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# Getting It Right: The Importance of Targeting Structural Causes of Failure in E-Government

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**Abstract.** In this paper we look at the application of ICTs to the improvement of state-citizen relations in developing countries. Our argument is that, to maximize responsiveness of the government, ICTs need to “get it right,” by targeting exactly those problems from which unresponsiveness of the state to citizens emerges. Failure arises from the fact that ICTs, rather than being used for targeting issues in government responsiveness, are utilized for other purposes, primarily as a means to obtaining and preserving political support. This argument is illustrated through a case study of computerization of the ration card procedure in Kerala, southern India. Here, while the structural problems of the ration card process lie at the back-end level of application processing, the technology devised by the government addresses predominantly the front-end, politically appealing node of application performance by the citizens. This strategy does not “get it right,” as it leaves untouched the crucial reason of state unresponsiveness, and indeed, it produces long-run dissatisfaction in citizens. Implications are both theoretical, as a cause for expectation failure in IS is identified and deconstructed, and practical, as an orientation to structural problems is recommended to ICT designers and policymakers.

**Keywords:** e-government, failure, ration cards, Public Distribution System, Kerala

## 1 Introduction

ICTs have been applied to a plethora of objectives, among which the construction of a better government that maximizes the state’s capacity of serving its citizens. The logic behind the onset of e-government practices lies in the idea that by automating the interaction between public officers and recipients ICTs remove the discretionary power of street-level bureaucrats, and are, therefore, instrumental in eliminating the inefficiencies derived by human management of this relation [3]. This idea, over the last decades, has been largely applied to the domain of less-developed countries (LDCs), generally characterized by institutional frailty and flawed accountability of the state.

In this paper we look at the application of ICTs to the improvement of state-citizen relations in a developing country context. Our argument is that, to maximize responsiveness of the government, ICTs need to “get it right,” which means that they must

target exactly those structural problems from which unresponsiveness of the state to citizens is generated. Failure arises from the fact that the solution to structural problems, affecting interaction between the state and citizens, is not necessarily a politically appealing objective, whereas ICTs tend to be conceived primarily as a means to achieving and maintaining political support. Mistargeting of ICT policies, towards politically popular objectives and away from structural problems, lies at the root of perpetuated interaction problems and citizen dissatisfaction.

To illustrate this proposition, we focus on an information system devised by the government of Kerala, southern India, to deliver ration cards to citizens. A ration card is the document needed, in all India, to access subsidized food and supplies under the Public Distribution System (PDS), the biggest national anti-poverty programme. The government of Kerala has invested on automating front-end procedures for application performance; though, it emerged from our work that structural problems with ration card delivery lie at the level of application processing, because procedures for managing citizen requests are uncertain and largely unknown by bureaucrats. Failure emerges from the fact that the government, instead of using ICTs for addressing structural problems in the application procedure, has focused on a politically appealing objective, namely amelioration of a single, front-end component of the process.

This paper is structured as follows. First, we outline our theoretical perspective, as a context-oriented vision inscribed in the field of ICT for development (ICT4D). Then, we look at the Keralite experience with the Ration Card Management System (RCMS), an information system which arises as a paradigm of technology usage for maximizing responsiveness of the state to disadvantaged citizens. In our discussion of the case, we deconstruct the procedure behind ration card delivery, and the role of technology at each stage of the process. It emerges that, while application performance has been fully computerized in Kerala, RCMS has not targeted the structural node of the process (i.e., application processing by government bureaucrats). We conclude by discussing the contribution of this case to theory, as a cause for failure is identified and de-constructed in the domains of ICT4D and practice, as an orientation to structural problems is recommended for ICT designers and policymakers.

## **2 Theoretical Perspective: Context Orientation in ICT4D**

The field of ICT4D, in which digital technologies are conceptualized as potential or actual agents of human development, is the focus of a burgeoning amount of literature. Our reading of ICT4D draws on the domain of Information Systems (IS), and is therefore concerned with IS research conducted with respect to developing countries. In spite of the proliferation of research, the field still lacks a stable conceptualization of the causes of e-government failure [5]: anecdotal evidence prevails, and reflection on the etiological roots of negative experiences is ultimately overlooked. Here, we concentrate on the level of causal linkages between actors' decisions and failure, in order to foster reflection on this scarcely analyzed component of ICT4D.

Our point of departure is that of Avgerou [1], according to whom it is fundamental for IS research to associate technology innovation with the context in which it is em-

bedded. The key implication of this approach for our research is that the idea of “good government,” should be defined with specific respect to the context of analysis provided in our work by a state in southern India. To unpack the idea of “good government”, we rely on the work of Corbridge et al. [4] whose account identifies good government with the possibility for citizens to “see the state” in a better way, which means accessing governmental provisions in an equal and frequent manner.

The idea of “seeing the state,” elaborated with specific reference to India, relies on a system of institutional characteristics that are specifically proper for this nation. In the heavy fabric of Indian bureaucracy, interaction between citizens and the central government is problematic [2], [4], [6]. Lacking capacity to access government arises perhaps as the main problem of contemporary India, perpetuating the issues of a poor quality of life. Encounters with the state systematically turn into frustrating experiences, especially for the poor and disadvantaged. People can be left for hours waiting outside a public office, just to be attended to by time-pressed and unwilling bureaucrats, or not to be attended to at all. As we engage with observing ICTs for state-citizen relations in the Indian context, we need to keep these specificities into account. As a result, we postulate that in our case a better government is a government that maximizes its responsiveness to the citizens. That is, a better government responds to its citizens’ requests in a prompt and timely manner, without hidden costs.

This leads us to deconstruct the idea of governmental technologies [9] on which the vision of government by Corbridge et al. [4] is grounded. Technologies of rule comprise all the government-led instruments that enable spaces of encounter between citizens and the bureaucracy. ICTs, the logic goes, are able to make these encounters more fruitful, as they can infuse effectiveness and accountability through automation. In our context of analysis, constituted by the frailty and complexity of Indian institutions, a good technology of rule is one that allows citizens to better “see the state” in that it maximizes responsiveness of the government to the citizens. Therefore, it is important to illuminate the mechanisms that flow from ICT adoption to better governmental technologies.

Hence, our work is grounded on a context-oriented approach, according to which concepts are to be analyzed with specific reference to the space of action in which they are embedded. Thus our idea of “good government” is conceptualized with specific reference to India, whose core problem is identified as lacking capacity of citizens to “see the state” in equal terms. As a result, our idea of “good government” coincides with a government that can maximize responsiveness of the state to its citizens, especially the poor and disadvantaged. As noted above, ICTs arise as potential actors in the improvement of this responsiveness, due to capacity of automating state-citizen relationships. The system at the centre of our case study, implemented in a state in southern India, has been conceived exactly for this purpose.

### **3 Methodology**

Our case study is part of a broader research project, namely a Ph.D. in Information Systems, which focuses on a modular set of computerized applications at the Gov-

ernment of Kerala, known as the Targeted Efficient Transparent Rationing and Allocation Public Distribution System (TETRAPDS). The software at the centre of this paper, namely the Ration Card Management System (RCMS), constitutes just one of the several modules of the TETRAPDS fabric. The study of the actor network centred on RCMS has involved three months in the field. While based in Trivandrum, the capital city of Kerala, we engaged in diverse forms of investigation of the actor network, more specifically:

- Interaction with software developers has consisted of three demonstration sessions on the diverse components of TETRAPDS-RCMS, each of which lasted between 30 and 90 minutes, followed by questions from the researcher. Demonstration sessions have been complemented by in-depth interviews with software designers and decision-makers.
- Government officials have been approached at two levels: firstly, at the level of the Department of Food and Civil Supplies, where the central applications of TETRAPDS-RCMS are located and managed; secondly, at the level of Taluk Supply Offices (TSOs), which constitute the interface between the Department of Food and Civil Supplies and citizens. Out of seventy Taluk Supply Offices in Kerala, seven have been the object of participant observation, which was complemented by in-depth interviews at both levels.
- Citizens – the final users of the programme – were studied in two aspects of their relation with TETRAPDS-RCMS: firstly, in the telecentres where application for a ration card is performed; and secondly, in the ration shops where PDS goods are supplied. Participant observation has been carried out in both settings, encompassing 3 cities and 5 rural villages. This has been also complemented by in-depth interviews, which were, except in a few cases, mediated by a translator.

Furthermore, primary research has been complemented by encyclopedic insights on anti-poverty programmes, especially as far as the peculiarities implicit in the Indian context are concerned, and on the usage of digital technologies in these toolkits for poverty reduction. The purpose of this research design was to gain a full understanding the network of actors around TETRAPDS-RCMS. Adoption of this perspective results in the researcher's capability of overcoming dichotomy in the juxtaposition of the technical domain and the social domain [1]. Instead, the focus is on mechanisms that link technicality to socially-oriented outcomes, in this case conceptualized in terms of change of the relations between the state and citizens.

#### **4 Case Study: the Ration Card Management System (RCMS)**

Our case study can be viewed as a typical one, as its content is paradigmatic in two different respects: in terms of the problem, which qualifies a typical situation of non-responsiveness of the state to its citizens; and in terms of the solution, in which ICTs are used to tackle the problem of unresponsiveness. The context for the case is provided by the state of Kerala, where access to subsidized PDS goods is conditional to ownership of a document known as ration card. Unresponsiveness of the state is mir-

rored by its inaction, in front of a huge amount of unattended ration card applications: the solution devised by the government relies on RCMS, an information system that has computerized the procedure for obtaining a ration card. Digitalization aimed at achieving prompt and timely delivery of this crucial document.

The PDS is the biggest anti-poverty programme ever implemented in India, in terms of both coverage and public expenditure. The purpose of this programme is that of maximizing food security for poor people, by subsidizing the price of primary necessity items, mainly rice, wheat, sugar and kerosene. Originally, the PDS was universal, which means that the subsidy was intended to reach all citizens without discrimination: so designed, the programme accounted for an unsustainable level of expenditure for the central government [10]. As a result, in 1997 the programme has been re-designed as the Targeted Public Distribution System (TPDS) in which the central government, on the basis of a standard income-based poverty line, determines the number of Below Poverty Line (BPL) people in each state, and allocates PDS goods among the states on the basis of relative poverty incidence.

Before the changes occurred in 1997, Kerala boasted one of the best state-level PDS systems in India as a whole. Yet, with the introduction of targeting policies, the PDS in Kerala has been put under severe strain: indeed, given that only 25% of the Kerala population has been termed BPL by the Government of India, allocation of food grains to the state has been reduced to only 10% of the previous supply. In this complicated situation, the Government has decided to revitalize the PDS through computerization: hence, it has relied on the National Informatics Centre (NIC) for development of a suite of software for PDS implementation, known as TETRAPDS. The system at the centre of our study, RCMS, is the part of TETRAPDS that digitalizes the procedure for ration card applications. The ration card is the document on which access to PDS goods crucially depends. Indeed, purchase of subsidized commodities happens exclusively upon presentation of the ration card to the authorized ration dealer (ARD), in the dedicated fair-price shops.

This document is household-based, and displays, on its first page, the poverty status of the family, from which the entitlement to PDS goods depends: as a result of targeting policies, poorer families are entitled to a higher amount of PDS goods per month, at a lower price resulting from greater subsidy. The rationale behind this document is twofold: firstly, by assigning a unique identification to each household, ration cards should enforce targeting policies and minimize leakage of the programme to non-poor families, a problem for which the universal system was severely criticized. Second, as a stamp is put by the ARD on the card at the moment of purchase of PDS commodities, this document should guarantee that households refrain from getting subsidized goods beyond their ration.

As a result of its strong tradition in terms of public action, and of the deep level of decentralization that has followed Panchayati Raj reforms, Kerala is by far one of the best-administered states in the Indian federation as a whole. In such a well-managed state, the governmental procedure for obtaining a ration card should flow smoothly. Instead, perhaps paradoxically in the “good government” landscape that characterizes Kerala, the procedure is ridden with serious problems. A key symptom of which is the disastrous result, registered in August 2010, constituted by 600,000 unprocessed ra-

tion card applications. This means that as a result of government inaction, 600,000 families were unable to benefit from an anti-poverty net of crucial importance.

The government of Kerala, whose reliance on e-governance is very high, has decided to resort to the computerized RCMS to solve the problem. The purpose of this system is that of computerizing the entire procedure for ration card release, from application to final delivery of the document required. This system is based on the digitalization of data for all the PDS recipients in Kerala (i.e., 6.4 million households). The functioning of RCMS is organized as follows. Firstly, citizens present their application for a ration card. Applications, which were previously processed at the TSOs, are now submitted on the Internet through telecentres operated across the entire state. Secondly, applications and of the documents supporting them are verified by bureaucrats at the office of the Rationing Inspector. In the case of a positive outcome, the new document is produced electronically and delivered by the local TSO.

So devised, the system should ensure delivery (or a clear motivation, in case of document denial) along three dimensions: actual performance, as applications made on the Internet should not be lost or deleted; time, as a specific time frame is ensured by the technology; and cost, as malpractice and corruption are to be avoided by computerized enforcement of the queue discipline. Hence, RCMS aims to ensure that a request of the citizen is matched by a prompt and timely response by the government, with respect to a document – the ration card – which is of paramount importance in the life of Keralite citizens. Is the programme actually able to do so?

## **5 Discussion**

The encounter between state and citizens, related to delivery of a ration card, is articulated in two phases. The first phase concerns application for a new document by citizens through telecentres. The second phase focuses on application processing by government bureaucrats, which should precede the actual delivery of the document. The functioning of this twofold procedure will be examined here, with particular regard to the role of technology in the pursuit of each of the two phases.

### **5.1 Application Performance**

Upon access to the website of the Kerala Department of Food and Civil Supplies (<http://civilsupplieskerala.gov.in>), at the moment of writing, users are faced with a captivating, bright-red message: “Online ration card applications can be submitted by citizens through Akshaya centres”. Akshaya centres are the telecentres – government-sponsored spaces, where computers and the Internet are made available to the public – located across Kerala.

Trust-building around Akshaya, one of the key objectives of this telecentre project, has been proactively sustained by two combined factors. Firstly, Keralites rely heavily on government institutions [7], which have been transferred to the Akshaya project as a governmental brand, but the actual management of e-kiosks is left with private entrepreneurs. Second, there is strong leverage in the Akshaya project for the construc-

tion of human relations between e-kiosk entrepreneurs and citizens. These entrepreneurs were selected among socially influential people in their communities, and as revealed by a previous round of fieldwork in Kerala [8], they were constructed as the “human link” between people and the novelty of ICTs. The combination of these two elements -- the governmental versus the personal one -- accounts for major reliance of citizens on the Akshaya brand, and makes telecentres a highly used environment – in which the Internet-based devices for ration card applications have been installed.

The RCMS toolkit for online applications, after a pilot-project launch in Kannur district (northern Kerala) in late 2009, was rolled out to the entire state of Kerala in September 2010. Online applications for ration cards are submitted as follows: citizens approach the local Akshaya centre, fill in the application form available on the website of the Department of Food and Civil Supplies, provide the documents required (which are scanned by the telecentre staff, or in a private shop before application), pay a fee of Rs.15 (\$0.34), and get an acknowledgement receipt that displays the date when the new ration card will be available for collection from the closest TSO. It should be noted here that the ration card is a composite document, which needs to be updated in correspondence to several changes in household composition, including the creation of a new family unit or addition of new names. Therefore, occasions in which a new ration card is requested by citizens are numerous.

In this discourse, it is important to point out the strength of political appeal exercised by the Akshaya brand on the Keralite population. In the perception of people, Akshaya constitutes the dominant technology for interfacing with the government, and its good reputation and experience made it a synonym for computer accessibility and reliance. Uncertainty that normally surrounds a new Internet-based application tends to be drastically minimized when the application is subsumed under the Akshaya brand. As a result, the bright-red message on the website of the Department of Food and Civil Supplies does not surprise us, because bringing something under the umbrella of Akshaya is almost a guarantee for success. As a result, this part of the ration card procedure seems to work well and its user-friendliness is positively appraised.

## **5.2 Application Processing**

Before the launch of RCMS, Keralite citizens requesting new ration cards or modifications to existing cards needed to go physically to a TSO. There they would spend long hours in a queue, after which they would be provided with an acknowledgement receipt reporting the expected day of availability of the requested document. Processing time reported on the receipt would be calculated by work-pressed Taluk officers who were informed in terms of the time required by the Government for giving clearance. Now, time frames are provided automatically by the system set up by RCMS. Online application has translated this part of the process into a system-level bureaucracy [3], where the discretion previously exerted by street-level officials has been removed. Yet, after submission of applications, what role is left for technology in document processing and delivery?



Application processing at the Government of Kerala works as follows. Online applications are submitted along with the required documents to the office of the Rationing Inspector, located at the Department of Food and Civil Supplies. Bureaucrats at the office of the Rationing Inspector perform field-level verification and prepare a report that is then sent to the TSO for reference. The report specifies whether application was accepted, in which case a new ration card is to be printed; or whether it was rejected, in which case the reasons for rejection are clearly stated. This process should occur within 7-15 working days. As a result, on the date established for collection, citizens should go physically to the TSO and receive either the new card or a clear explanation for the rejection of their application.

Before the rollout of RCMS, 600,000 ration card applications on average were pending at any one time. Where was the problem then? Our research revealed that the bottleneck existed at the heart of application processing: verification of applications by bureaucrats at the office of the Rationing Inspector. In the dominant perception of citizens, this phase is encapsulated in an aura of confusion and discretion. Citizens, when asked about the mechanics and objects of verification, displayed high uncertainty in terms of the parameters being verified and their meaning. Even more strikingly, interviews conducted at the office of the Rationing Inspector itself shed little light on these dynamics. Bureaucrats interviewed uniformly spoke about “regularity of documentation,” but attempts to gain more precise insights -- which documents, how is “regularity” measured, what is actually verified -- were unsuccessful. As a result, there is significant uncertainty surrounding state-level verification of ration card applications, which is affected by systematic and severe delays.

Here is where the problem emerges. The phase of processing that is structurally causing delays in ration card releases is one in which computerization has not at all been achieved. Digitalization, as devised by RCMS, is limited to what happens before this stage -- submission of applications from Akshaya telecentres to the office of the Rationing Inspector -- and after it -- printing of the new ration card by the TSO. Still, the principal node of the problem (i.e., processing itself) remains paper-based and surrounded by uncertain criteria, which is why the process turns out, ultimately, to perpetuate existing failure. Indeed, even after full implementation of RCMS, citizens report with frustration major delays in ration card delivery.

It is to be noted that had we used a different etiological lens on the same case -- tracing the reason of an outcome to the conscious agency of those involved -- our interpretation of data would help illuminate the human factors of the failure in RCMS and their meaning. However, this goes beyond the scope of this paper, whose purpose is limited to proposing a rational explanation for failure in e-government, and using it for grounding a suggestion in terms on how to act to prevent this type of failure. Still, etiological analysis would constitute an important complementary lens for re-interpreting our data. Indeed, reading them in terms of “who gains” and “who loses” from the anatomy of failure observed -- concerning essentially the mid-part of the RCMS process -- would help us having a clear picture of what is really at stake in the minute texture of the ICT dynamics behind RCMS. A viable route for further research would, therefore, include the usage of this type of analysis, which would also help us devise informed case-specific policy recommendations.

### 5.3 Getting It Right: Targeting versus Political Appeal

As it emerges from our discussion, digitalization of ration card releases revolves primarily around application performance, whereas the crucial node constituted by application processing is left entirely untouched by computerization. This key phase, with which the technology of RCMS does not deal, has two characteristics. Firstly, it is the one structural node in the process, as it is crucial for the requests of citizens to be properly met. Secondly, it lacks political attractiveness, as application processing happens entirely “behind the scenes.” It is, indeed, performed exclusively by government bureaucrats and it leaves no room for citizen sighting or participation.

Conversely, computerization induced by RCMS has been targeted in order to match a politically appealing node, namely that of applications submitted directly by citizens through Akshaya centres. The political payoff has a twofold origin. First, citizens directly participate in the system, which allows them to take an active role as they interface with the government. Second, the consolidated trust of Keralite citizens in Akshaya, collectively conceived as the primary digital interface with the government, tends to be transferred to the application, which is what usually happens when a new digital tool is subsumed under the well-established, trusted Akshaya brand.

As a result, the maximization of responsiveness of the state to citizens, as originally aimed, remains by and large unfulfilled by this application. Responsiveness, in the process of ration card releases, is predicated on a structural node that due to its lack of political attractiveness has been dismissed by the new technology, while digitalization has been tailored specifically for pursuing political support. To use the formulation of Bovens and Zouridis [3], application processing remains firmly in the hands of street-level bureaucrats, and automation does not affect this part of the process. With an information system organized like this, the government does not “get it right.” As a result, state responsiveness continues to be low because the prevalence of political considerations leaves the causal roots of the problem un-touched.

Our suggestion is that for information systems to optimize state-citizen relations, ICTs need to “get it right” by targeting exactly those problems from which the problem of unresponsiveness emerges. Failure arises, instead, from the governmental misdirection of ICTs towards generation of political support, which while gaining short-term approval from citizens leave unattended the issues that lie at the core of unresponsiveness. The case of RCMS makes a paradigmatic illustration of this argument.

## 6 Conclusion

Our proposition, as illustrated throughout the case study, is that to effect responsiveness of the government in state-citizen relations, ICTs need to target the structural problems from which unresponsiveness is generated, rather than use e-government as a toolkit for political propaganda. Indeed, while the latter usage is devised to generate returns on the short run, it is highly unlikely that a strategy that ignores the structural nodes of the problem might pay off on the longer run, even as the permanence of existing problems generates widespread frustration in the citizenry.

In theoretical terms, this observation should be set against the background of ICT4D, a field that while highly preoccupied with unsuccessful project outcomes generally fails to lay out the causal foundations on which failure is predicated. In our work, a cause for failure is identified in the mismatch between targeting of ICT-based intervention towards structural problems and its political appeal. Reflection, as we suggest it for those engaging in analysis of ICT4D projects, should be on (1) the existence or not of a clear identification of the problems to be targeted and (2) adequacy of information system design for finding a solution to these problems. This implication, we maintain, is instrumental in shedding some light on the largely obscure field of causes of failure in ICT4D.

In practical terms, implications of our argument are translated into operational suggestions, for those that engage in ICT-based policymaking and information system design. The core recommendation, if long-term improvements in state-citizen relations are to be effected through ICTs, is that of prioritizing structural problems, rather than using e-government as a tool for obtaining and preserving political support. Indeed, the short-term payoff earned by propaganda is not likely to generate long-term returns, as demonstrated by dissatisfaction of the Keralite citizens with RCMS. Identifying the structural nodes of the existing problems and addressing them by the design of specific ICT-based toolkits constitutes the one way for linking ICTs to “good government” in terms of state responsiveness.

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