Designing for Cost Transparency in Investment Advisory Service Encounters

Clients of investment advisory services are generally dissatisfied because of the services' lack of transparency. In general, advisors do not provide clients with transparent and detailed information on costs. Such information, however, is of much importance, since an investment portfolio's costs directly influence its effective return. In this paper, we present a design science research cycle on how cost transparency may be provided in client-advisor encounters as a feature of collaborative tabletop artifacts. We find that our cost transparent design positively influences the client's perception of the service encounter as well as its results. Not only are clients more satisfied but also do they declare increased willingness to pay for the cost-transparent service.

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1 Introduction

Investors are dissatisfied with their financial service providers' (FSPs) investment advisory services (Mogicato et al. 2009). Indeed, to counteract cost pressures resulting from fierce competition, FSPs have been optimizing their advisory activities towards product sale rather than provision of advice, leading to a poor quality of advice (Jungermann and Belting 2004). For investment advisory services, research suggests several characteristics that are detrimental to advisory quality, including information asymmetry and interest asymmetry (Oehler and Kohlert 2009). Due to these asymmetries, the advisor might exploit the client's less knowledge and experience to opportunistically pursue his own goals (e.g., by only superficially gathering information or deliberately presenting information in an incomprehensible way). Such (possible) behavior is fostered by the lack of information disclosure, especially regarding the exact costs of the investment advisory service and the products offered therein. Hence, the client cannot be sure whether the advisor is optimizing the solution for the client's best interest or, on the contrary, towards higher fees and provisions.

Considering the clients' general preference and demand for transparency (Lechner et al. 2009), the revenue models of FSPs lead to a paradoxical situation. FSPs are trying to confront competition by designing cost structures to be highly non-transparent and thereby difficult to compare (Carlin 2009). At the same time they are impairing the resulting service quality as perceived by their clients – potentially also affecting their satisfaction. Indeed, looking at the prevailing business models of Swiss FSPs and the resulting incentive systems of advisors, we argue that the lack of cost transparency may be a major source of client dissatisfaction.

As legislative regulations trying to establish transparency "top down" do not hold up to their promises (Oehler and Kohlert 2009), in this paper we suggest a "bottom up" approach of introducing transparency at the locus of investment advisory services – the client-advisor encounter. We start our investigations by posing the question of why FSPs are still refraining from establishing cost transparency. Based on a comprehensive study of the status quo of investment advisory services in Swiss FSPs (Mogicato et al. 2009), we find two major reasons:

(1) Given that information technology (IT) is hardly used in advisory encounters (Schwabe and Nussbaumer 2009), cost transparency of advisory results (i.e., product portfolios configured by the advisor and adapted to the client's preferences) is very difficult to maintain. As it is complex enough to allow for ad-hoc changes of product allocation (e.g., replacing one product with another), it is virtually impossible to adapt and configure such portfolios while dynamically adjusting or accounting for changes in the cost structure. The calculation of actual costs in such scenarios is likely to be too complex. Thereby, the client is confronted with the actual costs of her decisions typically only after they have been made.
(2) FSPs consider cost transparency being detrimental their business models, supposing – and thereby following neoclassical theory's intuition

– that clients would always opt for the least expensive product from a set of (perfect) substitutes (including products of competitors). The majority of FSPs find such client behavior problematic, as they – in order to provide their advisory services "free-of-charge" – cross-subsidize them with earnings from selling products. These, in turn, involve a multitude of subsidiary costs, such as management fees, transaction fees, etc. This constellation, however, exposes the client to serious conflicts of interests. Will the advisor optimize the client's portfolio according to her needs and preferences or rather to achieve cost coverage?

In previous research, we have suggested that transparency issues in investment advisory encounters may be best addressed with shared IT artifacts (Nussbaumer and Schwabe 2010). Providing shared information spaces, such artifacts may increase the client's perceived transparency in respect of the advisory process as well as the information used therein (Nussbaumer et al. 2012).

In this paper, we present a complete build-and-evaluate design cycle (Hevner et al. 2004), in which we demonstrate that such shared artifacts may also bridge the complexity of enabling cost transparency, i.e., provide access to dynamic cost information. Such procedure is also interesting from a transparency research perspective. While much literature is concerned with the theoretical benefits and effects of transparency, empirical investigations are rare, especially in terms of design research. We aim to contribute to this body of knowledge in two ways. First, we provide insights into the feasibility of incorporating facets of cost transparency into the design of shared IT artifacts. Second, in an experimental evaluation we demonstrate the efficacy of such artifacts in improving cost transparency and investigate their practical impacts on client-advisor encounters. Based on the literature, we thereby argue that introducing cost-transparent artifacts may – in contrast to the FSPs' beliefs – not only have positive influence on the client's satisfaction with the encounter but also on her willingness to pay.

We based the build activities of our design science endeavor on design principles of establishing process and information transparency in investment advisory encounters (Nussbaumer and Matter 2011; Nussbaumer et al. 2012). Conceptualizing cost transparency as a facet of information transparency, we extended these design principles by features of cost information provision and instantiated them in a shared IT artifact to mediate client-advisor interaction.

The resulting IT artifact was evaluated against its design goal of improving cost transparency as well as its proposed effects of increasing client satisfaction and willingness to pay. In order to delimit the efficacy of cost transparency from principles of establishing process and information transparency, we conducted controlled experiments involving two different artifacts. The first one implemented the general principles of process and information transparency, the other extended these principles by features of cost transparency. Using a within-subject design with 12 clients and 2 advisors, the experiment let client participants pass through two advisory settings supported with the respective artifacts. According to the experimental design, differences in client valuation between the settings could be ascribed to the differences of the IT artifacts, which were only related to cost transparency.

Results demonstrate the cost transparency design's efficacy in improving the client's perceived understanding and comprehension of costs. They also indicate a positive influence of the cost transparency features on the client's general assessment of the advisory encounter. On the one hand, clients show increased satisfaction with the cost-transparent encounter. On the other hand, and supporting Carter and Curry's (2010) notion of an individual's economic and social perspective on product pricing, in such encounters clients indeed tend to prefer less expensive products (economic perspective) but in turn exhibit increased willingness to pay for the service received (social perspective). These findings may challenge the common belief of FSPs that transparent, fee-based advisory services would neither be accepted by clients nor be economically viable.

2 Transparency in Investment Advisory Encounters

In this paper, we investigate cost transparency in Swiss investment advisory services with a focus on affluent private clients (with an approximate investment amount of 50000 to 500000 CHF). We chose to investigate this segment as it marks the bottom end of the private banking market and is, given its potential growth, increasingly considered a lucrative market by FSPs (Molyneux and Omarini 2005). Also, most Swiss FSPs have established structured advisory processes to target this growing segment with consistent and efficient services. These services provide assistance in defining strategic asset allocations according to the client's needs and risk preference as well as their tactical implementation with financial products. We base our practical insights on investigations of 37 Swiss financial service providers (Mogicato et al. 2009) as well as in-depth interviews and observations in a major Swiss bank.

2.1 Transparency Issues

In investment advisory service encounters, client-advisor interactions exhibit several characteristics that are detrimental to advisory quality. Most prominently, the encounter is inherently impacted by information asymmetry and interest asymmetry, problems that are well established in scientific literature in context of the principal-agent problem (Golec 1992). Information asymmetry results from the client being generally less knowledgeable than the advisor. Hence, she cannot be sure whether the advisor actually gathers and provides all relevant information and recommends appropriate solutions for her financial needs. The relation between client and advisor can be additionally strained by conflicts of interests. Advisors might exploit information asymmetry by, e.g., superficially gathering and providing information or, even worse, recommending products that are unsuitable for the specific client's needs but profitable in terms of fees.

From the client's perspective, these issues may be characterized by the implied lack of transparency. For investment advisory service encounters, we may differentiate between process transparency, information transparency and cost transparency. Process transparency relates to "the degree of the client being able to follow and comprehend the performed activities (what constitutes an activity and why is it performed) and their succession in advisory [services]" (Nussbaumer and Matter 2011, p. 280). While this entails the comprehensibility of the advisory process, information transparency involves two aspects: (1) the clients' comprehension of which information are recorded and for what purpose (Awad

and Krishnan 2006), as well as (2) the degree of the client being enabled to monitor and comprehend the informational basis of decision-making (Nussbaumer et al. 2012).

Regarding the recommendation of products (the ultimate goal of investment advisory services), we argue that cost transparency is particularly relevant. When buying or selling financial products, the transaction costs as well as the costs associated to a specific product (including direct costs such as initial buy charges, sell charges, stamp duties and management fees as well as indirect costs like retrocessions or finder's fees) play a vital role as they directly influence the portfolio's effective return. Providing the client with exact product costs rather than only with their exchange rates should thus allow for a more realistic assessment of product choices and their effects, thereby better enabling the clients to evaluate the advisor's recommendations.

In this paper, we conceptualize cost transparency as a facet of the discussed second aspect of information transparency, related to the client being enabled to monitor and comprehend the information base of the advisory encounter. This concept is closely related to price transparency, which is concerned with "information revealing the allocation among agents in a supply-chain of proceeds from the sale of a product or service" (Carter and Curry 2010, p. 760). Also acknowledging the transparency definition of Kraft (2008), we therefore may define cost transparency as the client's perceived degree of information revelation regarding costs and their allocation.

In investment advisory encounters, the degree of information revelation is typically low or inappropriate (Oehler and Kohlert 2009). Precise costs and prices are either not available in the encounter or not disclosed (e.g., because of interest conflicts), or may be represented in an overly complex manner (inherent to the complex cost structures, e.g., Carlin (2009)). Thus, to establish cost information transparency, cost information (1) has to be made available in the advisory encounter and (2) be comprehensibly represented and included in decision-making.

2.2 Effects of Transparency

Looking at the diversity of research domains that are concerned with transparency, we find a rich body of literature on theoretical benefits and effects of transparency. Empirical investigations, however, are rare, especially regarding advisory settings. For IS research, we are not aware of theoretical, empirical or design-related accounts regarding cost transparency in investment advisory services or client-advisor encounters in general.

For their concepts of increasing the customer's involvement in service encounters, Inbar and Tractinsky (2011) propose that transparency may be increased by sharing information with IT. They suggest that establishing transparency thereby may positively influence the client's perception of the service encounter and provider (e.g., regarding fairness and integrity, trust and satisfaction). In their empirical investigation of buyer-vendor relationships, Eggert and Helm (2003) as well conclude that transparency contributes to the overall success of a business relationship, delivers value to the customer and increases satisfaction.

Other practical implications may be drawn from the research of Andersson and Holm (1998). They argue that decision makers who are guided by "Popperian epistemology" will have a preference for transparency. Only if information is provided transparently, the individual will be able to potentially "falsify" them (analogous to Popper's notion of falsifiability of scientific theories). Andersson and Holm (1998) associate such preferences with an individual's suspicion in situations where transparency is not warranted, and hypothesize that individuals are more inclined to suspect manipulation when falsification of the information at hand is more difficult.

In the behavioral finance literature, such preference for transparency has been prominently discussed as investors' "ambiguity aversion" (Camerer and Weber 1992). Research suggests that individuals appreciate "ambiguous" situations (having no information about the probability distribution) less than "risky" situations (the probability distribution of the event is known), and are normally willing to pay to avoid ambiguity (Stracca 2004, p. 382). Carter and Curry (2010) find similar evidence in their research on transparent pricing, showing that individuals prefer products with transparent prices (providing allocation of costs to different supply-side parties) over their non-transparent counterparts and are willing to pay premium prices for such products.

2.3 Cost Transparency

In Switzerland, regulations on cost disclosure differ depending on the relation of client and FSP, i.e., whether the client maintains accounts and portfolios without making use of advisory services ("execution only"), taking advice but making her own decisions ("investment advice") or completely transfers decision-making to the provider ("asset management mandate") (Roth 2009). While in all cases FSPs have to fulfill basic duties of allegiance, due diligence and information disclosure, they are obliged to provide detailed cost information (including financial recompensation) only for mandates (FINMA Eidgenössische Finanzmarktaufsicht 2008).

For European financial markets, the European Commission (2004) passed the Markets in Financial Instruments Directive (MiFID) to establish uniform regulations with an emphasis on consumer protection. Generally focusing on principles of "best execution", the directive also demands providing all relevant cost information (European Commission 2004, Art. 19, par. 3; Roth 2007, p. 39). Oehler and Kohlert (2009, p. 98) argue, however, that such regulatory requirements are too generic and thereby must fail, as they are neither comprehensive nor specific enough and make unrealistic assumptions regarding the client's prior knowledge and ability to comprehend the provided information.

The clients' preference for transparency and legislature's efforts to create adequate regulations on transparency, however, seems not to be mirrored in FSP's practice of investment advisory services (Mogicato et al. 2009). To the contrary, Carlin (2009) shows that complexity of financial products tends to increase with competition – it is, in fact, a strategy of market participants to achieve higher profits. As most clients are not aware of a product's associated costs and their influence on the portfolio's return or not be able to (dynamically) estimate them, enabling transparency is timely. Finra (2009) finds this might be a quite general issue, reporting that the majority of private investors (in the US) have problems with assessing costs and prices of financial products. Thus, the responsibility for such considerations lies with the advisor, who may (or may not) exploit the in-

formation asymmetry for his or the FSP's self-interest.

In a comprehensive study of advisory practice in Swiss banks (Mogicato et al. 2009), we found that clients are quite aware of the discussed transparency issues. The prevailing lack of such transparency results in clients considering financial advisors as being rather untrustworthy and being not very confident that advisors present adequate solutions to their needs (Mogicato et al. 2009; Nussbaumer et al. 2011). Indeed – as, for example, Bergstresser et al. (2009) have shown – products recommended by advisors tend to exhibit higher costs while featuring lower risk-adjusted return than products selected by investors themselves.

The prevailing advisory business model of FSPs in Switzerland (and, incidentally, also in Germany and other European countries (Oehler and Kohlert 2009)) builds on cross-subsidizing advisory services through product and transaction costs (by direct and indirect costs, as discussed above) (Roth 2007). This strategy allows providing advisory services "free-of-charge". The actual costs of advice – as included in the product costs – remain non-transparent. Though such lack of transparency might negatively affect the client-advisor relationship and the client's resulting satisfaction, FSPs are still reluctant regarding alternative business models. Fee-based advice, i.e., the client being charged for utilizing advisory services, has been discussed long-since and suggested as a solution to interest asymmetries (Oehler and Kohlert 2009). FSPs, however, have been countering such models by bringing forward that clients were accustomed to services provided free-of-charge and therefore lack willingness to pay for them. For a "first-moving" FSP, charging fees could thereby result in competitive disadvantages (Mogicato et al. 2009).

2.4 Cost Transparency and Information Technology

As indicated in the introduction, cost transparency might also be inhibited by the lack of appropriate tools. While, e.g., costs of individual stocks may be easily evaluated according to up-to-date printouts of the according fact sheets, such assessments tend to get more complex for composite products such as mutual funds, featuring multiple cost types. When including the dynamic allocation of several products while accounting and optimizing for product and overall portfolio costs (including means of comparing different options and presenting their effects for the client's specific portfolio), the use of pen and paper is clearly limited.

While the typical Swiss FSP provides the advisor with powerful tools to prepare client encounters and perform follow-up activities, IT support for advisor-client encounters is hardly found. For Swiss advisory practice, Schwabe and Nussbaumer (2009) found that none of the 37 surveyed FSPs provided their advisors with dedicated tools to be used directly with clients. The provided IT's focus on supporting activities outside the actual client encounter is also reflected in standard software – most products lack of dedicated in-meeting support other than rotating the monitor screen to let the client behold of visualizations. Such setups of ad-hoc inclusion of IT may not only expatiate on the information asymmetry between the actors but may also increase the inexperienced client's uncertainty as the visualizations are mostly intended for experts (i.e., the advisor) (Inbar and Tractinsky 2011).

Likewise, research on IT support of financial advisory services (of which investment advisory services are a subset of) often shows an implicit focus on supporting the advisor in preparing client solutions (Buhl et al. 2007; Dziarstek et al. 2004; Eberhardt and Zimmermann 2007; Winkler 2006). The use of such systems may in fact restrict the advisor in respect to opportunism (e.g., recommending products not suitable for the client but attractive to the advisors in terms of provisions). However, these systems are designed to be used solely by the advisor outside the encounter, i.e., before or after the advisory session. As the client thereby cannot actually monitor the advisor's interaction with the information systems, they do not directly contribute to enhanced transparency for the client, e.g., in respect of advisory activities, the used information and its effects. We find this advisor-centricity to be in stark contrast to related domains of sales-based advisory services such as travel consultancy, where there has been some research effort regarding in-situ IT support for joint decision-making of advisor and client (e.g., Halloran 2002; Novak and Schwabe 2009; Rodden et al. 2003).

3 Transparent Design of Investment Advisory Encounters

We suggest that the problem areas of investment advisory services (low comprehensibility and low perceived quality because of information and interest asymmetries) may be attributed to inherent transparency issues regarding the activities of the advisory process (process transparency), the information used therein and their impacts (information transparency) and, as a facet of such information, costs of the service and its products (cost transparency). In previous design cycles, we have already developed and refined several design requirements for collaborative IT support to enable process and information transparency. Thus, we will base our considerations of cost transparency design on the main principles of such IT support (Nussbaumer et al. 2012). We will briefly present these principles and their basic rationales below.

The most fundamental design principle (DP) relates to information sharing between the client and the advisor (DP1: Provide shared information spaces for advisor and client in order to allow information access and monitoring of actions) and represents the bottom line of enabling IT-mediated client-advisor interaction. Thereby, the client and advisor should be provided shared "informational resources" that both can refer to and make sense of Rodden et al. (2003). As such, the client should be activated to participate and take more responsibility in the process, e.g., by enabling her to (maybe autonomously) adapt or change suggestions or recommendations of the advisor.

To enable transparency in investment advisory encounters, the provision of shared information spaces is necessary but not sufficient. To cooperate (and co-create) with the advisor, the client has to understand and comprehend the means and ends, i.e., the advisor's activities and their goals (DP2: Enable client comprehension of advisory activities and their goals in order to provide process transparency), e.g., how their initial inputs (needs, preferences, financial situation) are related to the final advice (e.g., product portfolio). The shared artifact therefore should visualize the activities so the client may comprehend intermediate results as well as the final solution to her investment problem.

In traditional pen-and-paper encounters, advisors may not have complete information (e.g., fact sheets of all relevant products) or the latest information at hand (e.g., product performances). A supportive artifact therefore should enable access to all relevant information with the help of integrated information sources (DP3: Support client-advisor interaction with adequate information in order to provide information transparency). Furthermore, to address the client's comprehension of information use, visualizations of relevant information should be provided as to give feedback regarding their purpose and possible effects.

Clients may find it difficult to relate abstract concepts (such as risk and return of investment strategies) to practical impacts regarding their financial situation. Thus, the artifact should allow for relating the relevant concepts to each other and allow comparing different options (DP4: Provide means of comparison in order to enhance comprehension of the process and its information). For example, the client should be enabled to compare the effects of her optimized investment strategy with her current situation, including the risk-return tradeoffs. This principle thereby adds a further dimension to providing process transparency (reflecting the implicit solution strategy of advisory activities, i.e., optimization by comparison) and information transparency (visualizing effects of provided or adapted information by comparing their outcomes).

Finally, the provided shared information spaces should not restrict clients and advisors in performing their favored structuring and enactment of the encounter processes, i.e., not imply standardized step-by-step processes but allow for adaptations of the advisory process flow according to the specific tasks (DP5: Allow actors to customize the advisory course).

So far, we have been able to apply and refine these design principles in three consecutive design cycles, investigating designs and effects of process and information transparency (Nussbaumer and Matter 2011; Nussbaumer et al. 2012). We found advisory encounters provided with shared, transparent IT support to be superior compared to their pen-and-paper counterparts. IT support implementing the specified design principles thereby relates to significantly improved process and information transparency as perceived by the client and significantly increased trustworthiness and client satisfaction (Nussbaumer et al. 2012).

4 Designing for Cost Transparency

We have argued above that issues related to cost transparency may also be a result of a lack of appropriate IT support in client encounters. With the typical product horizon of a FSP, paper-based access to relevant product-related cost information as well as the dynamic calculation of aggregated costs might be too complex or time-consuming, therefore implying support with IT artifacts. To investigate our conceptualization of cost transparency, we initiated a design cycle based on the design principles presented in the previous section. We thereby sought to design an IT artifact that follows the objective of addressing the two main requirements of cost transparency, i.e., (1) providing transparent cost information access and (2) comprehensibly represent and include such information in the advisory situation. Relating to the proposed effects of such transparency in the literature, such an artifact should positively influence the client-advisor interaction and improve the client's perception thereof.

While previous artifacts (Nussbaumer and Matter 2011; Nussbaumer et al. 2012) focused on supporting advisory activities to define (strategic) investment strategies, the usage scenario of our cost transparency design cycle entailed the collaborative construction of (tactical) product portfolios according to a previously defined investment strategy. The goal thereby was to allow the client and advisor to browse through available products, evaluate and compare them and jointly decide on which products to add to the client's portfolio.

Since the comprehensive inclusion of all financial products potentially available to a FSP client was not feasible for the purpose of prototyping, we simplified the artifact's usage scenario and corresponding design to allow the composition and adaptation of product portfolios consisting only of mutual funds. Due to their rather uniform cost structure (initial charges, sell charges, stamp duties and management fees) and public availability of cost information, they also allowed for realistic implementation and evaluation of the artifact. In the following, we will re-examine the previous design principles from the perspective of cost transparency.

To establish informational common ground and joint interaction, providing shared information spaces for advisor and client (DP1) is a prerequisite. While general transparency (e.g., regarding the process and activities) does not necessarily imply a technological imperative, we suggest that the complexity of dynamic provision of cost information requires this principle to be implemented using IT support. As such, cost transparency requires incorporation of DP1 in a technological shape to allow provision of dynamic cost information as well as to make them jointly available to advisor and client. This means that the client should not only be informed of actual costs but also be "activated" and enabled to act on the provided information, i.e., to incorporate costs in compiling her product portfolio.

DP2 requires the transparent artifact to make advisory activities and their goals comprehensible. Such process transparency seeks to enable the client to comprehend the rationales that underlie the advisor's activities, such as choices in product selection. In respect of cost transparency, this principle has the extended goal of enabling the client to also comprehend the advisor's rationales regarding product costs. Providing means of advisor monitoring through shared information spaces is a prerequisite of clients to comprehend the advisor's actions also regarding their implications on costs.

Thus, to enable the client to transparently assess the financial impacts of decisions (e.g., buying or selling specific products), she must be enabled to monitor the specific costs of the emerging solution. DP3 generally seeks to transparently provide the client with the advisor's informational basis (e.g., presenting internal information of the FSP as well as client information) and the influence and effects of this information on the advisory process and its result. As such, the principle emphasizes on the implied increase of client comprehension, e.g., when providing information material on the mechanics of asset classes or interactively showing the influence of the client's marital status on her tax burden. Thus, providing transparent cost information may facilitate client learning of cost structures of products in different

asset classes. However, interactively presenting product cost effects (e.g., on total costs or net portfolio return) also effectively addresses one of the main problems of advisory services, i.e., the potential opportunism of advisors. Being provided with shared information spaces, the client is not only enabled to monitor the advisor's action but also to evaluate them in terms of costs, thereby restricting the advisor in, e.g., opportunistically recommending profitable but unsuitable products. Above, we have defined the provision of cost information as a special facet of information transparency. Including cost information, however, extends the goal of DP3 of information provision for increased client comprehension towards client empowerment to evaluate (and thereby "falsify") the advisor's recommendations.

Putting an emphasis on the "falsification" of advisor actions and recommendations also affects DP4. In respect to process transparency and general information transparency, means of comparison allow the client to better comprehend the advisor's actions and their rationale. For example, comparison of the projected risk and return performance of the current investment strategy with the projected performance of the recommended optimization provides the client with a general indication of potential effects. In contrast, cost transparency should allow comparison of recommendations' definite effects by providing detailed cost information of individual products and aggregated costs for created portfolios.

In respect of process adaptability required by DP5, introducing cost transparency should not interfere with the course of the advisory encounter. Transparency of costs should be enabled in a way that allows the client to monitor contextual cost information at any time and independent from advisory activities.

5 Prototypical Implementation

Analogous to previous design cycles (e.g., Nussbaumer et al. 2012), we instantiated the design principles discussed in the previous section in a software application for the Microsoft Surface tabletop device, supporting the interaction scenario depicted in **Fig. 1**.

While providing a shared application constitutes the basis of fulfilling the artifact's first objective – providing access to cost information –, the particular design of how to provide such access in an understandable and comprehensible way, as demanded by the second objective, is important. In the following, we will therefore provide some details on the design implementation along the underlying design principles.

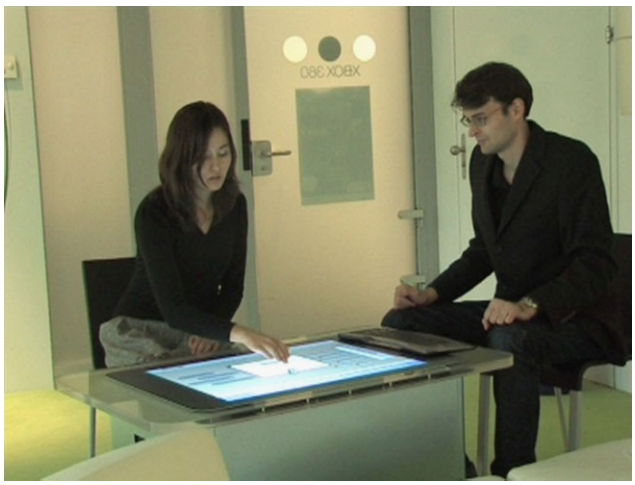

Fig. 1 Collaborative client-advisor interaction, mediated by Microsoft Surface (http://www.microsoft.com/surface.) tabletop

We designed the basic interaction of the artifact to allow collaborative creation of a product portfolio according to a specific (previously defined) investment strategy. To this end, client and advisor are provided with a shared information space (DP1) that mediates their encounter and allows both actors to interact on common ground and monitor each other's actions.

The application's basic information space (**Fig. 2**) is divided into the advisor's solution space (products; **Fig. 2**(**B**)) and the client's problem space (product portfolio with cost information; **Fig. 2**(**C**)) as well as a "transition space" for evaluating and comparing specific products (**Fig. 2**(**A**)) before adding them to the client portfolio.

Generally, both the client and the advisor may interact with all application spaces via touch interaction. As he is both the domain and the tool expert, however, it is assumed that the advisor is the application's primary user and leads the client through the course of portfolio construction. Still, the shared information space allows the client to monitor the advisor's actions and take corrective action at any time (DP1, DP2).

The application allows constructing individual portfolios by adding and removing products (mutual funds) according to different asset classes (shares, bonds and real estate; **Fig. 2**(**B**)). When selecting an asset class, the associated products are presented in the "transition space" as cards that may be freely arranged and oriented (**Fig. 2**(**A**)). The cards are used to compare products (DP4) based on several information dimensions (s. below). Once a product is selected, it is listed in the client's product portfolio (**Fig. 2**(**C**)) along with the portfolio's total costs. Thereby, the costs of all products in the portfolio are summed up and categorized into one-time and recurring costs. This allows showing effects of adding and removing products from the portfolio, enabling the client to better comprehend and understand the consequences of such changes (DP3). As for the client to see relevant portfolio cost information and include them into her decision making, the portfolio's cost information is visible at any time.

As already indicated above, all available products of the different asset classes are displayed as cards (**Fig. 2**(**A**)) that feature several information categories. To satisfy the general requirement of information transparency (DP3), each product card includes a short description and basic information about the exchange rates and net performance (**Fig. 3**(**II**)) as well as performance graphs (**Fig. 3**(**I**)). This information should support the client and advisor in evaluating the products' appropriateness for the client's portfolio, e.g., in regard to risk and return.

Cost information is made available on a separate card tab (**Fig. 3**(**III**)), displaying the cost structure of the product with all relevant partial and aggregated costs

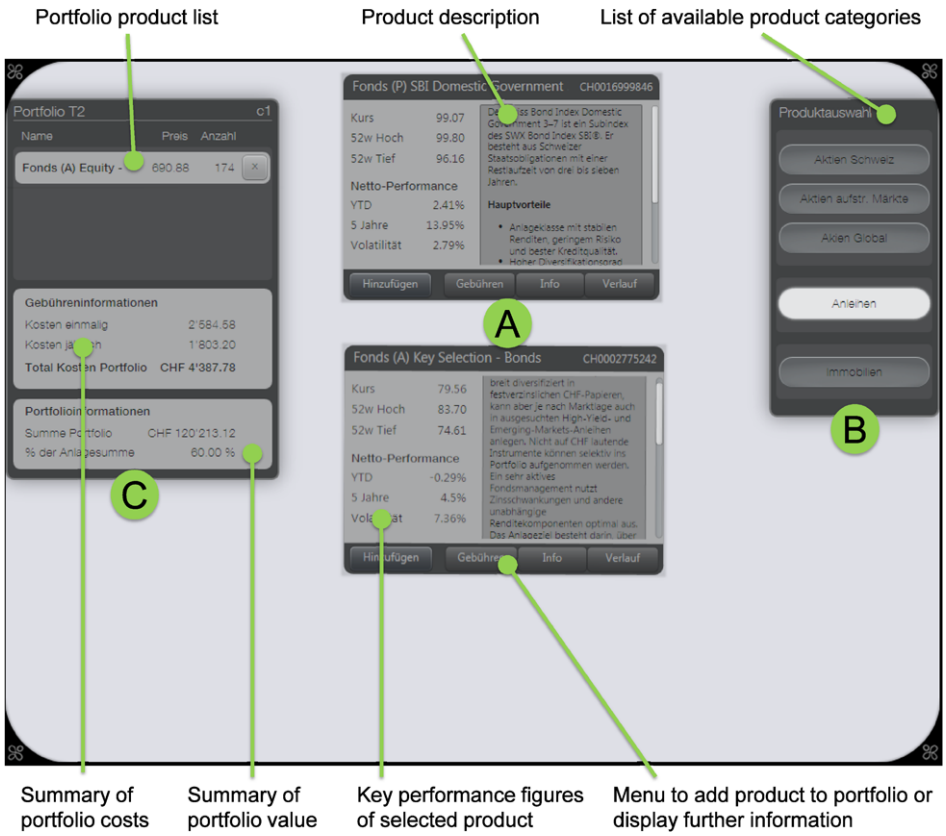

Fig. 2 Overview of the prototype application – (**A**) product "cards" to compare different products, (**B**) selection of products, (**C**) current product portfolio

(initial buy charges, sell charges, stamp duties and management fees). Furthermore, the tab allows partial and total costs of a product to be calculated for a specific (adaptable) investment amount. Such calculation of effective product costs allows quick comparison (DP3) of products independent from the actual portfolio, i.e., without adding and removing products and thereby changing the portfolio. To evaluate their actual influence on the total portfolio costs, however, the users may also easily add and remove products to and from the portfolio. Thereby, the client should be enabled to better assess the cost factors of different financial products and their differences, also stimulating her to discuss potential ambiguities with her advisor or "falsify" his recommendations.

Our prototype design incorporates relevant cost information as contextual information that is attached to the advisory encounter's main objects of interest, i.e., the products and the portfolio. While the current summary of portfolio costs is visible at any time, information on product costs on the respective cards has to be actively selected. Thereby, it is in the actors' discretion to investigate and discuss the information or not. As such, the integrated cost information does not require additional advisory activities or a particular order of activities (DP5).

6 Experimental Evaluation

In the previous sections, we have presented the build activities of our design cycle. We re-examined general design principles for client-advisor interaction to also account for cost transparency and demonstrated the feasibility of implementing them in a software artifact.

Regarding the evaluate activity of design science endeavors, there is agreement among researchers that design science artifacts have to be rigorously evaluated by appropriate methods (Hevner et al. 2004; March and Smith 1995; Witte 1997), such that their utility, quality, and efficacy can be demonstrated (Hevner et al. 2004, p. 16). Thereby, the artifact's performance should be evaluated against its design goals and objectives rather than only its specific (technological) features (Hevner et al. 2004, p. 78; March and Smith 1995, p. 254; Peffers et al. 2007, p. 56).

Several methods have been proposed such evaluation of design artifacts, including observational (case or field) studies, action research, surveys, analytical analyses, functional or structural testing, descriptive argumentation and experimental techniques such as controlled experiments or simulation (Cleven et al. 2009, p. 4; Hevner et al. 2004, p. 18; Riege et al. 2009; Siau and Rossi 2011). To validate design artifacts against conjectures about the outcome the designer sought to improve, experimental techniques like controlled experiments are useful. They allow measuring the degree to which the design objectives have been achieved (Briggs and Schwabe 2011). In this context, conjectures contrast the value of some dependent variable (e.g., satisfaction) across treatments that instantiate differing values of an independent variable. In design science research, one treatment often relates to using the designed artifact, whereas other treatments may include previously designed technological artifacts or control conditions featuring no technological artifact (Briggs and Schwabe 2011, p. 7).

We designed and implemented our software artifact along the design objective of enabling cost transparency in financial advisory encounters and according to conjectures regarding the positive effects of such transparency suggested by the literature. Experimental techniques provide appropriate means to evaluate

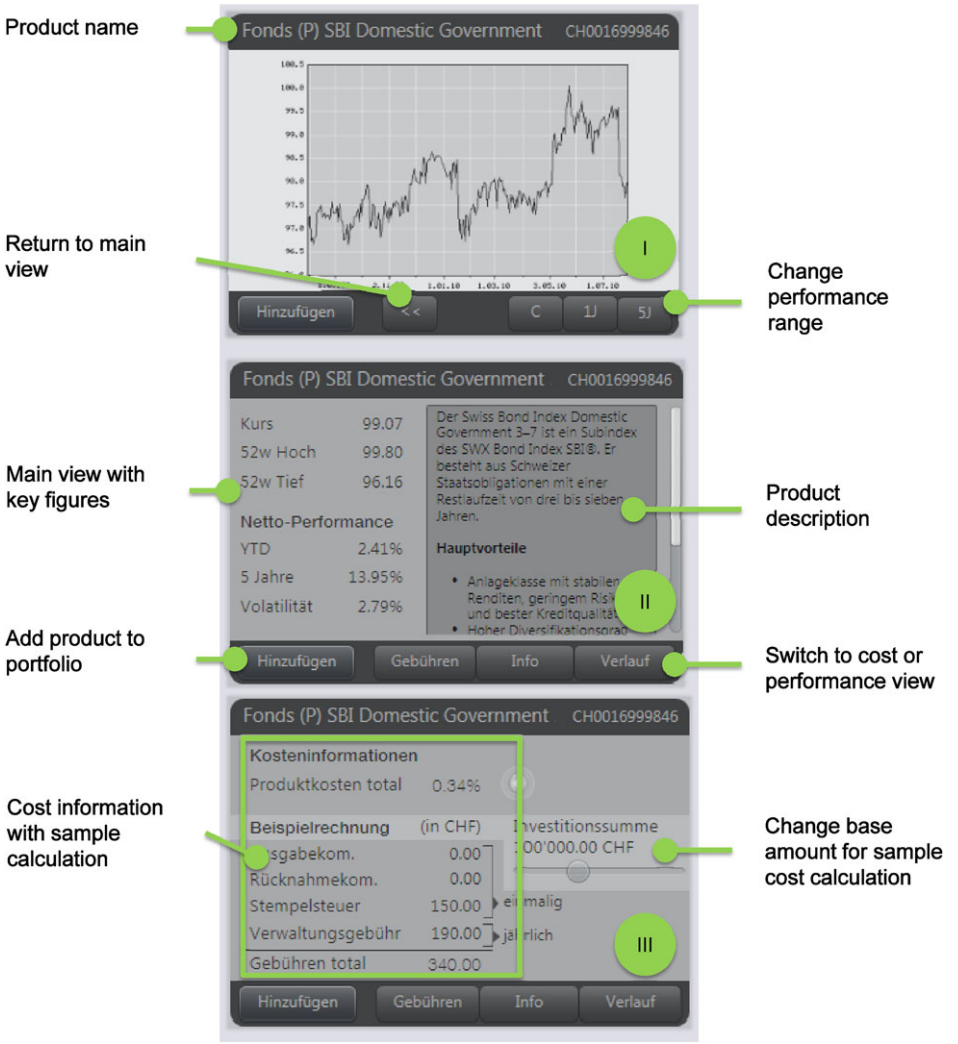

Fig. 3 Information provided by product cards – (**I**) performance view, (**II**) main view: general information (product description, figures on exchange rate and net performance) (**III**) cost structure

the artifact and the associated conjectures of its efficacy and effects in a controlled environment. The experimental setting thereby allowed us to simulate advisory encounters comparably well, as we could build scenarios that mirrored actual encounters between clients and advisors, including realistic tasks and their duration. By additionally employing actual investment advisors, we could evaluate the artifact in a quasi-natural but controllable environment.

To be able to delimit the specific utility and efficacy of our cost-transparent instantiation from the general features of process and information transparency, we built our experiment upon two different settings (treatments). Thereby, one treatment related to using the artifact that instantiated cost transparency, whereas the second treatment related to an analogous software artifact that only instantiated the general principles of information and process transparency. Differences in client valuation between the settings could therefore be ascribed to the differences of the IT artifacts, which were only related to cost transparency features.

6.1 Conjectures

The presented artifact was developed along the design objective of improving cost transparency in client-advisor encounters. The most basic conjecture of our evaluation thereby relates to the artifact's fulfillment of this objective. As the designed artifact makes available all relevant cost information, it may be objectively referred to as being cost-transparent. Along our definition of cost transparency as the "client's perceived degree of information revelation regarding costs and their allocation", we thereby assume that the designed artifact will also improve the clients' subjective perception of cost transparency, i.e., improve her understanding and perceived comprehensibility of cost information:

C0: Clients advised with an IT artifact implementing cost transparency features will show improved understanding and perceived comprehensibility of product costs than clients advised with an IT artifact not implementing cost transparency features.

Based on the discussion of proposed transparency effects in the literature (Sect. 2.2), we may also state some conjectures regarding the expected influence of the cost-transparent artifact design. Literature suggests that individuals will prefer transparent alternatives (Andersson and Holm 1998; Camerer and Weber 1992). Furthermore, in our exploratory research we found that clients often ascribe their discontent with advisory services to a lack of transparency (Mogicato et al. 2009). By implication, we assume that clients will prefer cost transparent advice over its non-transparent counterpart, and – along Eggert and Helm's (2003) observation that (relation-

Table 1 Client profile

Investment sum	CHF 200000
Investment horizon	10 years
Investment goal	Achieve returns that are as high as possible
Risk preference	Aggressive (on a 5-point scale "cautious–conservative–moderate–pro-active–aggressive")
Risk ability	Increased (on a 5-point scale "low–limited–normal–increased–high")
Asset allocation	60 % shares; 25 % bonds; 15 % real estate

ship) transparency might increase client satisfaction – find both the encounter as well as the advisor more satisfying. The according conjectures read as follows:

C1.1: Clients advised with an IT artifact implementing cost transparency features will show higher satisfaction regarding the advisory encounter than clients advised with an IT artifact not implementing cost transparency features.

C1.2: Clients advised with an IT artifact implementing cost transparency features will show higher satisfaction regarding the advisor than clients advised with an IT artifact not implementing these cost transparency features.

FSPs are not very eager to provide cost transparent advisory services because of their implied effects on existing business models. Research on price transparency (Carter and Curry 2010), however, suggests that clients not only prefer transparent settings but may also be willing to pay premium prices compared to non-transparent scenarios. We therefore assume that clients will show higher willingness to pay for cost-transparent advisory settings:

C2: Clients advised with an IT artifact implementing cost transparency features will show higher willingness to pay for the advisory service than clients advised with an IT artifact not implementing cost transparency features.

6.2 Method

6.2.1 Participants

Our evaluation involved 12 clients and 2 advisors from a medium-size Swiss bank. We determined the sample size by applying power analysis as suggested in the literature (Baroudi and Orlikowski 1989; O'Keefe 2007). We thereby calculated the sample size of 12 client participants using G*Power 3 (Faul et al. 2007) according to an assumed large effect size of $d_z = 0.9$ (with an assumed mean difference and standard deviation of 1 and correlation of 0.4), an error probability (α) of .05 and a test power ($1 - \beta$) of .80.

As getting access to FSPs' affluent clients proved prohibitively difficult because of confidentiality issues, we chose to acquire the client participants by recruiting them from a university forum (offering 20 CHF as compensation for a test duration of approximately one hour). Such convenience sampling, where participants partake in studies based on self-selection, is one of the most common sampling techniques (Lunsford and Lunsford 1995; Trochim 2006). As opposed to random sampling, using convenience sampling does not provide all members of a target population an equal chance of being selected. Thus, the participants may per se not be assumed to fully represent the target population. This may result in low external validity of a study. For our evaluation purposes – based on findings and propositions in the literature (Andersson and Holm 1998; Eggert and Helm 2003) – we argue that this preference for transparency is a general feature of (ambiguity-averse) individuals and, thus, recruiting participants by convenience sampling should not excessively constrain (external) validity.

The recruited participants (9 of them being students) were between 21 and 48 years of age, 5 of them being female, 7 being male. All of them reported high proficiency in computer use (4 participants categorized themselves as being professional users, 8 as advanced users). Only 5 of them indicated that they were experienced with mutual funds.

6.2.2 Procedure

The test procedure consisted of two subtests. One test involved the usage of the prototype application presented in Sect. 5, providing all relevant cost information features (setting T1). The benchmark test (setting T0) involved a similar application, instantiating the basic design principles discussed in Sect. 3 and implementing the same GUI and interaction design as the artifact in T1, but not providing cost information features and associated functionalities: all cost information as shown in **Fig. 2**(**C**) and **Fig. 3**(**III**) were removed.

For both treatments, the clients and advisors received the task of compiling product portfolios of mutual funds with the prototype application (s. below). The client participants passed through both settings, each being limited to 20 min. After their trials, the client participants completed a quantitative questionnaire and were then asked to give feedback on their impressions.

To effectively counterbalance potential biases in respect of the succession of treatments, we randomized the order of experimental conditions (Lazar et al. 2010, pp. 50–51). Thus, we randomly assigned one half of the client participants to the sequence T0T1 and the other half to the sequence T1T0. Thereby, they were also randomly assigned to a specific combination of advisor and setting (e.g., each client starting with "advisor 1 – T0" would afterwards be exposed to "advisor 2 – T1" and vice versa). Differences in client valuation between the encounters could therefore be ascribed, ceteris paribus, to the manipulation of the artifact's provision of cost information features.

On arrival, client participants received a short introduction (10 min), including instructions about their task and financial profile as well as explanations about their time table. To allow for comparison and prevent participants from disclosing their actual financial situation, clients received key figures of a fictional financial background (**Table 1**). They were requested to perform their tasks according to these figures. Furthermore, they were advised that the sessions would "differ regarding the available information". In the sessions, the client's main task was to create a product portfolio of three mutual funds (one per asset class), matching the given asset allocation and achieving high returns. For each asset class, the client could choose between two funds

that featured similar investment objectives, one being actively managed (and therefore more costly), and the other being passively managed. To establish realistic conditions, we based all information of the available products (12 in total) on existent mutual funds, whereas we altered their names to avoid experienced clients recognizing them.

To achieve variation in client product choice and minimize learning effects between the settings, we implemented the following alterations between the settings: for asset class "shares", the client participants had to decide on one of three categories (Swiss market, global market, and emerging markets) before each session, whereas for each setting they had to choose a different category. For asset class "bonds" the actively managed product and for "real estate" the passively managed product was changed between the settings.

The two participating financial advisors were briefed regarding the client profiles (information listed in **Table 1**) and the use of the software artifact. Their main task was to support ("advise") the clients in choosing appropriate products according to their profile. The advisor's goal for each session was to "satisfy" the client so she would recommend the encounter to others. Each advisor performed six advisory sessions in setting T0 as well as six in T1. For the different settings, the advisors were given the following additional tasks:

- T0: avoid discussions about costs, try to sell actively managed products
- T1: ensure that cost information is comprehensible for the client (making her aware that costs reduce overall returns)

6.2.3 Apparatus

Both treatments of our evaluation were conducted using the Microsoft Surface 1.0 tabletop system (s. also **Fig. 1**). Thereby, each setting was supported with a dedicated tabletop system running the respective prototype application (providing cost information features/not providing cost information features).

6.2.4 Design and Analysis

The experimental evaluation followed a within-subjects design with the prototype version (providing cost information features/not providing cost information features) as the main experimental factor. We opted for this experimental design as it provides a more effective isolation of individual differences of the participants from the main effects. Compared to between-subject designs they are also considered more powerful, while requiring smaller sample size (Lazar et al. 2010, pp. 55–51).

The quantitative client questionnaire included measurements to test our main conjectures and client preferences (s. below) as well demographic items (age, gender, job/education, advisory experience, IT skills). In addition to the quantitative questionnaire, we also asked the client participants to give feedback on their impressions (differences, preferences) of the two settings as well as their experience regarding the sessions' IT support.

As suggested above, providing cost information through transparent shared information spaces already fulfilled the artifact's first objective of making cost information accessible. To investigate the artifact's efficacy in fulfilling the second objective – providing such access in an understandable and comprehensible way (Conjecture 0) –, however, the artifact's utility in improving the clients' cost-related perception had to be considered. We surveyed the clients' perception of cost transparency using three Likert items. Thereby, the clients were asked to assess the different settings' influence on (1) their subjective understanding of the product structure ("I understand the cost structure of the selected products."), (2) their awareness of the actual product costs ("I am aware of what the selected products cost.") as well as (3) their perceived comprehensibility of the provided cost information ("I found the cost information comprehensible.").

To measure satisfaction with each advisory session (Conjecture 1.1), we used items from the Yield Shift Theory of Satisfaction (Briggs et al. 2008). The client's overall satisfaction with the advisors of the two sessions (Conjecture 1.2) was operationalized with a single item ("Overall, I was satisfied with the advisor."). All constructs were measured using as seven-point Likert items (ranging from 1 = "I strongly disagree" to 7 = "I strongly agree"). The participants' willingness to pay for each performed advisory session (Conjecture 2) was prompted with the following item: "How much of your investment amount of CHF 200000 would you be willing to pay for the received advisory service?".

To investigate client preferences, the questionnaire also included conjoint measures. We thereby conducted a rank-ordering conjoint-analysis on how the participants would trade-off the following aspects: (1) costs of advisory ("advisory session is free of charge" vs. "advisory service costs CHF 250 per hour"); (2) advisor's interests ("advisor adheres to his own interests" vs. "advisor adheres to the client's interests"); (3) transparency of product costs ("product costs are not communicated" vs. "product costs are communicated"). The participant's valuation of these aspects was tested using a complete factorial plan ($2 \times 2 \times 2 = 8$ different alternatives), where the participants were requested to sort the given alternatives according to their perceived utility (attributing "1" to the advisory alternative having the greatest perceived utility and "8" to the advisory alternative with the smallest perceived utility).

We analyzed the collected data as follows. To test our conjectures, we compared the ratings of the two treatments with dependent t-tests[1] (two-tailed) for normally distributed differences. All but two differences between the dependent scores proved to follow normal distribution (Shapiro-Wilk, $p > .081$ for all differences). For items with non-normally distributed differences – "willingness to pay" (Shapiro-Wilk, $p < .001$) and "awareness of product costs" (Shapiro-Wilk, $p = .02$) – we applied Wilcoxon matched-pairs signed-ranks tests.

All p-values of the statistical tests were corrected for multiple comparisons using the Benjamini–Hochberg procedure (Benjamini and Hochberg 1995). The correction also accounted for non-significant results. To provide an objective measure of importance, we also calculated effect sizes for all statistical significant findings (Cohen's d for dependent t-tests, r for Wilcoxon tests). To eliminate the alternative explanation that higher ratings were related to one advisor generally outperforming the other, we additionally evaluated the overall satisfaction of the participants with the two advisors. Since the ratings for the different advisors were not normally distributed (Shapiro–Wilk), we conducted

[1] We thereby implicitly assume that the responses to the Likert items can be treated interval. Non-parametric tests lead to the same results.

Table 2 Evaluation results (M = mean agreement, SD = standard deviation)

Measure	Rating for T0 (not cost-transparent)	Rating for T1 (cost-transparent)	Test of difference (two-sided)
Understanding of product cost structure	$M = 2.83$, $SD = 1.75$	$M = 6.00$, $SD = 0.85$	$t(11) = -5.162$, $p = 0.001$, $d = 2.44$
Awareness of selected product costs	$M = 2.58$, $SD = 1.98$	$M = 6.50$, $SD = 0.67$	$Z = -2.865$, $p = 0.008$, $r = -0.58$
Comprehensibility of cost information	$M = 2.42$, $SD = 1.83$	$M = 6.00$, $SD = 0.95$	$t(11) = -5.555$, $p = 0.001$, $d = 2.58$
Satisfaction with advisory session	$M = 4.60$, $SD = 1.39$	$M = 5.98$, $SD = 0.79$	$t(11) = -3.718$, $p = 0.009$, $d = 1.26$
Satisfaction with advisor	$M = 4.58$, $SD = 1.62$	$M = 6.00$, $SD = 0.74$	$t(11) = -3.559$, $p = 0.007$, $d = 1.20$
Willingness to pay (without outlier)	$M = 366.36$, $SD = 415.87$	$M = 710.91$, $SD = 714.71$	$Z = -2.371$, $p = 0.020$, $r = -0.48$
Total portfolio costs	$M = 6395.25$, $SD = 2839.56$	$M = 3577.58$, $SD = 2355.79$	$t(11) = 2.946$, $p = 0.017$, $d = 1.08$

a Wilcoxon test to investigate the differences. The rank-ordering conjoint-analysis was performed using the respective feature of SPSS 19.

6.3 Results

We present the results of our evaluation along our conjectures regarding the clients perceived cost transparency, satisfaction and willingness to pay. We then provide results of the conjoint analysis and figures on differences in the total costs of the portfolios composed in the different advisory settings. The clients' average ratings of the settings as well as the results of the statistical tests regarding their differences are summarized in **Table 2**.

6.3.1 Perceived Cost Transparency

In our design considerations we assumed that making available cost information through the shared artifact should increase cost transparency. Indeed, in the evaluation client participants found that the costs of their selected products were more understandable in the cost-transparent setting T1 compared to setting T0 which excluded all cost information features. Results of a two-sided dependent t-test showed this difference to be significant with large effect size (s. **Table 2**). Also, the participants' agreement of being aware of the selected products' costs was significantly higher for the cost-transparent situation with large effect size.

Regarding the artifact design's efficacy in providing cost transparency in an understandable manner, we also measured the client's perception of the provided information's comprehensibility. Supporting our conjecture, results show that client participants found cost information provision very comprehensible for the cost-transparent situation, showing a significant difference compared to the non-transparent setting with large effect size.

To gain qualitative argumentation from the participants, we also asked them for feedback on their experience. Observing the sessions, we found that only three of six participants passing the sessions in the sequence T1T0 asked about costs in T0 (featuring no cost information). In their feedback, however, those who had asked for cost information voiced their dissatisfaction with the advisors' answers. They criticized that the advisor just "read out some numbers from a sheet of paper", which was insufficient for them to make a decision. Two of the three participants, who did not ask about the costs in T0, said that they – after having already experienced T1 – felt confident of being able to estimate the costs themselves. Interestingly, most of the participants passing the sessions in the sequence T0T1 mentioned that they had not realized that the advisor of T0 had kept back cost information until they passed T1.

6.3.2 Satisfaction

Both the clients' satisfaction with the advisory session as well as with the advisor were rated significantly lower for T0 (non-transparent regarding costs) than for T1 (cost-transparent) with large effect sizes. Hence, according to our data we may maintain conjecture C1.1 and C1.2. To eliminate the alternative explanation that higher satisfaction ratings might be related to one advisor generally outperforming the other, we sorted the participant's satisfaction ratings by advisor (advisor 1: $M = 5.75$, $SD = 1.14$; advisor 2: $M = 4.83$, $SD = 1.59$). A Wilcoxon test did not show any significant differences between the advisor ratings, i.e., one advisor did not significantly outperform the other.

In their feedbacks, all twelve participants indicated that they would clearly recommend the advisory session featuring all relevant cost information (T1). The specific explanations of their recommendation, however, were different. Four participants preferred T1 because they felt "better informed". Two felt that T1 was "more transparent" than T0. One participant mentioned that, while in T0 the advisor "was beating around the bush", session T1 better enabled advisor and client to "talk about facts". Four clients based their recommendation on the perception that the advisor in T1 was more competent.

6.3.3 Willingness to Pay

While the average willingness to pay for T0 was CHF 503, the participants were willing to pay CHF 1485 for T1. The large standard deviation of T1 (T0: $SD = 616.13$; T1: $SD = 2766.76$) is salient, but can be explained by the large variations (the differences between T0 and T1 ranged from CHF 0 to CHF 8000). If we exclude one outlier (difference between

the two answers: CHF 8000), the differences between T0 and T1 are significant with a large effect size (s. **Table 2**). We therefore also may maintain conjecture C2.

6.3.4 Conjoint Analysis

The rank-ordering conjoint analysis (s. **Fig. 4**) shows that the participants value the advisor's interest the most (49 %). Valued with 27.6 %, also cost transparency seems to be more important for the participants than the advisory service being free-of-charge (23.4 %).

Though the sample size of the rank-ordering conjoint-analysis is too small to allow for general assumptions about the value systems of FSP clients, it provides interesting insights about how the participants trade off the different aspects.

For each advisory session the assembled portfolio was saved. Analyzing these portfolios, we find that for T0 63.9 % of the chosen products were actively managed (and therefore more costly), whereas for T1 only 27.8 % of the chosen products were actively managed (difference between T0 and T1: −36.1 %). Only considering portfolios of clients inexperienced with mutual funds, the amount of actively managed products decreases by −52 %. For experienced clients, however, we only find a difference of −13 %. Accordingly, the calculated portfolio costs per year (including issuing commission and redemption commission) are significantly higher for T0 with a large effect size (s. **Table 2**).

The participants' feedback on the IT support was mainly positive, with only two participants stating that they disliked the tool. One of them regarded himself as "old-fashioned" and would have preferred a paper-based advisory service. The other criticized the low resolution of the tabletop device and thus also would have preferred a paper-based or PC-based advisory encounter. The remaining ten participants, however, showed a very positive attitude toward the provided IT support. One participant described the advisory encounter as being very goal-oriented, thereby greatly simplifying the investment decision, whereas another one emphasized the provided transparency and comprehensibility. This enables the client to observe the advisor's actions at any time. Lastly, one participant expressed his attitude as follows: "Why such tools are not already used in the daily business?"

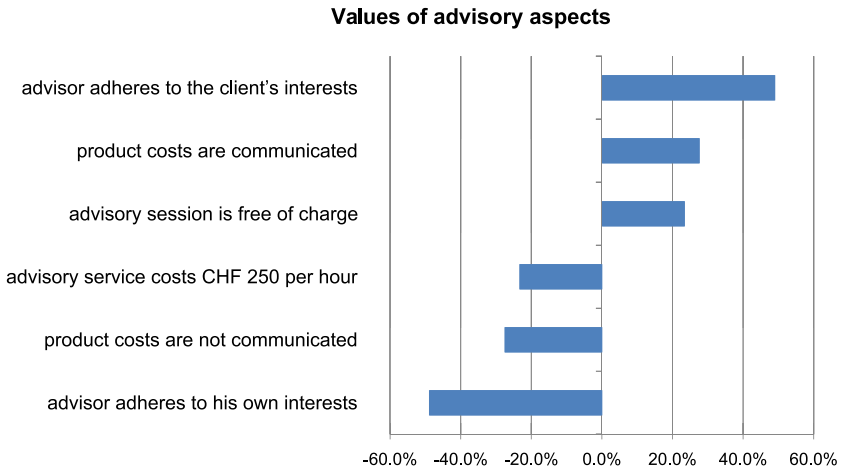

Fig. 4 Importance of advisory aspects as valued by the participants

7 Discussion

In this paper, we have argued that issues of process, information and cost transparency may be adequately addressed with collaborative and transparent IT artifacts. Instantiating design principles that have been developed and refined in previous design cycles, we presented how cost transparency may be supported by example of a prototypical tabletop application. We then investigated the efficacy and utility of our cost-transparent design in an experimental evaluation.

Looking at the results, we can see that the cost transparency features of our artifact design indeed improved the clients' understanding and perceived comprehension of costs. Also, we found that cost transparency also influences client-advisor interaction and the client's perception thereof. Supporting the client-advisor encounter with a cost-transparent artifact thereby relates to significantly increased client satisfaction with the situation and the advisor as well as increased willingness to pay. Thus, we may maintain all conjectures posed in Sect. 6.1.

7.1 Cost Transparency

We defined the two main objectives of our designed artifact to (1) provide access to cost information and (2) to comprehensibly represent and include the information into the advisory situation. Based on several generic design principles, we have presented an artifact design that fulfills the first objective by providing shared information spaces, allowing clients to access cost information in the advisory encounter. Regarding the second objective, in our evaluation we could also show that the design also succeeded in providing cost information in a comprehensible way. While the large differences between the settings might seem quite obvious – after all, for the non-transparent setting clients rated their understanding and comprehensibility based on being provided no cost information at all –, also the absolute ratings of the cost-transparent setting's comprehensibility were very high (with mean ratings of 6.00).

7.2 Client Satisfaction

We have argued that in investment advisory services cost transparency issues may inhibit advisory quality and may lead to client dissatisfaction (Mogicato et al. 2009; Oehler and Kohlert 2009). Research suggests that clients might not only prefer transparent situations (Camerer and Weber 1992; Carter and Curry 2010), since they are less "ambiguous" and therefore easier to "falsify", but also perceive them as more satisfying (Eggert and Helm 2003). The results of our evaluation support such notions, showing that the presence of an artifact providing cost information may increase client satisfaction. Indeed, we find significant differences with large effect sizes in the client's ratings of both the advisory session as well as the according advisor. In this regard, it is important to note that the clients' satisfaction with the advisor increased with the cost-transparent setting, i.e., their satisfaction was not based on specific characteristics of the advisor but the presence of cost information.

7.3 Willingness to Pay

Our results clearly support the conjecture that transparency might increase the client's willingness to pay for advice. The evaluation shows that the client's willingness to pay significantly increased in the advisory settings using our cost-transparent artifact. Looking at the large effects regarding the decrease of effective portfolio costs in the transparent setting, the willingness to pay is justified from an economic perspective. However, the client's "social perspective" on pricing (Carter and Curry 2010) might also influence such behavior. From this perspective, the rather high willingness to pay may result from the client rewarding the advisor's transparent and "fair" advice.

The client's willingness to pay may be one fundamental premise for FSPs to abandon today's practice of cross-subsidizing advisory services with product and transaction costs. The participants of our evaluation were indeed willing to pay for the received advisory services, even for the setting that did not feature cost transparency. We cannot, however, estimate possible effects of the IT artifacts on the client's perception. With 10 of 12 participants positively evaluating the artifacts, we cannot rule out positive effects on their willingness to pay for both settings.

From an economic perspective, the amount our participants were willing to pay clearly failed to draw level with the FSP's potential gains from portfolio costs. However, as our conjoint analysis exemplarily shows, the clients may also be willing to pay for advice on a recurring basis (e.g., per hour). Indeed, compared to the advisor's interests and cost transparency of the encounter, our evaluation participants valued advisory costs as rather unimportant. These preferences were compatible with their reported willingness to pay: clients were willing to pay much higher fees for the encounter that was cost-transparent and thus less asymmetric. Contrary to the FSPs beliefs, this may indicate that the client's willingness to pay is not the main obstacle of alternative business models. Furthermore, given that active clients typically seek advice several times a year, fee-based but transparent advisory models could indeed be economically viable (presuming that in such scenarios cross-subsidization will decrease). However, from our observations we cannot estimate the actual share of clients willing to pay for advice. Further research will have to investigate whether and in how far the population of advisory clients conforms to our observed preference system.

We conclude the discussion with some remarks on further potential limitations. While the design principles have been developed and refined in several design iterations, they are general in nature and provide only few implications on their actual implementation in an IT artifact. For example, our artifact's "card" metaphor to allow for comparison of multiple products is only one of many possibilities to provide such functionality. It is therefore important to acknowledge that each instantiation of an artifact supporting collaborative, (cost) transparent client-advisor interaction may greatly differ in appearance and usability. Furthermore, from our experimental evaluation, we may not conclude that our implementation was "optimal" or superior to other potential design instantiations. This also applies to the cost information we decided to implement and visualize. While we were eager to design the information architecture along standard FSPs brochures available to clients, the selection of relevant cost information was subject to our restriction on mutual funds.

Other limitations are related to our evaluation design. We carefully designed our experimental evaluations regarding the test design and its estimated effects based on power analysis and controlled for the influence of advisor/setting combinations by balancing client assignment to the different treatments. We acknowledge, however, that the majority of client participants were students rather than "real" investors. We argue, however, that preference for transparency is a general feature of ambiguity-averse individuals (Andersson and Holm 1998), such that our results may also be applicable to the "population" of investors. Also, we did not find differences between the ratings of experienced clients and their inexperienced counterparts. To be sure, the test setting and the sample size are not qualified to reliably control for such effects; we suggest that further research should investigate possible variances according to such client characteristics.

8 Conclusion

In this paper, we have discussed several transparency issues that occur in investment advisory service encounters, putting an emphasis on cost transparency. Building upon tried design principles, we implemented a prototypical IT artifact, exemplarily enabling cost-transparent composition of product portfolios. We evaluated the application's utility and efficacy in experimental evaluations and according to four conjectures. Results show that the artifact's transparent provision of cost information indeed increases the client's perception understanding and comprehension of costs, positively influences the client's satisfaction with the advisory encounter (and the advisor) as well as relates to significantly increased willingness to pay for the service received. Analogous to similar evaluations (Nussbaumer et al. 2012), feedback on the IT artifact was very positive, suggesting that IT-supported advisory encounters may be accepted by advisors and clients alike. Clients showed significantly increased satisfaction with the advisor in the cost-transparent setting, some of them even perceiving him as more competent. Thus, contrary to the popular argumentation of advisors that using IT in client encounters would negatively influence the client-advisor interaction (Schwabe and Nussbaumer 2009), IT might even improve the client's perception of the advisor.

We have motivated this paper from observations of Swiss investment advisory services. However, the design research question of cost transparency and its utility are not limited to the Swiss market. We argue that information and interest asymmetries are general features of investment advisory services – e.g., even fee-based advisory concepts (which are more prevalent outside of Switzerland) may be strained by principal-agent conflicts regarding cost information. Thus, we find that our findings may indeed have general implications for (investment) advisory services also outside of Switzerland.

From our findings, we suggest several such implications for FSP practice of investment advisory service provision. Generally, we argue that for FSPs (cost) transparency should not only take a role in obeying regulations. In fact, they should actively seek realization of transparency as a means of competitive differentiation. In this paper, we have shown how this may be accomplished with IT. Not only are clients increasingly demanding IT support in service encounters (Schwabe and Nussbaumer 2009) but

Abstract

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Designing for Cost Transparency in Investment Advisory Service Encounters

Investment advisory services of financial service providers (FSPs) exhibit several characteristics that are detrimental to advisory quality. The interaction of advisor and client is strained by a lack of transparency regarding the advisory process (what activities are performed and why) and the information used therein (what information is used for what purpose and with what effect), as well as regarding the precise costs of the service and the recommended products. In prior research, we suggested that process and information transparency issues may be appropriately addressed with collaborative information technology (IT) artifacts. In this paper, we argue that collaborative, transparent artifacts may also be a premise of enabling cost transparency. To this end, we describe a complete research cycle of designing, implementing, and evaluating a shared cost-transparent IT artifact to support client-advisor interaction in investment advisory encounters. Evaluation results suggest the efficacy of our design in improving the clients' perceived cost transparency as well as increase their satisfaction and their willingness to pay for the received investment advice. These findings may also challenge the common belief of FSPs that transparent, fee-based advisory services would neither be accepted by clients nor be economically viable. Practical implications of these findings for designing advisory encounters with supportive IT are discussed.

Keywords: Cost transparency, Financial investment advisory, Design science, Exploratory evaluation

also may IT be key in addressing transparency issues which affect client-advisor interaction and, thereby, advisory quality.

We find that establishing IT-supported transparency may be of value for almost all existing business models of FSPs. For clients seeking "execution only" services, IT may be used to show potential effects of client decisions and ensure their suitability. Even though for "execution only" Swiss FSPs are not obliged to perform suitability checks, IT support would allow for such feedback in an efficient way, thereby potentially increasing client satisfaction and retention. We find the greatest potential, however, in the support of "investment advice" encounters. Here IT may provide a common ground of client-advisor interaction and point of reference for their joint decisions. Thereby, IT may not only enable transparency and traceability as requested by regulations but also provide support for the advisor to better *advise* the client and increase comprehension of her investment decisions.

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