

“Mobile” e-Government Options: Between Technology-driven and User-centric

Pierre Rossel, Matthias Finger and Gianluca Misuraca

Ecole Polytechnique Fédérale de Lausanne, College of Management of Technology, Switzerland

pierre.rossel@epfl.ch

matthias.finger@epfl.ch

gianluca.misuraca@epfl.ch

Abstract: This paper is about exploring mobile e-Government issues by analysing their historical evolution and illustrating some concrete activities, first in the initial phase, then through more recent projects, with the idea of capturing some attributes of its development trend. The objective is to propose a view on m-Government, which can be both compatible with fieldwork findings and overall information and communication technology dynamics. We thus suggest a remapping of the m-Government domain, so as to establish key priorities, eventually helping improve policy-planning capabilities in this area. Our main hypothesis is that m-Government should not be too specific an area of e-Government (limited to the notion of mobile access), but on the contrary take upon the current dominant movement in favour of mobile technology usages, and steer experiments and initiatives in a way that ultimately better benefits, and even empowers the users and citizens in their various flexibility needs.

Keywords: information and communication technologies, mobile e-Government, mobility, decentralisation, impact, foresight

1. M-Government: The “m” promise needs to be assessed and possibly refocused

Mobile government, also labelled as mobile e-Government or “m-Government”, emerges as a significant area of intervention for administrative and government-linked actions. It involves altogether research; experiments and traditional administrative operations’ level towards a positive transformation of the relationships between public services and their users thanks to the use of mobile forms of information and communication technologies (ICTs). More broadly, it appears to be re-enforcing e-Government claims towards more efficient, effective and open government (meaning here among other things: transparency, access, affordability, participation). As a matter of fact, m-Government basically fits the agenda of e-Government, the expression nowadays used for overall productivity and innovation moves in the area of public administration, supported by ICTs. e-Government has become a relatively consensual perspective progressing towards the triple goal of 1) providing better services to the citizen, 2) empowering the private economy both in terms of private-public partnerships or inter-enterprise capabilities at all levels and 3) re-enforcing process flexibilisation intra- and inter-administrative and government-wise. m-Government, as for itself, aims at leveraging additional forms of empowerment and service delivery, which we shall present in the continuation. After a few years of existence, however, this concept needs to be assessed, not

in ideal terms, but on the basis of real-life achievements, as to where it leads us (and what overall dynamics it is part of) and what kind of specific field productivity it can actually convey.

2. Objectives

This paper is about producing a focussed, propositional and documented evaluation on preferable areas of effectiveness for the m-Government perspective, and on that basis, helping identify relevant clues and indications. Starting with the intricacies of the (brief) history and evolution of the concept, we will progress towards our goal by confronting it to past but concrete fieldwork achievements, expanding upon these preliminary findings with up-to-date developments, to finally envisage its emerging meaning and most important promises and future possible impacts.

3. An already manifold concept

In our contemporary society, being mobile, or simply capable of playing with mobility options, thanks to adequate infrastructure, devices, skills and knowledge, is generally associated with a positive, dynamic and seemingly indispensable form of lifestyle as well as productive behaviour. This was already a perceivable trend prior to the emergence of m-Government; or rather, one should say that m-Government developed as a natural spin-off expression of e-Government in the wake of a generic technological deployment (the supporting “mobile” systems) and its societal evolution (being mobile as a must). Today, however, the m-Government domain of meaning

and outreach seems to be quite open as to what it actually embeds. The pushing, emphasis or prioritisation of actions that it may support, in one direction or the other, is a major stake to be thoroughly analysed and debated upon. Let us see now what these directions are and what kind of difference they may make.

One of the most important factors to be stressed in this situation is certainly the fact that although dozens of billions of dollars or euros have been spent throughout the world to construct e-Government, it still does not fully deliver its promises, in particular in the presumed linkage between administrative efficiency and user- or citizen- empowerment towards an enhanced democracy. It is therefore quite understandable, in this context in which political determination and strategic hesitations constantly interplay (let us just think of the identity and security complications), that other conceptual solutions be proposed to regenerate public and private motivations. i2010 aims at stressing the “i” of interactive, innovative or any other positive adjective starting with “i”, while in Asia, the key letter “u” (for “ubiquitous”) seems to embrace most efforts deployed, in the private-public conjunction, in order to build a truly informative society. More recently, “t” (for “transformative”), also appeared, in parallel with a huge question mark: can government transform itself? In this turbulent landscape, m-Government has its chance to carry ahead some crucial innovative efforts and this is why establishing political priorities compatible with intrinsic qualities of m-Government endeavours is so important.

If we start this reflection with seminal works of 2002 and 2003, when it all began, we can perceive that quite early, m-Government combined two different sets of features. Zalesack (2002) in particular, stresses the importance of building upon the freedom of mobile access, services that can be delivered from any place, at any time (the famous 24/24, 7/7 concept). The Danish Digital Task Force (2002), as for itself, wanted to establish the need to increase mobile developments, mobile being here the key term, as otherwise some categories of citizen might be left out of the Information society (like the elderly, for instance). In this perspective, health care was immediately recognised as an important driver of proximity service leverage, triggered by ICTs. Roggenkamp (2004) emphasised the value of mobility, distinguishing the various facets constructing this value-adding horizon: device mobility, user mobility and service mobility and for services, the mobility of access, content or application. Then, of course, all early authors recognised the importance of technology, in

particular the systems supporting mobile usages. Much in the line of Vree’s reminder (2000) on the development of infrastructure-based services in their infancy, characterised by an important “undetermination”, two different strands of this acknowledgement can be documented: one, conveying the majority of indications, builds upon the fast expanding domain of mobile telephony and its potential; the other one upon the fact that new means of facilitating traditional Internet accesses spread in importance and grew in performance, namely wireless technologies (e.g., in the US, the NCCC White paper, 2003). Although since 2005, there has been numerous attempts at bridging these two technological domains (i.e., in smartphones), we are still a few years off having user-friendly, full-fledged and seamless inter-operability. The Gartner Group sees that as the next generation of mobile network convergence, which will also include voice over IP and other now typical multimedia offerings, circa 2010 (see for that in particular Deloitte 2005 and Gartner 2006). Before that date, of course, current attempts to use mobile phones as relays for overall distributed Internet access, through a “meshing” type of wireless transmissions over urban territories, have to be understood as making a significant step forward.

It is no surprise, therefore Kushchu and Kuscu (2004) have pinpointed the level of mobile device penetration as a being a key driver for m-Government, ubiquitous access being somehow left in the background, as a side acquisition. In reality, this raises a fundamental question. The stage model formulated by Garnter in the early 2000 does not say anything about how things should be established, through what type of infrastructure a growing e-Government program can develop; but clearly, today, this dimension makes a difference, as we shall see further. The reality is that mobile technology usage to increase e-Government outreach is not just a good idea. In most countries of the South (see for that Goldstuck 2003, Ghyasi and Kushchu 2004, Donner 2005) and the East, having until now to rely upon a quite poor fixed cable infrastructure, the fast expansion of mobile telephony allowed for new expectations. More recently (2005-2006), this became also true for OECD countries, as the number of mobile phones surpassed the number of fixed line phones. In addition, mobile phones are not just phones that are not fixed, they have numerous features and services associated to them that fixed lines do not have (except, until 2004-05 for the higher performance embodied by Internet connection in case a PC is connected, temporary advantage likely to diminish quite quickly). In this situation, we could say that m-Government can be envisaged, minimally, as

some would word it (Vundavalli 2006, Kushchu and Kuscu 2006) as a subset of, or a complement to e-Government, providing flexible access and value-added services in contexts or processes which make relevant use of mobility among users; but it can also be considered, maximally, as a dominant trend of the Information society, involving government outreach through mobile technologies, thus getting closer to the users and citizens, thanks to “mobile” channels and their associated (and still expanding) features. Let us see what fieldwork tells us about those rather diverging inclinations of m-Government.

4. First fieldwork capture of m-government: lessons from a research project

Between 2002 and 2003, as part of a Swiss national research project within the framework of COST A14, MIR-CdM-EPFL carried out an evaluation and comparison of e-Government projects in six European contexts, some of them regional or national, others municipal, namely the cases of Bologna (Italy), Issy-les-Moulineaux (France), Tampere (Finland), Estonia, Ireland and France (Buser, Cotti, Rossel and Finger 2003). Except for the case of France (which nevertheless was characterised by having started to deploy a proactive national policy in the area of e-Government), all the cases were chosen for belonging to the category of innovative and even pioneering regional actors in the domain of e-Government. The objective was to assess the state of the situation in these settings, understand the strategy of the main actors involved, the achievements in terms of actual services delivered, the projects and overall plans. Four years later, and although some improvements have been reported to us, it is worth revisiting that study with the “mobile e-government” criteria in mind and emphasise what the main issues were and, to a large extent, still are. Strictly speaking, when thinking of e-Government objectives (empowering the citizens) or services (administration for the citizens, support to businesses) which have been implemented in these contexts, we can identify:

- In Issy-les-Moulineaux, the possibility to pay parking or reserving a parking slot using a mobile phone, to make a reservation for a local hotel room, to make a reservation for books, records, DVD at the media library or a game in the game library;
- In Tampere, the possibility to check availability and make reservations at the local library, to have access to bus schedules and to a map service for addresses, roadwork or any zoning issue, as well as to social service information, medical services;

- In Estonia, the facilitation of payment by Internet and SMS;
- In Estonia and in Ireland, administrative data access, for the citizen, on a 24/24 and 7/7 basis and national database access, for businesses.

These implementations look rather slim (they were identified in 2002), but like similar claims made in several other countries (first mobile payment in Scotland in 2002, first mobile health record access in Japan in 2003), they constituted probably more the beginning of another way of relating to public services than a specific area of e-Government service delivery in that sense that, from there on, it was easy to expand upon and work with the growing communication habits of a vast majority of the population. With this angular view on the topic, one can immediately emphasise developments, which with a strictly PC-based e-Government approach could not be envisaged, at least not with the same pace and flexibility. At the same time, although still within the limits of our fieldwork, we could foresee that some services would resist this integration trend for a while, like for instance tax form filling as well as firm-oriented development facilitation services (e.g., Tampere attempts, based rather on PC applications), etc. We are dealing here with complex services that might maintain themselves in the realm of the “non mobile” for a while. It seems that the situation is likely to evolve quickly, however, not under the form of a massive transfer to “mobile” systems, but of increasingly more numerous and relevant possibilities to establish limited and targeted mobile interactions in those domains of activity, in principle too complex to be operated with an m-Government approach.

Other “mobile” services of undisputable relevance have to be mentioned such as empowering-empowering options of participating in public on-line surveys (in Issy-les-Moulineaux for instance), so as to make bottom-up proposals, to enter in contact with members of parliaments or at least to have access to public debates, prelude to further voting experiments (who failed in the UK, but, more recently, succeeded well in Switzerland, e.g. the Canton of Zurich, which allowed the use of SMS for voting in 2005). Again, if one wants to stress the importance of achieving an “anywhere, anytime” deployment, these services are likely to remain limited in scope. The mobile aspect is not even critical unless mobile phone-based interactivity becomes the dominant behavioural regime (surpassing PC-based information acquisition or transactions, like in e-payment for instance); but, again, as the fast expanding and replicable building block of a new cultural trend, the meaning of these initial experiments is to be interpreted differently, namely the starting point of

a collective learning process. Another issue is worth considering, which was stressed by most of our interviewees, against the normative aspect of the stage model: a 24/24 and 7/7 administrative information and form access raises a quite complex problem of back-office uneven workflow, that also tends to globally increase, involving new organisational and development costs to be taken care of.

More indirect forms of mobility were also made possible. An example of this indirect mobility is for instance the flexible and multiple access to the Internet for school children, who have Internet at school and in addition, for some of them, but they are more and more numerous, at home. In the same spirit, one could envisage as mobility trigger the teleconference facility of Issy-les-Moulineaux. Here the mobility of users is more important than the mobility of devices (let us insist again on the fact that both are converging, but with some limitations for the moment). Some services also involve promises to come, like the youth forum in Tampere, in particular when thinking about the quite extensive diffusion of mobile phone among the younger generation. In any case, this type of service, suggesting direct expression of citizens, is an area not totally culturally integrated but certainly to be explored and encouraged (much similar is the UK some service facilitations allowing direct access to city counsellors). Finally, still in this category of indirect mobility triggers, but already or increasingly on-the-shelf in most of our cases, starting with Estonia as pioneering region, let us stress the importance of such developments as electronic identity card for payment, health record access and other confidential transactions, along with electronic signature facilitation. In 2002-2003, these were pioneering services, but since then, the situation has of course changed completely.

5. Four years later

Four years after our multi-country fieldwork research, the ubiquitous access has somehow passed in the foreground as priority goal, while the number, variety and value-added scope of m-Government type of services has literally exploded, and not just in a few pioneering countries which made of m-Government a strategic objective (Malta, Dubai, UK, State of Idaho, Korea, New Zealand, China, etc.), but almost everywhere in an increasingly routine way. The numbers of cases and experiments fitting the m-Government framework already surpasses actual follow-up potential for any observer. More interestingly, we can account for a large variety of countries (beyond the OECD subset) in which formidable achievements in transport, health,

education, media or crisis management, can be acknowledged; but even more important for their future, generic "mobile" functionalities are increasingly supporting them. Let us mention in particular, beyond the now quite established possibilities for e-reservations of all sorts, as well as "mobile" forms of payment: information acquisition applications (administrative job searches, official forms, requirements of all kinds), identity management standards, geo-location systems and service delivery, polling and forum-type of debates, ambulatory service access and use (ambulatory social and medical care), multi-cultural and multi-lingual services in contexts that need that level of centric-centric differentiation, but also more critical offerings in real-time event and process management (for instance, crowd or traffic steering, accidents like fires, flood disasters, hurricane threats, crisis follow-up measures, etc.).

6. Re-mapping mobile e-government

At this stage, mobile e-Government may mean very different things. We have mapped these initiatives according to the following typology, which can also serve as a first basis for evaluation (as projects should be evaluated to a large extent against the goals they are supposed to fulfil). All four categories can combine with each other.

1. Mobile e-Government for mobile persons

The first understanding of mobile government is linked to the increase of space and time accessibility of administration services to provide "mobile" with enhanced linkage and informational and transactional options or to develop new citizen opportunities linked with mobility issues and enhanced government services:

- Adapting government and administration services to be accessible in a ubiquitous manner (let us think for instance of the multi-purpose, multi-service electronic identity card which many countries are now developing, or 24/24 and 7/7 access to certain services which benefit from this opening (emergencies, incident reporting, but also forms of all kinds and basic information);
- Developing new options and services based on ubiquitous access and multi-channel possibilities (for instance, use of SMS to inform citizens for instance of specific risks or to get citizens' opinion for political consultation or even voting at a distance, already experimented in a few areas).

For both functionalities, presentation of current experiments or already working services are typically encouraged as fashionable, either as first-time and local endeavour or as good practice diffusion stage; future plans and projects or even medium-term trends concerning mobile access to e-Government services are also primary concerns

in most national and international fore-field goals. SMS are often used for specific information dissemination (e.g., emergencies), but also, more and more, for a wide range of service offerings, from education to garbage collection (see for that for instance Zalesak 2003). In fact, we should stress that through the boosting domain of mobile phones and smartphones, we are increasingly all becoming mobile users of services. In the European Union, more specifically within the Sixth Framework Program, it is worth mentioning the project USE-ME.GOV, promoting mobile and user-centric forms of e-Government in six European countries.

2. Mobile services for mobile organisations

- Enterprises and /or other public or semi-public organisations are essential partners for e-Government and mobile access to their functionalities, either already existing or soon-to-come, general purpose or niche type. This trend clearly matches the “ubiquitous” rationale of productivity needs, characterised by “agile” organisational schemes and mobile knowledge agents servicing these dynamic organisations. The economics of the value added thanks to such mobile accesses to e-government services is also a target concern. Accessing public market tender possibilities and interacting in real-time with the requirements and diligence underpinnings of such options involves interfaces and applications which by essence can result in a quite high yield as far as time and space flexibility is concerned. In this category also fit the initiatives, which aim at enabling or facilitating the diverse forms of networking between private and public organisations. “Mobile” in this case is taken somehow in a metaphoric sense (the organisations do not move, only their employees and experts do, as usual, with the exception of new subsidiary opening thanks to ICT support, which may be understood as a form of organisational mobility). A special sub-category of mobile organisations is in addition represented by enterprises or associations which have officially the vocation and specialty of transporting goods or passengers and which of course can also benefit from “mobile” government applications initiatives.

3. Mobile State

- The State, almost everywhere, and in particular in OECD countries, is going under important transformations and e-administration is not the only domain of activity likely to generate benefits and enhanced efficiency: policy-making and regulation are key missions which are also within reach for an extended understanding of

e-Government, and for which mobile access provides specific opportunities to be developed. Let us think, for instance, of the initiatives that allow direct contact to city civil servants, counsellors or regional or national members of parliaments, or the possibility to have access or ask questions to parliamentarians in actual commission work progress and debates). New institutional schemes, involving not only mobile access to e-Government services but more durable public-private partnerships should also be envisaged.

4. Mobile administration agents or agencies

- Some activities of the administration must be by nature (or could be enhanced in that direction) mobile and scattered over the territory. Let us evoke here the civil servants who have to check incidents and proceed to local inquiries in various domains, participate in cadastre inventory or checking, assess the level of pollution or health alarm in fieldwork conditions, etc., need specific tools to accomplish their duties. One example of services of this kind, just illustrative of a wide category, is explored in the eTEN project MAP, supporting applications to facilitate and manage emergency interventions (<http://www.map-project.net:8080/>).

Many of the “mobile” projects or programs were first developed in a time (the nineties) in which mobile devices were not what they became after 2000 in terms of performance and above all, of market penetration. Needless to insist the fact that mobile telephony and wireless accesses will boost these categories into higher forms of efficiency and effectiveness. The means (medium) became somehow the goal, impacting society in depth. Some countries have taken the m-Government strand with more determination than others. Let us mention, among others pioneers such as Estonia, Malta, Korea, Japan, New Zealand, UK, Sweden, Dubai, South Africa and some of the US states such as Idaho and California, for instance, but many more are coming, including China. Most of them already offer a wide coverage of options. If we envisage the set of offerings of Honk Kong at present stage, for instance (<http://www.info.gov.hk/digital21/e-gov/eng/init/mgov.htm>) all the four above-mentioned domains of m-Government activities are being implemented, with several routine as well as less routine services to local inhabitants’ activities or involving administration’s civil servants.

7. Conclusions, priorities and impacting concerns for the years to come

What lies really ahead of the current achievements is not so much the ubiquitous access paradigm, which somehow constitutes a base line for more ambitious goals, than a new cultural horizon for which administrations and governments will have to adapt, much beyond the stage model. As a matter of fact, El Kiki and Lawrence (2006) suggest a refined model to understand what is taking place, involving vertical interactions and forms of integrations and overall a pivotal role of m-Government in the deployment of e-Government (m-Government as a tool to get higher forms of efficiency and effectiveness). This is most likely only a beginning. Due the deployment of an overall trend in the building of the Information society, bottom-up and user-driven initiatives are going to spread in an increasingly pervasive manner (let us evoke the "Web2.0" trend, for instance), playing with light practices, multiplicity of channels, real-time reputation building and informal benchmarking, to force those more culturally congruent private-public interaction forms to survive rather than any others. This ongoing process is also likely to benefit from upcoming technological convergences, such as the one already mentioned concerning seamless interoperability between the wireless domain and the mobile telephony one.

As we can observe now in almost every country a proliferation of initiatives fitting the emerging m-Government claim, often displaying in addition, bottom-up and user-centred features, effective tasks are clearly being accomplished, that we can be consider as partially but positively overlapping with traditional complex private-public collaboration. This puzzle in the making represents a vicarious form of learning, now rooted in nearly all the sectors of e-activity (Rossel and Glassey 2004). In other words, the considerable expansion of technologies allowing for horizontal relationship to get more substance and generate user-centric initiatives may constitute a pressure for e-Government to adapt rather than the contrary. In this context, mobility is less a physical expression than an increase in the freedom of movement, choice and option management for individuals as well as groups and organisations. This overall transformation, due to the expanding technological landscape and the pervasive usages linked to it, suggest a new interpretation of some e-Government achievements. For instance, it is quite clear that making reservation for books or parking slots, or even e-payment of traffic fines are easy wins and

do not really account for significant gains as such. However, taken as a collective and massively diffusing type of initiatives, they induce a more substantial change in e-Government, which goes beyond the mere digitisation of existing services, what we call in fact a change of second order (i.e., changes in the way things are done and not just on specific objects), with multiple organisational and cultural implications.

In the near future, already effective combinations of GPS and GSM technologies make possible customised geo-location with possibility to interact with drivers to modify their route (a recent Dutch experiment). Let us mention for instance the Swiss firm Locatis, for instance, which works at diversifying the number of applications that can benefit from that combined technological package (there is a similar development by Vodafone in the Netherlands, dedicated to road traffic monitoring). More generally speaking, context-sensitive applications, with user empowerment options, will develop more and more, resuming somehow with an old attribute of Japanese-born i-Mode, but with more service potential and scaling possibility. In this situation, m-Government should be envisaged through the obvious use of supporting technology allowing for flexible activities (today represented by portable computers mobile and smart phones, tomorrow by other portable ecosystems and all the power of the connected car) and positively betting on their current growth pace, with the cultural awakening that goes with it. Absolute forms of 7/7 and 24/24 access as well as efforts to reach the transactional stage by all means (referring to the Gartner model, see for that in particular, Siau and Long 2005), should be considered as subsidiary achievements rather than critical milestones of e-Government progress. Emphasis and priority should rather be set in favour of activities:

1. In which enterprises can get a real gain in flexibility, number of options and easiness of contact with the administration (and still preserving all the way through a much needed transparency);
2. In which mobile workers of enterprises can do their job with increased efficiency (let us think of insurance or medical field-related specialists who have to check real-time data from within the administration, or take real-time decision from a variable location point, for instance);
3. Of those agencies and agents of the administration who have to be mobile to provide efficient servicing (health and environmental domains, hazard detection, social services, traffic monitoring, cadastre-related activities, education, etc.).

4. Of private citizens (all “e-activities” considered, whether they are “e-Government-encouraged” or not), making increasing use of mobile devices and mobile styles of Internet service access. The only policy-relevant domain for which some specific effort should be done is the digital divide. Bridging initiatives should not be based exclusively on office application training, as it is too often the case, but should precisely enable more versatile, mobile and multi-purpose forms of ICT uptake, linked to everyday life activity (payment, consultation, form filling, etc.).

The latter aspect evoked here sends us back to the original target of the Danish Task Force defined for m-Government in 2002, which as a matter of fact should be seen more than just as “mobile” leitmotiv alongside with the building of the Information Society, with its now well-known “ubiquitous” connotation. m-Government, based upon a series of technological systems and expanding communication habits, is indeed about bringing the value and effectiveness of government to the citizen and all the administration users, acknowledging their diversity and heterogeneity, not forgetting that the trend now is also - bottom-up - for users to shape the expression of their needs, preferences and choices in specific communities or even forms of e-businesses. m-Government is therefore on its way to become really interaction-minded and a full-fledged collective learning experience, all pre-conditions for an effective change in the roles and functioning mode of governance.

At this level, however, one needs to develop robust indicators of actual performance within the current and still somehow laborious e-Government measurement undertakings. The EU

project eGEP (LUISS/RSO 2006), for instance, could be a starting point. It was not developed with the “m” dimension in mind, but it could at least leverage an interesting measurement and evaluation potential to m-Government projects, much beyond the mere short-term efficiency horizon. There is no doubt, however, that the m-Government domain will have to develop its own evaluation rationale, as several presentations at the first two European conferences on mobile Government (2005, 2006), as well as the activities of the mGci group (Mobile Government Consortium International) have hinted at. For the first one, see in particular the idea of return on investment type of impact (ROI) explored in the 2005 edition (<http://www.icmg.mgovernment.org/documents/HMChung.pdf>); for the latter, one key concept is really worth emphasising, the idea of “m-readiness” follow-up (e.g., the study case of Japan). In 2004 already, through the Development Gateway channel, Kushchu had conceived a specific “response model” to represent the particular impact that m-Government was expected to generate. His work is still in progress, but, as a matter of fact, this rationale should reflect the puzzle-like construction taking place and the specific contribution it bears within the overall dynamics of an ICT-supported society, with specific attributes due to the “m” dynamics such as suggested in this paper. Building upon the idea of m-Government benefits as outlined by Heeks and Lallana (2004), this process can be summarised as being a multi-faceted user-empowerment flourishing initially as a spill-over of e-Government developments thanks to expanding mobile technologies, soon to become a dominant strand of its own in the support of C2G interactions.

References

- Buser, M., Cotti, L., Rossel, P., Finger, M. (2003), Government and Democracy in the Information Age, Lausanne, MIR-ILEMT-EPFL (COST A14-CH report) / http://mir.epfl.ch/egov/docspdf/government_democracy.pdf
- Deloitte (2005), The Trillion dollar challenge: Principles for profitable convergence. Deloitte, http://www.deloitte.com/dtt/cda/doc/content/UK_TMT_TrillionDollarChallenge_05.pdf
- Donner, Jonathan (2005). Research approaches to mobile use in the developing world: A review of the literature. Presented at the “International Conference on Mobile Communication and Asian Modernities”, City University of Hong Kong.
- Ei Tiki, T., Lawrence, E. (2006), Government as a Mobile Enterprise: Real-time, Ubiquitous Government. IEEE, Proceedings of the Third International Conference on Information Technology: New Generations.
- Gartner (2006), 3 Major Shifts to Transform Fixed Telecommunication Operator Businesses in Europe, Gartner, http://www.systems-world.de/id/6554/CMEntries_ID/65847/cubesig/70c2fe292eb7b78a0ec00e551ba71e83
- Ghyasi, F., Kushchu, I. (2004), Uses of Mobile Government in Developing Countries, mGovLab and International University of Japan International University of Japan, Niigata, Japan.
- Goldstuck, A. (ed.), (2003). Government Unplugged: Mobile and Wireless Technologies in the Public Service. Pretoria, South Africa: Centre for Public Service Innovation/ iComtek.
- Heeks, R., Lallana, C. (2004), eGovernment for DeveloPMENT: mGovernment Benefits and Challenges, <http://www.egov4dev.org/mgovprocon.htm>

- Kushchu I, Kuscu H. (2004), From E-Government to M-Government: Facing the Inevitable. Proceedings of the Third European Conference on eGovernment,
- LUISS/RSO (2005), eGovernment Economics Project (eGEP), Measurement Framework, Brussels, European Commission, eGovernment Unit (http://www.rso.it/notisie/D.2.4_Measurement_Framework_final_version.pdf)
- National Electronic Commerce Coordinating Council Research and Development workgroup (2003), M-Government: The Convergence of Wireless Technologies and e-Government, NECCC White Paper.
- Roggenkamp, K. (2004), Development modules to unleash the potential of Mobile Government: Developing Mobile Government Applications from a User Perspective, Proceedings of the Third European Conference on eGovernment, Dublin, 2004.
- Rossel, P., Finger, M., Misuraca, G. (2005), Triggering the governance perspective of eGovernment projects: beyond mere digitisation of administration services or the Change I to Change II shift issue, Lausanne, CDM-EPFL Working paper (forthcoming).
- Rossel, P., Glassey, O. (2005), "Bridging over the dynamic divide: when e-activities are e-learning reinforcement contexts", Proceedings of the 4th WSEAS International Conference on E-ACTIVITIES (E-Learning, E-Communities, E-Commerce, E-Management, E-Marketing, E-Governance, E-Health, Tele-Working), Miami 17-19 November 2005
- Siau, K., Long, Y. (2005), "Synthesising e-Government stage models – meta-synthesis based on a meta-ethnography approach", *Industrial Management and Data Systems* 105 (4), pp. 443-458
- Vree, W. (2003), Inverse infrastructures: emergence by symbiosis and re-use, Delft: Delft University, <http://www.ei.tbm.tudelft.nl/ei6conference/PDF/W.%20Vree.pdf>
- Vundavalli, R. (2006), m-Government: can it work wonders?, Development Gateway, <http://www.developmentgateway.org/e-government/rc/ItemDetail.do~1062586?itemId=1062586>, also in: Egov Asia Magazine, Dec. 2005.
- Zalesak, M. (2002), m-Government: Definitions and Perspectives (an interview by H. Arazyan), www.developmentgateway.org/e-government
- Zalesak, M. (2003), m-Government Case studies, mGOVLab, <http://store1.digitalcity.eu.com/store/release/hir/doc/AAAALWTV.doc>