

Effects of IT Maturity and Freedom of Choice regarding relations between the Service Provider and its clients

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Abstract

The roles of the public servants seem to change towards increased service attitudes influenced by degree of IT Maturity and towards increased degree of problem solving influenced by increased degree of freedom in action. The quality of communication seems to be mainly influenced by the degree of equity between the partners. However, for amateur users increased IT maturity could increase the quality of the communication between the servant and the client. By increased focus on roles and customer needs managers are able to lay a foundation for increased relationship quality and by that increase customer loyalty. Based on three Norwegian case studies the paper is explorative in nature.

Keywords: IT maturity, freedom of choice, relations, roles, communication, needs.

1 INTRODUCTION

IT maturity is defined in this paper as the extent to which the organisation masters and makes use of known IT functions. Information technology is influencing all parts of our society. Digital technology creates new working conditions for all types of work within service production, especially the information part of the service offer. We may talk of a new service logic in which links between the parameters in the service production have been untied as a consequence of the digital technology. Instead of producing the main content in the service offer in front of the client, a consequence of the digital technology is that the main content may be produced and stored in advance and then introduced to the client when needed. Increased IT maturity reduces the transaction costs both for the organisation and the customer. By use of the Internet, transactions could be carried out in an extremely short time. The reduced transaction costs influence the relationship between the supplier and the customer (Williamson, 1975; Amit and Zott, 2001).

In the private sector the technology shift has laid the foundation for what has been described as new business logic (Normann and Ramirez 1994). The working conditions for business have been changed by reduction in transaction costs in production, in partnering and in relations with customers (Williamson, 1998; Normann, 2001). Most studies on relationship quality have been carried out in the private sector. One important result has been the increasing value of the relations between partners and customers (Sawhney and Zabin, 2002).

In the public sector IT maturity will appear through the level of Information System Portals (Holmes, 2001). A higher level of portals forms the basis for E- Government "implementing cost-effective models for citizens, industry, federal employees and other arms of government" (Whitson, 2001: 79). This is done by data software making transactions possible at low costs. A higher level of portals implies increased horizontal organisational forms in a public sector where roles are changing organizations and co-ordination systems (Bannister, 2001; Holmes, 2001). The increased demand for service as the users get the new options provided by the technology stimulates public agencies to cooperate more closely in order to meet this new demand put forward by the users. Within the public sector the effects are linked to cost reduction, reduction in waiting time and increased relationship quality (Gassan et al. 2001). The digital technology will influence the bureaucratic form of the organisation. And the technology will make it easier to create virtual organisational forms in which the public servants will occupy new roles as integrators (Ahuja and Carley, 1999; Normann, 2001; Galbraith, 2002).

The full potential of information technology from the citizen's perspective can only be achieved by horizontally integrated government services across different functional walls (Lagne and Lee, 2001:132). Earlier research has focused on increased pressure from IT maturity on the roles of the public servant (Telem 1999; Holmes 2001). The user will expect increased progression in executive and casework and increased service levels.

New Public Management (NPM) constitutes the background for privatisation of the public services. One part of the NPM focuses on the user and the relations with the service provider (Ogard, 2000). In our era of privatisation of public service it would be important to study combined effects on the relations between the service provider and its clients of both IT maturity and the freedom of choice. To our knowledge this combined effect has not been focused on in earlier research. How do the combined effects of both IT maturity and the freedom of choice influence the relations, the roles and the communication between the service provider and the client?

2 POSSIBLE EFFECTS OF IT MATURITY AND FREEDOM OF CHOICE ON RELATIONSHIP ASPECTS BETWEEN SERVICE PROVIDER AND SERVICE USER / CUSTOMER

The digital technology will have an impact on a range of organisational areas in addition to the relations between the organisation and their users. Increased freedom of choice for the service provider will constitute changed working conditions for the service provider. The service provider could more easily adjust his service to the individual user. In this paper we aim to look at the effects of IT maturity and increased freedom of choice on some of these areas as shown in Table 1.

2.1 Effects on the roles

We assume the relations between the service provider and the service user to be influenced by the roles the servant and the users adopt. The roles linked to both parties will depend on each other since they both are in relation with each other: if the service provider has a bureaucratic role, a passive client role for the user would fit that role. Should the servant role be more oriented towards problem solving, a more professional and active user role would fit into such a role performed by the servant provider.

A role is defined as “A pattern of behaviour structured around specific rights and duties and associated with a particular position with a group or social situation. A person’s role in any situation is defined by the set of expectations for his behaviour held by others and by the person himself” (Theodorson and Theodorson, 1969: 352).

Steps toward E-government poses several challenges for agencies and changes in roles could be one of the more important ones (Carlitz and Gunn, 2002).

Easier access to public service as a consequence of the information technology will influence the expectation from the users toward quick individual fitted responses and effects of IT maturity on the roles linked to the public servant are expected to increase the element of service (Telem, 1999; Holmes, 2001). We would expect an increased degree of freedom of action for the public servant to increase the service element in their role since increased freedom of action would imply increased flexibility in service production.

2.2 Effects on form of communication

Enhancement of an organization’s communication capabilities may influence the performance of an organization in several ways. In studies, the communication qualities are often used as an independent variable (MacDonald and Smith, 2004, Kurtzberger et al., 2005). Here we aim to focus on how the form of communication could be affected, and as a consequence have communication form as a dependent variable (Andersen, 2001).

Behind every relation there is a form of communication. Braten (1998) makes a distinction between four forms of communication. A high degree of bias from the servant will create a forced situation if the user is highly dependent on the service and a lecturing situation if the user has a low degree of dependence. With a high degree of openness and high user dependence a dialogue form of communication is expected.

Table 1: Typology of communication based on degree of openness and degree of dependence.

		The user’s degree of dependence.	
		High	Low
The public servant’s degree of openness	Low	A forced situation. Unequal power.	A lecturing situation
	High	Possible dialogue	Common communication

In *the forced situation* the user has to listen to the public servant who has the right answer.

An example could be a client depending on approval by public authorities when setting up a garage. The transfer of information comes out of a single perspective and the sender has a monopoly on sending the information.

In *the possible dialogue* box we could find undefined limits between the public sectors. There is room for different perspectives. The situation opens up for the two parties to have a corresponding perspective and a balanced dialogue. When the public servant sees the client as a resourceful human being, as when an entrepreneur who is in contact with a servant from the Planning and Building Authorities, a dialogue form of communication could take place.

In *a lecturing situation* we have mass distribution of information; but the user could exit the situation. The situation is characterized of a unilateral perspective in a mass production of information. As an example a student could choose to exit from the situation and the service provider is not much interested in having dialogue with students since there are too many of them.

In *common communication*- both the user and the public servant can exit the situation. This form of communication is mostly used in both ends (start and end) of the communication (Bråten, 1998:101). A conversation of more private character could cover this situation.

Increased IT maturity will increase the number of interactions where both the servant and the user (customer) are using electronic equipment with easy access to various information sources. The positions of the two parties will be more equal and subsequently lay the foundation for an expected increase in the dialogue form of communication.

2.3 Effects on quality of relationships

Fournier (1998) constructed an index variable of relationship quality (Brand Relationships Quality (BRQ)). This concept of relationship quality does not contain the quality on the communication between the service provider and the client. The quality of communication is of importance in order to obtain a deeper understanding of the relations between the service provider and the client. We use parts of Fournier's index in measuring the relationship quality in three case studies, two of which are public organisations. The relationship quality also depends on the meeting of users' needs and of service marketing elements linked to customer needs (Freid and Freid, 1995; Sisoda and Wolf, 2000; Mai, Ness 2006). We will implement this variable into our study of the relations between the service provider and the client.

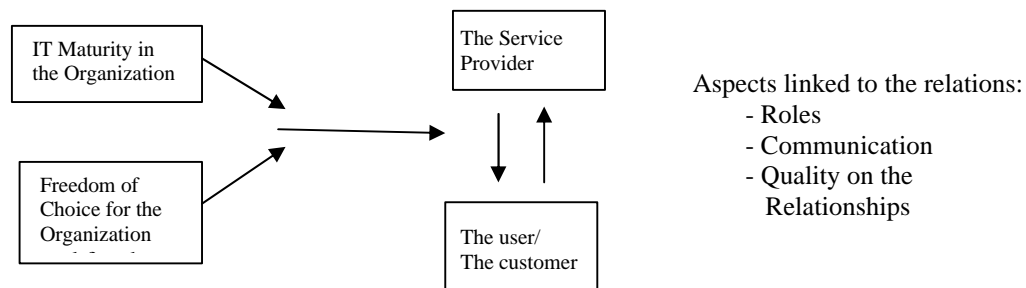
Fournier (1998) focused on relationships to brands and identified 6 main factors for measuring the quality: Love and Passion, Personal Commitment, Intimacy, Behavioural interdependence, Self-concept connection and Partner quality. Other research has shown that the "Personal Commitment" variable does not correspond to the other 5 and should therefore be omitted (Thorbjørnsen et al. 2002).

Others again have focused on qualitative aspects of relationship marketing (Morgan and Hunt, 1994; Sisoda and Wolfe, 2000). This research focuses on the relationships between individuals and organizations and is based on other factors of importance for the quality, such as confidence, communication and empathy. These variables could be dependent variables (Ferrin at al., 2006) but we will use some of these factors to create a measurement for quality of relationships in our cases.

3 RESEARCH QUESTIONS

Figure 1 shows our research questions. How will a combined effect of IT maturity and freedom of choice influence central aspects linked to the relationship between the service provider and the user/customer?

Figure 1: Our research questions



Do IT maturity and freedom of choice have effects on the roles of both the user and the public servant? In what ways are the communication and the quality of relationship affected? What are the effects of meeting of needs on the quality of the relationship between the servant and the user?

Figure 1 illustrates our research questions. We focus on the relationship between the service provider and the user. What are the possible effects on the roles performed both by servants and users? How is the communication between the two parties affected? And how is the quality of the relationship influenced? How are these aspects of relationship affected by increasing IT maturity when we consider freedom of choice, for both the organisation and the user?

IT maturity and freedom of choice are most likely connected. An increase in IT maturity would probably lead to an increase in freedom of choice since transaction costs are reduced. Services could more easily be obtained by the users by the use of Internet. For the organizations Internet would ease the transactions between public agencies and between public and private agencies. When we have only three organisations as units for analysis we are not able to distinguish between the effects of each of these independent variables. We assume a combined effect as illustrated in Table 1. However, when we study the quality of the relationship from the user's point of view we are able to discern the effects from these two independent variables.

4 METHODOLOGY

We have chosen to address our research questions by using case studies (Yin 1989). The conclusions drawn from case studies are analytical towards theory, in contrast to surveys, where conclusions can be generalized to the population. We selected three cases that represent a variation of our two main independent variables; IT Maturity and Freedom of choice. One case has a low score on both variables (CW), one case has high score on freedom of choice and medium to high on IT maturity (TET), and the third case has a high score on IT maturity and low on freedom of choice.

We have interviewed the Chairman of the Board and the Administrative Leader in all three cases. In addition we employed surveys partly by e- mail and partly by post to investigate the user's attitudes, preferences and experiences.

4.1 The cases

The first case is TET AS, which was established in 2002, as the Technical Department of Vest-Agder Fylkeskommune, i.e. the County Municipality. However, it was outsourced, as a private company (owned by the local authorities) in 2002. The fields of business were purchase, building and estate management. TET has corporations with a number of private companies. By this TET has expanded its offering to new fields of business such as E- commerce. The company had 30 employees, and has now been sold.

The second case is the Technical Department of Kristiansand (borough) municipality, - Section of Planning and Building (PB). PB is participating in a national program for development of electronic solutions for applicants applying for new or changed buildings and plan production. PB has 32 employees.

The third case is the child welfare services in Kristiansand municipality (CW). CW has the responsibility for making preventive efforts for individuals according to the Act of children welfare. CW has both a controlling and a helping function. CW had 210 children in various institutions and 60 employees.

PB and CW represent public service providers, and TET represents the private dimension.

4.2 The samples

We have obtained questionnaire data from 80 respondents. These are spread over the cases as follows: TET 22, PB 35 and BW 23 respondents. The data were collected in early 2004.

We have data from six small samples, one sample from TET, two from PB and three from CW. From TET the sample frame consisted of names, addresses and e- mail addresses to 39 firms which were their customers. A questionnaire was sent out by e- mail and after three reminders we got 22 answers, representing a response rate of 56 per cent.

From PB we had two samples, one consisting of entrepreneurs (business people) and one consisting of individual applicants. We got a samples frame containing 19 entrepreneurs (firms) and another sample frame containing 45 individual applicants. From the 19 firms we got 16 questionnaires back on e- mail, representing a response rate of 84 per cent. From the list of individual applicants we got 19 questionnaires by post, (we had no e- mail addresses), representing a response rate of 40 per cent.

It was CW who was responsible for drawing the samples from the sample frames and sending out the questionnaire by post. The enclosed return envelope was addressed to us. In a group of young people over 15 years, 15 respondents were selected and only 3 questionnaires were returned. In a group of parents 27 were selected by CW and only 6 questionnaires were returned. The response rate was only 22 per cent. In a group of foster parents 28 were selected and 14 questionnaires were returned, representing a response rate of 50%:

The general response rate for the professionals (companies) is 66 per cent, but for the individual applicants the general response rate is only 37 per cent. The low response rate from the individual applicants in CW and PB may be partly due to the contact method, i.e. by post. When contacting the professional users we were able to use e-mail. By professional users we mean firms (companies) who are dealing with TET or PB as part of their business.

We can not generalize from this group of individual respondents to the population of individual applicants in the building sector or individuals in the childcare service, but hold firm to our qualitative case study approach making analytical conclusions. In some of our analysis we created a data file containing all our respondents (n= 80).

5 ANALYSES

Possible effects of IT maturity and freedom of choice:

5.1 On the roles

We used five indicators to define the types of roles in our three organizations. The administrative leaders answered the following five questions:

1. How would you describe the role of the servants (the expectations the clients have of the employee and the expectations the employee has of himself)?
2. To what degree have the clients experienced problems because rules made the service less flexible?
3. To what degree would you characterise the staff as bureaucratic?
4. To what degree would you say the service production is based on professional standards?
5. To what extent is the service characterised as a service arena with high degree of power to the employees?

Effects on the roles

According to interviews with the administrative leaders the two cases with the highest IT maturity have partially more active users. In the private case, TET, they have a deliberate policy of inviting users to participate in the service production. The PB policy is not that intentional, but the professional users are included in the process of service production in dialogue with the public servant.

Most of the roles are varied, covering more than one aspect.

In the building projects field the PB bureaucrats also act as mediator. The users also influence the roles in this organisation. When professional users appear, the servant role shifts to a dialogue form of communication with a higher degree of mediator in the role. With individual amateurs as users the employee role is more bureaucratic, seeing the user as a client.

In the child welfare organisation the servant's roles are in conflict. These conflicts appear when the servant simultaneously performs two roles: both helper and controller. The field of helping parents is characterised as a service arena (Blekli, 1997) where the servant has power and authority. Here the users have the role as clients. The servant roles in the other two fields, foster home and preventive work, are both bureaucratic and professional, and bureaucratic with dialogue.

The bureaucratic role is not only present in our two public cases, but also in the private case, TET, and their field of E-commerce. In this field, contracts have been made. In the E-commerce field, however, the role is much more bureaucratic since the contract agreed upon sets the limitations for further actions. Further dialogue is based on this contract. A bureaucratic role in this field means sticking to the contract. But in TET, the privatised organisation, the normal role is a delivery role, that of a problem solver and of a process leader. Some of the expected effects of IT maturity are that the servants' role will become more service-oriented and the users will be more active and professional.

Consequently, with the exception of the contracts linked to the E-commerce field, it seems that TET, with high IT maturity and higher degree of freedom of choice, to a higher extent than the other two public cases, have roles implying service and problem solving for their users.

5.2 Effects on the form of communication

Our research question asked whether the form of communication between the servant and the user took place as a dialogue as the IT maturity and freedom of choice increased.

We have two indicators of the dialogue form of communication.

1. When you consider the communication the servants usually have with the users, to what extent would you say it is a balanced dialogue?
2. Do you think increased use of IT solutions could result in increased degree of dialogue in the communication or don't you think increased IT use will have any such effects?

Question 1(A balanced dialogue?)

The administrative leaders are answering.

Our data show the dialogue form of communication in different service arenas in our three cases regardless of IT maturity. The variation in the communication forms seems more influenced by the structure of power between the servant and the user than by the IT maturity in the service arena. The dialogue form seems to imply higher degree of equality between the servant and the user than what we find in parts of the local authority administration.

We find the dialogue form of communication in the planning areas in PB, in the building service arena in TET and in the foster home arena in CW.

However, the dialogue form seems to disappear when there is unequal power and dependence between the servant and the user.

- With professional users I would say we have a dialogue, but with private individuals we have more the role of a teacher toward a pupil (Building applications in PB).
- In building projects it is really a game for power (TET).
- With children and parents we do not have a dialogue since there always will be a power aspect in the communication (CW).

Question 2 (Effects of IT maturity)

The administrative leaders are answering.

In the areas where the dialogue form is found today no changes are expected, but in other areas an increase in the dialogue form of the communication is expected as the IT maturity increases.

- Increased use of IT could lead to information being more accessible, but as a part of the dialogue in communication it would have low significance, (The planning arenas in PB).
- I believe it would have a significant effect (The field of building construction in PB). Generally I believe so, but it is the people who are most important in addition to the ability and motivation to listen and take each other seriously. I do believe in using IT as a tool for dialogue in communication and will work for it in all our arenas, (TET).
- I believe increased use of IT will have a significant effect in increasing the dialogue form in the communications (CW).

To the extent IT solutions are creating more equity between the supplier and the user these findings indicate increased form of dialogue in the communication between the two parties.

The dialogue form of communication seems to be determined by certain equity in the relationship as seen by the administrative leaders. This was apparent in the planning fields in PB, the purchase and contract administration in TET, and the field of foster home in CW. These findings seem to be in accordance with the theory of communication (Bråten 1998). In areas in which amateurs are in contact we believe that an increased application of IT will strengthen the possibilities for dialogue in communication.

Analyses of the users

The respondents were asked to express their view on a scale ranging from 1 to 7 (to what extent they agreed with the statement).

1. When I communicate with a servant from TET/PB/CW we have an equal dialogue. An ANOVA analysis shows no significant differences between the groups of respondents.
2. I find it easy to communicate with a representative for TET/ PB/CW.

An ANOVA analysis of the data shows no significant difference between the users in our cases with respect to equal dialogue and easy communication, but CW with market bureaucratic and client roles do have the lowest score on both indicators.

To sum up the effects on the form of communication

The results from our small collection of samples do not contradict the conclusion we presented, based on the interviews with the administrative leaders. The dialogue form of communication seems to be more a result of equity in the relationship between the servant and the user than a result of IT maturity. A reduction in transaction costs, as a result of increased IT maturity, could make the positions of the servant and the user more equal, and by that establish the condition for increased use of a dialogue form of communication.

5.3. Does the perception of having the needs met influence the quality of relations?

The relations quality depends on the meeting of the users needs (Freid & Freid, 1995; Sisodia & Wolfe, 2000). The users' needs are composed of various elements. Let us take the example of elderly citizens. They need practical help, social contact and medical safety (Ohldiech ed.1985).

We asked the administrative leaders of the two cases in the public sector to tell us what sort of needs they aimed for in addressing their service production. Then we asked the users to rate the service in each of the appointed areas on a scale from 1 to 7.

We asked the respondents in TET how they felt TET covered their needs.

- Within the areas where TET is working I feel they cover my needs completely.

They answered on a scale from 1 to 7 to what extent they agreed with the statement. The other two cases also have this indicator, but in addition they have more specific indicators on specific needs.

An ANOVA analysis shows the difference in score between the users was small and not significant, but the users in CW gave the lowest score.

Measuring how needs were met.

In the two public cases we asked the administrative leaders what sort of need their service was covering for the users.

As an example for PB the following needs were presented:

- The need for practical help
- The need for information about possibilities and limitations
- The need to decide/for making decisions
- The need for predictability

We established an index variable for the covering of needs based on these indicators and a self-evaluation of how well their needs were met by the service.

We performed a factor analysis for PB respondents with the 5 variables as indicator of how needs were met. We got only one component. Subsequently we performed a reliability analysis on these five factors and the $\alpha = 0.86$. The average score for the professional in PB and individual applicants were:

Table 2: Means score in the index variable for the covering of needs (PB)

	Means	
Professionals	20.3	(n=16)
Individuals	24.2	(n=19)

The difference is significant (ANOVA), $p = 0.04$ indicating the individual applicants are more satisfied with the covering of needs in PB than the professionals. This could imply the professionals have higher expectations than the individual applicants.

5.4 Explaining the variation in the quality of the relationship

A regression analysis will assist us in the investigation of the variables representing assumptions on relationship quality: Communication Quality, the Covering of Needs, Freedom of Choice and IT Maturity.

Table 3: Statistical results from the regression analysis with quality of the relationship as dependent variable.

Variables in Equation	Beta value		T-value	Sig.(p)
Communication quality	0.40	3.6	0.001	
Covering of needs	0.45	4.0	$p < 0.001$	
Freedom	0.05	0.6	0.575	n.s
IT Maturity	-0.06	-0.8	0.440	n.s

Sample size (N) = 80, $R^2 = 0.57$, $p < 0,001$.

Table 3 shows two significant variables and two not significant variables.

In this study there is no effect (not significant) of IT maturity and freedom of choice as regards the quality of relationship between the user and the servant as seen by the users.

However, there are significant effects of the quality on the communication and the experienced covering of needs. The communication quality result is not surprising (Morgan & Hunt, 1994), but results from covering of needs was new to this type of research.

5.5. Summing up the main findings

We asked:

Do IT maturity and freedom of choice have effects on both the user and the public servant roles? In what way are the communication and the quality of the relationship affected? What are the effects of covering of needs on the quality on the relationship between the servant and the user?

We found:

The roles

IT maturity and the freedom of choice seem to influence the roles of the interacting parties.

The servants' roles are varied, but seem to be more service oriented. Our private case with a higher degree of freedom had roles with problem solving aspects, and an increased degree of freedom for the public organisations could lead them in the same direction. Servants with conflicting roles could not expect increased IT maturity to relieve them from the conflict in their role. Only organizational changes could make changes in the same roles.

The roles of the users will probably change to a higher degree of professionalism, and with increased degree of freedom for the public organizations the role of the user could be more active, as shown in our private case.

Communication

The form of communication seems to be more influenced by equity in the relationship than by IT maturity. Reduced transaction costs will also influence the users and create lower costs linked to access and increased possibilities for the servant to give flexible answers. In this way increased IT maturity could create more equity between the public servants and their users and thus increase the possibilities for a dialogue form of communication.

Quality of the relationship

The degree of covering the users' needs and the quality of communication between the parties could best explain the quality of the relations between the public servants and their users. Theories on relations quality in the public sector should include relational factors such as degree of equity regarding the relations and the extent to which the user feels that his needs are covered. In relation to one service provider the users do have a structure of needs and it is important to know the structure of the needs to be able to influence the quality of the relations. Increased quality of the communication between the parties could also have a positive effect on the quality on the relations. IT maturity could influence equity between the parties and thus the form of communication, the covering of needs and the quality of the relations.

6 CONCLUSIONS

Designers of IT based systems in the Public Sector should focus on the specific needs to be covered (E -Government). The covering of specific needs for the users of the public service is the main factor for improving and creating a high quality of the relations between the parties. The design of the service production should be based on knowledge of the dimensions in the needs.

The more service-oriented systems the designers would like to create, the more service-minded and problem-solving roles should be created. The political leaders should trust the public service agencies, and assess them on their results (including the fulfilment of rules for the service). Such a degree of freedom would promote problem-solving roles among the public servants. The attitudes of the public servants should be changed towards accepting professional users as equals and thus create a dialogue in the communication between the servant and the user.

Managers of private and public organizations should be more conscious of the role played by their customers and subordinates because a more equal role performance between the servant and the customer (user) would increase the possibilities for a dialogue form of communication and thereby increase the quality of the relationship and as a result again increase the customer loyalty. Moreover, managers ought to focus on their customers' specific needs in order to meet their needs in a better way. A better covering of customer needs would improve the quality of the relationship and in this way increase the customer loyalty.

A major change in the delivery system along these lines could in this way promote more active and respected citizen role in accordance with the best traditions of user oriented E -Governance.

Future research

Future research on relations quality in the public sector should include covering of user's needs and equity between the parties. Future research on roles and communication should include variables such as IT maturity, freedom of choice and equity in communication.

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