How are citizens' public service choices supported in quasi-markets?

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A R T I C L E   I N F O

Article history:
Received 30 March 2015
Received in revised form 7 May 2015
Accepted 22 May 2015
Available online 2 June 2015

Keywords:
Electronic government
Quasi-markets
Decision support
Sociomateriality
Citizen

A B S T R A C T

Many countries have introduced quasi-market reforms that enable citizens' choice in education, healthcare, and other public services. The research question in this paper is the following: How can Web-based decision support help citizens to make calculated public service choices in quasi-markets? In Section 3, the paper focuses on how decision support design helps citizens make such choices as they isolate, examine, and rank alternatives. A case study, set in Sweden, explores 14 cases of decision support in education, healthcare, elder care, and the public pension system. Decision support is most evident in the area of education, but decision support is found in the other areas as well. In most cases, the support consists of information on the right of choice and instructions on how to search among alternatives. Many areas permit direct comparisons, but some areas only permit more indirect comparisons. All 14 cases explain how to make a choice, but only a few cases offer a ranking device. The decision support for choice is inconsistent with the theoretical model of calculated choice in all aspects despite the trend toward greater consistency with the model. Our results call for a critical discussion of technology design that aids citizens as consumers or customers in their relationship with public services.

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1. Introduction

In many countries, new institutional arrangements, in the form of market reforms, have been introduced that affect the administration and delivery of public services (Le Grand, 2007). For more than two decades, different types of market reforms have been important features in education systems in many OECD countries (Grubb, 2002). Such reforms are also found in healthcare (Chauvette, 2003) and in other public service areas.

These institutional arrangements, using supply/demand mechanisms, often strengthen citizens' ability to make choices about the public services that affect them. Some mechanisms allow citizens to make their choice of services directly while others permit citizens to make their choices more indirectly (e.g., through a mediating, contracting agency). Although the sellers, or service providers, in these markets may not necessarily strive to maximize their profits, they are very aware they exist in an environment where other sellers/providers compete for the same citizens-buyers. The citizen-buyers do not use private capital when they make their public service choices. Instead, they have vouchers that allow them to “shop around” for public services. These arrangements are often described as quasi-markets (Le Grand, 2007).

Clearly, the central figure in such arrangements is the citizen. Yet there is little research on how to support citizens when they make choices in quasi-markets (Greener, 2007; The Swedish Agency for Public Management, 2007; Winblad & Blomqvist, 2013). In the limited research available, the focus is the information needs of citizens as they choose schools or doctors, and the design of Web-based support for such choices (Allen & Burgess, 2011; Leckie & Goldstein, 2011; Ranganathan, Hibbard, Rodday, & de Brantes, 2009). It is also important to note that the design of such technological, often Web-based, decision support for citizens influences their relationship with the state (Chadwick & May, 2003; Gauld, Goldfrinch, & Horsburgh, 2010; Lips, 2007). This relationship can be discussed in terms of citizens, patients, service users as well as customers and consumers.

The focus in this paper is the sociomaterial constellation consisting of technology (“web-based decision support”) and people (“citizens with a right to choose”) where the possibility of making calculated choices in quasi-markets is present. The research question is the following: how can Web-based decision support help citizens to make calculated public service choices in quasi-markets? In Section 3, we focus on the design of technological decision support, especially as it can help citizens make calculated choices (cf. Callon & Muniesa, 2005). Our study, which is set in the...
context of Swedish public services, contributes to the research on decision support in quasi-markets as well as the research on the materiality of markets (cf. MacKenzie, 2009) with specific reference to the sociomaterial design of Web-based support for choice.

2. Previous research on decision support for citizens’ choice

Coulter (2010) discussed the introduction of, and the need for, well-designed support for patient choice in a healthcare setting. Green, McDowell, and Potts (2008), who studied the Choose & Book system, found that doctors still retain considerable influence on patients’ choices. Ranerup, Norén, and Sparud-Lundin (2012) and Damman (2010) conducted broad surveys of technical support for choice in healthcare in Sweden and in Holland, respectively. Gieske, Stoffel, and Meijer (2013) described the complexity of technology in general, viewing technology as a socio-technical system that emphasizes the interdependence of social and technical subsystems (Leonardi, 2012). This tradition grew out of an older tradition based on workplace studies conducted in the 1930s and developed, for example, by key figures at the Tavistock Institute, including Fred Emery, Ken Babersforth, Eric Trist, and others).

The sociomaterial tradition is more radical than this older tradition because of its focus on how people and technology act together. In a discussion on the roles of people and technology, McMaster and Wastell (2005, p. 179) concluded: “Technology cannot act without people, any more than people can act without technology. Agency cannot be reduced to either pure humans or pure machines.”

Leonardi (2012, p. 34) took a broader perspective in his discussion of sociomateriality:

[T]alking about sociomateriality is to recognize and always keep present to mind that materiality acts as a constitutive element of the social world, and vice versa. Thus, whereas materiality might be a property of a technology, sociomateriality represents that enactment of a particular set of activities that meld materiality with institutions, norms, discourses, and all other phenomena we typically define as ‘social’.

Of course, practical situations exist in which the social and the material act together or, as described by Leonardi (2012), are “constitutively entangled.” For example, several researchers are now engaged in the on-going debate on the theoretical and methodological problems in this tradition. This debate, among other things, occurs in the investigation of “mute” technology and in the investigation of agency and separation among the “hybrid” actors of people and technology (see Cecez-Kecmanovic, Galliers, Henfridsson, Newell, & Vidgen, 2014; Leonardi, 2013; Mutch, 2013; Scott & Orlikowski, 2013). Some, although not all, studies in this tradition combine theoretical and empirical research (Jones, 2014). In our study, we contribute to a particular stream in this research with our focus on markets and their constructed nature. This approach allows us examine the sociomaterial design of Web-based support that helps citizens make their calculated public service choices.

We call attention to other important studies that take this approach. Callon (1998), for example, studied how actors use economic theories to construct markets in which people as well as technologies are involved in choice. MacKenzie (2009) used mostly financial market case studies in his study that deals with how economic agents are constructed, often in a very material sense. In more recent publications, Jeacle and Carter (2011) and Scott and Orlikowski (2012) studied how the spread of technology in the travel sector allows people to evaluate and rank travel services using technology that displays these evaluations on computer screens. They also looked at how technology creates trust by displaying other people’s evaluations. In all of these cases, people’s joint activities with technology are the de facto focus, which makes technology an important component of a hybrid actor.

Taking a somewhat different perspective, Pollock and DiAddario (2012) focused on technologies used in a material sense for ranking options via computer screens. In their study of how lists and graphic design aimed at ranking influence the actions of human actors in the market, they created an additional layer between the individual consumer and the market. In line with these perspectives, we find that technology not only provides the traditional (and neutral) decision support for choice, but also mutually influences, or controls, citizens when they make their choices.

3. Theory

Our study falls within the current sociomaterial tradition with its focus on the joint activities of people and technology (Jones, 2014; Leonardi, 2012). This tradition is concerned with people’s use of technology in general, viewing technology as a socio-technical system that emphasizes the interdependence of social and technical subsystems (Leonardi, 2012). This tradition grew out of an older tradition based on workplace studies conducted in the 1930s and developed, for example, by key figures at the Tavistock Institute, including Fred Emery, Ken Babersforth, Eric Trist, and others.)
Callon and Muniesa (2005) designed a fundamental model of choice behavior that we use as the theoretical framework of our paper. Their model assigns technology a role that enables people to perform as calculating consumers/customers. Their theoretical framework for the model includes the concept of calculation, which refers to the general idea of how people make thoughtful and calculated choices in any situation. In defense of their model, Callon and Muniesa (2005) state that economists view reality as “pure” calculation. Other social scientists, they argue, try to show that real practices are more complex and leave little room for calculation practices. In contrast to that perspective, Callon and Muniesa (2005) looked at processes in which calculated choices were made in an examination of the sources of economic calculation. As followers of the sociomaterial tradition, they argue that material devices (e.g., weighing scales or supermarket shelves) as well as more abstract tools (e.g., Web portals such as those described in this article) are of critical importance in helping individuals act as calculating consumers (see also Callon, 1998).

More specifically, Callon and Muniesa (2005) argue that designers should follow certain basic principles when they construct technological devices such that choice and ranking are supported through the joint activities of technology and people. First, to enable choice, options must be detached or isolated from their context and grouped into a common framework such as on a computer screen. In public services, this means, for example, that all schools or primary care clinics in a municipality are listed or shown on a screen. In this format, consumers may easily obtain a general overview of unknown or scattered options that otherwise would be unavailable. Second, once the options have been isolated in this manner, consumers require the means to examine and compare them. Advanced devices, some more complex than others, as well as data about the public services, support consumers in this step. For example, detailed computer screen data for all options or selected options, as well as various devices for use in comparisons of a few options, may be available. Third, designers must create a method by which consumers can use the comparisons to produce a new entity (e.g., a sum, an ordered list, or a holistic evaluation). In this manner, ranking/choice are enabled. The use of this method may produce a sorted list or, at least, facilitate the selection of the best alternatives consistent with people’s preferences that are revealed in the process. In short, it is essential that technological devices, such as websites be designed so that they support calculating consumers as they study alternatives following the steps of isolation, examination, and ranking/choice.

4. Material and methods

4.1. Research setting

In this paper, we describe several kinds of Swedish public services in which citizen choice is permitted. The Swedish setting is interesting for several reasons. Although Sweden’s governing parties are on the centre-left of the political spectrum, since the 1990s, Sweden, as a country, has placed great emphasis on the principles of New Public Management (NPM) that favor market-oriented management of the public sector (Hood, 1995). Several authors (e.g., Osborne & Gaebler, 1992; Le Grand, 2007) have described NPM as a liberal project that reinvents government. However, NPM remains a controversial reform in Sweden.

Whatever the pros and cons of NPM in public services, it is clear that Swedish citizens are offered choice in many areas, including education, healthcare, daycare, welfare services for the disabled, elder care, and public pension investment. It is also clear from policy documents that large public and private agencies are working to increase greater citizen choice through the use of technology (Ministry of Education and Science, 2012). One element of this reform is the use of a voucher system (or something similar). Under this system, citizens can choose any public service provider so long as the public treasury finances the services (i.e., by taxation) (Le Grand, 2007).

In this paper, we look at how Swedish public services are offered in the following areas: education, healthcare, elder care and public pension systems. The first three areas have been addressed in literature on choice reform (see, e.g., Le Grand, 2007). The fourth area, the public pension system, is somewhat different from the others because of its empirical character although it is still a public service. Together, the four areas represent a broad spectrum (as well as a significant portion) of public services in Sweden.

A number of countries, besides Sweden, have introduced citizen choice in education and healthcare in recent decades. For example, UK, Chile, Denmark, and New Zealand now allow choice in education. And UK, Denmark, New Zealand, and Norway allow choice in public healthcare. Sweden and Denmark also allow choice in elder care and in the public pension system.

Our study examines 14 cases of Web-based decision support for choice in four public service areas (see Tables 1–4). The majority of these 14 cases are standard e-Government services of the G2C or G2B type (Beynon-Davies, 2005) that are owned and operated by public sector agencies. However, we also look at cases in which the services are owned and operated by private agencies or by a mix of public–private agencies (a public–private partnership or PPP) (Josefsson & Ranerup, 2003; Karpik, 2010). Our goal in examining this broad mixture is to describe the significant variations among the choice providers and in their decision support designs. Our intention is to achieve saturation on these two aspects.

4.2. Data collection and analysis

Our data collection and analysis consisted of four steps. First, we conducted 14 semi-structured interviews. The interviewees (project leaders, managers, and others) all had extensive knowledge of the past, current, and future activities of their agencies, plus an understanding of how the Web-based decision support for choice works. We conducted our interviews between December 2012 and May 2014. All interviews (between 30 and 70 min each) were audio-recorded and later transcribed. We asked the interviewees to describe the general background of their decision support systems as well as their basic features related to the components of our theoretical model (“Isolating, Examining, Ranking and choosing”). Second, we analyzed some of the providers’ policy documents. Third, we examined the design and content of the decision support systems. In this step we examined the systems’ practical features in terms of isolating, Examining, and Ranking: Here, Isolating refers to the provision of technological devices that describe the framework for choice of, for example, a primary health care provider or a school, and the search for available units. Examining refers to the provision of technological devices that investigate and compare available choices based on, for example, waiting times and quality indicators. Ranking refers to the provision of technological devices for sorting and choosing among selected alternatives. Fourth, we compared and summarized the 14 cases. Our focus was their theoretical and practical contributions to technological design for choice in public services.

As MacKenzie (2009) states in a very relevant publication on “material markets”, the preferred method for studying data collection that uses technology is to observe how the technology is used “in action”. In order to study the public service areas addressed in this paper, we made the alternative decision to use a multiple-case study of 14 cases with interviews, technologies, and policy documents as our data. Thus, we rely on both the interviewees’ and our own descriptions of the technology rather than on an ethno-
<table>
<thead>
<tr>
<th>Isolating alternatives</th>
<th>Examining alternatives</th>
<th>Ranking and choosing alternatives</th>
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<tbody>
<tr>
<td>1. 13 municipalities in cooperation: The Gothenburg Region Association of Local Authorities (GR)</td>
<td>2. The public–private partnership: The Swedish Association of Local Authorities and Regions (SALAR), Svenskt Näringsliv, the Swedish Association of Independent Schools</td>
<td>3. A national public authority: The Swedish National Agency for Education</td>
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<td>4. A local government: the local public administration of education in the municipality of Gothenburg</td>
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<tr>
<td>Information about the rights of choice</td>
<td>Search for units of upper secondary schools in the GR region (13 municipalities) selecting municipality, educational program, ownership</td>
<td>Information about the rights of choice</td>
</tr>
<tr>
<td>No information about the rights of choice</td>
<td>Search for units of secondary (and upper secondary) schools in the country selecting municipality, distance, location on map</td>
<td>Search for units of upper secondary schools in the country selecting municipality, educational program, ownership, and a device where specific preferred criteria can be chosen as a basis for selecting (grading, competence of teachers, number of pupils in class, grading needed for acceptance etc.)</td>
</tr>
<tr>
<td>Direct comparisons of schools based on numerical information and diagrams in columns covering grading, results in national tests, competence for further studies, student investigations about satisfaction applied to a few selected schools</td>
<td>Indirect comparisons of schools and educational programs based on link to schools with same type of education as well as schools own websites</td>
<td>Direct comparison of schools based on all types of above numerical information in columns applied to a few selected schools</td>
</tr>
<tr>
<td>Indirect comparisons of schools and educational programs based on contact information and schools own websites</td>
<td>Direct comparisons of schools and educational programs based on numerical information in columns about grading, qualification to university studies, results of national tests, future income opportunities, unemployment etc. applied to a few selected units</td>
<td>Indirect comparisons of the same educational program in one municipality based on brief textual information, contact information and links to schools own websites, links to other schools with same program, Information about future opportunities regarding, e.g., salary levels (monthly wages), chat during period of choice</td>
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<tr>
<td>Manual ranking, IT-supported choice</td>
<td>Manual ranking, no choice</td>
<td>Manual ranking, no choice</td>
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<td>Isolating alternatives</td>
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<td>80x336</td>
<td>80x327</td>
<td>80x319</td>
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<tr>
<td>Information about the rights of choice</td>
<td>Search for units of upper secondary schools in the municipality of Gothenburg selecting part of the municipality, ownership, map</td>
<td>Indirect comparisons of the same educational program in one municipality based on brief textual information, contact information and links to schools own websites, links to other schools with same program, Information about future opportunities regarding, e.g., salary levels (monthly wages), chat during period of choice</td>
</tr>
<tr>
<td>No information about the rights of choice</td>
<td>Direct comparisons of schools based on numerical information in columns covering grading, results in national tests, competence for further studies, student investigations about satisfaction applied to a few selected schools</td>
<td>Information about the rights of choice</td>
</tr>
<tr>
<td>Direct comparisons of schools and educational programs based on contact information and schools own websites</td>
<td>Information about the rights of choice</td>
<td>Search for units of upper secondary schools in the country selecting municipality, educational program, ownership, and a device where specific preferred criteria can be chosen as a basis for selecting (grading, competence of teachers, number of pupils in class, grading needed for acceptance etc.)</td>
</tr>
<tr>
<td>Manual ranking, link to IT-supported choice (in Case No. 1)</td>
<td>The device for comparisons supports ranking through colors indicating whether selected alternatives belong to the 25% best, middle or worst units in the country</td>
<td>Manual ranking, link to IT-supported choice (in no. 1 or similar regional support in other parts of the country)</td>
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Table 2
Web-based decision support in healthcare.

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<tr>
<td><strong>Isolating alternatives</strong></td>
<td>Information about the rights of choice</td>
<td>No information about the rights of choice</td>
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<tr>
<td></td>
<td>Search for units of primary care clinics using a map or search of, e.g., municipality or name of clinic</td>
<td>Search for units of primary care clinics indicating preferences regarding perceived importance of satisfaction, waiting-times and actual physical location</td>
</tr>
<tr>
<td><strong>Examining alternatives</strong></td>
<td>Direct comparison of clinics based on numerical information and diagrams in columns showing contact information, measured telephone access, first visit, patient investigations about: general reception, experienced usefulness, information, participation in care, confidence, willingness to recommend, overall perception of a few selected centres</td>
<td>Direct comparison of clinics in a sorted list based on all of above aspects and occasional personal judgments from patients. Detailed information about each one of the suggested clinics in percentages and available diagrams</td>
</tr>
<tr>
<td><strong>Ranking and choosing alternatives</strong></td>
<td>Manual ranking, IT-supported choice</td>
<td>Ranking in list by indicating preferred aspects as above</td>
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Table 3
Web-based decision support in elder care.

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<tr>
<td><strong>Isolating alternatives</strong></td>
<td>Information about the rights of choice</td>
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<tr>
<td></td>
<td>Search for units (local government, part of local government in large city, private company) of provider of help in home to elderly based on municipality, type of owner (public, private), type of help (service, personal care)</td>
</tr>
<tr>
<td><strong>Examining alternatives</strong></td>
<td>Direct comparison of units based on textual and numerical information in columns covering type of owner, detailed information regarding participation, protective routines of a few selected units</td>
</tr>
<tr>
<td><strong>Ranking and choosing alternatives</strong></td>
<td>Manual ranking</td>
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Table 4
Web-based decision support in public pension.

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<tr>
<td><strong>Isolating alternatives</strong></td>
<td>Information about the rights of choice</td>
</tr>
<tr>
<td></td>
<td>Search for units of pension funds in the public pension based on risk, fee, increase in value, category, etc. These categories can be used for ranking (i.e., sorting) according to preferred criteria</td>
</tr>
<tr>
<td><strong>Examining alternatives</strong></td>
<td>Direct comparisons of selected alternatives in lists based on numerical information and diagrams based on the selected criteria</td>
</tr>
<tr>
<td><strong>Ranking and choosing alternatives</strong></td>
<td>Direct ranking before selection as above as well as in diagrams showing increase in value. An advanced DSS incorporating personal preferences regarding risk, fees, time, etc., supports comparing current and future portfolios</td>
</tr>
<tr>
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<td>IT-supported choice</td>
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</tr>
<tr>
<td><strong>Ranking and choosing alternatives</strong></td>
<td>Manual ranking</td>
</tr>
</tbody>
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graphic observation of its actual use. However, for our purposes, we think our methodology is “good enough” because our intention is to describe the potential agency embedded in the technology’s material product as well as its textual content (Siles & Boczkowski, 2012).

5. Results

5.1. Education

In Swedish education, choice reform was introduced in the primary and lower secondary schools in 1992 and in the upper secondary schools in 1994. In each municipality, various tax-funded agencies (public, semi-private, or private) supervise the school choice system. The mandate for this reform was stated in the national government proposition 1991/92:95: “Choice and independent schools” (Ministry of Education and Science, 1991/1992Ministry of Education and Science, 1991/1992). In some regions, a number of municipalities cooperate around choice in upper secondary education.

Table 1 presents the Web-based decision support for upper secondary schools and education programs. Local authorities, national public authorities, and public–private partnerships (PPPs) provide the support. The PPPs are entities associated with Svenskt Näringsliv [Swedish Business Life], which promotes free enterprise and private companies. As far as Isolating alternatives, five cases provide information about the right of choice. Case No. 2 (a PPP) and Case No. 6 (owned by Svenskt Näringsliv) do not provide this information. Of the seven cases, six support the search among all schools (public or private) and/or education programmes using various criteria. Case No. 4 supports the search only among the municipality’s own schools. This is a large municipality where school choice is highly competitive. In addition, in Case No. 4, the description of choice has a greater market orientation than in the other cases.

Other significant differences exist among the cases in the area of education. Case No. 3 (a new national public support for comparing schools operated by The Swedish National Agency for Education) has a device with different personal preference criteria for use in comparing schools (distance, size, qualification of teachers, grading, etc.) (see Fig. 1). The other cases feature indirect comparisons using a list of separate schools. However, Case No. 3 still has columns with selected schools including all provided criteria or types of information. Case No. 2 allows comparisons of a few schools, arranged in columns based on all types of information (including diagrams and numerical data). Case No. 6 (financed by Svenskt Näringsliv) is the only case that supports ranking of options. In the other cases, the user must sort among the alternatives (“Manual ranking”). Case No. 1 is the only case that permits direct choice among all upper secondary schools in the 13 municipalities. Case No. 4 and Case No. 5 (owned by the municipality of Gothenburg) permit indirect choice among the regional schools through a link to Case No. 1’s device. In Case No. 7, the Metro Corporation offers Web-based decision support that is linked to Case No. 1 or to similar regional support.

5.2. Healthcare

Sweden introduced choice reform in primary care in 2010 (Ministry of Health and Social Affairs, 2008/2009Ministry of Health and Social Affairs, 2008/2009). With this reform, all citizens are allowed to choose among the primary care centers in a county council, although choice of doctors is not an option. The county councils or private healthcare agencies operate these centers. In healthcare, Case No. 8, operated by the national association (SALAR) and Case No. 10, operated by an individual county council, provide information about the right of choice. Case No. 9, operated by Svenskt Näringsliv, is more concerned with allowing citizens to make comparisons (see Table 2). All three cases support comparisons based on contact information and patient investigations. Case No. 9 is the most advanced because of its ranking device that allows a user to decide on the importance of basic features (e.g., distance, patient satisfaction, ownership, waiting time before contact) (see Fig. 2). The user may also add a personal evaluation that others may read. However, Case No. 9 does not permit the user to make a choice whereas Case No. 8 and Case No. 10 permit a choice selection.

5.3. Elder care

Choice in elder care (home help for the elderly) was introduced in Sweden broadly in 2009 in connection with LOV (Law on the Right to Choose) (Ministry of Health and Social Affairs, 2009). However, each municipality may choose whether to offer choice in elder care. Approximately 60% of the municipalities have introduced the choice option (Swedish Association of Local Authorities and Regions, 2013).

Public agencies own both elder care cases (see Table 3). Regarding Isolating alternatives, both Case No. 11 and Case No. 12 provide information about the right of choice. Both cases permit searches among provided services according to simple criteria (e.g., type of care, municipality). Case No. 12, owned by the Stockholm municipality, has the capacity for sorting among the often rather long list of private and public providers in particular areas of the municipality. Selected criteria are used in the sorting step. Regarding Examining alternatives, both Case No. 11 and Case No. 12 permit comparisons according to a list of features (e.g., organization type or available services). However, Case No. 12 also permits more direct user searches. Regarding Ranking and choosing alternatives, specific ranking is not possible in either case. Case No. 12 permits choice in the Stockholm municipality, but Case No. 11 does not.

5.4. The public pension system

In 2000, pension reform in Sweden offered a choice component for the public pension system. People were offered a choice of investing in approximately 800 premium pension funds. These funds charge an obligatory fee on all earnings. Employees contribute 16% of their earnings to general public pension fund, and 2.5% of their earnings to the premium pension system fund (SOU, 2005).

Table 4 presents two cases: Case No. 13, owned by a national public agency, The Swedish Pension Authority, and Case No. 14, a PPP (Mimpension.se). Regarding Isolating alternatives, both cases include information about choice. However, Case No. 13 supports searches for alternatives using many criteria. These criteria include a Decision Support System (DSS) to make advanced comparisons for Ranking and choosing premium pension funds. In contrast, Case No. 14, which offers a more indirect form of support for choice, shows the results of choices made in the premium pension plan as well as how the choices fit into the individual’s entire pension portfolio, including the individual’s private retirement savings (see Fig. 3). Case No. 14 does not offer the Ranking and choosing alternative. Despite its indirect support, Case No. 14 clearly intends the decision support to be used for choice.

5.5. Isolating alternatives

In this section, we summarize the sociomaterial process of making choices that the joint activities of technology and people support. Eleven of the 14 cases have information about the right of choice of, for example, a school, a primary care centre, elder care in the home, or a pension fund. This information isolates the avail-
able options in a very simple but important way. Case Nos. 2, 6, and 9 that are, or were, at least partly owned by Svenskt Näringsliv do not provide such information. Therefore, a broader context for choice and the related individual rights of citizens is often supported. Generally speaking, Swedish society firmly supports this concept. However, the Swedish Association of Independent Schools states:

Unfortunately there is still [in some regions and municipalities] a lack of knowledge about the rights of school choice. As a result, often the school that is closest to home is “chosen”. Thus, it is important to address this lack of knowledge so that everybody knows about their rights (Hamilton, 2015).

It is of equal importance (as observed in all cases except Case No. 4 related to the marketing of the municipal upper secondary schools) that support for searching alternatives is available.

5.6. Examining alternatives

Case Nos. 3, 6, and 11 provide numerical and textual data that can be used for examining alternatives. Case Nos. 2, 8, 12, and 13 provide diagrams or graphic information. Furthermore, many cases enable comparisons based on neutral information with the exception of links to a provider’s website. However, the website for Case No. 4 markets the municipality’s upper secondary schools. Some cases in education, healthcare, and elder care present evaluations, such as student, patient, or user views. Other information is available about various entities and their capacities (e.g., location, access, services, etc.). According to Jeacle and Carter (2011), it is somewhat unusual to find personal and spontaneous evaluations from users in decision support design. In our study, only Case No. 9 permits such evaluations (in healthcare only). Such user evaluations use the material capacity of information technology, unlike
Many of the 14 cases provide direct support for making comparisons (see Tables 1–4). Case Nos. 1, 4, 5, and 7 permit comparisons more indirectly; a user has to check each alternative and then compare it with others. Some cases offer more advanced devices for comparing alternatives. Often this support appears as information about a few selected entities, arranged in columns. In Case No. 3 (see Fig. 1) and Case No. 12, the designs allow selection of preferred information that can be used for making comparisons. Case No. 9 allows the selection of preferred information that can be used to create a sorted list of comparisons (see Fig. 2). Additionally, Case No. 13 has a device consisting of different steps that can be used to indicate various preferences (e.g., preferences about risk level, fees, and search time results). It also permits examination of a citizen's current pension portfolio and comparison of it with a potential new portfolio of pension funds.

Case No. 14 has less sophisticated devices for comparing and examining alternatives (see Table 4). However, its design allows evaluation of pension fund choices in the context of other choices, from both short- and long-term perspectives (see Fig. 3). Of course, pension funding is, by its very nature, a long-term activity. However, so are many of the other choices described in this study, for example, education. Interestingly, the designs in Case Nos. 6 and 7 project future salary levels. This alternative takes a more long-term perspective as well as a broader perspective on calculated choice than a temporary choice made at one moment in time. An interesting issue is whether this long-term perspective on choice is relevant in other areas. For example, in healthcare is the long-term perspective useful for a patient with a chronic illness who is being treated at a primary healthcare clinic? Would such a perspective allow the patient to evaluate data on treatment results for a specific illness at a specific clinic?

A new entity must be produced (a sum, an ordered list, an evaluation, a binary choice, etc.) that corresponds precisely to the manipulations effected in the calculative space and, consequently, links (summarizes) the entities taken into account. This resulting entity is not new, in the sense of springing from nowhere; it is prefigured by the considerations described above.

Our cases show alternative ways to make rankings using socio-material constellations related to choice in quasi-markets (see Tables 1–4). Case No. 12 (elder care) and Case No. 13 (public pension funds) show (indirectly) ordered lists that have been ranked by preferred types of information. The ranking step thus precedes the selection of alternatives for comparison. Case No. 9 (healthcare) summarizes (more directly) several criteria or types of information as a joint list. Case No. 13 shows diagrams that compare the increase in the value of selected alternatives. Alternatively, Case No. 6 (education) even more directly offers a form of holistic evaluation that ranks the 25% top, middle, or bottom alternatives using graphics and colors. Case No. 13 permits a full comparison of a new portfolio using graphics and information in a multifaceted DSS that constructs a carefully selected portfolio of alternatives for comparison with the citizen’s current portfolio. Thus, here we see how lists and graphics (Pollock & DiAdderio, 2012) can be used in various ways for rankings in quasi-markets.

There are several possible reasons why relatively few of our 14 cases have a design that supports ranking. One reason is that ranking may be perceived as controversial because it points to the “best” and the “worst” alternatives in a very obvious manner (!). Another reason is that ranking must be based on available data rather than on unavailable data that may be still more relevant. Ranking is also a controversial issue because the available data may be unclear about new service providers (The Swedish Agency for Public Management, 2007). However, this issue, which relates to the contradictory role of public authorities in providing clear messages for choice, is under discussion. An interviewee stated: [The] authority must offer a support for choice. […] It is a conscious strategy from our side that we do this quite clearly. [However] we still can not provide anything that seems like advice. (Project leader, Pension Authority, May 27, 2013)

Some research claims that ranking also influences the activities of those who are ranked by causing them to try to improve their position by manipulating or concealing information. The use of the

5.7. Ranking and choosing alternatives

Comparatively few of our 14 cases offer devices for ranking alternatives on their Web-based screens in terms of specified or preferred criteria that would make choice a simpler decision. Callon and Muniesa (2005, p. 1231) describe the theoretical basis of ranking as follows:

Fig. 3. Case No. 14 shows all the savings in the pension portfolio including public pensions, occupational pensions, private pensions, and a pension forecasts.
5.8. Comparing the 14 cases

What conclusions can we draw about the sociomaterial constellations in our 14 cases related to calculated choice in the areas of education, healthcare, elder care, and public pension funds? Education has the largest repertoire of Web-based support for choice as well as agencies that provide support. Choice reform has existed in education in Sweden since the beginning of the 1990s. By contrast, choice reform was introduced for primary healthcare and elder care in 2010 in Sweden. The diversity of support in the various public service areas, especially in education, indicates a “battle of judgements” (Karpik, 2010). In education, citizens can choose among the education alternatives. However, they must choose among one or several systems of Web-based support for choice (1) before they can locate the available options and make comparisons. In education, quite recently (2013–2014), a PPP (Case No. 2) and a national public authority (Case No. 3) revealed a positive move toward support for more citizen choice. This new support movement can be contrasted with support for school leaders, also used by parents for choice (Ranerup, 2006), and Case No. 6 (which ended in 2013). However, as Section 5.7 discusses, this long tradition of choice does not mean that education has devices that support calculation with sophisticated ranking mechanisms.

We conclude that, increasingly, in education as well as in healthcare and public pension funds, private agencies (e.g., Svenskt Näringsliv and the Metro Corporation) provide support (Case Nos. 2, 6, 7, 9, and 14). In fact, in Case Nos. 2 and 14, these agencies work in cooperation with public agencies. In other words, they take an active part in what we usually see as the technological construction of the relationship between the state and the individual. This relationship is featured in the research field of e-Government that often, we argue, is implicitly assumed to be an area for public agencies only (Beynon-Davies, 2005).

We also conclude there are a number of areas where there are differences between the cases. With Isolating, differences exist as far as the availability of information about rights and in the search devices for alternatives. With Examining, differences exist as far as the kind and availability of information and the types of devices for making comparisons. With Ranking, differences exist in the outlay of available alternatives, and in the support for choice. These differences may be of use for designers interested in understanding how calculated choice may be supported.

Another conclusion is, despite the details about available support in the 14 cases, enabling calculated choice, the support is somewhat lacking, especially when it comes to devices that offer ranking and choosing. The main exception is Case No. 13 where the choice of pension funds is supported. Pension fund reform introducing choice, which began in 2000, involved a leading national public pension authority as well as a number of banks and investment firms. Thus, organizations quite accustomed to making choices were involved with the reform from its beginning. Interestingly, instead of a “battle of judgements”, such as we find in education where there are many instances of available support, in public pension a number of companies offer pension fund investment advice “for a small fee”.

Ranking is an activity that very obviously shows the authority of materiality. In ranking, technology is a powerful actor that influences choice (Pollock & DiAdderio, 2012). Although ranking, in perhaps its most important use as a producer of a sorted list (Case No. 9), is not common in our 14 cases, many devices, in interaction with their users, enable calculation through a clear use of technology’s discretionary power. The simplest example is technology’s capacity to enable a selection of a few instances for further comparisons in columns based on various types of data. While this capacity appears in many of our cases, there are examples more directly related to ranking (Section 5.7). The design in each case influences the joint activities of technology and people. The operator or owner of the technology is yet another “actor” who appears between the consumer and a market (Pollock & DiAdderio, 2012) that consists of many service providers. This is important because various public agencies operate the support systems in many of our cases. These agencies have, generally speaking, higher status than commercial actors, or are themselves commercial actors with access to public data.

A final conclusion of our study is that the sociomaterial constellation in the 14 cases very clearly shows variations in the division of labor between people and technology. When we look at Isolating alternatives, people have a larger role because technology only reveals a general aspect such as the right of choice and a number of instances of the requested services (Section 5.5). When we look at Examining alternatives, sometimes people have to do most of the work compared to situations in which technological devices, to some degree, exist to support examinations and comparisons. However, people must make a significant part of these examinations and comparisons because each alternative has many different kinds of information even when it is structured in columns (Section 5.6). In contrast, in the various ranking displays (Section 5.7), materiality plays a larger role.

5.9. Contributions

Our study’s contribution to previous research on decision support for choice in quasi-markets (see Section 2) is its theoretically informed discussion of how more sophisticated Web-based support designs for choice are developing in several public service areas. Sweden is a good context for such a study because of its long tradition of school choice and its experience with choice reform in many public service areas. In contrast to some previous studies, our intention is not to show how these designs influence choice in practice (cf. Gomez et al., 2012; Koning & van der Wiel, 2013) or to discuss how citizens can use these online channels (Van de Wijngaert, Pieterson, & Teerling, 2011). Our technological focus contributes to research into sociomateriality in a general sense, and to research on the material construction of markets in a particular sense (Callon & Muniesa, 2005; MacKenzie, 2009).

In addition, unlike many other studies that apply theories about sociomateriality (Cecez-Kecmanovic et al., 2014), our conclusions derive from empirical data (Jones, 2014). Our study is also of practical relevance for the politicians, project leaders, and designers who today are responsible for the improvement of public services as a whole (Panagiotopoulos, Al-Debei, Fitzgerald, & Elliott, 2012). We provide a view of potential technological outlay of 14 instances of decision support and make a comparative, structured analysis of their functions (Section 5 and 5.5–5.8). This is of special value, we argue, because previous research deals with public service areas individually.

Therefore, three design principles can be extracted from our cases.
The awareness of the full repertoire of potential types of information is important. Our study of cases in several areas indicates that an extensive amount of information can be provided about available options and opportunities via Web-based decision support. This information may be presented, for example, in numeric, textual, or graphic form (“format”). This repertoire may use neutral information (vs. marketing information), information about present circumstances (vs. future opportunities), and user evaluations from official investigations (vs. more personal evaluations of opportunities “aim”). In this manner, information designers’ choice of information can be based on a more complete and complex understanding than that described in previous studies (Allen & Burgess, 2011; Leckie & Goldstein, 2011; Ranganathan et al., 2009).

The awareness of the full repertoire of available ways of sorting and ranking is important. Because of risk of information overload in choice situations, providing comparison devices for use in selecting alternatives is necessary. However, making comparisons of long columns of data on relatively few alternatives may still be unsatisfactory. In contrast to studies of single cases in single areas (Pollock & DiAdderio, 2012; Pollock and DiAdderio, 2012), our study discusses a number of ways to reduce this complexity. For example, user preferences on service options and opportunities for certain aspects or types of information can be highlighted before users examine a few selected alternatives. Or, sorted lists can be prepared for users based on these preferences. Our study also shows that ranking can be achieved by presenting graphic information and examples as well as by sorted lists.

Last, but not least, our results are theoretically relevant to the technological construction of the relationship between the state and its citizens (Gauld et al., 2010; Lips, 2007), for example, in the context of NPM reforms. Our results contribute with a new perspective on these reforms in their focus on the role of citizens as consumers or customers (Mosse & Whitley, 2009). Thus, our results depict the design of quasi-markets and their technologies that, in part, aim to support citizens in their more traditional democratic role as well as in other roles such as consumers.

5.10. Limitations and further studies

A limitation in our research methodology, as noted above, is that we have not studied the actual use of decision support designs (Mackenzie, 2009). However, as Gad and Jensen (2010) argue, research goals allow differences in applying theoretical and methodological concepts in the study of sociomateriality. We have tried to present a theory-based, comprehensive view of several areas of public services by describing the content of information provided and the design or general outline of the functionality as a representation of the sociomateriality of (quasi-) markets in Web-based decision support.

A study, such as ours, which applies Callon and Muniesa’s (2005) framework, is not neutral. Therefore, it may create critical discussion of the world that we would like to design (Roscoe & Chillas, 2013). One very relevant issue in this context is the strengthening of the citizen’s role as a consumer or customer (Clarke, Newman, Smith, Vidler, & Westmarland, 2007; Mosse & Whitley, 2009). The technological decision support for choice very obviously has this dimension and aim. Other technologies dedicated to citizens’ collective discussion and action might well complement the technologies we describe. On the other hand, all but a few of the 14 cases we studied had information about the rights of citizens as a part of the Isolating alternatives.

We suggest that researchers more closely examine the performative implications when technologies and people are involved (Cecez-Kecmanovic et al., 2014). The most urgent question concerns how the value of the services and their ranking are constructed in actual use.

6. Conclusion

In this paper we examined how Web-based decision support and citizens jointly contribute to calculated public service choices in quasi-markets, using Sweden as our setting. The area of education has the greatest amount of support, perhaps reflecting the “battle of judgements” Karpik (2010) refers to. However, decision support can also appear in other public service areas. Regarding Isolating alternatives, the majority of our 14 cases include information about the right of choice as well simple devices for searching among and listing alternatives. Regarding Examining alternatives, the majority of our 14 cases permit direct comparisons based on various kinds of information although a few support more indirect comparisons. Regarding Ranking and choosing alternatives, all 14 cases explain how to make a choice although relatively few have ranking devices. Nevertheless, our cases provide a reasonable summary of the available sociomaterial designs of ranking devices. Ranking is an activity that very obviously shows the authority of materiality and how it mutually influences, or controls, citizens when they make choices.

Therefore, the studied Web-based support for choice in quasi-markets is not consistent with the theoretical model of calculated choice in all its aspects. Nevertheless, there is a clear trend in this direction. On the other hand, our cases do, in interaction with their users, enable calculation through a clear use of discretionary power.

Our results call for a critical discussion of “the world we like to design”. An important issue in this discussion issue is the increasingly evident role of citizens as consumers or customers in their relationship with public services.

Acknowledgement

The Swedish Research Council is greatly acknowledged for funding our research.

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