

# “You probably shouldn’t give them too much information” – Supporting Citizen-Government Collaboration

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**Abstract.** This paper discusses the challenge of supporting digitally mediated citizen-government collaboration in public service provision. With a vantage point in activity theory and the empirical data from three exploratory design cases, we derive a theoretical framework for understanding the way in which citizens share information with government. Through the proposed framework and the notion of Participatory Citizenship, we propose a set of central design challenges to supporting collaboration within this setting. We argue that civil servants and citizens have inherently different foci in the service provision process. Hence, we conclude that the focus of design should not be to support a shared motive for the overall service delivery, but to support a better common understanding of the case process in itself, i.e. the involved actors, their motives, and their mediating artifacts. Moreover, we argue that the aim of technological support for complex collaboration should not be leaner, more rational case processes, but improved citizen involvement in the configuration of service provision and the alignment of actor motives. Lastly, we exemplify how these design challenges can be met by discussing how a concrete exploratory prototype in the form of a web-based timeline addresses collaboration within a complex service provision setting.

## Introduction

Technology as a mediator for collaboration in organizations has been explored thoroughly within HCI and CSCW (Schmidt and Bannon, 1992; Grudin, 1994). A natural continuation of this research has been the exploration of collaboration between stakeholders with dissimilar and sometimes contradictory incentives

(Clement and Wagner, 1995; Cohen et al., 2000). Meanwhile, the last decade has seen a remarkable growth in the proliferation of social communities and user contributions on the web. Several studies have explored the nature of these communities (e.g. Bryant et al., 2005) and the positive effects of user contributions in these settings (Marlow et al., 2006). Part of the thrust of New Public Management and e-Government has been a heightened focus on the digitalization of public services and a focus on the citizen as opposed to the bureaucratic institution being the center of attention (Vigoda, 2002). However, very few digitalization efforts have led to the support of fruitful collaboration and empowerment of citizens. The bulk of European digital service solutions still take rationalization of the administration as their primary point of departure and, essentially, let citizens serve themselves when applying for various benefits. As concluded in a report by the European Commission (Osimo, 2008) much can be gained from involving citizens in the provision and development of public services. Nonetheless, this is not an easy task as citizen and government incentives for engaging in such collaboration are very different and vary from setting to setting.

In this paper we explore the challenges of technologically mediated collaboration and citizen contributions in public service provision. With a vantage point in three case studies exploring different collaborative settings, we discuss the notion of *Participatory Citizenship*. We derive three archetypical citizen strategies for sharing information with government and discuss the consequences of these strategies to the support of citizen empowerment in citizen-government interactions. Using the lens of activity theory, we discuss the central challenges to supporting collaborative activities within the sphere of public service provision. Lastly, we exemplify how these design challenges can be met by discussing how a concrete exploratory prototype in the form of a web-based timeline addresses collaboration within a complex service provision setting.

## Conceptual Background

This paper defines Participatory Citizenship as *the act of citizens actively engaging in and contributing to the provision of public services in order to improve these services for themselves and other citizens*. The concept creates a link between discussions of active citizenship within the realm of political science (e.g. Westheimer and Kahne, 2004) and the potentials and challenges of user involvement, cf., Participatory Design (Greenbaum and Kyng, 1991). Participatory Citizenship specifically addresses this link within the realm of public service provision. The inspiration for such a focus has come from three exploratory research cases regarding parental leave case processing (Borchorst et al., 2009; Bohøj et al., 2010), physical citizen service offices, and citizen deliberation through mobile technology (Bohøj et al. 2011). These are introduced more thoroughly below.

The exploratory research cases have led us to a more general focus on what constitutes the collaboration across the boundaries between citizens and government, as well as the challenges of technologically supporting such collaboration.

Substantial ethnographical and sociological research has been done on the subject of social interaction in and between communities (e.g. Lave and Wenger, 1991; Bowker and Star, 1999). Furthermore, technology as a mediator for collaboration between ‘groups’ has been paid special attention within CSCW (e.g. Bannon and Schmidt, 1991; Grudin, 1994), albeit with a predominant focus on professional organizational settings, rather than our current emphasis. With this focus in mind, Kling’s (1991) argument for a stronger consideration of the problematic aspects of cooperation, such as conflict, caution, and control, seems especially pertinent. Compared to studies of workplace settings, citizen-government interaction arguably constitutes an inherently asymmetrical relationship in terms of power and the ability to define the rules for and outcome of the interaction. Consequently, an important point becomes whether the involved parties perceive the interaction in the same way, e.g. as collaborative problem solving, control, compliance with authoritative, legislative procedures, etc.

In the following we introduce activity theory as a theoretical basis for analyzing the dynamics of collaborative activities on the boundaries between citizens and public administration.

## Activity Theory

Within CSCW there exists a long tradition for conceptualizing the anatomy of collaborative activity through the perspective of Activity Theory (Bertelsen and Bødker 2001, Bryant et al. 2005, Engeström et al. 1988, Kuutti 1991). We see activity theory as a strong tool for emphasizing the dynamic relationships between organizational activity and individual action from an anti-idealist and anti-individualist perspective (c.f. Star, 1996).

Human activity is carried out through actions with purpose that transforms the *object* from *materials* to outcome. This object is also the target of human expectations and reflections, i.e. the *motive* of the activity. Actions are realized through series of *operations*, each “triggered” by the conditions and structure of the action. Activity is fundamentally marked by dynamics, disturbances, or ruptures, which are often results of more profound tensions and contradictions between activities. Activities are constantly developing as a result of this instability: An activity with a separate motive will at times get subsumed into other activities thereby losing its individual motive. In other instances, clusters of actions turn into separate activities (e.g. Bødker and Grønbæk, 1995).

Human beings develop and accommodate artifacts that mediate their relations with objects (Bødker and Klokmoose, 2011). Such artifacts include *tools*,

*rules*, and *division of work* and may at the same time support doing the job, and understanding the rules (*secondary artifacts*, c.f. Engeström, 1990). The object towards which the actions are directed, through artifacts, is, on the one hand, ideal and a reflection of the motive of the activity and, on the other hand, a state in the processing of material into an outcome. With this perspective in mind, an artifact may at the same time accommodate and bridge between several interrelated activities (e.g. with different motives but shared or overlapping objects), similar to Star's boundary objects (1989), Robinson's double level language (1991) or Bowers et al.'s formal and informal workflows (1995).

### The Hierarchy of Collaborative Activity

We may make analytical distinctions between three levels of collaboration that relate to how participants share motive, object, and orientation toward one another: *co-ordinated*, *co-operative*, and *co-constructive activity* (Engeström, 1987; Engeström et al., 1997; Raeithel, 1996; Bardram, 1998a).

Co-ordinated activity is structured by its common object, while the participants have their own separate mediating artifacts and motive: "*Individuals are gathered together to act upon a common object, but their individual actions are only externally related to each other. They still act as if separate individuals, each according to his individual task*" (Engeström, 1987, p. 333). Within co-operative activity, the object is generally stable and agreed upon by the collaborators, while they do not necessarily share motive and, hence, the artifacts are under negotiation. At the last level, which Raeithel (1996) calls co-construction, the artifacts, as well as the objects, are unstable and the participants take turns producing a communal voice. Engeström et al. (1997) refer to this as reflective communication: "*By reflective communication we mean interactions in which the actors focus on reconceptualizing their own organization and interaction in relation to their shared objects. Both the object and the script are reconceptualized, as is the interaction between the participants.*" (Engeström et al., 1997, p. 373).

Bardram (1998a), elaborates on these levels in order to distinguish between three types of coordination: *communicative*, *instrumental*, and *scripted*. Regarding communicative coordination, he states that "*Coordination of collaboration takes place through communication, including indexical, symbolic, iconic, and conceptual communication*" (ibid., p. 49). Correspondingly, instrumental coordination refers to the way actors coordinate activity through the perceptible actions of other actors through their primary artifacts. Lastly, scripted coordination is made possible when all involved actors share secondary artifacts: "*Such a script for work is embedded in a combination of rules, procedure, protocols, division of work, norms, etc.*" (Bardram, 1998a; p. 51)

In the remainder of the paper, we bring together activity theory and the empirical data from three exploratory design cases, which we present below.

## Three Cases

In the following we briefly present the three cases exploring citizen-government collaboration. These cases regard parental leave, citizen service offices, and municipal plans. We draw upon the empirical data from these cases throughout the remainder of the paper.

All three cases involved observations, interviews, and workshops exploring the nature of current collaboration (or lack thereof) combined with a design-oriented exploration of prospective novel patterns of technologically mediated collaboration. Prototypes served as concrete alternatives to current practice, as well as ways of probing the problem area to reveal the anatomy of current and future patterns of cooperation (Bødker and Christiansen, 1997; 2004). Our research approach is grounded in the action-oriented participatory design research tradition, which is strongly influenced by Schön (1983) with respect to reflection in action, as well as micro-sociological thinking, e.g. ethnomethodology and grounded theory, well known in CSCW. All cases were carried out within the eGov+ research project in which we explore the support of novel e-Government services.

### Parental Leave

This case study addressed the interaction and collaboration involved in the planning and control of parental leave in a Danish municipality. The planning involves several citizens along with a municipal office and several other stakeholders such as the parents' employers and labor unions. Through a web based timeline artifact the involved actors were supported in communicating and negotiating plans and decisions. We return to a discussion of this timeline in the end of this paper. The iterative development of the timeline prototype was based on observations in municipal offices, and interviews with parents and so-called "mothers' groups". The design process included several design iterations with both paper and software prototypes with groups of citizens and caseworkers. For a thorough discussion of the parental leave case and the design process see Borchorst et al. (2009) and Bohøj et al. (2010).

### Citizen Service Offices

The citizen services case took physical citizen service offices as its focal point. Here, we collected data through interviews with citizens and caseworkers, as well as observations and the drawing of heat maps of cooperative activity in the municipal offices. Moreover, we conducted a three-hour workshop with a group of young citizens, age 20-25. With a group of students we developed a number of prototypes suggesting alternatives for citizen-government and citizen-citizen collaboration with a view to citizen empowerment. One example is a tablet device that helped citizens navigate the service provision process by interpreting and

helping fill out bureaucratic forms, offering related services according to life situations, and making apparent what other citizens in similar situations had done.

### Municipal Plans

The last case explored citizen deliberation in municipal planning through two interconnected prototypes for desktop computers and smartphones respectively. We worked with two primary user groups: citizens and municipal planners. Whereas planners are easily identified, we targeted citizens through two community groups and individual citizens. We conducted in-depth interviews with municipal planners and managers and focus group interviews with the two citizen interest groups. The focus of the case was the different ways for citizens to act and reflect on proposed plans: in-situ, while physically close to the planning object; and ex-situ, when citizens were physically remote from the planning object. The aim was for citizens to engage in continuous reflection in and on action as a collaborative activity with other citizens, hereby creating proposals that municipal workers were better able to process and help turn into concrete changes in the physical environment. For a thorough discussion of the municipal plan case and the design process see Bohøj et al. (2011).

The findings presented in this paper are tied to the investigated empirical contexts. Denmark's renowned welfare model, strong IT infrastructure, and very low corruption levels correspond well with many of the challenges defined by Jaeger and Thompson (2003) as important to the success e-government services (e.g. accessibility, IT competencies and education). Still, collaboration, democratic responsiveness, and service level uniformity remain challenges to many countries under various types of government. Consequently, albeit cautiously, we would argue for the relevancy of the conclusions brought forward in this paper outside specifically Danish contexts.

## Collaboration in Citizen Services

With a foundation in the three exploratory cases, we now turn to a discussion of what we deem to be central challenges to understanding and supporting citizen engagement in digitally mediated citizen-government interactions.

### Individual and Organizational Incentives for Collaboration

The distinction between different types of collaborative activity within the current context is especially complex due to the fact that interaction within and with the public sector invariably involves an intricate composition of individual and organizational actors. Several public and private organizations may be involved in the case processes. The many actors involved in parental leave is an example of

this. The network of stakeholders involved in the collaborative work is no less complex in countless other citizen services. As expressed by one mother:

“I think that the biggest difficulty was to figure out where I should send my papers, because I do not have a proper employer. I stopped working before my parental leave and went on unemployment benefits. There were so many instances involved when I was to report all the information. It was very difficult for me to find out how to do that.” **Workshop with group of mothers, 28th of May, 2008.**

This complexity renders the concrete configuration of the involved actors’ motives and mediating artifacts very hard to unravel for citizens and caseworkers alike. Accordingly, this poses a big challenge to the support of technologically mediated collaboration within these settings.

### Collaborators or Representatives?

On the one hand, the intricacies of bureaucratic institutions are often such that numerous municipal employees see and affect any given case process. On the other hand, citizens expect to receive a uniform service regardless of their personal caseworker, as is also the intent of the public administration. However, during the last decade the Danish state has, partly inspired by the thrust of New Public Management, attempted a shift of metaphorical focus towards the citizen, as opposed to the public institutions, being the center of attention. A concrete value in this shift is the idea of citizens’ right to meet “a human face” in their interactions with government. Hence, municipal employees walk a fine line between their roles as creative individuals and governmental representatives. This blurring of the motives of the involved actors on both sides of the citizen/caseworker divide severely complicates the actors’ ability to understand the nature of the collaboration. While public policy requires for caseworkers to provide a certain service level with a limited amount of resources this may conflict with their own personal definitions of good service, as became apparent in a workshop with parental leave caseworkers:

“There is a lot of psychology regarding money. [...] People like to have confirmed by a person that they are doing the right thing” **Workshop with caseworkers, 23rd of Jan. 2009.**

The above remark regarded the relation between personal counseling and sending citizens on to explore other information sources, such as online forums. The caseworker was reluctant to encourage citizens to find information from other sources before contacting the municipality, as she thought this was a renunciation of a responsibility of the municipality in a situation where the citizen can be psychologically strained and need to talk to a human being. Consequently, the caseworker preferred counseling every citizen personally, in contrast with the push for cost-effectiveness in the organization.

However, there are also other, somewhat contradictory ways of dealing with responsibility, including that of delegating responsibility to organizations that are trusted for the validity of their legal advice:

“If she [a character in a scenario] is unemployed she has to go to the people who have the information – her employer or her union. If she has no union she’s in trouble. [...] If she has no union and no employer she cannot proclaim that she has a good paternity leave agreement!” **Workshop with municipal employees, 28th of Nov. 2008.**

This was supplemented by a middle manager:

“If she is unemployed, she has to see a lawyer about her rights” **Workshop with municipal employees, 28th of Nov. 2008.**

Although the above quotes are examples of the hardliner bureaucratic approach that citizens at times are faced with, the service level provided in the service offices was often of quality that far exceeded official municipal responsibilities. However, this did not necessarily stem from an official service strategy. In one case a citizen asked for EU health cards (often referred to as “blue cards”) for all of his family. Counseled by a municipal employee the citizen got a fantastic service, albeit not the one he had expected:

“The caseworker signs the family up for the health cards and returns to the young man: "Can I ask what you all need the cards for?" Young man: "We are going to Turkey on vacation" Caseworker: "The blue card can't be used there and actually it's not of much use anywhere unless one of you has a chronic disease or go abroad for more than three months. What you need is your yellow health card, even though nowadays, you will need insurance for home transport if the worst happens." [...] Caseworker: "[...] you need to think about travel insurance". Young man: "What's a good place for that, you think?" Caseworker: "Well, you need to talk to your insurance company or maybe one of the companies specializing in this. I hear that XX is excellent for price and coverage, but I'm not sure." **Notes from observation in City Hall, 21st of Jan. 2009, 11:40 AM**

The above empirical accounts illustrate the continuum municipal employees have to place themselves within in their interaction with citizens: on the one hand, they act as governmental representatives and are obliged to follow strongly scripted modes of action according to bureaucratic procedure ensuring a swift case process and a uniform level of service: on the other hand, they act as individuals and may creatively choose to adopt more strongly to their personal conception of the situation, i.e. the in situ configuration and alignment of individual needs and motives according to the specific context. This creative space produces a tension between the objectives of the public administration; the collective objective of the citizen and the caseworker oriented towards a common work object; and the respective individual motives of the citizen and the caseworker. The object and artifacts of work are negotiated in situ through the actors’ communicative abilities in the reconciliation of their respective motives.

The uncertainty of where governmental actors choose to position themselves within this continuum poses a serious challenge to citizens: Are they creative individuals making self-willed decisions about the level of service, the nature of the collaboration, and the fate of the citizen? Or are they merely governmental representatives executing bureaucratic protocol regarding service models and service quality? In the following, we discuss how this blurring of roles and boundaries



challenges collaboration and how it affects the way citizens perceive their own role when interacting with government.

## Strategizing on Blurred Boundaries

Arguably, a clear understanding of goals and obligations by the parties involved is a criterion for constructive collaboration in general. Clear boundaries concerning division of work and flow of information are essential to such an understanding. As in the example of a citizen wishing to acquire EU health cards, the majority of citizen services require for citizens to provide certain personal information in order to receive the service that they are entitled to. Another example of this is found within Danish parental leave case processing. Citizens provide information regarding their employer, the nature of their work leading up to the leave period (salary, hours a week), etc. This information is then used by the caseworker to approximate leave circumstances and not least calculate the size of the entitled subsidy. However, as with EU health cards, the information is often also used as a basis for counseling the citizen on his/her options:

"A young man approaches one of the desks to change his address. He has a wife and some kids. They have moved to a new address and he provides the needed information about family members and the new address. The caseworker swiftly registers the move of the whole family and then looks up: "Actually two people already live at this address at the moment." The young man looks confused: "The ones who are moving out?" They reach to the conclusion that the people registered at the address are the ones who should have moved out. Caseworker: "You need to get in touch with them and ask them to register their move, 'course I assume you still want housing subsidy in the new place?" Young man: "I don't know..." Caseworker: "You have to fill in a new application" Young man: "I thought it would just move with us, since we move to a new flat in the same building" Caseworker: "Well it's a different size flat, isn't it?" The young man leaves with a form for housing subsidy and information about the two people he needs to get in touch with." **Observation, City Hall, 19th of Jan. 2009, 12:37 PM**

The empirical example in several ways corroborates the arguments made in the above sections: Firstly, it exemplifies the caseworkers dual role as counselors and bureaucrats in their relation to the citizen. Secondly, the quote illustrates the complexity of the actors involved in many instances of service provision. In the situation above, two other citizens might end up obstructing the young man in obtaining his housing subsidy. Thirdly, the example underlines how the dual capacity of the municipal employees often confuses citizens. For example, the young citizen might end up receiving a smaller subsidy by providing new information, as required by the caseworker. Hence, citizens may find it hard to define a clear, common objective steering the collaborative activity. In the above case, the employee is in fact oriented towards several simultaneous motives, i.e. controlling and guiding. Some of the actions necessary to reach these two motives overlap and others mesh. However, some actions are conflicting, which forces the caseworkers to continuously prioritize and adjust their actions according to where they position themselves within the continuum between being a collaborator and a

governmental representative, in order to resolve the recurring tension created by overlapping motives.

## Citizen Approaches to Information Sharing

The caseworkers' continuous adjustments often consign collaborating citizens to a hesitant state. When the governmental employee prioritizes the act of controlling, citizens may inadvertently provide information that worsens their case. Essentially, the problem has to do with understanding the current motives of the involved governmental actor and controlling the flow of information across the boundaries demarcating the collaborative activities. According to how citizens view this complexity, they may adapt very different approaches. Concretely, citizens' willingness to share information can be understood as a continuum comprised by three archetypical approaches: *closing the shutters*, *surrendering*, and *mastering the flow of information*. The approaches used by citizens essentially relate to whether they are able to define the constellation of collaborating actors and their respective motives and artifacts. We elaborate this in the following.

### Closing the Shutters

If the collaboration is perceived as inherently adversarial, as discussed by Cohen et al. (2000), the citizen may decide to withhold all information that he/she is not explicitly required to provide by law. This is done in an attempt to avoid weakening one's cause as a product of inadvertently having provided exposing information that might result in a poorer outcome, as in the above example concerning housing subsidy. Typically, this strategy is used by citizens who do not feel they have a clear understanding of the boundaries or the legislation, nor the division of labor in their interaction with the government, as was expressed by one mother:

"[...] You probably shouldn't give them too much information. What if they tell you: "You know what, then you are not getting any money"? **Workshop with group of mothers, 28th of May, 2008.**

### Surrendering

Another approach taken by citizens who do not feel they can comprehend the full complexity of the collaboration is to simply comply to the best of their ability. The citizen lays everything on the table, metaphorically and at times literally, and hopes for the caseworker to favor his/her obligations as a counselor over those of ensuring correct and cost effective case processing. In the citizen service offices we experienced this approach often:

"Middle-aged woman sits down at the employees' desk. She has brought a large stack of papers, which she hands over. She left her husband and was fired shortly after. She has a bunch of problems and the case seems very complex. She gets daycare subsidy, but the amount is wrong and is based on numbers before she left her husband. She has to pre-pay, but she does not have the money and the amount is bigger than it should be. Municipal employee: "They

have a processing time of 3-4 months.” [...] Citizen “It’s hard to call so many places! They put you on hold forever! And it’s also difficult to figure out the online solutions.” The caseworker manages to contact the appropriate public institution directly and apparently settles the problem. Citizen: “Thank you SO much!”” **Observation, Municipal Office, 29th of Jan. 2009, 2:12PM**

### Mastering the Flow of Information

A third archetypical approach is that of citizens ‘mastering the game’. They understand their own and the municipal caseworker’s role, the objects of work they refer to, and the obligations that adhere to these. They engage in collaboration in order to receive a better service and control the flow of information in such a way that they only provide the exact information needed (and in such a way) that it ensures the best possible service. Moreover, they continuously re-adjust their efforts to fit changing objects of work, available artifacts, and the involved organizational and individual actors.

In the case regarding citizen contributions to municipal plans, we encountered several citizens with intricate knowledge of municipal procedures. One grassroots organization fought to prevent the partitioning of an old camping ground now used as a recreational nature area by the local community. The partitioning of the area for the purposes of building private property would most likely affect the value of the property of several of the associations’ members, many of whom had political experience. As a consequence, the association had fought a long and hard battle with the municipality displaying, and making use of, profound insight into bureaucratic procedures and the various latent crystallizations of work practices apparently affecting the process.

At times, citizens display what can almost be perceived as puppeteering of municipal actors, as when one citizen explained how he went about getting his way regarding the aesthetic appearance of renovated old houses in his hometown:

“We had a meeting just prior to the election with the technical chairman at that time. To tell him a little bit about what was going on. [...] We have to make him aware of what they are doing and what the municipality can do. And be careful you don’t go too far. We shouldn’t tell him EXACTLY what to do, but put pressure on him in such a way that he himself thinks that it’s something they need to handle... But we don’t provide him with any final solution.”

**Workshop with citizens, 18th of Jan. 2010.**

The strategies presented above do not only relate to whether citizens understand the motives and artifacts affecting other actors. The approach chosen is also affected by a juxtaposition of effort and gain, i.e. what work goes into understanding the circumstances of the collaborative activities and how does this work measure compared to a prospective gain in the form of a more desirable outcome?

### Effort and Gain

As argued by Grudin in his scrutiny of groupware systems, designers of CSCW systems need to carefully consider “*the disparity between who does the work and*

*who gets the benefit*" (Grudin, 1994, p. 96). The tension between contribution and benefit, who sows and who reaps, may change and develop over time. Here, time in itself is an important factor. Certain services are only rarely needed and require relatively little interaction with government (e.g. renewal of various ID cards). In other instances, cases stretch over long periods of time, as in parental leave, or, as described by Bardram (1998b), in cases where citizens act as proxies for ill parents in their prolonged interactions with government. In these instances, citizens' incentives for engaging in collaborative activities with government and investing time in deciphering bureaucratic intricacies increase. Affecting the way in which a public service is provisioned is a convoluted activity and trying to change collaborative activities with governmental actors from one level to another, if possible, (e.g. moving from coordinated to co-operative activity) is a complex and often tiresome affair. Hence, a clear, preferably long-lasting benefit will often be the desideratum for citizens in making the effort needed to understand the anatomy of a given case process and as such acquiring the skills necessary to effect the outcome of their interactions with government, be it understanding the administrative process or appropriating contingent technological tools.

For citizens, the appropriation of such systems put in place to support service provision is comparable to the work of learning the at times opaque bureaucratic rules shaping the interaction. Moreover, these systems may often themselves seem opaque as a result of embedded crystallizations of former work practices and distant political decisions black-boxed to the actors that are affected. This only renders the comprehension of the motives and artifacts driving collaborative activities more difficult to decipher as these have sometimes achieved a tacit status within the governmental organization and, accordingly, within the system.

For example, we learned of a recent self-service solution that turned what used to be a two-page physical form submitted by employers regarding employees' parental leave into a 25-page PDF file of which only four pages were relevant to the processing of the case. This file had to be physically printed and then sorted by the caseworkers. The result of a political decision to improve employers' means of self-service resulted in a significantly increased workload on the caseworkers and, thus, prolonged case processes.

Consequently, a careful consideration of the incentive structures of the involved actors is paramount to understanding and, not least, technologically supporting collaboration in all types of citizen-government interactions.

## Perspectives and Design Challenges

In this final section, we summarize the discussion, and relate the arguments made previously to the concrete challenges of designing technology for collaboration in citizen-government interaction. As shown, this collaboration is often of a very complex nature and inherently context-specific. Through our interventions,

however, we have been able to establish a number of challenges that seem to apply to citizen-government interaction in a broader sense.

### Bridging the Gaps of Collaboration in Participatory Citizenship

The presented empirical examples show that collaboration between citizens and caseworkers and, hence, the notion of Participatory Citizenship has two levels of activity. Accordingly, the actions carried out by citizens as well as caseworkers have dual purposes. One level is that of the specific case or situation that the citizen needs to deal with, be it obtaining a new passport, or receiving parental leave subsidy. Conversely, there exists a second level; learning and reflection. This level is multifarious and potentially encompasses many different activities: improving one's comprehension of the legislation and bureaucratic case processing intricacies so as to act and share information more appropriately in future situations; sharing this knowledge for altruistic purposes; using this knowledge to exercise democratic influence upon the bureaucratic and political system; etc.

A fundamental argument to this analysis is that there exists a double concern for caseworkers, as well as for citizens: providing the individual citizen/couple/family with the service that suits them best, and ensuring a uniform service level complying with legislation. The ultimate motive for citizens is the outcome, e.g. money. The bureaucratic rules and protocols are merely tools (of which the appropriation is time consuming) to achieve this goal. Contrarily, these rules and protocols (which are secondary artifacts to citizens) are the primary for caseworkers. Somewhat cynically put, the parental leave caseworker is essentially not concerned with the amount of money a given citizen receives, as long as this happens according to parental leave legislation, ensuring that the caseworker can defend his or her actions performed in this process. As such, the overall motive of the collaborative activity, and the artifacts used to achieve this, is not agreed upon by the involved actors, creating an inherent tension in citizen-government collaboration within these settings. By this token, citizen-government collaboration may go directly against the Weberian understanding of bureaucracy that is still largely prevalent in today's public institutions. That is, a clear hierarchy; concentration of power among senior officials; formal structures; limited channels of communication; confined openness to innovation; etc. As argued by Vigoda (2002), albeit in a discussion of New Public Management and the notion of citizen responsiveness, these aspects of bureaucracies seem substantially incommensurable with collaborative activities where the citizen can significantly influence the way in which services are provided, i.e. moving towards co-constructive and even co-operative collaboration.

## Acknowledging the Tensions in Collaboration

Interaction with government is essentially constituted by actions that citizens wish to limit and is, as such, not a motive in itself. Consequently, supportive technological systems should not increase the work burden of receiving public services, but decrease it. Ironically, this calls for a focus on standardizing citizen-government interactions by moving towards a co-ordinated division of labor. If a clear, common objective ensuring a beneficial alignment of all actor motives were a given this would permit streamlined, effective collaboration through a well-defined division of work and less time spent on the negotiation of the object of work, the common motive, and the artifacts available to achieve this.

Compared to communicative and instrumental actions, scripted actions are very effective as a consequence of the low, or non-existent, need for articulation work. However, the inherent tension between citizen and caseworker motives, which the many empirical examples presented in this paper corroborate, point towards the conclusion that such perfect alignments of actor motives seldom, if ever, exist. Co-ordinated, collaborative activity may be possible within the governmental organization, as the activities here often repeat, and the common motive is often defined from upper levels of the hierarchy, hence, giving the involved actors a chance to develop their knowledge of artifacts over time.

Nevertheless, citizens often engage in interaction with government with a very limited knowledge of the collaborative activity, the rules shaping it, and their possibilities for affecting the activity and the outcome. The first two archetypical strategies to information sharing are salient examples of how citizens somewhat despairingly deal with this knowledge deficit. Neither surrendering, nor closing the shutters are constructive vantage points for fruitful collaboration, and as such do by no means ensure a configuration where all actor needs are accommodated. In fact, the case of citizens surrendering and leaving their fate in the hands of government creates a scenario where object of work and common motive can be exclusively defined by government service models, administrative systems, and latent work practices with no explicit focus on the needs of the single citizen.

Somewhat contrary to basic logic then, the aim for IT systems attempting to support citizen-government collaboration in the provision of more complex services should not be streamlined co-ordinated activity, allowing swift, scripted actions. On the contrary, the aim should be to support co-operative and even co-constructive activity, helping the citizen affect the circumstances of the collaborative activity. This entails a move towards *more* communicative and instrumental actions on behalf of the citizen and certainly also on behalf of the caseworker and other involved governmental actors. Cautioned by the empirical data presented in this paper, it would seem that many of the actions performed by governmental actors are scripted only to the governmental institution, but not to the citizens. Hence, what is perceived as respectively a scripted, communicative or instrumental action differs from actor to actor depending on their knowledge of under-

lying organizational structures and assumptions. These assumptions do, of course, depend on the complexity of the service in question. Nevertheless, this complexity may seem significantly more manageable to an employee approaching a case grounded in the bureaucratic definition of an isolated service, than it does to a citizen trying to deal with a messy reality. For example, the need to change one's address can be the result of divorce, sudden unemployment, or a variety of other situations resulting in the need of a cluster of services as these are defined and demarcated by the bureaucratic institution.

Returning to the notion of New Public Management and the idea of serving the citizen, this perspective creates an interesting contradiction: A well known deficiency of Weber's iron cage bureaucracy are the negative connotations of the word 'bureaucrats', e.g. employees avoiding individual considerations by hiding behind bureaucratic protocols. Striving for the notion of a human face to the public institution is but one, somewhat vague, approach to addressing this challenge. However, barely any services are carried out in their entirety by single governmental employees. Hence, it is seldom feasible for caseworkers and citizens to share a clear focus, i.e. agree upon the ultimate outcome of the service provision process. Consequently, we suggest that the aim of design for public service provision should not be a common focus on the outcome of the activity as such. On the contrary, design should aim to support a more shared, transparent, and accessible understanding of the case process, i.e. the involved actors and the bureaucratic rules shaping the actions carried out by bureaucratic actors. Such a shared understanding would serve as a critical instrument for collaboration between citizens and caseworkers, by supporting a more equal configuration of the collaboration in the form of a more symmetrical alignment of actor motives within the case process. Such a focus for organizational and technological design would, arguably, be much more feasible than to demand that the focus of all actors involved should be on the overall outcome of the activity.

## Addressing Challenges through Design

Within the presented case regarding parental leave, the authors were engaged in a concrete design process addressing the challenges presented in this paper. Concretely, this was approached by way of an exploratory prototype designed to support the planning and applying for parental leave (Figure 1).

The aim of the timeline was to support the handling of a particular case, while helping citizens explore the rules and share their findings and decisions with others in a similar situation. The prototype allowed for interaction and counseling between citizens and caseworkers, while also representing the rules and roles of the municipality, and other actors involved (e.g. the parents' unions). In (Borchorst et al., 2009, Bohøj et al., 2010) we proposed that this prototype could

support the sharing of plans and ideas between parental leave takers in general and within their networks of friends and family.

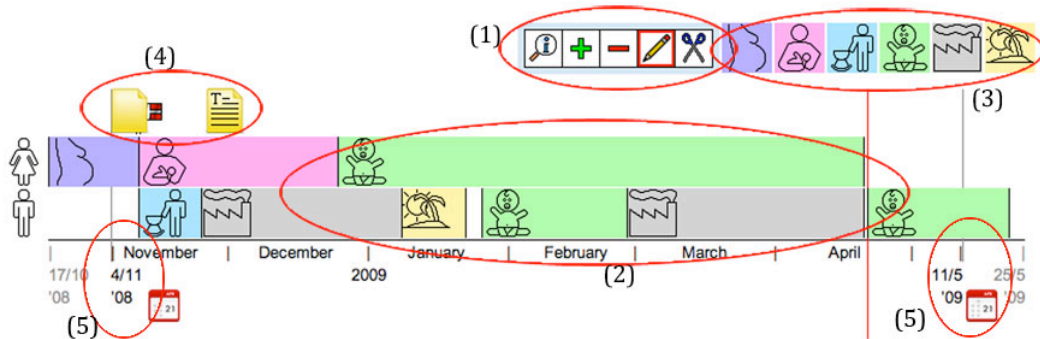


Figure 1. The timeline can be manipulated with the tools in the upper right corner (1). The leave plans for the mother and the father are displayed on the vertical lines (2), upon which the different leave modules can be dragged from the leave time bank (3). Events, such as application documents (4) are indicated by way of different icons. For example, a document can be partially completed, submitted to the municipality etc. Lastly, the citizens can move in time (5) to see the progression of the leave plan, and explore the relations between time and money.

Comparing the timeline and the arguments made in this paper, the prototype can be understood as a concrete exploration of the challenges addressed in this paper: For one, it addresses the citizen strategies to information sharing in complex and changing constellations of actors, as well as the dynamic configuration of boundaries necessary to control changing needs for information sharing across time. Secondly, this support of boundary management and information sharing helps to address the tension between the motives of the collaborating actors, essentially, by rendering these motives more comprehensible to the involved actors. As such, the timeline helps mitigate the discrepancy between these motives, and the artifacts available to achieve these, by functioning as a common tool through which both citizens and caseworkers can each explore their main object; the funding, and the rules respectively. Lastly, it supports a shared understanding of the rules and procedures of the involved actors, while also yielding a shared understanding of the ultimate outcome of the process, parental leave timing and financing.

We propose to see the timeline prototype as a seed for a more general development of technology for citizen service provision. Considering this remedy within the context of “simpler” citizen services such as moving one’s address, or receiving EU health cards, it seems necessary to emphasize that such services should not necessarily be understood as simple at face value. As argued, moving one’s address, or traveling can account for complex situations in life. Hence, the case process and bureaucratic protocols steering this still need to be rendered clear. As should those of related processes and services, such as housing subsidies



along with the possibilities for other private and public actors (e.g. unions, the post office, etc.) enrolled in these interactions.

## The Implications of Participatory Citizenship

In the beginning of this paper we defined Participatory Citizenship as the act of citizens actively engaging in and contributing to the provision of public services in order to improve these services for themselves and other citizens. Although it seems there are clear advantages to this kind of citizen empowerment and community knowledge sharing (Bryant, 2005; Marlow et al. 2006), there is a great difference between attempting to support such collaboration within respectively private and public settings. Hence, the notion of Participatory Citizenship raises a number of political, economical, technological, and normative issues.

For one, the resources for supporting an improved level of service through collaboration must still be found in the public administration budget. For private service providers improved service will likely entail more customers, with a resulting increase in profits. However, for public institutions, more customers invariably entail increased expenses. A municipality is not economically rewarded by the state for providing a service of a better quality, sometimes even the contrary. Consequently, some services only exist because all citizens do not take advantage of them. If all citizens were to do so, there would simply not be sufficient administrative resources to maintain the same level of service for all. As such, too attractive, flexible, services may distort a democratically fair distribution of resources, leaving less resourceful citizens behind.

It can, however, be argued that this is already the case. One example corroborating this claim is found in the empirical data from the parental leave case. Here, we learned that most citizens displaying abilities comparable to “mastering the flow of information” i.e. making full use of the complex, but flexible legislation, were more often than not well educated and resourceful. This begs the question of whether design within this field should also be concerned with equal distribution of resources, effectively educating citizens in democratic thoughtfulness. To the authors of this paper it does not seem viable for systems to aim at inhibiting the single citizen’s ability to improve his or her personal circumstances by imposing moral values of equal distribution of resources. Contrarily, it seems a much more fruitful approach would be to focus on the notions of bureaucratic transparency and citizen-citizen knowledge sharing as discussed in this paper; supporting citizens in helping themselves and each other, hereby also potentially lessening the administrative burden on the public administration.

Cautioned by this discussion, it seems clear that creating good design within the arena of citizen-government interaction is still an important challenge. As we have shown in this paper, actor motives within the sphere of public service provision are complex and potentially incommensurable. That which is user-friendly,

adaptable, and transparent may not necessarily be economically or democratically viable. Hence, the counterbalancing of stakeholder needs is a generic design challenge, which inherently calls for local solutions and hard compromises. There are no quick fixes to this challenge and what stands in the way might very well be complex national legislation, which is not effortlessly commensurable with digital service provision and digitally mediated collaboration.

As a consequence of our concerns in this paper, we would argue that the greatly hyped dynamics of participatory culture on the Internet (Barney, 2000) and Web 2.0 service models (Amazon, Facebook, etc.) are not easily applicable to the sphere of e-Governance and public service provision. Firstly, the web-based discussions of rules, possibilities, etc., currently taking place typically do so detached from public institutions. Because municipalities are concerned with the validity of the information provided within these web-forums, and the degree to which they will be held accountable for that validity, they, hesitate in getting involved. At the same time, it is not obvious whether citizens at large are essentially interested in the discussion of bureaucratic rules. Arguably, only very few citizens will have an incentive to do the work necessary to master the flow of information. Secondly, the mentioned web-forums do not yield access to the state of municipal processes, nor do they reflect the public institutions' underlying rules and procedures. Thirdly, for public institutions to contribute to such forums would entail the considerations of a number of potentially negative implications. It is, however, safe to say that information *will* be shared and collaboration *will* take place – also within the realm of citizen services. The only question remaining is who is left on the sidelines?

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## References

- Bannon, L. and Schmidt, K. (1991): 'CSCW, four characters in search of a context', in J.M. Bowers and S.D. Benford (eds.): *Studies in computer supported cooperative work*. North-Holland, Amsterdam, pp. 3-16.
- Bardram, J. (1998a): *Collaboration, Coordination, and Computer Support-An Activity Theoretical Approach to the Design of Computer Supported Cooperative Work*, Dissertation Aarhus University.
- Bardram, J. (1998b): 'Designing for the dynamics of cooperative work activities'. *Proceedings of the ACM CSCW '98*. ACM Press, New York, NY, pp. 89-98.

- Barney, D. (2000): *Prometheus Wired: The Hope for Democracy in the Age of Network Technology*. University of Chicago Press, Chicago.
- Bertelsen, O.W. and Bødker, S. (2001): 'Cooperation in massively distributed information spaces.' *ECSCW 2001: Proceedings of the Seventh European Conference on Computer Supported Cooperative Work*. Kluwer, Dordrecht, pp. 1-18.
- Bohøj, M., Borchorst, N.G., Bouvin, N., Bødker, S. and Zander, P.-O. (2010): 'Timeline collaboration.' *CHI 2010*, pp. 523-532, ACM Press.
- Bohøj, M., Borchorst, N.G., Bødker, S., Korn, M. and Zander, P.-O. (2011): 'Public deliberation in municipal planning: supporting action and reflection with mobile technology,' *ACM Communities and Technologies*, in press.
- Borchorst, N.G., Bødker, S. and Zander, P.-O. (2009): 'Participatory citizenship', *ECSCW 2009: Proceedings of the Seventh European Conference on Computer Supported Cooperative Work*, Kluwer, Dordrecht, pp. 1-20.
- Bowers, J. Button, G. and Sharrock, W. (1995): 'Workflow from within and without: technology and cooperative work on the print industry shopfloor.' *Proceedings of the fourth conference on European Conference on Computer-Supported Cooperative Work (ECSCW'95)*. Kluwer Dordrecht, pp. 51-66.
- Bryant, S. L., Forte, A. and Bruckman, A. (2005): 'Becoming Wikipedian: Transformation of participation in a collaborative online encyclopedia.' *Proceedings of GROUP*, ACM Press, NY, pp. 1-10.
- Bowker, G.C. and Star, S.L. (1999): *Sorting Things Out. Classification and its Consequences*, MIT Press, Cambridge MA.
- Bødker, S. and Grønbaek, K. (1995): 'Users and Designers in Mutual Activity- an analysis of cooperative activities in systems design,' in Y. Engeström and D. Middleton (Eds.). *Cognition and Communication at Work*, Cambridge University Press, Cambridge UK, pp 130-158.
- Bødker, S. and Christiansen, E. (1997): 'Scenarios as springboards in design.,' in Bowker, G., Gasser, L., Star, S.L. and Turner, W. (eds.). *Social science research, technical systems and cooperative work*. Erlbaum, Mahwah NJ, pp. 217-234.
- Bødker, S. and Christiansen, E. (2004): 'Designing for ephemerality and prototypicality.' *Proceedings of the 2004 conference on Designing interactive systems: processes, practices, methods, and techniques*, pp. 255 - 260.
- Bødker, S. and Klokmoose, C.N. (2011): 'The Human-Artifact Model,' accepted for publication in *HCI Journal*.
- Clement, A. and Wagner, I. (1995): 'Fragmented exchange: Disarticulation and the need for regionalized communication spaces.' *Proceedings of ECSCW '95*, Kluwer, Amsterdam, pp. 33-49.
- Cohen, A.L., Cash, D. and Muller, M.J. (2000): 'Designing to support adversarial collaboration.' *Proceedings of CSCW 2000*, ACM Press, New York, NY, pp. 31-39.
- Engeström, Y. (1987): *Learning by Expanding: An activity-theoretical approach to developmental research*, Orienta-Konsultit, Helsinki.
- Engeström, Y. (1990): *Learning Working and Imagining. Twelve Studies in Activity Theory*. Orienta-Konsultit, Helsinki.
- Engeström, Y., Brown, K., Christopher, L. and Gregory, J. (1997). 'Coordination, Cooperation, and Communication in the courts. 'In Cole, M., Engeström, Y., and Vasquez, O. (Eds.) *Mind, Culture, and Activity*, Cambridge University Press, Cambridge UK, pp. 369-385.

- Engeström, Y., Engeström, R. and Saarelma, O. (1988): 'Computerized medical records, production pressure and compartmentalization in the work activity of health center physicians.' *Proceedings of CSCW '88*. ACM, New York, NY, pp. 65-84.
- Greenbaum, J. and Kyng, M. (eds.) (1991): *Design at Work: Cooperative Design of Computer Systems*. Erlbaum, Hillsdale, NJ.
- Grudin, J. (1994): 'Groupware and social dynamics: eight challenges for developers..' *Communications of the ACM*, 37, 1 pp. 92-105.
- Jaeger, P. T. and Thompson, M. (2003): 'E-government around the world: Lessons, challenges, and future directions.' *Government Information Quarterly* 20, pp. 389-394.
- Kling, R. (1991): 'Cooperation, coordination and control in computer-supported work.' *Communications of the ACM*. 34 (12), pp. 83-88.
- Kuutti, K. (1991): 'The concept of activity as a basic unit of analysis for CSCW research.' *Proceedings of ECSCW'91*. Kluwer, Dordrecht, pp. 249-264.
- Lave, J. and Wenger, E. (1991): *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press, Cambridge UK.
- Marlow, C., Naaman, M., Boyd, D. and Davis, M. (2006). HT06, Tagging Paper, Taxonomy, Flickr, Academic Article, ToRead. *Proc. Hypertext '06*, ACM Press, New York, NY, pp 31-40.
- Osimo, D. (2008): *Web 2.0 in government: why and how?* Technical Report. JRC, EUR 23358, EC JRC.
- Raeithel, A. (1996): 'From coordinatedness to Coordination via Cooperation and Co-construction.' *Workshop on Work and Learning in Transition*, San Diego, January.
- Schmidt, K and Bannon, L. (1992): 'Taking CSCW Seriously: Supporting Articulation Work.' *JCSCW*, Vol. 1, Nos. 1-2, 7-40.
- Schön, D. (1983): *The Reflective Practitioner. How Professionals Think in Action*. Temple Smith, London.
- Robinson, M. (1991): 'Double-level languages and co-operative working.' *AI and Society*, 5(1), pp. 34-60 Springer London.
- Star, S.L. (1989): 'The structure of Ill-Structured Solutions: Boundary Objects and Heterogeneous Distributed Problem solving'. *Distributed Artificial Intelligence*, volume II, chapter 3, Morgan Kaufmann, San Francisco, CA, pp. 37-54.
- Star, S.L. (1996): 'Working together: symbolic interactionism, activity theory, and information systems.' Engeström, Y. and Middleton D. (Eds.). *Cognition and Communication at Work*, Cambridge University Press, Cambridge UK, pp. 296-318.
- Vigoda, E. (2002): 'From responsiveness to collaboration: Governance, citizens, and the next generation of public administration.' *Public Administration Review*, 62(5), pp. 527-540.
- Westheimer, J. and Kahne, J. (2004): 'Educating the "Good" Citizen: Political Choices and Pedagogical Goals.' *Political Science and Politics*, pp. 241-247