, $p = .000$, than with their estimation of their own consumption behavior ($M = 4.02$, $SD = 1.21$). Participants expressed a rather high satisfaction with their current cellular service contract ($M = 4.73$, $SD = 1.36$) and their cellular service provider ($M = 4.52$, $SD = 1.42$). Furthermore, 77.7% of the participants would recommend their cellular service provider. Only a few people wanted to switch their cellular service provider, both, before the study ($M = 2.04$, $SD = 1.36$) and afterwards ($M = 2.33$, $SD = 1.45$).

A recent study commissioned by the Austrian Regulatory Authority for Telecommunications Services (RTR GmbH 2015b; see I.B. supra) presents the following data on the decision behavior of 1748 private cellular service customers (consumers): 44.5% got informed about the tariff offer in the shop of the provider, 32.8% in the internet, 32.1% were informed by friends, 16.7% by advertisements, and 8.3% by tariff calculators. 61% do not know tariff calculators, 28% know them but do not need and use them. A

majority of 82% of the participants felt well or rather well informed about the offers. 58% of the participants answered to spend between 10 and 30 EUR per month on cellular services, 27.4% spend more than 30 EUR, the average expense per month being 24.1 EUR. 40.3% of the participants were confronted with a price increase in their current contracts in the last two years, but only 6.7% of them terminated their contracts as a consequence and switched to another provider. The remaining 93.3% who did not switch were asked for their reasons: 56.2% saw no cheaper alternatives, 35.7% said that the increase was not high, 16.1% refer to high costs of switching and 16.1% refer to the burdens of transferring their telephone number to a new provider. 38.5% would not change their provider in the fictitious case of a price increase of 10%. 29.5% said they would change, the others were not sure. Of those who had already switched providers 58.5 % had transferred their old number to the new contract. 40.3% had changed their number.

VI. DISCUSSION

The cellular services market is an economically significant market in Austria, as well as in the other EU Member States with a considerable impact on consumer welfare (see I.B. *supra*). An examination of its regulatory framework (see chapter II. *supra*) and a review of relevant psychological literature (see chapter III. *supra*) supported our hypothesis that EU consumer protection regulation currently in force might fall short of its goal of effectively supporting consumers in making “good” contract choices. The study presented in this article (see chapters IV. and V. *supra*) was designed to provide empirical evidence concerning the complex interplay of information processing behavior, psychological variables, legal rules and choice quality as a legal/normative measure.

At the first stage, the purpose of our analysis was to identify *factors* that favor “good” contract choices as defined by the measures of tariff quality, term quality and subjective quality (see IV.C.2. *supra*). What characterizes successful and unsuccessful choosers? Factors we assumed to be potentially relevant were (among others): psychological variables (the motivation to process systematically, the personal involvement in the decision, and the self-regulatory focus), the type and amount of information consid-

ered, the amount of time spent, the application of different information search and processing strategies, the reliance on personal experience or on other heuristics. The results of this investigation were presented in preceding chapter V.

In brief, 57% of the participants were able to make an optimal decision in terms of tariff quality and term quality ($N = 207$; see V.A. supra). The average satisfaction with their choices (subjective quality) was rather high ($M = 5.06$, maximum = 6). Readership of GTC (general terms and conditions), which were placed and presented in accordance with the law, was very low, occurred at a late stage of the decision procedure, and could not have possibly exercised any direct influence on the term quality of the decisions of the participants. This result is in line with numerous other studies on the non-readership of fine print documents in the course of contract conclusions (see V.B. supra). Readership of the more prominently placed and better structured RateP (rate provisions) was more frequent and showed a positive correlation with the tariff quality (V.B.).

Among the three clusters we distinguished based on *decision factors* (V.C.1.), the cluster of participants who concentrated on *basic tariff details* and *commitment/flexibility* information achieved the best results on tariff and term quality ($N = 138$). People who considered only *basic tariff details* or who considered other pieces of information in addition ranked lower on objective choice quality. Among the clusters we distinguished based on *information processing behavior* (V.C.2.), the cluster of participants who applied search strategies which were not exhaustive, but instead involved the focused selection and processing of a medium amount of information was most successful ($N = 124$). Neither a very extensive information search, investing a considerable amount of effort (in terms of time and clicks), nor the use of very little information and very simple strategies (e.g., personal experience as a possible heuristic) were equally successful. Participants with very simple strategies were as satisfied with their decisions as those who made an optimal choice.

The most successful searchers of the above mentioned clusters (V.C.1. and 2.) showed a higher score on the motivation to process systematically, a lower (but still considerably high) score on personal in-

volvement and had a higher promotion and prevention focus than less successful clusters. However, the motivation to process systematically was equally high for participants who processed a larger amount of information even though this strategy did not lead to equally good results in terms of objective and subjective choice quality.

Obviously, the EU regulator assumes that markets themselves will not be able to give consumers satisfactory guidance through the complex jungle of information and contract options created by cellular service providers (product-attribute information), thus, putting consumer interests at unacceptable risks (see chapter II. *supra*). An analysis of the US cellular service market conducted by Bar-Gill (2012) arrived at similar conclusions: Enterprises take advantage of consumers' distorted perceptions (biases) and limited capacity to process information, thus, exacerbating so-called "behavioral market failures" which will not be corrected by market mechanisms themselves (see Lunn 2015 for a critical analysis of the concept of behavioral market failures). As explained in I.A. *supra*, for constitutional law and other reasons, regulation should first support self-correction mechanism of the market – by empowering consumers – through rules for disclosure of information (*instruments of group A*). Only where this strategy does not work, more intrusive forms of regulation should be put in place (*instruments of group B*: like, for instance, prohibitions of certain business behavior or of certain contractual stipulations).

At the second stage, we, therefore, establish a link between the factors which – according to our study and literature – favor successful contract decisions and the legal rules that attempt to influence the behavior of contract parties. We, first, concentrate on legal instruments that target the availability of information to consumers and the information processing behavior of consumers before contract conclusion in order to improve the quality of their decisions. In present EU law, these are, mainly, rules on the disclosure of information contained in GTC (general terms and conditions) or of other information (see II.C. *supra*). Second, rules that go beyond the regulation of the relationship between the two contracting parties, i.e., consumer and provider, are considered.

As fields relevant for potential regulatory improvement we discuss the following four: A. *Access to and presentation of relevant information*: Our study indicates that the processing of a medium amount of relevant information provides the basis for optimal choices. The legislator can help consumers (who normally would not) to arrive at that type of information processing by making a distinction between “relevant” and “less relevant” information and by prescribing means to encourage the appropriate use of this information by consumers. Results of our and many other studies on GTC readership show how information should *not* be presented if one wants to induce readership and comprehension by consumers. B. *Guidance of successful information processing and search strategies*: The mere administration of information to consumers is not sufficient. The legislator should guide consumers to successful strategies (where possible and appropriate implying shortcuts and heuristic processing). C. *Influence on psychological variables*: As the presence of high motivation to process systematically, of a high promotion and prevention focus and of a moderately high (comparatively lower) personal involvement seem to favor successful contract choices in cellular service markets, legal rules should be developed that induce modification of these personal variables of consumers in the desired direction. D. *Regulation beyond the contractual relationship between provider and customer*: The problems of consumers with the extraordinary complexity and high load of (product-attribute) information cannot only be tackled by regulation of the relationship between the contract parties, but also by more market oriented regulatory tools, like, for instance, reliable *whole-market tariff calculators* based on up-to-date data on the offers of all providers in the market. In addition, instruments reaching beyond individual contract relationships are capable of addressing consumers’ reluctance to terminate unfavorable contracts and switch providers, which is detrimental to their own economic interests.

A. *Access to and Presentation of Relevant Information*

1. **Information on the Personal Use-pattern**

Though one of the major problems on the way to a good contract decision in the market of cellular services seems to be finding a smart way of dealing with the high information load on contract character-

istics (product-attribute information: see II.C.2. and 3. *supra*), another at least as serious obstacle appears to be the usual absence of information on the consumer's own consumption behavior, i.e., her user profile (use-pattern information; see II.C.5. *supra*). Accurate information about one's own use-pattern constitutes the necessary basis for the success of all further information processing about contract characteristics. Use-pattern information allows the consumer to focus and direct her search towards only *the* group of products which match her consumption needs and will, therefore, not entail major economic losses for her.

With a profound analysis of real-world data of a cellular service provider in the US, Bar-Gill (2012) showed that (depending on the underlying plan) up to 55% of all users chose a suboptimal tariff and remained with it for more than 10 months. These results were partly attributed to the lack of sufficient information on the consumers' own use-patterns by the author. In addition, studies found that consumers often tend to overestimate their actual usage (Lambrecht & Skiera 2006:212; Krämer & Wiewiorra 2012:29) and often feel confident about their biased estimation (Grubb & Osborne 2015:234).

In our study, participants were made fully aware of their – fictitious – use-patterns (see IV.B. *supra*). Therefore, the suboptimal tariff choices made by 43% of the participants (see V.A. *supra*) cannot be attributed to the lack of knowledge of their own use-patterns, but rather to other factors like, for instance, the high load and complexity of product-attribute information. The questionnaire on real-life consumption behavior of participants revealed (see V.E. *supra*) that they felt very insecure when asked for an estimate of their own monthly consumption. Without our study condition of a pre-fixed user profile (100% correct user profile knowledge), when consumers would have had to match their own use-pattern in a situation similar to the one in our study, it can be assumed that about half of the participants would not have been able to base their decisions on accurate consumption figures (about 50% correct user profile knowledge or less). Considering the results of other studies, it can be suspected that the scores participants achieved on tariff quality in the present study would deteriorate considerably under such a change of condition.

Based on these findings, an ensuing experimental study could establish the extent to which people's cellular service contract choices based on their present knowledge – or lack of knowledge – of their own use-patterns could be improved by providing them with accurate information on their own average consumption and could single out the most effective ways of informing consumers about these essential figures. The fee-per-service bills currently prescribed for Austrian providers (see II.C.5. supra) do not have to meet any requirements with regard to presentation, simplicity, salience or clarity of key data like, in particular, voice call minutes, number of short and internet data transfer. Legal rules, replacing the old regime, which require easily accessible, salient, and simple key use-pattern information to be provided by the enterprise to the consumer could be developed on the basis of further experiments.⁴⁵

2. Relevant Information about the Contract (Product-attribute Information)

The results of our cluster analyses based on *decision factors* and based on *information processing behavior* (V.C.1. and 2. supra) showed that participants who considered many different types of information and more than a medium amount of information were not as successful in their choices as *medium-time correctly-focused information seekers* who perceived *basic tariff details* and *commitment/flexibility* information to be most important. Thus, the quality of a decision did not increase with the increasing amount of information considered by the participant, once a medium amount of information was surpassed. Participants who were able to single out the most relevant product-attribute information, i.e., the information on *basic tariff details* and on *commitment/flexibility*, by themselves arrived at better contract choices. Participants who considered other types of less relevant information in addition achieved worse results. Not only personal conditions seem to point to the necessity of a limitation of information processing, but also objective circumstances of contemporary lives do: Most people cannot or do not want to invest large amounts of time and effort in their consumption decisions. A third argument (besides personal capacities and objective time limits) against regulation that requires the processing of large

⁴⁵ TKG Section 100 para. 2 delegates to the regulatory authority (RTR GmbH) the power to prescribe (by regulation) the degree of detail and the form of the required fee-per-service bills. This could be the basis for an implementation of the proposed improved use-pattern information, under Austrian law.

amounts of information by consumers are some of our study results on subjective decision quality: Persons who processed little information or a medium amount of information reported a higher degree of satisfaction with their decision than *long-time incorrectly focused information seekers* (V.C.2. supra). Thus, a long and effortful search and information processing seems to reduce personal satisfaction of consumers.

The legislator should, therefore, aim at supporting those consumers whose ability to distinguish between “relevant” and “less relevant” information is lower than in the successful clusters. Thereby, the legislator could help those consumers who have difficulties in finding their way through a huge bulk of information and those consumers (irrespective of their ability to select relevant information by themselves) who have a time problem, at the same time. Regulation should aim at creating an environment in which contracts can be concluded on the basis of a moderate amount of relevant information with a reasonable investment of personal time. For that purpose, relevant and less relevant information should be separated from each other, thus, giving consumers the option to make safe decisions even when they consider only the relevant portion of information and not the less relevant one.

Considering the goals of EU and national consumer protection legislation and the definitions of choice quality we shaped on their basis (see I.C. and IV.C.2. supra), two categories of “relevant” and of “less relevant” information can be distinguished. The contracts (products) chosen by consumers should safeguard their economic interests, should match their needs and preferences, and should contain clauses which are fair and adequate. Consequently, the following pieces of information belong to the category of “relevant” information: information about the costs and charges incurred by consumers, about the kind and quality of services provided, information on the consumers’ individual use-pattern, information on contract termination (or on the time of commitment), and on unilateral prices increases. The detailed information in “fine print” documents like ServD (service descriptions), RateP (rate provisions), and GTC (general terms and conditions; see II.C.3.) includes both, very relevant parts *and* numerous pieces which are not necessary or, in most cases, irrelevant for good contract choices.

3. Access to and Presentation of Information

According to EU and national law, consumers have to be offered a reasonable opportunity to read the whole text of the GTC (general terms and conditions) before concluding the respective contract. Otherwise GTC will not become part of the contract and will not be enforceable against the consumer (see II.B. supra). In accordance with present EU regulation, GTC are very long and complicated, and are placed and displayed on websites in a way which results in non-readership or too late readership by consumers (Bakos et al. 2009:9; Becher & Unger-Aviram 2010:199; Plaut & Bartlett 2011:293). In our study (see V.B. supra), we found that readership of GTC, which were placed and presented in accordance with the law, was very low, occurred at a late stage of the decision procedure, and, thus, could not have possibly exercised any direct influence on the term quality of the decisions of the participants. In sum, this may be considered sufficient evidence for the conclusion that the goal of enabling consumers to protect themselves against unfavorable contracts by reading and checking GTC documents themselves (see II.B. supra) was never and will never be achieved. The finding that clicking on “fine print” documents is associated with a *more ambitious type of personality* (see V.B. last paragraph, supra) does not alter the fact that the reading of GTC itself – as conducted by these more ambitious participants – was unable to make any positive contribution to term quality.

Thus, it is time for the legislator to draw the consequences. Therefore, all use-pattern and product-attribute information relevant for good choices (see VI.A.1.and 2. supra) should be taken out of fine print documents, in particular of GTC, and displayed on homepages in a manner that makes it easily accessible for consumers and motivates readership and information processing.

EU and national regulation exhibit first modest attempts to single out more important information and to present it in improved ways (see II.C.2. supra). Information overload research made suggestions how to overcome the negative effects of this phenomenon (Eppler & Mengis 2008:271), like the use of simpler, standardized or more salient information. Future experimental research can show which ways of access to and presentation of relevant information yield the best results in terms of defined decision qual-

ity standards, as the ones developed for our study (IV.C.2.). Future disclosure regulation should precisely prescribe those forms of presentation of information that proved most effective in preceding studies.⁴⁶

B. *Guidance of Successful Information Processing and Search Strategies*

In our study, we could not find any evidence of particular successful heuristic processing strategies (III.B. supra) involving only small amounts of information and simple processing methods (V.C. supra). A possible heuristic measured by the study could have been the reliance on personal experience instead of – or more than on – other information (other *decision factors*, see V.C.1. supra). However, people who applied that technique did not achieve good results. This may be attributed to the particular characteristics of cellular service markets: The products offered are highly complex and changing very quickly. Successful reliance on personal experience with that type of contracts or similar contracts is, therefore, almost impossible. In addition, participants could not make use of past experience where this experience depended on their individual use-pattern, because they were assigned to fictitious pre-fixed user profiles in the study.

The processing of small amounts of information proved to be the least successful strategy in terms of objective decision quality, however, not always in subjective satisfaction. The scarce use of information was accompanied by a lower motivation to process systematically than in the other groups (medium-time correctly focused, and long-time incorrectly focused information seekers). In addition, we found that most successful search strategies involved the focused selection and processing of a medium amount of information. Thus, obviously, not the quantity of information but the selection and processing strategy counted. We suspect that successful searchers on both cluster analyses (see V.C.1. and 2. supra) might have used a heuristic tool (we were unable to measure) that allowed them to find their way straight to the most relevant information without having had to consider too much less relevant information beforehand.

⁴⁶ TKG Section 25b para. 2 provides the basis for an administrative regulation (by RTR GmbH) which prescribes the details for an improved presentation of relevant information by providers in the Austrian market.

They seem to have used a kind of shortcut to the relevant information, which was not available to other participants.

This means that consumers should be enabled to find their way to and process a reduced amount of only relevant information (see VI.A.1. and 2. *supra*) in a guided and effective way. Information regulation should not be aiming at the one-dimensional delivery of certain content, but rather at the guidance of a multi-faceted selection process. Certain informative content forms only the basis of this process. Consumers should not just receive a certain amount of information (the questions of more or less and of relevant or less relevant information), but should also receive guidance in how to deal with it in a successful manner. Thus, “information regulation” in the sense of rules which prescribe the delivery of certain information by businesses to consumers should be transformed into “*information processing and search strategy regulation*”, or in short, “*guidance regulation*” which enables consumers to apply and supports consumers in applying successful search strategies.

For the purpose of developing a more appropriate and effective information processing and search strategy regulation, for an online purchase environment, two questions have to be answered: Which information shall be provided and which not (content and quantity)? This point was already discussed in the preceding paragraphs VI.A.1. and 2. The second question left for this chapter is: How shall the information processing be organized and guided?

One aspect of this guidance is the way in which the two groups of relevant and less relevant information (VI.A.2.) are to be presented in terms of wording, design, size, position, timing, and format (print, picture, movie). Consumers should be primarily guided to the separated part of relevant information and only be confronted with less relevant pieces of information, if they explicitly wish so or if there seems to be a particular need to do so. The question of whether the legislator should rather eliminate or keep less relevant information on the providers’ homepages has a prescriptive and a positive dimension:

According to contract law, providers are free to formulate contract clauses (within the frame of mandatory law) – mostly in form of GTC – which become enforceable against consumers after contract con-

clusion (which implies the agreement of the consumer to these clauses). Where such clauses are enforceable, they must be made transparent to consumers – before or at least – after contract conclusion.⁴⁷ The elimination of disclosure of the full texts of GTC could be only possible when they were rendered unenforceable or enforceable only in a reduced format by amended rules of contract law. Or in other words: Reducing information on the clauses of GTC would mean limiting the ability to use GTC in contractual relationships with consumers. This is not the place to discuss the advantages and disadvantages of such an approach. The positive dimension consists of empirical studies that might reveal that consumers arrive at better contract decisions where less relevant information is completely removed from their decision environment (instead of just placing it in a remote link). This means that the elimination of information, like e.g., information of little relevance in fine print documents, could be advisable from an empirical standpoint (because it improved choice quality in a study), but not advisable from a normative standpoint (freedom right of enterprises to exercise a trade or profession, e.g., EU Charter of Fundamental Rights Art. 16).

Regulatory guidance should imply a confrontation of the consumer with her main search goal and informational basis, which is her individual use-pattern (VI.A.1.). Once she is aware of her own consumption needs, she can clarify her central search goals of finding cheap (in terms of tariff quality) and favorable offers (in terms of term quality) that match her user profile and her personal wishes. Another possible method of guidance could be the establishment of a link between personal consumption figures and the different contract products of the respective provider on the latter's homepage. Providers could be required to implement software on their homepages that simplifies consumers' search for the contract options that best match their particular user-pattern and, eventually, additional needs. As this type of

⁴⁷ It must be noted that, under EU law, pre-formulated standard clauses (GTC) are subject to fairness control conducted by consumer organizations and state authorities: see II.B. supra. Self-protection by consumers is, therefore, not the only instrument of protection against unfair clauses.

search device only applies to the offers of *one* provider (instead of the whole market), it is called *in-business tariff calculator*⁴⁸. For a discussion of *whole-market tariff calculators* see part VI.D. *infra*.

C. *Influence on Psychological Variables*

The results of our study indicate that certain psychological variables are related to successful search behavior. Empirical research shows that even though psychological variables cannot be influenced as personal “traits”, their “state” can be modified to a certain extent (Higgins 1997:1280; Webster & Kruglanski 1994:1049; see Steyer et al. 1999:389 for an overview). Hence, an improved information processing and search strategy regulation should also target these variables in terms of “state”.

The *motivation to process information systematically* was equally high for successful *medium-time correctly focused information seekers* as for less successful *long-time incorrectly focused information seekers*, and considerably lower in the *short-time incorrectly focused* group (see V.D.1. *supra*). It can, therefore, be assumed that regulatory measures capable of increasing consumers’ motivation to process systematically could improve the decision quality of *short-time incorrectly focused information seekers*, an assumption that can be tested in future experiments.

However, a high *motivation to process systematically* did not lead *long-time incorrectly focused information seekers* to optimal decisions. One possible explanation for this result could be that persons who choose to consider and investigate large amounts of information might experience the negative effects of information overload (see III.A. *supra*). They might feel overstrained, confused and less confident which causes a decrease of their search quality. Another possible explanation is that the group of *long-time incorrectly focused information seekers*, even though equally motivated to process systematically, lacked a personal quality or a heuristic tool that *medium-time correctly focused information seekers* disposed of: This quality could have been the intellectual ability to make a focused selection of more

⁴⁸ An in-business tariff calculator is already implemented, for instance, on the web page of the US cellular service provider “U.S. Cellular” (<http://www.uscellular.com/uscellular/plans/showPlans.jsp?plan-selector-type=shared&type=plans#recommender>).

relevant information (see VI.A.2. supra). And/or a heuristic shortcut tool could have been used (see V.B. supra).

On the basis of these interpretations, *guidance regulation* should, first, support *short-time incorrectly focused information seekers* by prescribing devices which raise the consumers' motivation to process systematically. Once the level of motivation is sufficiently high for all searchers, regulation could support them further by alleviating the burden of large amounts of information available on providers' homepages by measures of information reduction and by singling out relevant information and presenting it in special ways (see VI.A.2. supra).

In our study, a very high level of personal *involvement in the decision* was associated with a lower decision quality, while successful searchers were characterized by a lower, but still relatively high personal involvement. Therefore, regulation that supports personal involvement that is not excessive seems beneficial. Successful participants were characterized by high *promotion* and *prevention foci*, which offers ample chances to translate measures used in psychological experiments to empirically induce these foci in individuals into legal rules that could possibly enhance them in consumers. Different types of “*enhancement*” or “*trigger information*” could be developed. We could, for instance, think of information (to be implemented on the providers' homepages) that motivates consumers to save money by contracting for a new tariff (of the same provider). Information that induces them to save (even more) money by changing the provider could, however, only be provided on an independent medium, not on the individual providers' websites. Future research could reveal the effectiveness of focus enhancement by different types of contract related information in terms of objective and subjective decision quality.

D. *Regulation beyond the Contractual Relationship between Provider and Customer*

The preceding discussion of our study results demonstrates that various measures of improvement of disclosure regulation or *guidance regulation* which targets the relationship between the two contract parties can be suggested and subjected to further empirical studies for particular proof of effectiveness: i.e., higher salience, availability, simplicity and clarity of personal use-pattern information and of rele-

vant product-attribute information, combined with a reduction of information on the providers' homepages; implementation of *guidance regulation* which raises the consumers' *motivation to process systematically* as well as their *promotion and prevention foci*; and prescription of software devices that simplify searches based on individual user profiles (*in-business tariff calculators*).

However, consumers conduct their search not only in a two party relationship, but extend and should extend their search to the whole market. Even though the potential for improvement of decision quality yielded by the above mentioned instruments is not yet fully ascertained and will have to be subjected to thorough empirical testing, it seems likely that supplementary market oriented measures of consumer support and protection (*instruments of group A*: see I.A. supra) could prove beneficial for consumers, independently of the outcomes of these particular tests.

The willingness of consumers to conclude a new cellular service contract and – as a basis for that – to consider product-attribute information of a greater number of providers in the market, instead of turning only to the offers of one provider, could not be measured in our study, because both aspects constituted pre-fixed conditions of the decision environment of the participants: The conclusion of a new cellular service contract was the main decision task, and a list of links to the offers of the 11 major service providers in the Austrian market was presented to the participants. Considering the extremely high degree of reluctance of Austrian cellular service customers to switch providers – even after having been confronted with a price increase in their current contracts – reported by the RTR GmbH study (2015b), legal instruments capable of activating consumers in the market must be classified as highly important and effective instruments of promoting the consumers' interests. Consumers unwilling to terminate their current, eventually unfavourable cellular service contracts and to switch to a new better offer of a different provider violate their own economic interests, and contribute to a decrease in overall consumer welfare. Therefore, consumers should receive easily accessible and easily usable information about the whole market and should be motivated to act on it by entering into new better contractual relationships (e.g., by *trigger information* see VI.D. supra).

One promising market oriented instrument is addressed by TKG Section 25c (see II.C.5. supra): the *whole-market tariff calculator*, which should enable consumers to make easy comparisons of all contract options offered by providers in the market, based on the figures of their individual use-pattern (see VI.A.1 supra). In Austria, these tariff calculators are currently offered by private organizations (like the Austrian Workers' Chamber), and not organized or prescribed by the state. They are rendered accessible on the homepage of the Austrian regulatory authority RTR GmbH (see I.B. supra). The existence of *whole-market tariff calculators* is not guaranteed by law: If the market does not produce any reliable and/or affordable calculator, the regulatory authority *may*, but is not required to establish such a calculator by itself.

The potential of such *whole-market tariff calculators* in terms of improvement of the choice quality of consumers (IV.C.2. supra) can be regarded as considerably high: First and foremost, they yield an enormous simplification of the information processing task of consumers with respect to the variety of tariff options found in the market, based on the consumer's user profile (thus, affecting tariff quality). Second, they are also able to integrate further relevant product-attribute information, like information on important contract terms, e.g., on contract termination or price increases (thus, affecting term quality). Third, they motivate and enable consumers to switch to new more favourable offers of other providers in the market (thus affecting all types of decision quality). Last but not least, consumers who arrive at their goals smoothly, without any time consuming effortful processing of large amounts of information are likely to be more satisfied (thus, subjective decision quality will be raised).

As the study commissioned by the Austrian RTR GmbH (2015b) revealed (see V.E. supra), only 8.3% of the participants ($N = 1748$) made use of *whole-market tariff calculators* for their choices on the cellular service market. 61% did not know tariff calculators at all, 28% knew them but did not want to use them. Nevertheless, 82% felt well informed about the offers in the market. Considering the above described potential of this type of tariff calculators (in terms alleviating and improving individual information processing and of encouragement of the switching of providers), state authorities and legislators should definitely take measures to make them better known and accepted in the population. As *whole-*

market tariff calculators are not a business of single providers, organizations or businesses outside the cellular service industry will have to maintain and offer them. Whether these organizations and businesses offer comprehensive and reliable information or not, should be determined and controlled by state authorities (possibly, the RTR GmbH). This authority should issue a certificate of approval for reliable, comprehensive calculators. In case private offers of *whole-market tariff calculators* are not satisfactory, the state should have the duty to ensure high quality service of such a calculator by itself. All providers in the market should be obliged to display a link to one or more state certified *whole-market tariff calculator(s)* in a prominent place on their homepages.

Measures of enhancement of psychological variables (*trigger information*: see VI.C. supra), in particular of the consumers' *motivation to process systematically* and of their *promotion* and *prevention foci* cannot be only implemented on the level of the homepages of individual providers, thus affecting the relationship between a provider and its customers, but also on a neutral whole-market level. For instance, information about possible high personal savings by switching providers could be easily combined with the offer of a (neutral, high quality) *whole-market tariff calculator* in the internet. The same holds true for communications directed to consumers aiming at the increase of their personal *motivation to process systematically*.

The optimal design of all mentioned market oriented instruments can be investigated by empirical studies, in which alternative forms of calculators and enhancement instruments are tested and evaluated on the basis of the decision quality achieved by participants.

VII. CONCLUSION

The conclusion of a cellular service contract in the internet, which was the task of 363 participants in the main part of our study, constitutes a complex information processing task under high information load in a densely regulated decision environment. A closer look at the regulatory framework (see II. supra) and the psychological background (see III. supra) of these decisions nourished our suspicion that current EU and national consumer protection regulation, in particular rules of disclosure of information,

might fall short of their main goal of enabling consumers to make “good” contract choices. In our study, we assessed the information processing behavior, including personal and contextual variables, with a palette of measures, identified discrete choice strategies, and examined how they related to choice quality. On the basis of the goals of current EU consumer protection regulation, a (normative) three-level measure of decision quality was developed which comprises tariff quality, term quality (both objective measures), and subjective quality (personal satisfaction).

We found that most successful search strategies were not exhaustive, but instead involved the focused selection and processing of a medium amount of information. Even though information load was very high, a deep, thorough, and systematic search, which would be associated with the processing of larger amounts of information over a longer time, did not lead to better, but to worse choices. No evidence of the successful use of such heuristics which would imply the fast processing of only a small amount of information was found (e.g., experience). However, the focused selection and processing of only that information that was of high relevance for decision quality by successful choosers might have involved, at least in some cases, some type of heuristic processing, which could not be specified by our measures. In addition, we found evidence for a significant relation between three psychological variables (motivation to process systematically, involvement in the decision, promotion and prevention focus) and successful search behavior.

The empirical evidence provided by our study and by a recent RTR GmbH study on the consumption behavior of cellular service customers in the Austrian market formed the basis for several assumptions we made about the effectiveness of present and future regulatory instruments designed to cause and support “good” consumer choices (see VI. supra). Most of these assumptions invite further testing and empirical investigation. In brief, we assumed that persons not able to find and correctly process the medium amount of relevant information which leads to successful choices could achieve better results with the help of regulation prescribing the presentation of (prescriptively determined) “relevant” information in a privileged way (salient, simple, clear, etc.), and with the help of regulation *guiding* consumers to good choices (*guidance regulation*). *In-business tariff calculators* implemented on the individual providers’

homepages (on the basis of mandatory law) could constitute one of these guidance instruments. *Guidance regulation* could, additionally, contain *trigger information* which enhances psychological variables related to successful choice behavior, in particular the motivation to process systematically and the promotion focus. Even though our study only extended to product-attribute information and used pre-fixed user profiles, (other) empirical evidence gives clear indication that the availability of precise information on a consumer's individual use-pattern ("relevant" information to be presented in a privileged way) and the consumer's readiness to consider the whole market offer and to switch to a new better provider (*whole-market tariff calculators*) are important additional increments in the improvement of consumer choices.

In addition to the suggested empirical research testing the effectiveness of the above mentioned improved instruments of disclosure and guidance regulation, on the basis of our three-level prescriptive measure of decision quality, we discovered the following promising research questions related to our investigation:

- a) Future research could further clarify the relation between psychological variables, information processing behavior and decision quality by including additional measures. For instance, measuring the basic motivation orientation (i.e., accuracy vs. defense motivation) could help to clarify the effects of involvement on information processing and on decision quality (Chaiken et al. 1989:212; Petty & Cacioppo 1986:1032; Pham & Avnet 2004:503).
- b) Although the present study shed some light on the relationship between the self-regulation focus and information processing behavior, future attempts that experimentally induce different self-regulation foci in order to promote a certain information processing behavior could describe this relationship more precisely.
- c) The application of additional self-report measures on information processing, like, for instance, on the need for additional information (Chaiken et al. 1989:212), on perceived consumer confusion (Kasper et al. 2010:140) and on perceived information gathering capacity (Kahlor et al. 2003:355) could shed additional light on the process of information processing itself.

- d) As described in IV.C.2. *supra*, objective measures of decision quality and subjective satisfaction can produce contradictory results in some cases. In our study, we measured subjective quality only in participants who were *unaware* of the objective quality of their decision (*subjective quality under unawareness*). However, subjective quality appears to be of higher relevance for legal judgment where consumers are fully *aware* of their contradictory results in the objective and subjective evaluation and insist on their subjective judgment (*subjective quality under awareness*). Therefore, future studies could investigate the divergence between objective quality scores and *subjective quality scores under awareness* and find out more about its implications for regulation.
- e) The impact of the use or non-use of individual use-pattern information and of the use or non-use of *in-business* and *whole-market tariff calculators*, which were not part of our study, on decision quality could be explored in future studies.

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IX. TABLES

Table 1: Frequencies of Decision Strategies

<i>Strategy</i>	<i>Description</i>	<i>N</i>	<i>%</i>
NONE*	Description fits none of the categories	25	6.9
Experience*	Selects alternative based on personal experience	14	3.9
Lexicographic Strategy (LEX)	Selects alternative with the highest attribute value on the most important attribute (e.g., monthly costs)	140	37.7
Elimination by Aspects (EBA)	Eliminates alternatives that do not reach a predefined value on the first (i.e., most important) attribute (e.g., monthly costs)	25	6.9
EBA-LEX (LEX-EBA)*	Combination of LEX and EBA that uses EBA to limit choices and then uses LEX to choose among the remaining alternatives (or vice versa)	36	9.9
„Satisficing“*	Special form of EBA; compares each alternative with a „favorite“ and eliminates if it comes off badly	11	3
Lexicographic-Additive Strategy (LEX-ADD)	Combination of LEX and ADD that uses LEX to limit the set of alternatives and then uses ADD to evaluate the remaining alternatives	59	16.3
Elimination by Aspects-Additive Strategy (EBA-ADD)	Combination of EBA and ADD that uses EBA to limit the set of alternatives and then uses ADD to	50	13.8

<i>Strategy</i>	<i>Description</i>	<i>N</i>	<i>%</i>
ADD)*	evaluate the remaining alternatives		
Feature	Selects alternative with the highest number of attribute values that achieve a predefined minimum requirement	1	0.3
Additive Strategy (ADD)	Selects alternative with the highest sum of attribute values across all variables, without weighting the variables differently	3	0.8
Weighted Pros Strategy (PROS)	Selects alternative with the highest number of weighted Pros. Alternative gets a Pro when it scores best on a certain attribute; variables are weighted according to their importance	0	0
Weighted additive Strategy (WADD)	Selects alternative with the highest weighted „sum“ across all variables that are weighted appropriate to their importance	2	0.6

NOTE: Table 1 reports the frequencies (N, %) of decision strategies as coded from the participants' descriptions of their individual approach in gathering information during the task. Coding categories were based on the decision strategies suggested by Rieskamp & Hoffrage (2008:258) and were adapted to fit the requirements of the present task (see also Korobkin 2003:1203). Strategies marked with an asterisk, were added to the ones of Rieskamp & Hoffrage (2008:258).

Table 2: Frequencies of Decision Strategies with Increasing Complexity

<i>Complexity</i>	<i>Assigned strategies</i>	<i>N</i>	<i>%</i>
very low	Experience	14	3.9
rather low	Lexicographic Strategy (LEX), Elimination by Aspects (EBA), EBA-LEX (LEX-EBA), „Satisficing“	209	57.6
rather high	Lexicographic-additive Strategy (LEX-ADD), Elimination by Aspects-Additive Strategy (EBA-ADD)	109	30.0
very high	Feature, Additive Strategy (ADD), Weighted Pros Strategy (PROS), Weighted Additive Strategy (WADD)	6	1.7
not assignable		25	6.9

NOTE: Table 2 reports the frequencies (N, %) of decision strategies based upon their complexity. Descriptions of each strategy are given in Table 1.

Table 3: Descriptive Statistics of Different Measures of Information Processing Behavior

<i>Information Processing Parameter</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Sum of clicks (all clicks)	4	191	61.49	26.37
Sum of time (all clicks)	84.00	2847	1369.36	611.24
Clicks on tariff pages	1	120	45.34	19.01
Time on tariff pages	16	2548	1177.16	589.14
Clicks on additional documents	0	20	3.64	3.81
Time on additional documents	0	1227	115.33	156.40
Clicks on General terms and Conditions (GTC)	0	3	0.19	0.54
Time on GTC	1	372	56.10	80.31
Clicks on Rate Provisions (RateP)	0	16	2.84	3.05
Time on RateP	0	1227	91.29	132.86
Clicks on Service Descriptions (ServD)	0	3	0.07	0.29
Time on ServD	0	244	1.83	14.65
Clicks on shopping cart	1	17	1.84	1.61
Time on shopping cart	2	235	19.64	23.31

NOTE: Table 3 reports range (Min to Max) mean (M), and standard deviation (SD) of several behavioral measures of information processing.

Table 4: Factor Loadings for Exploratory Factor Analysis, Means and Standard Deviations of the Subjective Relevance of Decision Variables

<i>Decision variables</i>	<i>Factors</i>				<i>M</i>	<i>SD</i>
	<i>Basic Tariff</i>	<i>Commitment/</i>	<i>Personal</i>	<i>Other</i>		
	<i>Details</i>	<i>Flexibility</i>	<i>Experience</i>	<i>Tariff</i>		
Activation fee	.686	.136	-.043	.276	4.80	1.41
Cost-efficiency of chosen tariff	.657	.113	-.037	-.149	5.66	0.70
Costs of SIM-card registration	.617	.205	-.100	.415	4.28	1.70
Monthly charge	.588	.033	-.063	-.139	5.66	0.75
Amount of free units (minutes, text, data)	.369	-.012	.028	-.136	5.76	0.62
Costs for units after usage of free units	.219	.094	.075	.156	4.45	1.61
Conditions of contract termination (e.g., notice period)	.079	.822	.082	.172	3.34	1.73
Flexibility (possibility to change provider or tariff)	.027	.820	-.018	.058	3.48	1.72
Commitment period (minimum term)	.208	.786	-.023	-.026	4.31	1.63
Coverage (no possibility of tariff increases)	.142	.457	.285	.392	3.05	1.63

<i>Decision variables</i>	<i>Factors</i>				<i>M</i>	<i>SD</i>
	<i>Basic Tariff</i>	<i>Commitment/</i>	<i>Personal</i>	<i>Other</i>		
	<i>Details</i>	<i>Flexibility</i>	<i>Experience</i>	<i>Tariff</i>		
Prepaid vs. plan	.032	.330	.232	.029	4.26	1.67
Personal experience with excluded providers	.036	.110	.789	.083	3.01	1.85
Personal experience with chosen provider	-.189	-.031	.761	.257	3.08	1.94
Personal experience with excluded tariffs	.073	.185	.726	.061	2.41	1.64
Personal experience with chosen tariff	-.029	.077	.722	.150	2.17	1.63
Brand or reputation of provider	-.338	-.052	.548	.152	2.88	1.66
Intuition/gut feeling	.102	.004	.375	.166	4.36	1.45
Technical availability	-.064	.005	.262	.735	2.96	1.75
Roaming charges	-.259	.252	-.006	.678	2.83	1.64
Network coverage	.143	-.026	.280	.675	3.75	1.76
Technical and personal accessibility (e.g., stores, service lines)	-.172	.096	.301	.660	2.89	1.73
Costs for international phone calls	-.351	.198	-.041	.636	2.83	1.73

<i>Decision variables</i>	<i>Factors</i>				<i>M</i>	<i>SD</i>
	<i>Basic Tariff</i>	<i>Commitment/</i>	<i>Personal</i>	<i>Other</i>		
	<i>Details</i>	<i>Flexibility</i>	<i>Experience</i>	<i>Tariff</i>		
Discounts	.358	-.048	.155	.589	3.23	1.69
Fixed flat rate	-.010	-.025	.072	.497	3.31	1.83
Minute and data metering (after usage of free units)	.094	.149	.151	.351	3.36	1.70

NOTE: Table 4 reports the factor loadings of the different decision factors, as well as the mean importance (M) and standard deviations (SD) of each of 25 different contract characteristics. Responses were given on a scale, ranging from 1 (not important) to 6 (very important). Numbers written in boldface indicate factor assignment.

X. FIGURES

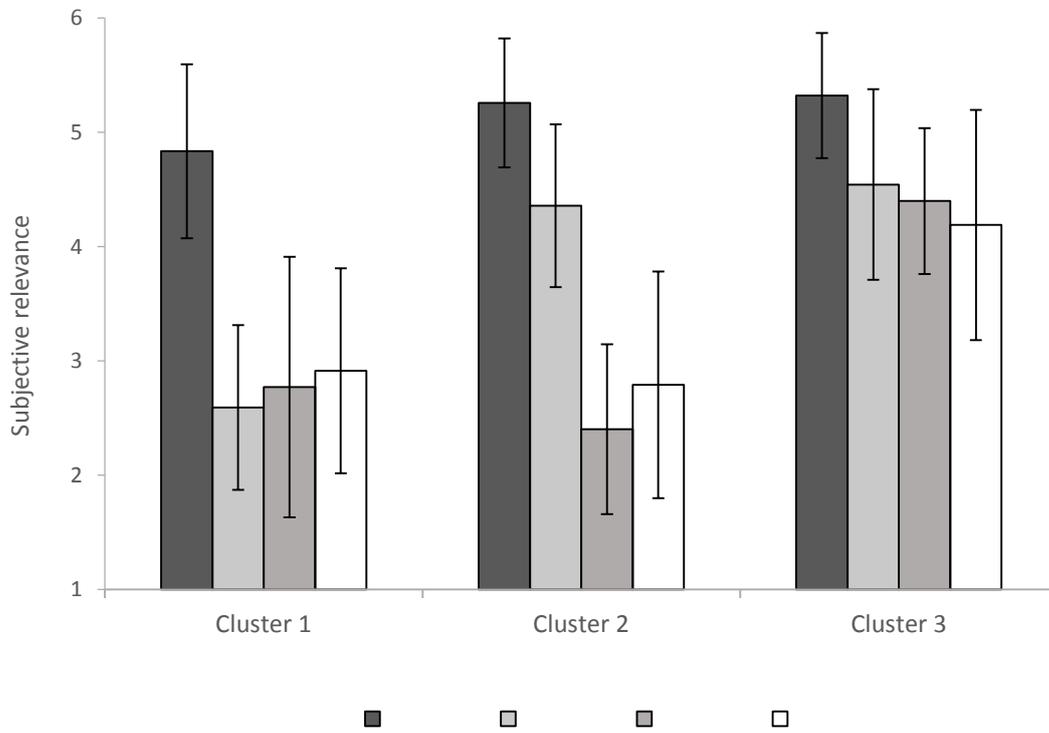
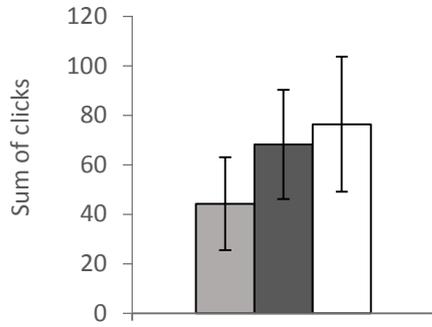
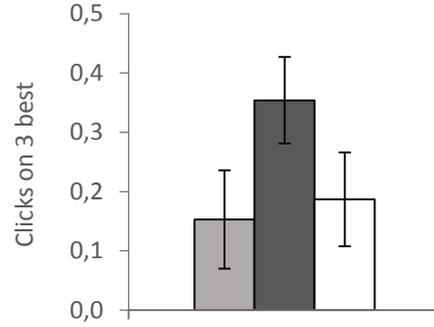


Figure 1: Means of subjective relevance of the decision factors as a function of cluster assignment; error bars represent standard deviations

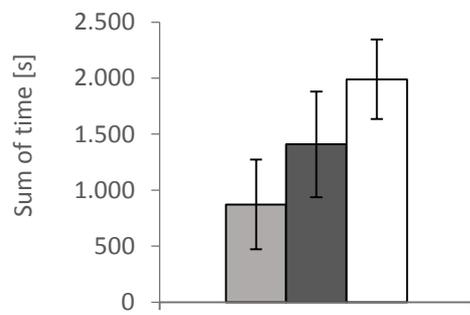
A



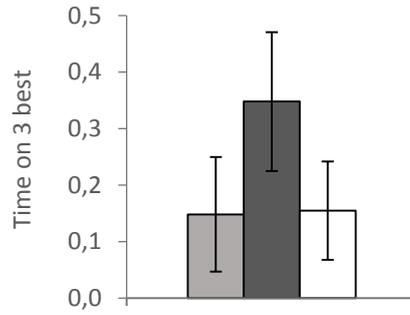
B



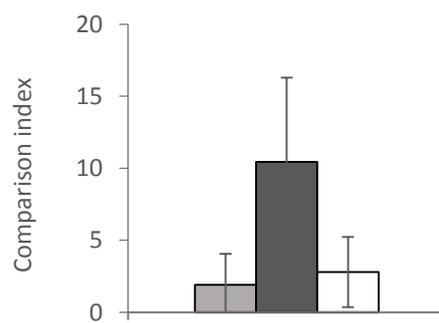
C



D



E



■ Cluster 1: short-time incorrectly focused

■ Cluster 2: medium-time correctly focused

□ Cluster 3: long-time incorrectly focused

Figure 2: Means of the five behavioral measures of information processing as a function of cluster assignment regarding **A)** Sum of clicks; **B)** Clicks on 3 best; **C)** Sum of time; **D)** Time on 3 best; and **E)** comparison index. Error bars represent standard deviations.