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Policy Lessons Learned

Editorial

Articles

Editorial: Policy Lessons learned

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Over the past decade, many Information Society strategies have emerged in Europe, such as eEurope (1999), i2010 (2005) and Digital Agenda for Europe (2010). eGovernment, eHealth and eInclusion are the three policy sub-domains comprising the societal public services pillar which is the backbone of all such strategic frameworks. Given the emphasis that the new overarching EU2020 Strategy places on tackling grand societal challenges and turning them into economic opportunities, the relevance of these three domains is greater today than in the past.

This issue aims to find theoretical and interpretative frameworks that may help to comprehend the evidence already collected and to support new and innovative policy approaches. These new approaches will lead to the transformation of a public service delivery system, to inclusive growth and to the dissemination of sustainable eHealth practices, thus improving the efforts towards 2020. The articles published in this issue bring forward a number of concise lessons learned form eGovernment, eInclusion and eHealth practices during the past decades. Much discussion focuses around the ever more commonly cultivated perception that various terms like "accessibility", "participation" and "inclusion" should not be seen anymore as something different than their electronic dimension (as indicated by the "e" prefix).

Other lessons learned refer to eAccessibility, arguing that the concept should be interpreted in the context of how public authorities integrate individual relevance and success criteria into it. The need for more organisational models to facilitate interoperability is also a crucial lesson that has been stressed in the following articles. In general, the authors seem to bring forward the idea that more policy instruments are required in order for the ePractices and eConcepts to be properly and efficiently promoted for the benefit of societies overall.

Pedro Prieto-Martín, **Luis de Marcos** and **Jose Javier Martínez** demonstrate in their paper the progress of eParticipation in Europe, focusing particularly on EU projects and policies. The study includes an assessment of the eParticipation achievements and limitations, as well as those of the European innovation policies, which lie at the heart of the Europe 2020 Strategy. Its basic recommendation is that the European Commission should consider Participation and eParticipation as exactly the same, while the EU should abandon its previous approaches and shift to user-centric policies.

John Borras provides a thorough analysis of the OASIS Transformational Government Framework and its components, whose aim is for governments to overcome the challenges faced during the transformational process and to offer a genuinely ICT-enabled change in their services. Through the

Transformational Government Framework, public services become more citizen-centric and cost-effective, while cross-government efficiency is achieved. The author outlines the need to move to a new service delivery model, the transformational government, after a decade of eGovernment.

Thomas Frandzen's paper elaborates on the issue of eAccessibility and the limited use of public websites by citizens. It suggests that eAccessibility should be interpreted according to the individual relevance and success criteria of public authorities in order to be successfully integrated into them. The paper applies Niklas Luhmann's theoretical framework in an attempt to explain the internal logic of individual authorities and organisations. Finally, the author suggests that analysis of this framework may work as a tool to interpret the policy resistance in these organisations and to develop policy.

eAccessibility is also related with internet control, as **Zach Bastick** states in his contribution to the issue. He deals with the matter of freedom of speech on the Internet and how this is promoted or hindered, and underlines the need for a change in the perception of Internet in order to support eAccessibility and eInclusion. He analyses the changes in internet control and particularly in the control of Domain Name System (DNS) that have occurred throughout the years and notes that a shift of Internet into private control will result in restricted public benefits of the Internet.

Matthiew Pappst in his paper deals with the degree and reasons of resistance to Open Source solutions in government procurement. The paper details the four dimensions that affect policy resistance, namely the technical, the legal, the financial/economical and the knowledge/experience dimension, and the reasons that this resistance remains despite measures introduced by the European Union and the Dutch government ,as in the case of the Dutch strategic IT plan "Netherlands Open in Connection". The author suggests that each of the four dimensions should contain one or more policy instruments, which will be used by the policy maker to balance the positive and negative influences within the dimension.

Angelo Rossimori, Gregorio Mercurio and **Rita Verbicaro** look into another issue; eHealth and more specifically Connected Health, a new concept that should lead to a health-centric perspective. This new perspective will differ from the usual technology-centric approach and may help overcome the limits of current eHealth policies. This can be achieved through new organisational models that will enable interoperability and cooperation among actors, as well as by organising information within motivated operational frames. Lastly, the authors propose the creation of a specific network of references in order to create a shared culture that will support policy makers.

The distance covered in ePractices during the past decade is noteworthy. Yet, contemporary issues and problematics still focus (or need to focus) on the human aspect of digitisation, hinting that accessibility and inclusion in their electronic forms should be further broadened and promoted.

After a decade of eGovernment, eHealth and eInclusion, authors in this volume are centred on the need to further facilitate eAccessibility and eInclusion, in the sense that public services should become ever more citizen-centric and cost-effective. Thus, the discussion leads to other avenues that relate to a human/citizen-centric digitisation that contrasts with cases of intentional or unintentional policy resistance, as highlighted in some of the papers in this volume.

This is, eventually, the challenge for the future: to humanise ePractices and eConcepts so as to better serve citizens, while at the same time constituting a safe and secure network for efficient public administrations. The selection of the papers we provide here aim at constituting the beginning of a fruitful debate and further elaboration of the current needs for eGovernment, eInclusion, eHealth and eAccessibility, as raised by the practices (or even malpractices) of the recent and not so recent past.

Enhanced policies on Connected Health are essential to achieve accountable social and health systems

After a pioneering period of spontaneous evolution (under the name of 'Medical Informatics', 'Healthcare Informatics' and 'ICT for Health'), most national and regional authorities successfully defined their policies on 'eHealth', usually based on a **technology-centric perspective**, which however is intrinsically not able to directly face the requirements stemming from the strategic objectives of care processes in an accountable system (e.g. continuity of care, chronic disease management, patient engagement, the trend of health and social care towards a holistic perspective on 'health').

The new concept that is gaining momentum, 'Connected Health', should lead to a health-centric perspective to overcome the limits of the current policies: a new, complementary stream of initiatives should explicitly cope with the core business of the health sector. In fact, the health policies typically deal with specific sub-populations with particular health conditions, focusing on situations of inappropriate behaviours and areas for quality improvement. For example the Chronic Care Model aims at achieving an effective integration among the care providers in a jurisdiction; an action plan derived from the regulations of the healthcare sector should then promote the set up of a kind of citizen-specific 'virtual facilities', where eHealth solutions manage the mutual awareness and shared objectives among all the actors – the professionals, the patient and the informal carers – to let them behave as a system according to an implicit or explicit 'care pact'.

Building on the needs arising from the consequent organisational models, the paper provides a comprehensive interpretative framework, analysing a set of emerging systemic challenges and their potential consequences on the future 'Connected Health' policies. ICT solutions should be considered within this new health-centric perspective. To materialize this perspective, the paper introduces the concept of 'Motivated Operational Frame' (MOF) related to a Health Concern (e.g. for the most common long-term conditions, with predictable information needs based on the agreed Evidence-Based clinical pathways, or for a social issue). Within the context of a certain number of suitable MOFs, appropriate activities can be predicted and structured routine data can be systematically captured, exchanged and reused by the different actors (i.e.

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professionals, managers and citizens). ICT is mature enough to effectively support several cooperative processes in those MOFs.

In the long run the fusion of the concepts of Electronic Health Record (EHR) and Personal Health Record (PHR) will bring to a 'Concern-oriented Integrated Health Record' (CIHR) where the activities and the data of a virtual facility will be organised in frames to cope with a continuum of requirements about care provision, administration, self-assessments, governance, and epidemiology.

Keywords

holistic perspective, healthcare-centric attitude, clinical pathways, Problem-Oriented longitudinal EHR, Concern-oriented Integrated Health Record, accountable systems

" eHealth policies are a crucial component of the economically sustainable health strategies to introduce advanced organisational models and accountable systems. A holistic health perspective should rely on a Concern-oriented Integrated Health Record (CIHR) and integrate the European, National and Regional initiatives on ICT for Health, Healthy Ageing, e-inclusion, Ambient Assisted Living. "

1. Introduction

The demographic phenomena, the progress of medicine, and the economic constraints ask for innovative organisational models of care provision, which require an effective integration of heterogeneous sources of information with different clinical, administrative, economic, organisational, and managerial perspectives. ICT is expected to help in coping with some major health and social challenges faced by European citizens.

This paper stems from the analysis of the evolution of the eHealth field, by working out the perspectives hidden behind its names, from Medical Informatics to ICT for Health and Connected Health.

Building on that analysis, it provides an interpretative framework to work out a set of emerging requirements challenging the eHealth milieu, which cannot be faced by the technology-driven perspective that inspired most current eHealth policies. Therefore it considers the consequences on the policies for Connected Health, and elaborates on the innovative components of potentially effective solutions to promote an integrated ecosystem on citizen's health.

1.1 From 'Medical Informatics' to a 'Connected Health'

The agenda of the European Commission is considering the role of Information and Communication Technology (ICT) in various overlapping subdomains of health and social care, not only directly dealing with diseases, but going up to the issues of wellness and encompassing among others the topics of e-inclusion, Ambient Assisted Living, Healthy Ageing (European Commission, 2011a, 2011b, 2011c, 2011d). The Member States are deeply involved in the deployment of the national and regional roadmaps for eHealth, focusing mainly on the issues of interoperability and privacy. The Commission is providing guidance to the Member States and monitoring their progresses (Council of the European Union, 2007; European Commission, 2007a, 2007b, 2008, 2009, 2010; Gartner, 2009; IPTS, 2009).

The industrial market of ICT services is mature for a wide deployment, and new opportunities are emerging with the diffusion of mobile health and home devices (Continua Health Alliance, 2009).

The eHealth phenomenon is relatively new and complex; it requires a strategic governance, based on an appropriate methodology and focused on the citizen (Codagnone, 2009). This section will describe its major features, firstly from an historical perspective, and then as the driving forces behind its evolution: the current *technology-centred attitude* was a prerequisite to establish a solid infrastructure and a set of effective operational services, but in the future it should be complemented by policies with a *health-centred attitude*, driven by the priorities of the health sector on the care processes and their governance.

1.2 Nomen omen – The destiny is in the name

To explain the limits of the current policies, the story should begin in the 70's, at the time of 'Medical Informatics' (Figure 1). A few pioneers were applying Information Technology to medical devices and to isolated decisional problems in medicine. The main concept was expressed by the noun 'Informatics', with the adjective 'medical' to differentiate the application field from many others. Afterwards, the attention was extended to the organisational issues, with a shift from 'medicine' to 'healthcare', and the name changed to 'Healthcare Informatics' (Rossi Mori et al, 2007c).

With the diffusion of the local networks and the Internet, the focus moved from isolated applications to message exchanges at an increasing scale. Communication brought a 'C' in the acronym 'ICT';

standardisation issues arose and the interoperability challenge was born, with HL7 in 1987, CEN TC251 in 1990, ISO TC215 in 1998, with the production of mature standards as DICOM 3.0 in 1993 and HL7 version 2.3 in 1997 (Wikipedia, 2011a, 2011b, 2011c; Health Level 7, 2011). At the same time, the perspective moved from the 'healthcare' services to the 'health' issues of the citizens. The name changed to 'ICT for health'.

More recently the 'e-' prefix was used to evoke the inter-sectorial e-government action plans; the name changed again, to 'e-health': eventually 'health' is the main concept, and the ICT is assuming a secondary role.

Nowadays the intention of the strategies for several large-scale integration programmes all over the world and the initiatives by the European Commission offices is leading towards a 'Connected Health'. The transformation of perspective is going to be accomplished, if the new concept will be adopted in full. The focus of the new name is clearly on the noun 'health', the adjective 'connected' is the secondary concept, even if an important ambiguity remains: *connecting systems or people*? (Rossi Mori, 2007d). Information and communication, as well as the technology, should remain in the background.

The new name represents the intended endpoint of a deep cultural evolution. To overcome the limits of the technology-centred approaches, the stress should be no more on the technologies, but on health: the citizen is truly at the centre, at least in principle. The processes of care provision aim at a new era, where an adequate management of information and communication allows the dream to become real; the transformation will be based on continuity of care, on the attention to frail people, on the integration of social and health care services, on the disease-oriented networks.
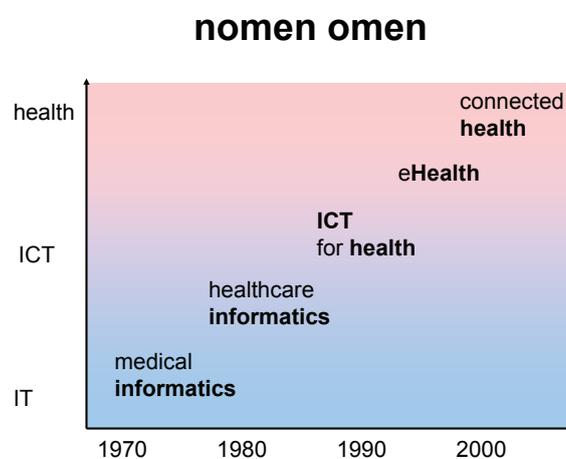
Figure 1: Nomen omen – the evolution of names from 'medical informatics' to 'connected health'

(Rossi Mori et al, 2007c)

1.3 The technology-centric attitude to innovation

Two worlds were facing each other: the World of Health and the World of Technology. The first finds itself often confused, with respect to the exceptional progresses of the latter in all the other fields of the modern life. As a matter of fact, the current attitude of the World of Health about innovation is mostly technology-centric: deployment programmes are constructed around the opportunities offered by the ICT (eHealth ERA, 2007; Rossi Mori & Freriks, 2005; Rossi Mori, 2008b).

This technological attitude is highly adequate to cope with a particular class of workflows where information usage may be predetermined, as in the procedures that replace the paper format of clinical documents with an electronic one. Examples are: the diagnostic services (e.g., laboratory, images, and remote POCT devices), the hospital admission and discharge, the booking services, the electronic transmission of prescriptions and reports, and the administrative simplification. However these subordinate processes are just complementary to the core business of the health sector, i.e. to the provision of the actual care processes.

This approach works well when the innovation involves a single health facility, or when they regard the widespread transformation from paper to electronic format of some plain workflows. It is able to quickly produce a high return of investment: in fact, the impact on system efficiency and citizen's satisfaction can be relevant with respect to the investments, even if the complete deployment of all their potentialities can take a long time. However these initiatives are not able to affect the deeper aspects of the care processes and the governance of the healthcare system: namely the decisions and the behaviours of professionals and patients.

The successful trend of the technology-driven perspective reached its natural limit. The World of Health cannot further absorb the outstanding progresses of ICT, unless the ICT evolution will originate from an adequate impulse to first reorganise the care system, through new integrated policies involving all the stakeholders to cope with the core priorities of the health sector.

2. Towards an innovation attitude driven by health policies

The Innovation Plans that will bring to the 'Connected Health' should originate directly from the health policies and from the real innovation backed by a political willingness to change the care system.

According to Iakovidis (2009), ICT R&D has been dealing for several decades with the challenges posed by "the tough demands of medicine and healthcare professionals for reliability, security, correctness and relevance of easily accessible information", with mixed success. In the current eHealth context, many partial ICT solutions do exist, but "a comprehensive use of electronic health records and telemedicine services for improved disease management, continuity of care, safety and ultimately patient centred healthcare as oppose to disease (organ) and hospital centred healthcare has still some way to go".

In other words, the World of Health is following its strategic targets for an economically sustainable evolution: improvement of quality of the care provision, diffusion of evidence-based clinical pathways, innovative organizational models. *The policies on ICT were not yet able to take their explicit role within that evolution* (OECD-NSF, 2011).

2.1 Enforce the governance of the eHealth phenomenon

The dream - in every Country - is to replicate the successes verified on the specific eHealth programmes that are increasing the efficiency of plain workflows. It is implicitly assumed that the accomplishments obtained by a technology-centric attitude can be extended to support the systemic changes in the care processes and therefore to the improvement of quality and appropriateness of care provision.

The priorities of the World of Health ask to move resources from the acute care to proactive prevention and continuity of care (e.g. for elderly, chronic diseases, newborns growth), to integrate the social and health care aspects, to encourage the active engagement of the citizen-patient,

to promote clinical governance and quality. In order to successfully face them by meaningful ICT solutions, it is necessary to concentrate the analysis on the requirements coming from the explicit health policies and on the derived concrete action plans, at all decisional levels (Rossi Mori et al, 2007c). The national and regional health strategies imply structural decisions on the normative, organisational, logistic, trade-union, cultural, educational issues, which should eventually act as the context for appropriate ICT solutions.

Policy implications: need for a methodology to measure the functional levels of adoption

Informed decisions, especially on the health-centric attitude, require a set of indicators to assess the levels of adoption of the *functional aspects* of eHealth that may be related to the health policies. Most of the current assessments of the levels of eHealth adoptions are based on the technology-driven approach, i.e. they measure the hardware and software assets and the infrastructure to support the subordinate processes (Tamburis et al., 2011).

Only a few examples of methodologies based on the functionalities actually provided to citizens, professionals and managers are available in the world literature. Among them, Federsanità-ANCI and CNR are carrying on the LITIS initiative, promoted by the Italian Ministry of Innovation, which developed the metrics to measure 145 ICT functions and tested them on nearly 2/3 of the Community Trusts and Hospital Trusts (Federsanità ANCI 2010).

A coherent, robust methodology in Europe could be useful to describe the current situation, to systematically relate the clusters of eHealth functionalities to the objectives of the health policies, to agree on the eHealth targets and on the mutual roles of national, regional and local initiatives, to perform benchmarks and assessments to make comparison among regions (Tamburis et al., 2011).

2.2 Supporting an advanced management of information and knowledge

Unprecedented challenges may jeopardise the control the whole process of eHealth innovation:

- the intrinsic speed of the organisational changes in the World of Health is much lower than the speed of the spontaneous penetration of ICT;

- the healthcare professionals need a deep cultural change towards Continuity, Collaboration and Communication, named as the 3C scheme (Rossi Mori, 2008a);

- the increasing size of the eHealth programmes involves entire jurisdictions and a huge critical mass of actors, becoming more and more difficult to manage;

- the specific value and the return of the eHealth investments embedded in large healthcare action plans cannot be demonstrated to the decision makers. Whereas it was possible to prove the significant advantages deriving from ICT on limited technology-driven interventions, at the systemic level it is hard to explicitly assign to ICT a specific quota of the overall benefits of a new organisational model, even if in most cases the role of ICT may be absolutely essential for the success of the whole initiative.

A key for success could indeed arise by effectively coping with the non-technological issues in the Management of Information, Communication and Knowledge, which is named elsewhere as MICK (Rossi Mori et al, 2009). They are the bridge between the World of Health and the World of Technology, which requires new skills and job profiles to assist the care providers and the managers in the full exploitation of the benefits arising from this change in perspective.

Policy implications: the crucial role of innovators inside each healthcare facility

The competence of the innovators ranges from the typical technologically-oriented skills to deal with the infrastructures and operational standards, to clinically-oriented skills of new professional profiles to properly cope with the issues on the meaningful management of the clinical Information and Communication (e.g. NHS Connecting for Health, 2009).

The human factors are a crucial component of any innovation process. The eHealth sector is at the intersection of ICT and healthcare, and needs clear national, regional, local leaderships to run each programme and opinion leaders to support it. There is a diffuse perception of the need to involve all the stakeholders in the design and deployment phases, also through the early dissemination of the policy documents for a widespread phase of comment and consensus.

Instead it seems that there is a lack of attention to the presence of the innovators in the daily routine of healthcare facilities: however there *is no innovation without innovators*. The phenomenon discussed in this paper requires the introduction of a suitable number of specific innovators inside each healthcare facility (in total, to reach perhaps a figure between 1% and 2% of the healthcare manpower), and a revision of their professional profiles, with a specialisation of their functions.

2.3 The key for innovation resides in the new organisational models

Within an ideal integrated care plan – possibly coherent with the Chronic Care Model (Bodenheimer, 2002) and described according to explicit Evidence Based Clinical Pathways – it may be possible to predict the health concerns (FHIM 2011, McNicoll 2010), the goals, the tasks, the roles and thus most of the information needs and interactions of the various actors (Hägglund et al, 2009; Hägglund, Henkel et al, 2010; Maggini et al, 2008). A systematic analysis can make explicit which data should be made available (to whom, when, where, captured by whom) to address the *ability to cooperate among the actors* in that context – *in addition to the inter-operability among systems*. This approach allows to define the potential eHealth functions for several predictable situations (see Section 5.1 below) and to work out the detailed requirements for structured information (the appropriate clinical data to be captured and exchanged, the level of coding actually needed for further processing, the timely indicators for governance and other secondary uses).

However the *willingness to cooperate* – and thus to share data – cannot be left to the spontaneous attitude of each actor. Provided that the proper regulatory framework is in place, a proactive citizen and his/her formal and informal carers – with their mutual relations – should make up a particular 'functional care team', an *ad hoc* 'virtual facility' that is different for each individual, because it depends on the (multiple) health concerns and the social situation perceived within his/her specific ecosystem. Ideally a 'pact' or a 'contract' should 'enroll' the patient for a suitable period (e.g. one year) into an explicit (stable) personalised plan of care that clarifies the role, the goal and the activities by each professional, the patient and the informal carers.

On the contrary, several Personal Health Record (PHR) systems *are artefacts not originating from a corresponding integrated care ecosystem* (Rossi Mori & Mazzeo, 2011); the citizen and the professionals seems not to be able or willing to keep the task to 'unify' in that PHR his/her disparate care experiences, as demonstrated e.g. in the case of the scarce utilisation of Google Health (The Official Google Blog, 2011).

Policy implications: Motivating the collaboration among the actors

New legal / organisational models should be introduced, to promote those care pacts whenever possible and make the social and health care ecosystems more effective in terms of quality and economical sustainability. An example is provided by the accountable care systems in U.S.:

> 'Accountable care systems' may involve payer-provider collaborations, where incentives are established to manage the care of a specific population, with the goals of improving care, keeping the population as healthy as possible and creating efficiencies that reduce the cost of care (Nace & Gartland, 2011).

Most eHealth initiatives focus on data and infrastructures, but *if the regulatory/economic context is not suitably in place, it could be hard to share data (except for spontaneous, non-systemic interactions), just because the individual providers have no stimulus to collaborate or to engage the citizens.*

Existing large Provider Organisations with a high organisational cohesion (e.g. Kaiser Permanente and the Veterans Health Administration in US, or Maccabi in Israel) already deployed a high-quality, care-related integrated information system, with a PHR system able to satisfy the reciprocal information needs of proactive patients, informal carers, professionals and managers. They do *behave as a system*, across the different facilities and the patient's home. In addition, *structural tele-health* becomes a further consequence of a policy of change management to improve the organisation of the care provision (The Joint Commission, 2008; Scottish Centre for Telehealth and Telecare, 2010).

3. Connected Health policies as a means to achieve the health goals

The previous Section claimed that the focus of eHealth should move towards the management of the clinical Information and Communication, which could be assisted by the Technology, i.e. IC(T). This Section stresses that the *willingness to cooperate* among the actors, and thus the success of Connected Health initiatives, depends on the proper regulations on the care management.

Therefore the most promising sector for a new strategic approach to Connected Health initiatives seems to be made of the stable care processes for long-term conditions. In fact, most health policies typically bring to regulations, grants and action plans on health-related targets, e.g. on prevention of the consequences of chronic diseases (disease management), prevention of cancer, coordination of elderly care. They should be the proper context to initially originate the most effective strategies on Connected Health.

3.1 The fragmentation of chronic and social care

The World Health Organisation defines 'health' as "A state of physical, mental, and social wellbeing, and not merely the absence of disease" (WHO, 2006). This definition therefore includes being able to pursue a 'normal' living, though this may be facilitated by family, friends, or formal services.

Chronic conditions involve a large percentage of the burden on the care system (on the primary care and social care professionals, on the patients with their informal carers, and on the avoidable hospital stays) and thus their optimisation may contribute to the sustainability of the health and

wellness sector (Department of Health, UK, 2004; Rossi Mori, 2005). Chronic care involves very different organisational issues than acute (hospital) care: *the 'engaged' patients and their informal carers, supported by a new generation of home devices and telemedicine services, will manage most routine care at home or in long-term facilities.*

To fully comply with the reference guidelines is very heavy for the professionals. For example, a study made a simulation about the time that a GP should spent by to satisfy the guidelines on the follow-up visits for 10 common chronic conditions: Hyperlipidemia, Hypertension, Arthritis, Anxiety, Depression, Osteoporosis, Asthma, Diabetes, COPD - chronic obstructive pulmonary disease, CAD - coronary artery disease (Østbye et al., 2005). According to that simulation, a GP with 1500 patients should spend about 500 hours per year just for the follow-up visits for all the chronic patients that are 'in good control'; considering instead the actual rate of uncontrolled diseases, the amount of time required only to monitor those patients should go up to 1500 hours per year, i.e. about a full-time activity, without considering their acute health issues and the other patients. It is evident the need for realistic comprehensive programmes of quality improvement, involving also non-medical care managers and patient engagement.

The predictability and the frequency of these situations make them highly suitable to provide an effective eHealth support to the governance and the optimisation of a large amount of care activities performed by the various actors, based on timely indicators of process and outcome extracted from rich routine data. As the fragmentation of care management and the need to support an Ageing Society increases, so does the need to seek closer integration of care, and this may be in part achieved through integration, or interaction, between the ICT policies on health and social care, stimulating collaboration and innovation on a European scale.

Policy implications: supporting the integration of social and health care

The future implementation plans on Connected Health, synchronised between Regional and Local Authorities, should help address the most heavier needs of our Ageing Society. A comprehensive eHealth environment should be able to assist in the patient-centred integrated community care, covering the entire holistic ecosystem of health and social care around the citizen, starting the deployment from a significant number of predictable situations related to the care of elderly people.

In particular, they face issues arising from frailty, long-term conditions, mobility problems, or other concerns which limit their activities of daily living (Rigby, 2011). They require additional support, often over and above normal healthcare, which could be essential to ensure nutrition, personal and domestic hygiene, daily living tasks, and social inclusion. While the prime source of such support is usually the family, along with neighbours and their local community, the formal responsibility for ensuring their safety and well-being and for complementing their informal supporters lies with agencies under local and regional governance (ANCIEN, 2009). ICT should play its role by facing all the complexity of this very broad context.

3.2 Interoperability (connecting systems) and Co-operability (connecting people)

In a previous paper published by this journal (Rossi Mori et al., 2009) a distinction between subordinate and parallel responsibilities was made.

By coping with 'subordinate responsibilities', a physician maintains the main responsibility of the healthcare action (care mandate). Other professionals may be involved in partial and subordinated process, i.e. with a bounded autonomy in their decisions. Examples include the diagnostic services and

the second opinion, or the work in team with allied professions (e.g. nurses, home care operators). It was noted that (i) 'interoperability' is a contraction for 'ability to interoperate' or, better, 'ability of healthcare information systems to interoperate' and (ii) these activities are structured enough to be supported by standards: nearly all the standard messages (e.g. in HL7, ISO, CEN) at the ISO-OSI 7th level deal in some respect also with 'semantic interoperability' (vs. electrical interoperability or harmonised character sets) (Rossi Mori, 2007b).

In the 'activities with parallel responsibilities', several healthcare professionals (and the citizen himself, his family and volunteers) have complementary roles on the diverse aspects of the care management; an explicit shared plan or an agreement may formalise their cooperation. These activities require a particular kind of support, i.e. they involve the cultural, organisational and contextual 'ability of all the actors to cooperate', which was termed as 'co-operability' (Rossi Mori, 2007c).

Interoperability and co-operability are two complementary approaches. However achieving co-operability among *'connected people'* could be far more difficult than achieving interoperability for 'connected systems' (Rossi Mori, 2007c), also because the responsibility of clinicians and their communication along clinical processes often aren't explicit and systematic enough for an effective application of ICT solutions.

Policy implications: work out and make available a situation-oriented semantic info-structure

Semantic interoperability implies the need for an explicit infostructure, i.e. the formalisation of a data dictionary with the useful (clinical) data sets for a large number of health concerns, describing the archetypes and the Detailed Clinical Models (OpenEHR Foundation, 2011; EN 13606 association, 2011; Goossen et al, 2010) with the admitted values for each data element (EFMI, 2003; Rossi Mori, 2003).

However ICT performs at the best in well-defined clinical situations considered as predictable, e.g. in stable phases of a clinical pathway or in the prevention of a peculiar behaviour known to be at risk of non-appropriateness, e.g. to prevent medical errors or avoidable complications. Therefore, an effective solution requires that each clinician is enabled to consider the specific clinical data needed to perform his/her tasks in a particular moment, according to precise recommendations on the optimal care processes that contain also explicit provisions on data management (Rossi Mori & Mazzeo, 2011). In fact, most data depend on the context of the episode of care (condition of the patient, kind of facility, node in the clinical pathway, etc); those data may be either captured by the same clinician or communicated by another actor, e.g. by using a shared record system or through the production of specific documents or messages.

The maximum benefit is obtained when the situation is predictable in relation to a shared clinical pathway, at each 'Interaction Point' between professionals and with the patient / informal carers, across different healthcare organisations and with the patient's home (Hägglund et al, 2009). A particular case is the management of data from and to the home devices.

3.3 The multiple usage of earmarked Focused Profiles

As already noticed, the focus on suitably structured representations of predictable sub-processes (e.g. clinical pathways about a set of relevant conditions) allow to systematically work out the ways to capture the elementary data and to foresee the interaction points among the actors, i.e. to clarify which data elements should be captured and exchanged when, by whom, to whom, in which situation.

The data could be properly represented in a new kind of documentation, a Focused Profile – a kind of Patient Summary (Rossi Mori et al., 2007a; 2008c) – with a specifically predefined data structure as detailed as possible for each particular care situation. The hospital discharge summary is an example of document type already in use, related to the context of the hospital stay; other examples may be a referral letter for a specialist consultation, the background profile for a diabetic patient, or a document to describe the baseline status of an elderly person.

In addition, a critical mass of eHealth services could be identified, to re-use structured data also within administrative, organisational and governance processes, to cover the whole patient's ecosystem and thus to give an appropriate return to each actor (including patient and informal caregivers) for the capture and multiple usage of high quality data, within the privacy constraints. In fact, the multiple usages of well-defined data could reinforce each other up to a critical mass of satisfied functions (Rossi Mori et al., 2008c):

- sharing the core data at the intersections between GPs and specialists, as well as between patients and professionals (and vice versa), according to an integrated care approach (chronic disease management);

- self-audit of each actor, with appropriate predefined adaptable filters and drill down functions;

- reminders and alerts according to patient's data and customised user's profiles;

- timely indicators of process and outcome at local and regional level, for governance purposes;

- continuous medical education, based on the usage of embedded tables and datasets into the software, e.g. derived from the authoritative clinical pathways;

- feed clinical databases for epidemiological studies and clinical trials.

Note that the aggregation of data to produce indicators for self-audit, governance, epidemiology, research may be particularly effective for stable and frequent situations, where the predictable clinical details can be properly structured and automatically processed about homogeneous sub-populations.

Policy implications: multiple usages of the Focused Profiles

A Focused Profile is useful when multiple actors are involved, as in the cases of Long Term Care or integrated care for chronic conditions. In principle the progress within a clinical pathway should trigger the need for an appropriate artefact to summarise the documentation generated by the activities within that context, with the proper comprehensive interpretations and conclusions.

The most obvious specialisation of patient profile, among other kinds of Patient Summaries (Rossi Mori et al, 2007a), is the Focused Profile generated in the context of a particular stage of a chronic condition (Rossi Mori et al., 2008c), seen as a CDA document structured according to the CCD implementation guide (CDA level 2) with further constraints on the set of mandatory and optional data elements with the respective admitted values (CDA level 3), and possibly derived from evidence-based clinical pathways approved by the related Medical Societies.

A Focused Profile is not an automatic selection of the data pertaining to the activities within the context, but a genuine *clinical act* that has to be regulated by the Medical Societies to define uniform modalities for selecting the relevant information, to develop the datasets for each condition, to define the responsibilities of the author with respect to the data generated by multiple actors, including the patient and the informal carers.

4. Three artifacts required by citizen-centric policies

This Section considers the issues related to the fragmentation of actors and activities around a citizen (the virtual facility). Most eHealth policies are told to be directed towards the continuity of care, by a "citizen-centric" approach. However, the approach to satisfy this intent seems to rely just on the unified collection of documents from multiple sources (the longitudinal EHR approach), rather than aiming at *making the care system a coherent entity* in front of the citizen (with an approach towards the mutual awareness and the synchronisation of the activities).

Policy implications: the registries on care mandates, contacts and health issues

The CEN standard EN 13940 on continuity of care (CEN TC251, 2006; Hägglund et al, 2011) emphasises three main concepts: the *care mandate*, the *contact*, and the *health issue thread*. They provide the context for cooperation among professionals and for the organisation of the documentation. Unfortunately, in most eHealth policies of the Member States there is no explicit mention of the way to effectively manage those concepts. By elaborating further on those concepts, this Section highlights the components needed to progressively realize an integrated *virtual* record of the *virtual* team of the *virtual* facility, with earmarked views adapted to the role of each actor.

4.1 Notifications of care mandates – WHO is involved?

It is difficult to understand how the healthcare system may behave in a coherent way in front of a citizen, in particular a vulnerable one with multiple formal and informal carers, without considering the exchange of the notifications of the care mandates that specify the role of each actor, i.e. without making aware all the involved carers about the programmes in which the patient is enrolled (e.g. home care programmes, rehabilitation programmes, oncology networks), which other actors are involved in the care of the same patient (in addition to the family doctor in the countries were the citizens are requested to register their choice) and which activities are supposed to be performed by the informal carers and by the patient.

Moreover, in any well-controlled organisation, the transfer of responsibility between two actors should be formally managed with a closed loop of proposal / acknowledgement between them, monitored by the management through appropriate indicators. Instead, too often in many healthcare systems the transfer of mandates is not managed by the professionals, but by the patient himself and there is no systematic feedback to a professional if the patient was or not carrying on a suggested referral to another professional.

A registry of active / past care mandates could be an essential component of any eHealth infrastructure involving multiple independent facilities, informal care and self-care, to proactively support continuity of care, according to suitable privacy regulations that should reach a compromise between the right to privacy and the right to the receive the best care

4.2 Notification of contacts – WHICH ACTIVITY is actually being performed?

The professional clinical documentation is produced as the consequence of the contacts with the healthcare services. The basic eHealth infrastructures are usually focussing on the collection of the documents, and usually the mere notification of the contacts is not enforced. The effective management of the notifications of the contacts, if allowed by the local privacy regulations, could be another component of the basic infrastructure for continuity of care (also as a proxy of the notifications of care mandates, when they aren't systematically available) (Hägglund et al, 2009).

In fact, the timely log of the actual contacts of the patient with the various operators working in the different settings enables them to better synchronise their activities and thus to *behave as a team*. Moreover, a well organised registry of the notifications of contacts, complemented by the registry of care mandates, could assist in the search for particular clinical documents about a patient, especially if paper-based clinical documentation will continue to exist near the electronic documents for a transient period.

4.3 Notification of health concerns – WHY is being done?

The concept of health concern or health issue (CEN TC251, 2006) broadens the concept of health problem to encompass also issues that should not actually be labelled as 'problems': in fact, there are many reasons why health care or social care is sought other than making a diagnosis or treating ill-health in a patient. For instance, items of preventive care to a person or to a group of persons (e.g. a family, a population) may be considered to be health concerns.

Any health professional currently in charge of a patient within a period of care may define a health concern. However *the observation depends on the observer*: while a given clinical condition or event is fundamentally unique, each health care party has his/her own perception of the clinical condition presented by a subject of care, according to his/her education, know-how, experience, skills, role, the clinical information available to him/her, and the diagnostic and therapeutic activities that may be performed under his/her supervision. In his/her own perspective, each observer may view a clinical or social condition as a definite health issue, which afterwards can may vary over time (e.g. for the evolution of the patient's conditions or for the availability of more information) and thus require a different tag, even in the same record. In addition, the terms used to tag a health issue may also vary from one health professional to another.

Whenever the need comes to reconcile the health issue tags in an environment involving multiple parties (as a shared longitudinal EHR), a set of specific links must be established between them. These links produce a health issue thread (CEN TC251, 2006). Its use may be e.g. to trace all health care activities provided to a subject of care with regard to a given condition, in the common perspective of a group of health care parties. The health issue thread may be also the key to aggregate and interpret the clinical documentation.

The allowed tags for health issues may be predefined, to promote a coherent usage among all the actors in the context of an explicit shared care plan, allowing for a proper organisation of the documents referring to those health issues. The tags for the detailed health issues (if coded) should come from a comprehensive and coherent subset of a reference nomenclature of the health issues for clinical usage.

Unless a *priori* defined, each professional will have an earmarked view on the patient's health issues that could be aggregated *a posteriori* to produce a consistent view of a past situation; *to reconstruct a 'health issue thread', a professional activity is required*. Having a given task to perform, a health care party may need to build his own health issue thread from the various health issues resulting from the series of local specific scopes that are present in the shared care environment. A registry could trace the evolution of the health issue threads and of the relations among the health issues: the creation of a new health issue or a set of subordinate health issues, the clustering or splitting of health issues, and their changes in status (e.g. active, dormant, closed, reactivated). A suitable coding scheme to name a thread is the International Classification of Primary Care, ICPC, which provides a limited number of generic health issues and it is of simple usage.

5. Organize information by a suitable productivity tool

A patient's problem or a health concern may be faced in various ways by the care system. In principle, a number of scenarios can be formalised, to specify in a structured way the set of activities and interactions among the actors that are planned to face a health concern (Hägglund et al, 2009; Hägglund, Scandurra et al, 2010; Consejeria de Salud, 2009; Map of Medicine, 2011). Those activities could be, for example: specialist visits, diagnostic tests, observations (performed either by a professional or by the patient), administration of medicines, patient education activities and social care, including also the acquisition of data from home devices and the administrative procedures.

More in general, each scenario could be represented as a 'Motivated Operational Frame' (MOF) to facilitate the management of care and the organisation of the related documentation; it is the context to consider the mandates and the contacts (see Section 4), as well to capture, validate, interpret, and exchange the data. A MOF may be created or adapted – either *a priori* or *a posteriori* – for a particular health concern, in the light of mandates, contacts, and the other health concerns. An activity may be considered in multiple MOFs.

Any process, and thus any activity, any health issue and any context, can be exploded into more detailed components; therefore provision should be made in the future eHealth solutions to use the MOFs nested at different levels of detail to let each actor focus at every moment on the level of description appropriate for the tasks to be performed. According to the granularity of the actual representation, a MOF may correspond to an episode of care, a whole clinical pathway, a phase of it, or a particular set of actions performed during a contact.

The evolution of the patient's conditions, or the information acquired about the patient, or the environment of the patient and the care system may involve the need to split, merge, modify, or rename the health concerns together with the related MOFs to which they refer.

5.1 Organising the information within Motivated Operational Frames - MOF

Whereas it is unrealistic to cope with the uniqueness of every specific patient, it is possible to focus on a limited number of *predictable health concerns*, which in principle could imply several variants of the corresponding MOFs. Among these variants, one may be produced by policy makers and professional societies as a guideline to stimulate the adoption of the best behaviour according to the available body of medical knowledge and the local priorities.

This recommendation should induce uniform decisions and behaviours (by professionals and citizens) in circumscribed situations; as already mentioned, particular cases are the clinical pathways and the situations leading to inappropriate care: a set of reference MOFs, perhaps nested at different levels of detail, could be agreed in a jurisdiction, according to Clinical Evidence, to guide the actors about the stable stages of the major chronic diseases and about specific situations that are considered by the policy makers at risk for an inappropriate behaviour.

The mechanism of the MOFs (which allow to connect actors, health concerns, contacts, activities with clinical and administrative data) may provide the key to improve the effectiveness of the direct care provision, e.g. to navigate into a large amount of documentation from heterogeneous sources, to generate reminders and alerts, to communicate with the other actor. A MOF could also be the context to facilitate additional eHealth services, as the handling of the administrative procedures and the access to clinical knowledge or practical instructions. In addition, a Concern-oriented Dashboard should enable each involved actor to monitor the progress and the outcome of the relevant activities, either for self-audit or for governance, or to enable comparisons among similar patients.

5.2 Towards a Concern-oriented Integrated Health Record - CIHR

The concept of longitudinal Electronic Healthcare Record (EHR) emerged during the last decade; more recently it was complemented by the Personal Health Record (PHR) and is going to be integrated with the Social Record (European Science Foundation, 2010; Rigby, 2011; Hägglund et al, 2007). The next step should be to deploy all the components and perspectives described so far in this Section and to merge them into a unique framework, to yield a 'Concern-oriented Integrated Health Record' (CIHR).

The fusion of the perspectives of EHR and PHR on the same information substrate will become a must, to consider into a unique coherent environment all the aspects: clinical, social, administrative, economic, etc.; it may also enable the citizen and the informal carers to play their role as proactive actors in the virtual facility and satisfy the requirements about self-assessment and governance.

The eHealth roadmaps could envisage the development of suitable productivity tools able to organise most information according to the appropriate Motivated Operational Frames. Standardised structured data cannot be adopted for any situation; their regular usage of implies a burden for the capture of high quality data, which should be motivated by a multiple reuse in different contexts, including the audit and governance purposes. According to the usual 80/20 rule, the formalisation of 20% of the potentially predictable situations could be expected to cope with 80% of the care provision activities; to start, a critical mass of the most strategically relevant MOFs – addressing the major chronic conditions and the most common inappropriate and modifiable behaviours, *according to the regional and local health policies* – could perhaps be formalised, to cover at least one half of the primary care activities.

Each actor should be enabled to view the documentation and the related eHealth services organised according to his/her perspective; in particular a virtual environment and eHealth solutions – which could be seen by the citizen as a 'Personal Health Assistant' – should help the him/her to address the health and wellness challenges of our society: to record his/her activities, to interact with the other actors and with other patients, to manage the home devices, to learn about his/her conditions and the proper procedures, and to deal with the administrative functions. New high-speed and mobile applications, connected devices, social networks, and related cutting-edge developments on smart technologies can provide unique and unprecedented opportunities for developing such a Personal Health Assistant; it should be one of the aspects of a future citizen's health ecosystem, as a customised view on the integrated record.

There is a strong need to interrelate the economic issues with the clinical decisions, to support the proactive citizen in the management of his/her health and wellness, to facilitate the access to the care services and the administrative tasks, to support an effective collaboration among all the actors within an integrated organisational model. The organisational issues will be better faced by handling the registries of mandates and contacts, the clinical perspective will be augmented by the optimal management of Health Concerns and Focused Profiles, considered into their appropriate MOFs.

A new task of 'CIHR Manager' should be introduced, to increase the data quality and to cope with the organisation of the information; perhaps this task could be handled by a 'care tutor', i.e. a care manager orchestrating the collaboration among the actors, responsible for the smooth enactment of the agreed care plan and in particular for the interface between the formal care system on one side and the patient with the informal carers on the other side.

6. Conclusions

The interpretative framework presented in this paper about the mutual roles of the technology-centric approach versus the health-centric one, may have significant consequences to overcome the limits of most current national and regional eHealth Roadmaps. In fact an effective roadmap on Connected Health should:

- be coherent with the strategies on health and social care in a jurisdiction to build an accountable system;

- facilitate a synergic process of 'parallel convergences' between the health world and the technological world towards a holistic perspective on 'health';

- support the collaboration among all the actors involved in the care of an individual, as a virtual team proactively including also the subject of care and the informal carers, allowing customised views on an integrated data substrate;

- allow to generate the governance indicators directly from the routine data of care provision, for all the processes that the policy makers consider relevant for the improvement of care quality and for the deployment of innovative organisational models.

On the technology side, the programmes on public infrastructures (regional and national) are already being deployed in several European jurisdictions. They involve the adaptation / integration of the legacy systems in public and private health structures, the wide integration of the Master Registries of citizens, professionals and facilities, the deployment of inter-organisation servers and services. Moreover they are already facing the issues of standards and regulations.

On the health side, the major bottleneck regards the influence of the care policies on the organisational models and, as a consequence, on the eHealth solutions. The priorities of development of the ICT, and the related deployment roadmaps, will depend on the organisational / cultural predisposition, on the state of diffusion of ICT applications, on the effective potentialities and willingness to change the system on health and wellness. From these priorities could stem the actual requirements on ICT solutions that will be gradually developed and implemented, in order to support step by step the interventions on the health world, following an ICT plan that depends on the health-related action plans. Otherwise a heavy ICT effort that goes beyond the level of the mere efficiency – i.e. which attempts to modify the behaviour of managers and clinical professionals leaving from the technical innovation – risks to be refused by the system.

The development of the semantic info-structure (Rossi Mori, 2003; Rossi Mori & Mazzeo, 2011) requires to collect, validate, make usable and disseminate (e.g. through suitable web services) a structured, computable definition for a significant set of reference MOFs for diffuse routine use. Given the complexity of care provision, it is impossible – and not necessary – to predict all the potential situations; *therefore they should concentrate on the most relevant health issues according to the regional and local health policies*, starting from a set of clinical pathways (Gordon, 2004) and situations at risk of inappropriate behaviours.

Actually a MOF is the context to promote an effective capture, validation, interpretation and exchange of quality data; it allows to build a comprehensive Concern-oriented Integrated Health Record – CIHR, the support for a productivity tool considering also the administrative and organisational issues.

However the change process cannot be optimal without the creation of a specific *network of (regional) reference centres*, to catalyse the activities currently dispersed within the eHealth community in order to create a shared culture, able to support to policy makers in taking informed decisions, to foster the local participation and the exchange of know-how. The reference centres should manage a proactive documentation service – see for example the Infoway's Resource Centre (2011) – with a collection of systematic descriptions of best practices, the production of technical and strategic material, the management of a forum and a newsletter, the organisation of thematic workshops for dissemination and consensus making. In addition, an intense activity of training and promotion must be set up, towards the opinion-leaders, the professionals, the specific classes of patients and the population in general.

Acknowledgments

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The OASIS Transformational Government Framework

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All around the world, governments at national, state, and local levels face huge pressure to do "more with less". Whether their desire is: to raise educational standards to meet the needs of a global knowledge economy; to help our economies adjust to financial upheaval; to lift the world out of poverty when more than a billion people still live on less than a dollar a day; to facilitate the transition to a sustainable, inclusive, low-carbon society; to reduce taxation; or to cut back on public administration; every government faces the challenge of achieving their policy goals in a climate of increasing public expenditure restrictions. Responding effectively to these challenges will mean that governments need to deliver change which is transformational rather than incremental. The focus has to be on the process of transformation: how a government can build a new way of working which enables it rapidly and efficiently to adapt to changing citizen needs and emerging political and market priorities.

During much of the last two decades, many thought that new technology would provide the key to deliver these transformations. But at a time when virtually every government is now an 'eGovernment' it is now clear that ICT is no magic bullet. Duplicated expenditure, wasted resources, no critical mass of users for online services, and limited impact on core public policy objectives - this has been the reality of many countries' experience of eGovernment.

An increasing number of governments are now starting to get to grips with the much broader and more complex set of cultural and organisational changes which are needed if ICT is to deliver significant benefits in the public sector. Countries such as the United Kingdom, Canada and Australia have all recently published strategies which shift decisively away from 'eGovernment' towards a much more radical focus on transforming the whole relationship between the public sector and users of public services.

One element of transforming this relationship involves Channel Shift, ie shifting service users into lower cost, digital channels and providing a seamless user experience across different channels. Much of the contact that results between citizen and business users and the Government is a) unnecessary, because the user is struggling to find the right place to get the service they need, resulting in multiple contacts before their need is finally resolved, and b) hidden and uncosted - because only

some of these customer contacts are caught by existing management information systems. Successful private-sector businesses are more effective at this Channel Shift than government and they understand that each channel opens up different ways to create value for the customer which in turn is more efficient and cost-effective from a business point of view.

This paper outlines the work of the OASIS Technical Committee established to address this new approach by developing a new framework and set of enabling standards that can jump-start this transformation and optimise the benefits of technology-enabled change at all levels of government with the net result of serving citizens and businesses in an optimized and cost-effective way without infringing on their free choice of contact. The various components of the Transformational Government Framework (TGF) described in this paper represent the initial outputs of the committee which are intended to become an OASIS standard – the TGF Primer and the TGF Core Pattern Language - but their work is still on-going, and as such should not be taken as the complete product set. These initial products are available at www.oasis-open.org/committees/tgf/.

“ In the increasingly common situation of governments being expected to deliver better and more services for less cost whilst maintaining high-level oversight and governance, the Transformational Government Framework (TGF) provides a framework for designing and delivering an effective programme of technology-enabled change at all levels of government. ”

The transformational government framework

1. Introduction

1.1 Defining Transformational Government

The definition of Transformational Government used within the OASIS Framework is the following:

'A managed process of ICT-enabled change in the public sector, which puts the needs of citizens and businesses at the heart of that process and achieves significant and transformational impacts on the efficiency and effectiveness of government.'

This definition deliberately does not seek to describe some 'perfect end-state' for government. That is not the intent of the Transformational Government Framework (TGF). All governments are different: the historical, cultural, political, economic, social and demographic context under which each government operates is different, as is the legacy of business processes and technology implementation from which it starts. So the TGF is not a one-size-fits-all prescription for what a government should look like in future.

Thus, the focus is rather on the process of transformation: how a government can build a new way of working, which enables it rapidly and efficiently to adapt to changing citizen needs and emerging political and market priorities. In the words of one of the earliest governments to commit to a transformational approach: "….the vision is not just about transforming government through technology. It is also about making government transformational through the use of technology" (UK Government's white paper, 2005).

A full understanding of this definition of Transformational Government can also be assisted by focusing on the four major ways in which Transformational Government programmes differ from traditional eGovernment programmes:

- they take a whole-of-government view of the relationship between the public sector and the citizen or business user;

- they include initiatives to eEnable the frontline of public services: that is, staff involved in direct personal delivery of services such as education and healthcare - rather than just looking at transactional services which can be eEnabled on an end-to-end basis;

- they take a whole-of-government view of the most efficient way of managing the cost base of government;

- they focus less on service customers as passive recipients of services and more with citizens and businesses as owners of and participants in the creation of public services.

The following table summarises the change in emphasis between the e-Government approach and the Transformational Government approach.

E-Government	Transformational Government
• Government centric	• Citizen centric
• Supply push	• Demand pull

• Government as sole provider of citizen services	• Government also as convener of multiple competitive sources of citizen service
• Unconnected vertical business silos	• A virtual business layer, built around citizen needs, operates horizontally across government
• "Identity" is owned and managed by government	• "Identity" is owned and managed by the citizen
• Public data locked away within government	• Public data available freely for reuse by all
• Citizen as recipient or consumer of services	• Citizen as owner and co-creator of services
• Online services	• Multi-channel service integration
• IT as capital investment	• IT as a service
• Producer-led	• Brand-led

1.1.1 Transforming services around the citizen and business user

Most governments are structured around a set of vertically-integrated silos or stovepipes - agencies, departments, ministries. By and large, it is these silos that the governments of developed countries have spent billions of dollars on 'eEnabling' since the 1990s. Yet, the needs of citizens, businesses and others engaging with government typically cut across the organisational structures and hierarchies of government - an ICT investment strategy, which is fundamentally not a customer-focused one, and which has inevitably resulted in low levels of take-up for eServices. Governments in developed countries are now grappling with the legacy of thousands of fragmented, silo-focused websites, 270,000+ in the United States of America public sector, over 9,000 gov.de sites in Germany, and over 3,000 gov.uk sites in the United Kingdom (CS Transform's white paper, 2010). An increasing number are now seeking to make a fundamental strategic shift, towards a holistic, customer-centered approach, driven at the whole-of-government level. This shift includes, in leading countries, a move to a customer-centric "one stop service" delivered over multiple channels.

"One-stop service" as used in the TGF does not imply that all government services need to be brought together in one physical place or website. Typically, a one-stop service brings together the majority of content and services used by the majority of people, leaving more specialist services to engage with their customers either through service-specific channels or through one-stop services focused on specific clusters or sectors of customer need

1.1.2 eEnabling the frontline

Traditional eGovernment programmes focused on eEnabling transactional services and providing online content. Yet, the great majority of public sector staff and expenditure is not involved in such services, but is rather on the 'front line': teachers, healthcare workers, police, court officials, emergency response teams and so on. Leading governments are now increasingly beginning to understand how the work of such front line staff can be transformed through the use of real-time knowledge management and mobile workflow applications.

1.1.3 Empowering Stakeholders

Peoples' experience of new technology is shaped by the best of the global private sector and - increasingly - through an ability to co-create content and services as individuals or in peer-to-peer networks. As a result, citizens will increasingly demand this level of interactivity and ownership in their relationship with public services. Transformational Government programmes embrace this. Where traditional eGovernment programmes focused on the user as 'the customer', Transformational Government looks to enhance the relationship between government and the citizen and businesses on a much richer, more reciprocal, and more empowering basis.

1.1.4 Cross-government efficiency

The silo-based approach to ICT investment, typical of eGovernment, has not only resulted in 'un-customer-centric' services (as discussed above), but also in duplication and inefficiency. Governments have 'reinvented the wheel' in ICT terms - over and over again - with different agencies each:

- maintaining their own databases, even for universal data sets such as customer identity, addresses and so on;

- building bespoke applications for eService functions which are common to all or many agencies (such as payments in and out, eligibility, notification, and authentication), as well as for common business processes such as HR and Financial Management, and doing so in ways which not only duplicate expenditure, but which also will not inter-operate with other agencies - making it more difficult and expensive to move towards inter-agency collaboration in future.

A key focus of Transformational Government is therefore to move towards an integrated ICT and back-office service architecture across all parts of government - reaping efficiency gains while at the same time enabling better, more citizen-focused service delivery. As 'cloud computing' gains traction and momentum, this approach to government ICT opens up even greater scope to achieve large-scale efficiency savings while simultaneously improving organisational agility.

1.1.5 Purpose of the Transformational Government Framework

Delivering this degree of change is not straight-forward for governments. Indeed, government faces unique challenges in delivering transformational change, notably:

- the unparalleled breadth and depth of its service offering;

- the fact that it provides a universal service, engaging with the whole population rather than picking and choosing its customers;

- structures, governance, funding and culture which, are all organised around specific business functions, not around meeting customer needs in a holistic way.

The governments and industry leaders involved in the OASIS Technical Committee therefore believe that the time is now right to set out a clear best practice framework, within which governments can overcome these challenges to deliver genuinely transformational ICT-enabled change in the public sector.

Against this background, the purpose of the TGF is as follows:

"In the increasingly common situation of governments being expected to deliver better and more services for less cost whilst maintaining high-level oversight and governance, the TGF provides a framework for designing and delivering an effective programme of technology-enabled change at all levels of government."

1.1.6 Target audience for the Transformational Government Framework

The TGF is primarily intended to meet the needs of:

- Ministers and senior officials responsible for shaping public sector reform and eGovernment strategies and policies (at national, state/regional and city/local levels);

- Senior executives in industry who wish to partner with and assist governments in the transformation of public services and to ensure that the technologies and services which the private sector provides can have optimum impact in terms of meeting public policy objectives.

Secondary audiences for the TGF are:

- Leaders of international organisations working to improve public sector delivery, whether at a global level (e.g. World Bank, United Nations) or a regional one (e.g. European Commission, ERIS@, ASEAN, IADB);

- Professional bodies that support industry sectors by the development and maintenance of common practices, protocols, processes and standards to facilitate the production and operation of services and systems within the sector, where the sector needs to interact with government processes and systems;

- Academic and other researchers working in the field of public sector reform;

- Civil society institutions engaged in the debate on how technology can better enable service transformation.

1.1.7 OASIS Technical Committee's work

The OASIS Technical Committee was established in October 2010 and its current membership includes representatives from national governments, major industry organisations, academia and other internationally recognised experts on eGovernment. Full details of its work are available at www. oasis-open.org/committees/tc_home.php?wg_abbrev=tgf.

A TGF Primer that gives an overview of the Framework and a TGF Core Pattern Language that sets out the formal TGF Specification have been approved by the Technical Committee and both are available on the TC's website as referenced above. These products are being taken through the entire OASIS approvals' process to become an OASIS Standard.

The Transformational Government Framework

The TGF can be seen schematically below.
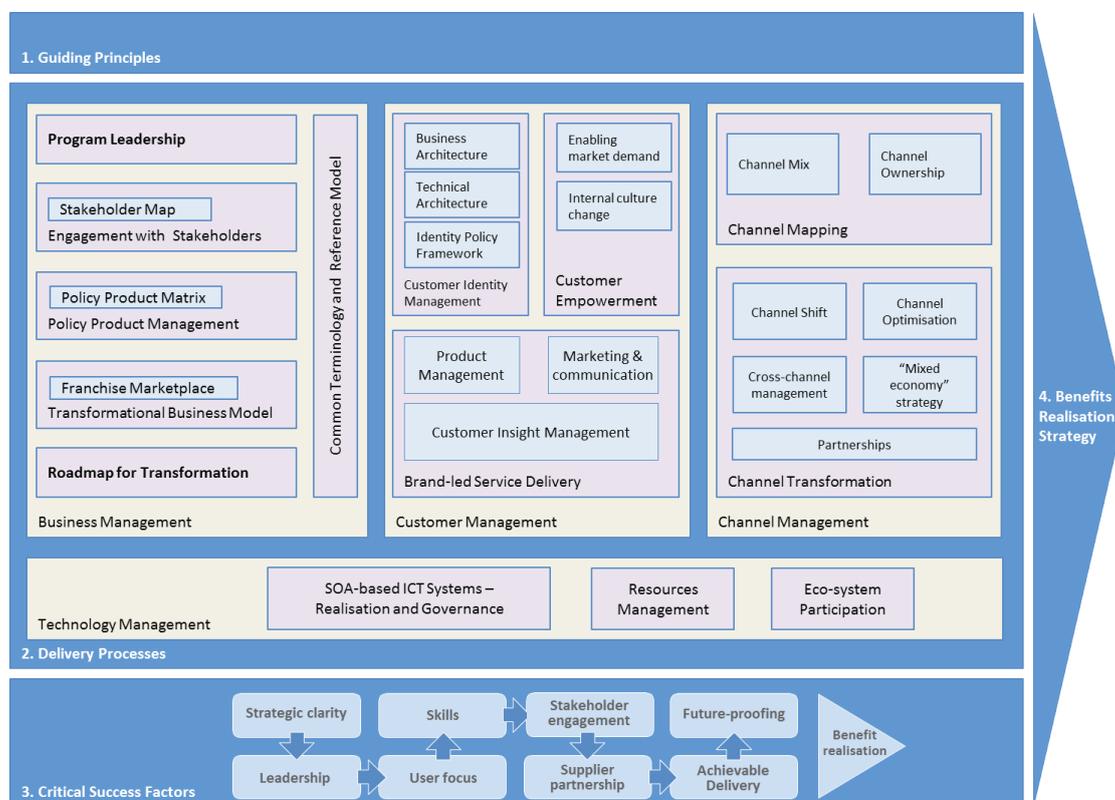
Figure 1: The overall Framework.

There are four main components to the Framework:

1. A set of **guiding principles** for transformation: that is, the core values which underpin successful citizen-centric reform around the world.

2. The major **delivery processes** within government, all of which need refocusing in a citizen-centric way in order to deliver genuinely transformational impact: business management, customer management, channel management, and service-oriented technology management.

3. A checklist of the **critical success** factors that every government needs to manage if it is to develop and deliver an effective Transformational Government programme.

4. The **Benefit Realisation Framework** that is needed to ensure that the Transformation Government programme ultimately delivers all of its intended benefits and impacts in practice.

Each of these components is described in more detail below.

1.2 Component 1 of the TGF: Guiding Principles

As discussed above in Part 1.1 of this document, a one-size-fits all approach to public sector reform will not work. Nevertheless, there are some guiding principles, which 10-15 years of experience with eEnabled government around the world suggests are universal. They are based on the experience of many OASIS member organisations working with governments of all kinds, all around the world, and they form the heart of the Framework.

In the TGF, the term "principle" is used to mean an enduring statement of values which can be used on a consistent basis to steer business decision making over the long term. The TGF Guiding Principles are set out below, and must be used by any Transformational Government program conforming to the Framework. These principles together represent an enduring statement of values which the **Leadership** for a Transformational Government program should adopt and use consistently as a basis to steer business decision-making throughout the conception, development, implementation and follow-up of that program. These are explicitly declaratory statements of principle ("We believe…") that reflect the desired commitment of the program Leadership as well as indicating the expectations from all **Stakeholders**.

1.2.1 We believe in detailed and segmented understanding of our citizen and business customers

- These customers should be owned at the whole-of-government level

- Decisions should be based upon the results of research rather than assumptions being made about what customers think

- Real-time, event-level understanding of citizen and business interactions with government should be developed

1.2.2 We believe in services built around customer needs, not organisational structure

- Customers should be provided with a "one-stop service" experience in their dealings with government, built around their needs (such as accessibility)

- Government should not be continually restructured in order to achieve this - instead "customer franchises" should be created that sit within the existing structure of government and act as change agents

- Services should be delivered across multiple channels using Service-Oriented Architecture (SOA) principles to join it all up, reduce infrastructure duplication, and encouraging customers into lower cost channels where appropriate

- Organisational and business change must be addressed before money is spent on technology

- A cross-government strategy should be built for common citizen and business data sets (e.g. name, address) and common customer applications (e.g. authentication, payments, notifications)

1.2.3 We believe that transformation is done with citizens and businesses, not to them

- All stakeholders should be engaged directly in service design and delivery

- Customers should be given the technology tools that enable them to create public value themselves

- People should be given ownership and control of their personal data - and all non-personally identifiable data held by government should be freely open for reuse and innovation by third parties

1.2.4 We believe in growing the market for transformed services

- Service transformation plans should be integrated with an effective digital inclusion strategy to build access to and demand for e-services across society.

- Partnerships should be built with other market players (in the private, voluntary and community sectors) in recognition of their significant influence on customer attitudes and behaviour and enable the market and others to work with government to deliver jointly-owned objectives.

1.2.5 We believe in managing and measuring key critical success factors:

Figure 2: The nine Critical Success Factors

1.3 Component 2 of the TGF: Delivery processes

Delivering the principles outlined above, in line with the Critical Success Factors detailed in Component 3 of the TGF, involves re-inventing every stage of the service delivery process. The TGF identifies four main delivery processes, each of which needs to be managed in a government-wide and citizen-centric way in order to deliver effective transformation:

- business management

- customer management

- channel management

- technology management

The following sections look in more detail at each of the four delivery processes, setting out the best practices which should be followed in order to ensure conformance with the TGF.

1.3.1 Business Management

For largely historical reasons, governments are generally organised around individually accountable vertical silos (for example, tax, health, transport), with clear demarcations between central, regional, and local government. Yet, citizen and business needs cut across these demarcations. In moving to a citizen-centric approach, it is vital to redress this fragmented approach to business management, and to put in place business management processes which operate at the whole-of-government level.

The TGF identifies six key aspects of business management which need to be tackled in this way:

- **a Transformational Government leadership**: the key people and governance structures needed to develop and implement a Transformational Government programme;

- **a collaborative Stakeholder Governance Model**: the process by which all key stakeholders are identified, engaged and buy-in to the transformation programme;

- **a common terminology and Reference Model**: ensuring that all stakeholders have a clear, consistent and common understanding of the key concepts involved in Transformational Government; how these concepts relate to each other; how they can be formally modelled; and how such models can be leveraged and integrated into new and existing information architectures;

- **a Transformation Business Model**: a new virtual business layer within government, focused round the needs of citizens and businesses, which enables the existing silo-based structure of government to collaborate effectively in understanding and meeting user needs;

- **the development and management of Policy Products**: Policy products that constitute the documented commitment to the transformational process of any conformant agency;

- **a Transformation Delivery Roadmap**: giving a four to five year view of how the programme will be delivered, with explicit recognition of priorities and trade-offs between different elements of the programme.

A high level view of the logical relationships between these components is illustrated below:
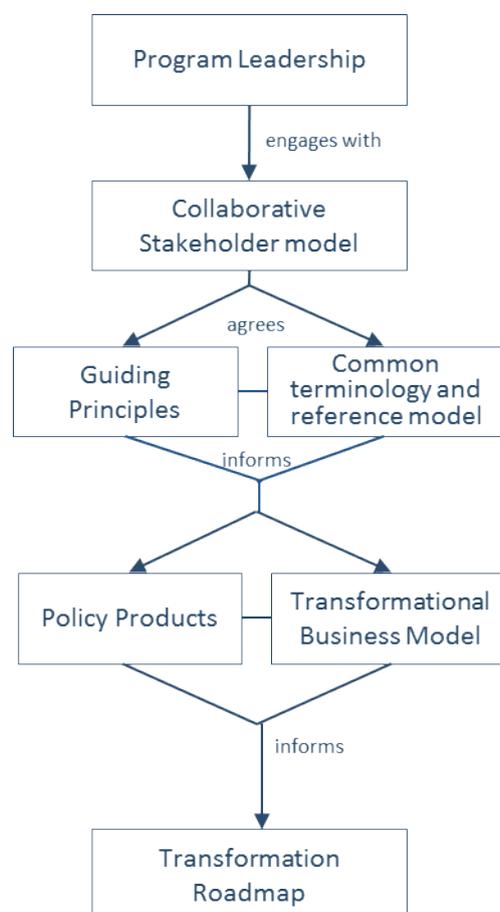
Figure 3: Overview of the Business Management Framework

Transformational Business Model

Weaknesses of current models

A central task of the TGF leadership and collaborative stakeholder model is to develop a new and effective business model that enables the machinery of government to deliver customer-centric one-stop services in practice. It's the failure to address this requirement for a new business model which, arguably, has been the greatest weakness of most traditional eGovernment programmes. For the most part, the transition to eGovernment has involved overlaying technology onto the existing business model of government: a business model based around unconnected silos - in which policy-making, budgets, accountability, decision-making and service delivery are all embedded within a vertically-integrated delivery chain based around specific government functions. The experience of governments around the world over the last two decades is that this simply does not work.

So what is the new business model that is required to deliver customer service transformational government? Many attempts have been made by governments to introduce greater cross-government coordination, but largely these have been 'bolted on' to the underlying business model, and hence experience only limited success.

The TGF recommends implementation of a business model which permits the joining-up of services from all parts of government in a way that makes sense to citizens, yet without attempting to restructure those parts of government. Conceptually, this leads to a model where the existing structure of government continues to act as a supplier of services, but intermediated by a 'virtual' business infrastructure based around customer needs. A top-level view of such a virtual, market-based approach to citizen service transformation is set out in the figure below:
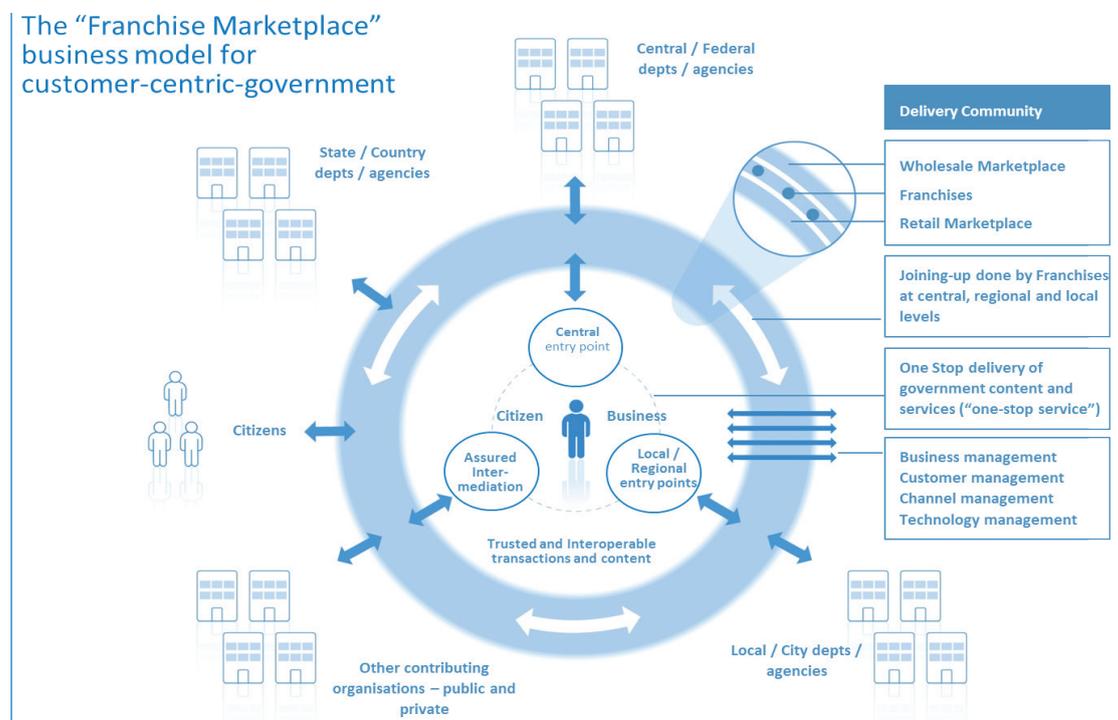
Figure 4: Overview of the Franchise Marketplace

Key features of this business model are:

- The model puts into place a number of agile cross-government virtual 'franchise businesses' based around customer segments (such as, for example, parents, motorists, disabled people). These franchises are responsible for gaining full understanding of their customers' needs so that they can deliver quickly and adapt to changing requirements over time in order to deliver more customer centric services - which in turn, is proven to drive higher service take-up and greater customer satisfaction.

- Franchises provide a risk-averse operational structure that enables functionally-organised government agencies at national, regional and local level to work together in a customer-focused 'Delivery Community'. They do this by:

  ◊ enabling government to create a 'virtual' delivery structure focused on customer needs;

  ◊ operating inside the existing structure government (because they are owned and resourced by one of the existing 'silos' which has a close link to the relevant customer segment);

  ◊ dividing the task into manageable chunks;

  ◊ removing a single point of failure;

  ◊ working to a new and precisely-defined operating model so as to ensure consistency;

  ◊ working across government (and beyond) to manage the key risks to citizen-centric service delivery;

  ◊ acting as change agents inside government departments / agencies.

- The model enables a 'mixed economy' of service provision: first, by providing a clear market framework within which private and voluntary sector service providers can repackage public sector content and services, and second by disseminating Web 2.0 approaches across government to make this simpler and cheaper at a technical level.

- The whole model is capable of being delivered using Cloud Computing.

This Franchise model represents an important breakthrough in the shift from a traditional eGovernment approach towards transformational government. Certainly, the model as a whole, or key elements of it, has been adopted successfully in governments as diverse as the United Kingdom, Hong Kong, Croatia, Abu Dhabi and Australia (where it has been adopted by both the South Australia and Queensland governments).

It is clearly possible that alternate models may develop in future. Regardless of how the Transformational Government agenda develops, every government will need to find some sort of new business model along these lines, rather than continue simply to overlay technology onto an old silo-based business model built for an un-networked world.

Enabling the Franchise Model

A number of relationships need to be managed by a franchise to enable it to develop, maintain and deliver transformational citizen-centric services. These represent different viewpoints that can be broadly classified as:

- **Customers:** Those citizens and businesses to whom the franchise delivers content and services, plus those internal stakeholders to whom the franchise provides a service within the government.

- **Partners:** Those who are actors in the normal operation and delivery of the service, both internally and externally to the government.

- **Influencers:** those who have a political, business or altruistic interest in the service and the part that it plays in broader government, business and social scenarios.

- **Internal Customers:** Those who work with the franchise to develop and maintain the service.

Policy Product Management

A 'Policy Product' within the context of the TGF is any document which has been formally adopted on a government-wide basis in order to help achieve the goals of transformational government. These documents vary in nature (from statutory documents with legal force, through mandated policies, to informal guidance and best practice) and in length (some may be very lengthy documents; others just a few paragraphs of text). Policy Products are important drivers of change within government: first because the process of producing them, if managed effectively, can help ensure strategic clarity and stakeholder buy-in; and second because they then become vital communication and management tools.

Over recent years, several governments have published a wide range of Policy Products as part of their work on Interoperability Frameworks and Enterprise Architectures, and other governments are therefore able to draw on these as reference models when developing their own Policy Products. However, we believe that the set of Policy Products required to ensure that a holistic, government-wide vision for transformation can be delivered is much broader than is currently being addressed in most Interoperability Frameworks and Enterprise Architectures.

A TGF-conformant transformation programme will use the Policy Product Map shown below as an assessment framework for determining what Policy Products are needed to deliver the programme effectively. This maps the four delivery processes described in Component 2 of the TGF (Business Management, Customer Management, Channel Management and service-oriented Technology Management) against the five interoperability domains identified in what is currently the broadest of Interoperability Frameworks - the European Interoperability Framework (EIF): technical, semantic, organisational, legal and policy interoperability – (see http://ec.europa.eu/isa/strategy/doc/110113_iop_communication_annex_eif.pdf). While the EIF framework is conceptually complete, by mapping it against these core delivery processes, a much clearer sense can be gained of the actions which are needed.

The full analysis of the Policy Products which are typically needed to deliver an effective and holistic transformation programme is currently underway within the TC and the diagram below illustrates the types of products that might be needed. Whilst every policy product indicated may not be needed, we recommend that any conformant transformation programme should use the overall framework of the Policy Product Map to conduct a gap analysis aimed at identifying all key Policy Products needed for that government.

Table 1: A Policy Product Map completed with examples of individual policy products. Each cell in the matrix may contain one or more policy products depending on the outcome of relevant analysis

The TGF Policy Product Map	Political Interoperability	Legal Interoperability	Organisational Interoperability	Semantic Interoperability	Technical Interoperability
Business Management	Strategic Business Case for overall Programme	Legal authority for inter-agency collaboration	Benefits Realisation Plan	Business Process Model	Technology roadmap

Customer Management	Identity Management Strategy	Privacy, data protection and data security legislation	Federated trust model for cross-agency identity management	Common data standards	Single sign-on architecture
Channel Management	Intermediaries Policy	Pro-competitive regulatory framework for the telecoms sector	Channel Management guidelines	Web accessibility guidelines	Presentation architecture
Technology Management	Information Security policy	Procurement legislation	Service level agreements	Physical data model	Interoperability Framework

Roadmap for Transformation

Finally, it is essential that the vision, strategy, business model and policies for transformational government are translated into an effective Roadmap for Transformation.

Since everything can clearly not be done at once, it is vital to map out which elements of the transformation programme need to be started immediately, which can be done later, and in what order. There is no one-size-fits all strategy that governments can use, since strategy needs to be tailored to the unique circumstances of each government's situation.

However, all governments face the same strategic trade-offs: needing to ensure clear line-of-sight between all aspects of programme activity and the end outcomes which the government is seeking to achieve, and to balances quick wins with the key steps needed to drive longer term transformation.

In the early days of the Transformational Government programme, it is recommended that the major strategic focus should be on: **safe delivery** - that is, prioritising high benefit actions which help to accelerate belief and confidence across the government and the wider stakeholder community that ICT-enabled change is possible and beneficial - but which can be delivered with very low levels of risk. As the programme develops, and an increasing number of services become available, the strategic focus can move towards **building take-up** that is building demand for online services and creating a critical mass of users. Once that critical mass starts to appear, the strategic focus can start to shift towards **fuller transformation** in other words, to start driving out some of the more significant transformational benefits that high levels of service take-up enables, for example in terms of reducing the cost of government service delivery.

As the diagram below makes clear, these strategic foci are not mutually exclusive, but overlap. Crucially, in the Safe Delivery phase there will also be some vital steps needed in order to pave the way for longer term transformation, particularly in respect of establishing the business case for transformation, and embedding the strategy in effective governance processes. But the diagram shows how the strategic weight between each consideration should shift over time.
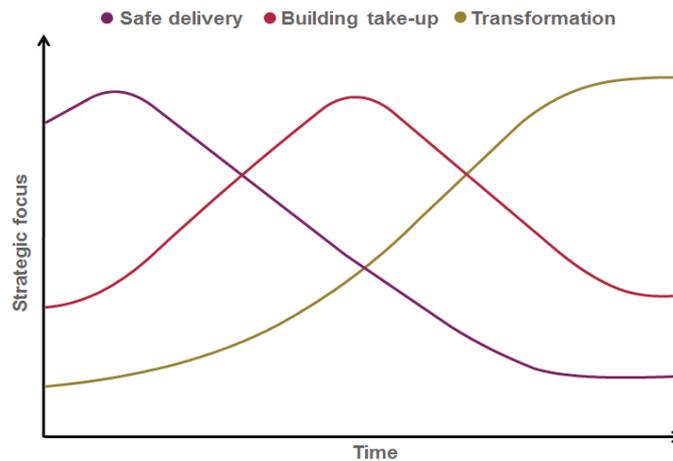
Figure 5: The Transformation Roadmap.

Guided by the strategic trade-off framework described above, experience shows that a phased approach is the most successful. Typically, an effective Delivery Roadmap will cover five main phases.

1. Plan: the preparation and planning needed to develop a tailored Delivery Roadmap for the government, to ensure that the business case for transformation is fully articulated, and that all key stakeholders are on-board. Key outputs from this phase should include:

- Transformation vision: a high level document setting out the agreed future model for transformation of the organisation and its re-engineered business processes;

- Strategic business case: the key costs and benefits associated with the transformation programme;

- Delivery roadmap: a multi-year transformation plan, covering, among other things:

  ◊ a change management plan (including communication and training plans);

  ◊ central capability building and governance processes;

  ◊ a sourcing strategy;

  ◊ a strategy for moving towards a service oriented ICT architecture;

  ◊ a risk management strategy;

  ◊ a high level benefit realisation plan, setting out the actions needed to ensure full downstream delivery of the intended benefits from the transformation programme.

2. Initiate: in this first phase of delivery, the focus is on building the maximum of momentum behind the Roadmap for the minimum of delivery risk. This means focusing in particular on three things:

- some early quick wins to demonstrate progress and early benefits, for a minimum of delivery risk and using little or no technology expenditure;

- embedding the Roadmap in governance structures and processes which will be needed to inform all future investments, notably the frameworks of enterprise architecture, customer service standards and issue/risk management that will be required;

- selecting effective delivery partners.

3. Deliver: in this phase, some of the more significant investments start coming on stream - for example, the first version of the major 'one-stop' citizen-facing delivery platforms, and the first wave of transformation projects from 'champion' or 'early adopter' agencies within the government.

4. Consolidate: in this phase, the focus shifts towards driving take-up of the initial services, expanding the initial one-stop service over more channels, learning from user feedback, and using that feedback to specify changes to the business and technology architectures being developed as longer term, strategic solutions.

5. Transform: finally, the programme looks to build out the broader range of e-transformation projects, drive forward the migration of all major citizen-facing services towards the new one-stop channels, and complete the transition to the full strategic ICT platform needed to guarantee future agility as business and customer priorities change.

1.3.2. Customer Management

Citizen-centric customer management involves taking a holistic, market-driven approach to every step of the service design and delivery process. Three areas in particular are of vital importance:

- Brand-led service delivery

- Identity management

- Citizen empowerment

A high level view of the logical relationships between these components is illustrated below.
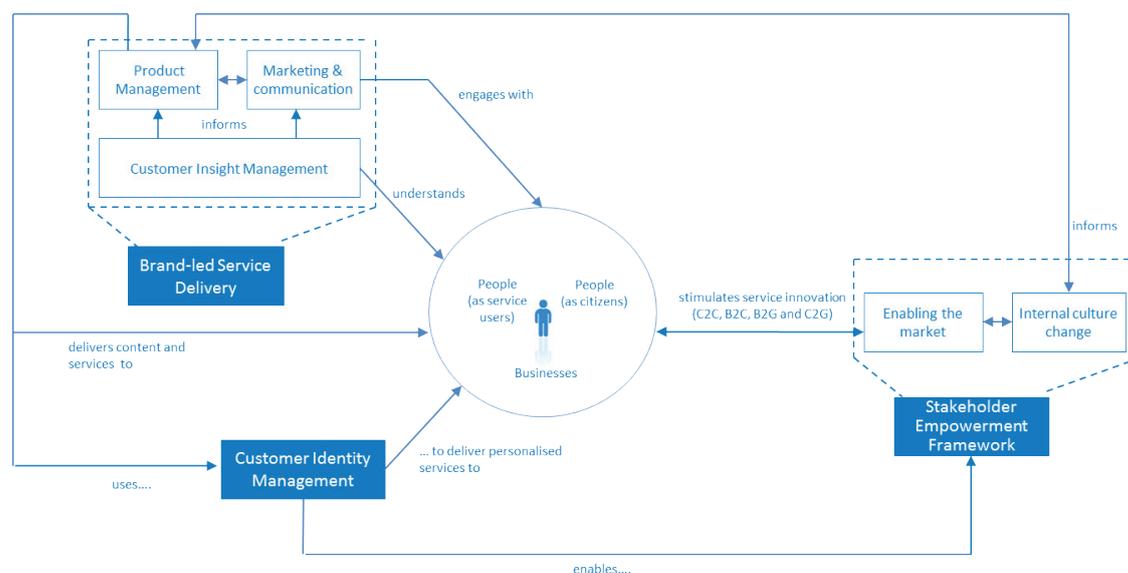
Figure 6: Overview of the Customer Management Framework.

<u>Brand and Marketing Management</u>

Marketing is critical to effective citizen service transformation, yet, it is something at which government traditionally does not excel. Often, marketing is fundamentally misunderstood within government - as being equivalent to advertising or perhaps, more broadly, as being equivalent to communication.

Properly understood, however, marketing is the process of:

- understanding the target market for government services in all its breadth and complexity;

- learning what is needed in order to meet citizen needs;

- developing an offer for citizens and businesses that they will engage with;

- establishing a clear set of brand values for that offer - a set of underpinning statements that adequately describe what the product or service will deliver and how;

- delivering that offer though appropriate channels, in a way which fully delivers on the brand values;

- generating awareness about the offer;

- creating desire/demand for the offer;

- reminding people;

- changing the offer in the light of experience;

This is the process that a brand-led consumer product company such as Procter and Gamble or Virgin would go through when developing a new product. However, it is not typically how governments manage their own service development, and governments generally lack the skills to do it. Moreover, the challenge faced by governments is significantly more complex than any private sector company, given the greater range and complexity of services and government's need to provide a universal service rather than pick and choose its customers. Yet if governments are to succeed in the ambition of shifting service delivery decisively away from traditional channels to lower-cost digital channels, then these marketing challenges have to be met.

Given the fact that a) customer needs cut across organisational boundaries in government and b) the skills for delivering an effective brand-led marketing approach to service transformation will inevitably be in short supply, it is important that these challenges are addressed at a government-wide level.

1.3.3. Channel Management

Channel management is often a weak spot in government service delivery, with widespread duplication, inefficiency and lack of user-focus. Experience shows common pitfalls include:

- managing new, digital channels as 'bolt-ons', with business and technical architectures that are entirely separate from traditional face-to-face or paper-based channels;

- no common view of citizen service across multiple channels;

- operational practices, unit costs and service standards for many channels which fall well below standards set for those channels in the private sector;

- a reliance on government-owned channels, with insufficient understanding of how to partner with private and voluntary sector organisations who have existing trusted channels to government customers;

- unproductive and costly competition among service delivery channels.

Transformational Government programmes seek to avoid these pitfalls, by building a channel management approach centered on the needs and behaviour of the citizen. The two key elements of the approach recommended in the TGF are:

- **Channel Mapping:** a clear audit of what existing channels are currently used to deliver government services. The TGF Channel Mapping approach includes an analysis of the current usage and costs of these channels across two key dimensions: which delivery channels are being used ('channel mix') and who owns them ('channel ownership').

- **Channel Management Strategy:** the TGF helps build a new channel management approach centred on the needs and behaviour of citizens and businesses. The key components of such an approach include:

  ◊ Channel Shift

  ◊ Channel Optimisation

  ◊ Cross-Channel Management

  ◊ Development of a wholesale intermediary market.

A high level view of the logical relationships between these components is illustrated below:
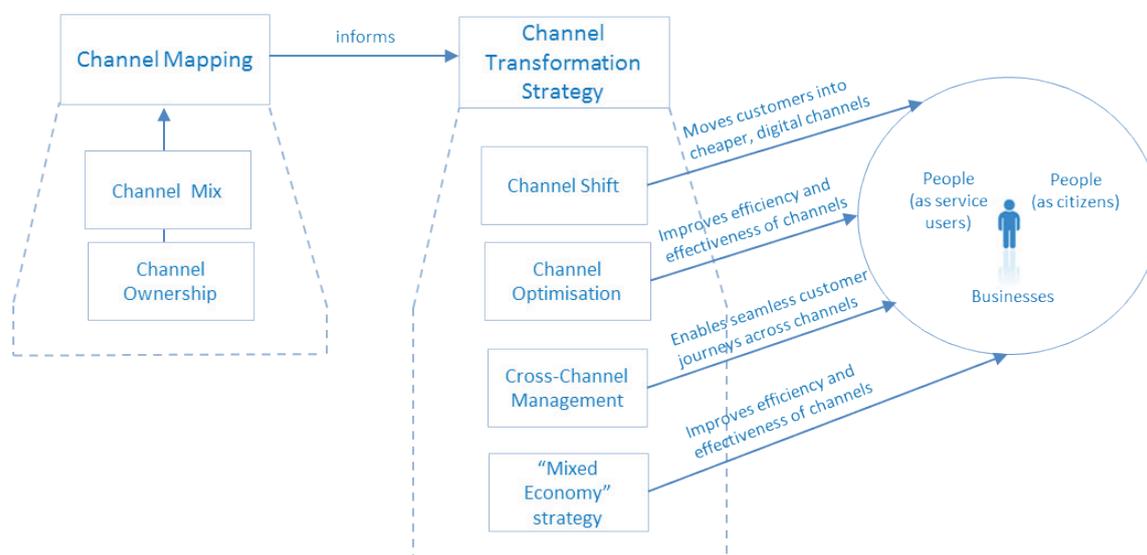
Figure 7: Overview of the Channel Management Framework.

1.3.4. Technology management

The transformations to business, customer and channel management described above require a new approach to technology and in particular a commitment to the paradigm and principles of SOA and SOA-based infrastructure, as defined in the OASIS Reference Model for Service-Oriented Architecture.

Transformational Government demands a single view of the citizen or business, delivered inside an integrated business and channels architecture. In terms of ICT, all of this requires governments to learn from private-sector best practice. Industry is moving towards a model of company-wide, service-orientated enterprise architecture, where common building blocks using open standards can be re-used to enable flexible and adaptive use of technology to react quickly to changing customer needs and demands. Increasingly, companies are gaining even greater efficiency benefits by managing these building blocks as a service, provided not within their own ICT architecture but from within 'the Cloud' - the dynamically-scalable set of computing resources now being offered as a service over the Internet.

Governments are increasingly taking this 'building block' approach to technology development. Key building blocks such as ICT infrastructure, common data sets, and identity verification need to be coordinated effectively. While much can be learned from the private sector, simply importing industry practices will not solve this coordination problem within government.

Governments are taking different approaches to the coordination function: some build central infrastructure for use by all departments and agencies; others identify lead departments to build and implement common solutions; others have a more decentralised approach, allowing departments to develop their own solutions according to a common architecture and standard set. However, finding an effective approach which works within a specific government approach is vital, since without this sort of technology flexibility, then Transformational Government becomes impossible - or possible only at great expense and with significant wasteful and duplicated IT expenditure.

The Technology Management Framework is modeled as one of the four TGF delivery processes, but it is concerned with more than 'just' the delivery of services using ICT. Its focus on the SOA paradigm is key to an approach that puts citizens and businesses as customers at the centre of a service ecosystem with many stakeholders, roles and systems involved.

The three key elements of the approach recommended in the TGF are:

- Resources Management which underpins ecosystem governance

- Ecosystem Participation

Realisation and governance of SOA-based ICT systems

A high level view of the logical relationships between these components is illustrated below.
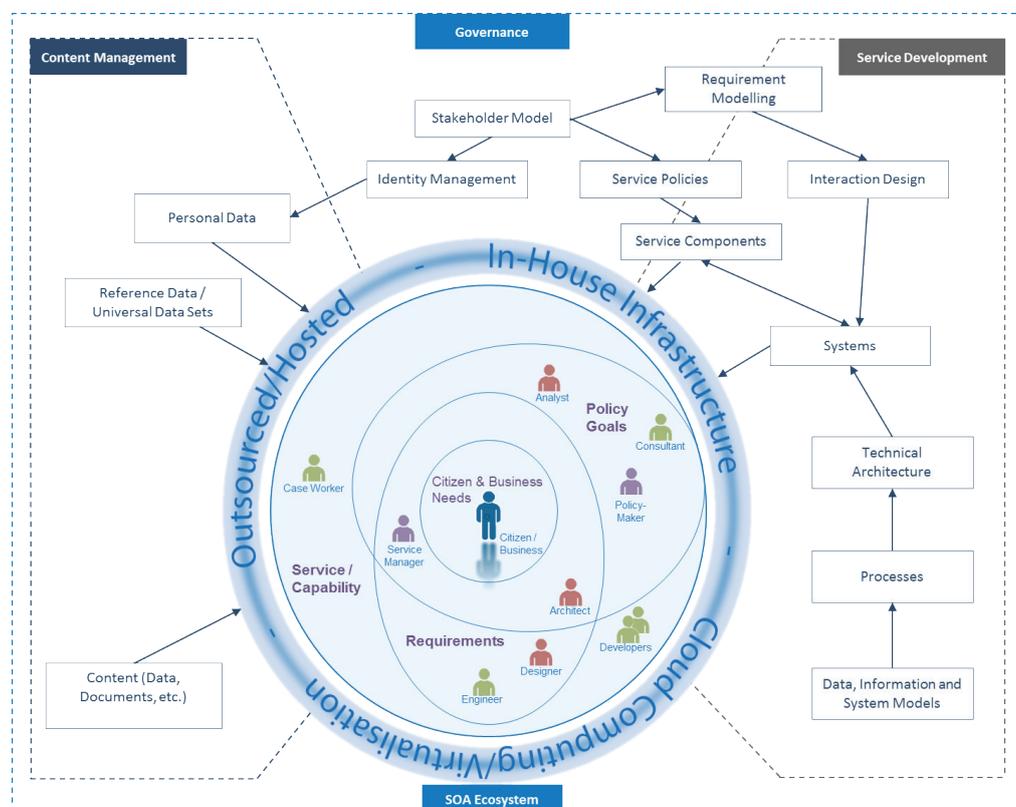
Figure 8: Overview of Technology Management Framework.

1.4 Component 3 of the TGF: Critical Success Factors

Programmes and projects, which seek to deliver Transformational Government, face a significant range of risks to successful delivery. Typically, the risks are not related to the technology involved - which is largely now mature and proven bur, rather to the business and cultural changes which are needed within the government to deliver the business management, customer management and channel management transformations described above.

However, there is now an increasing body of research which seeks to understand why some ICT-enabled transformation programmes succeed and why others fail. The TGF has drawn together the findings from such research, validating these with OASIS members from around the world, to identify nine Critical Success Factors that must be taken into account. Successful transformation programmes manage and measure Critical Success Factors throughout the life of the programme. The guidance for programme managers is therefore:

Strategic Clarity

- **All-of-Government view**: Transformational government cannot be pursued on a project-by-project or agency-specific basis but requires a whole-of-government view, connecting up relevant activities in different agencies at different levels of government within and between countries.

- **Clear vision:** have a common and comprehensive view across all programme stakeholders of what the programme seeks to achieve. In particular, no money will be spent on technology before identifying the key organisational and business changes needed to deliver the organisation's vision.

- **Strong business case:** the outcomes of what is to be achieved are known, there is a base line of the current situation, and it is known how to measure success.

- **Focus on results:** although there is a vision of where the organisation wants to go, and a set of principles by which it will move forwards, it will not over-plan. Instead, the strategy focuses on taking concrete, practical steps in the short to medium term, rather than continually describing the long-term vision.

Leadership

- **Sustained support**: the political leaders and top management are committed to the project for the long term.

- **Leadership skills**: programme leaders have the skills needed to drive IT-enabled business transformation, and have access to external support.

- **Collaborative governance:** leaders from all parts of this and other organisations involved in the programme are motivated for it to succeed, and are engaged in clear and collaborative governance mechanisms to manage any risks and issues.

User focus

- **A holistic view of the customer:** understand who the customers for the services are – not just for individual services, but across the government as a whole. Know your customers, both internal and external, are different, and understand their needs on a segmented basis.

- **Citizen-centric delivery:** citizens can access all of the services through a 'one-stop' shop. This is available over multiple channels but make use of web services to join it all up and reduce infrastructure duplication – as well as actively encourage customers into lower cost channels.

- **Citizen empowerment:** engage citizens directly in service design and delivery, and provide them with technology tools that allow them to create public value themselves.

Stakeholder Engagement

- **Stakeholder communication:** all stakeholders – users, suppliers, delivery partners elsewhere in the public, private and voluntary sector, politicians, the media etc – have a clear understanding of the programme and how they can engage with it.

- **Cross-sector partnership:** other market players (in the private, voluntary and community sectors) often have much greater influence on citizen attitudes and behaviour than government – so the strategy aims to build partnerships which enable the market to deliver our objectives.

Skills

- **Skills mapping:** recognise that the mix of business change, product and marketing management, programme management, and technology skills needed to deliver transformational change does not yet exist in the organisation. Therefore map out the skills needed, and have a clear strategy for acquiring them.

- **Skills integration:** have effective mechanisms in place to maximise the value from the skills available in all parts of the delivery team, bringing together internal and external skills into an integrated team.

Supplier Partnership

- **Smart supplier selection:** select suppliers based on long-term value for money rather than price, and in particular based on a degree of confidence that the chosen supplier will secure delivery of the expected business benefits.

- **Supplier integration:** manage the relationship with strategic suppliers at top management level, and ensure effective client/supplier integration into an effective programme delivery team with shared management information systems.

Future-proofing

- **Interoperability:** use interoperable, open standards which are well supported in the market-place.

- **Web-centric delivery:** use SOA principles in order to support all of the customer interactions, from face-to-face interactions by front line staff to online self-service interactions.

- **Agility:** deploy technology using common building blocks which can be re-used to enable flexible and adaptive use of technology to react quickly to changing customer needs and demands.

- **Shared services:** manage key building blocks as government-wide resources – in particular common data sets (e.g. name, address); common citizen applications (e.g. authentication, payments, notifications), and; core ICT infrastructure.

Achievable Delivery

- **Phased implementation:** avoid a 'big bang' approach to implementation, reliant on significant levels of simultaneous technological and organisational change. Instead, develop a phased delivery roadmap which:

    ◊ works with citizens and businesses to identify a set of services which will bring quick user value, in order to start building a user base;

    ◊ prioritises those services which can be delivered quickly, at low cost and low risk, using standard (rather than bespoke) solutions;

    ◊ works first with early adopters within the government organisation to create exemplars and internal champions for change;

    ◊ learns from experience and then drives forward longer term transformations.

- **Continuous improvement:** do not expect to get everything right first time, but have systems which enable the programme to move quickly and learn from experience.

- **Risk management:** have clarity and insight into the consequences of transformation and mechanisms to assess risk and handle monitoring, recovery and roll-back.

Benefit Realisation

- Benefits Realisation Strategy: have a clear strategy to ensure that all intended benefits from the Transformation Programme are delivered in practice, built around the three pillars of benefit mapping, benefit tracking and benefit delivery.

1.5 Component 4 of the TGF: Benefit Realisation Strategy

Logically, the design and delivery of a Benefits Realisation Strategy is a part of the Business Management task, and is a core responsibility for the Transformational Government Leadership and the collaborative stakeholder governance model described in the TGF Business Management component. It is of such vital importance though, that we have highlighted it as a distinct component of the overall TGF.

Put simply, ICT projects in government (and indeed in the private sector) do not automatically deliver benefits. Governments historically have fallen into two pitfalls which have hindered full benefits realisation:

- **Failure to pro-actively manage the downstream benefits after an individual ICT project has been completed**. Often, ICT projects are seen as 'completed' once the initial technical implementation has been achieved. But to get the full projected benefits (efficiency savings, customer service improvements etc), ongoing management is essential, often involving significant organisational and cultural changes. A study for the European Commission (eGovernment Economics Project, 2006) calculated that, as a rule of thumb, organisational change accounts for 55 % of the full costs of eGovernment projects in Europe, with only 45 % of the costs going on ICT. Yet, these change costs are often not fully factored in or delivered, resulting in a failure to maximise the potential benefits of the ICT investments.

- **Failure at a whole-of-Government level to undertake the restructuring of the public labour market to take advantage of new efficiencies.** Effective delivery of eGovernment services – both in external service delivery to citizens and businesses, and in modernising the internal

operations of government – opens up the potential to reduce significantly the cost of government. As the cost of delivering government services reduces, governments need to plan and implement the necessary restructuring of the public sector labour market to realise efficiency benefits in the traditional paper-based channels. These efficiency savings can then either be returned to the tax payer in the form of lower takes, or recycled into priority front-line public services such as health and education. A study by the OECD (IT Outlook, OECD 2006) showed that this 'whole-of-government' approach to efficiency savings had until that point been a feature of only a few countries, notably Canada, the United Kingdom and Finland. Increasingly though, financial pressures are forcing governments to focus on this issue.

The TGF does not seek to specify in detail what benefits and impacts a Transformational Government programme should seek to achieve – this is a matter for each individual government. However it does identify three key parts of a Benefit Realisation Strategy as follows:

- Benefit Mapping: which sets out all the intended outcomes from the transformation programme and gives visibility of how the outputs from specific activities and investments in the programme flow through to deliver those outcomes;

- Benefit Tracking: which takes this a step further by base lining current performance against the target output and outcomes, defining 'smart' success criteria for future performance, and tracking progress against planned delivery trajectories aimed at achieving these success criteria, and;

- Benefit Delivery: which ensures that governance arrangements are in place to ensure continued benefits after the initial transformation programme is implemented.

The relationship between these parts and conformance criteria for this element of the TGF are shown below:
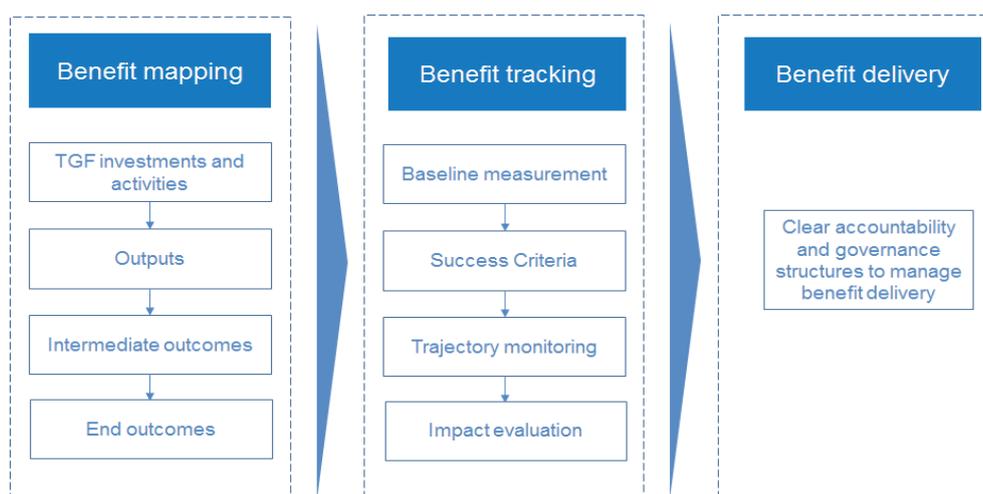
Figure 9: Overview of the Benefit Realisation Strategy.

2. THE TGF CORE PATTERN LANGUAGE

The TGF Core Pattern Language is a formalisation of the Framework that is intended to be readable end-to-end as a piece of prose but is structured also in a way that lends itself to being quoted and is used pattern by pattern and to being encapsulated in more formal, tractable, and machine-processable forms including concept maps, Topic Maps, RDF or OWL.

It provides a concise, structured and formal set of 'patterns' using the so-called "Alexandrian form" (Alexander C, 1964 and 1979), where each pattern describes a core problem, a context in which the problem arises and an archetypal solution to the stated problem.

The exact configuration will vary from one pattern language to another but each pattern in the TGF Core Pattern Language is structured as follows:

- The name of the pattern and a reference number;

- The conformance level intended to be applied in any use of the pattern;

- An introduction that sets the context and, optionally, indicates how the pattern contributes to a larger pattern;

- A headline statement that captures the essence of the problem being addressed;

- The body of the problem being addressed as well as constraints and evidence for the pattern's validity;

- The solution stated as an instruction – what needs to be done;

- Optionally, some completion notes that links the pattern to related and more detailed patterns that further implement or extend the current pattern. This may also include references to external resources that are not part of the standard.

Version 1 of the TGF Core Pattern Language contains 20 Core Patterns but as a Pattern Language is inherently extensible, it is expected that extensions and specializations are likely to be developed by individual Governments to suit their implementation needs. Further explanation of the applicability of the Pattern Language approach to the TGF is available at www.PeterFBrown.com/Pages/PatternLanguages.aspx.

Included in the TGF Core Pattern Language is a set of Conformance criteria that need to be adhered to for any Transformational Government program to be compliant with the OASIS standard.

3. Conclusions

There is a clear need to learn the lessons of the work by public sector administrations on eGovernment programmes over the last decade and to move to a more citizen-centric service delivery model called Transformational Government. The outcomes of these programmes have generally failed to meet expectations, deliver policy objectives and achieve citizen engagement.

The new model emphasises the need for much more focus on the business, operational and cultural aspects rather than solely on the technology issues, which has been the approach to date. Just bolting technology onto the current working methods of government does not achieve the desired outcomes. These other factors need to be addressed first before technical solutions are thought about.

There is also the need to break the usual public sector model of silo-based services and require, amongst other factors, a new approach to cross-organisation funding and customer management. A very important factor in this new approach is the implementation of a 'franchise' business model, whereby services are brigaded under a customer segment champion and delivered by that individual, on behalf of the whole of government.

The move to a customer-centric "one stop service" delivered over multiple channels is another key element of the TGF model. A one-stop service brings together the majority of content and services used by the majority of people into a self-help environment. This allows the more specialist services to engage with their customers either through service-specific channels or through one-stop services focused on specific clusters or sectors of customer, and to concentrate on regulatory compliance.

The TGF addresses all these needs and provides a practical, tried and tested way forward utilizing the best parts of existing eGovernment programs and avoiding large new investments. Its formalization as a Pattern Language enables it to be encapsulated in more formal, tractable, and machine-processable forms, thus making it easy to integrate into desk-top tools and management software aiding testing and assurance of compliance and conformance.

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Four Dimensions Affecting Policy Resistance in IT Procurement

The Dutch strategic IT plan "Netherlands Open in Connection" intends to give a direction for public sector buyers to adopt a positive policy and strategy towards open standards, Open Source Software and the use of ODF. This article describes the support and resistance of the policy by government buyers found after researching the documents of 80 tenders, and after interviewing 15 government buyers. In this article the awareness knowledge threshold and four dimensions are described that together can function as an interpretative framework helping policy makers understand why an IT-related policy is supported or resisted. The four dimensions in the proposed framework establish the relative advantage that will influence the degree of willingness to adopt and use a new strategic IT policy. When there is a negative influence within a dimension the policy maker should counterbalance that influence by using a positive instrument within that same dimension.

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Keywords

Public procurement; information technology; Free/Libre and Open Source Software

" This article addresses the degree and reasons for resistance to open Source solutions in government procurement, and why this resistance remains despite measures introduced at EU and Dutch national levels. "

1. Introduction

In December 2007 the Dutch government agreed on the action plan Netherlands Open in Connection, hereafter called NOiV, the Dutch acronym. The objectives of this strategic plan are the following:

1. increase interoperability by accelerating the use of open standards;

2. reduction of supplier dependence through a faster introduction of open source software, open standards and the use of ODF (a document format based on an open standard);

3. promotion of a level playing field in the software market (...) by forceful stimulation of the use of open source software, and by giving preference to open source software during the process of IT acquisition.

To reach these goals the action plan describes a number of different policies for open standards and open source software. A vast number of these policies directly affects the process of IT procurement within government organisations. To understand why some objectives are supported and some are resisted by government buyers, the following question for a PhD research was selected: How and under what circumstances does a strategic IT plan influence behaviour regarding the practice of public tenders? If these circumstances can be identified it would become possible for policymakers to take them into account while designing future strategic IT policies. It would also become possible to make predictions about the expected performance of existing strategic IT plans like the European digital agenda or the British Government ICT strategy[1].

2. Research and methodology

To answer the research question a conformance and performance research methodology is used (Maarse, 1991). This methodology focuses bottom-up on the influence a strategic policy has on the behaviour of a targeted organisation during the policy implementation phase (Barret, 2004). A strategic policy is fulfilling its purpose if it plays a tangible role in the choices of the addressed policy takers (Faludi, 2000). Through monitoring information is produced about the observed policy outcomes (conformance) and through evaluation the research produces information about the value of the observed policy outcomes (performance).

Monitoring

To see how the Dutch strategic IT policy is enacted in practice, empirical quantitative research was carried out which asked for the data of all the Dutch calls for tender, published in Tenders Electronic Daily (TED) between January and June 2010, that followed the open procedure and that consisted of the delivery of software of some kind[2]. Out of the total sample of 94 calls, data relating to 80 tenders was received, a response rate of 85 %. All these tender documents were examined on different aspects and policies, such as the needs or want for open standards, vendor-independent award criteria, the possibility to use ODF for the bid, and the possible preference for open or closed source products. The goal of this quantitative research is not to generalise the outcome, but to see if during a certain period the policy has been supported or resisted. The collected data from this quantitative research is needed to give input and meaning to the subsequent question why the strategic policy is resisted or supported (De Lange, 1995).

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1   http://ec.europa.eu/information_society/digital-agenda/index_en.htm
2   The tenders that asked for Voice over IP technologies or printer hardware with printer drivers were not included in the sample of 95 tenders due to technical expertise limitations.

Evaluation

The quantitative research provides insight into the expected effect of policy decisions in IT procurement. It does not provide insight into the arguments and reasoning behind this application or into the resistance of the policy. It also does not provide an answer to the question whether any found compliance is a direct result of the policy or might be the result of something else. It is not possible to evaluate policy outcomes without establishing that it is an outcome in the first place (Dunn, 2008). To identify these factors further qualitative research was needed within organisations in order to look into the so-called black box of decision-making (Hertogh, 1997). That qualitative research was done during the period between January and April 2011 through in-depth semi-open interviews with 15 respondents in different organisations selected from the quantitative research. These respondents were all public sector buyers with an expertise in IT procurement.

3. Quantitative results

The following results emerged from the quantitative research of some Dutch policies:

Policy 1: The use of open standards falling under the CorE principle

The Comply or Explain principle, in short CorE, primarily intends to give a direction for organisations in the (semi-) public sector to adopt and use a certain (open) standard within a specific domain or application area. The selection of these standards and domains is done and published by the Dutch Standardisation Board[3]. In practice it means that within a procurement process the contracting authorities are expected to ask for these specific open standards when applicable (Comply) or otherwise should explain in their annual report why they did not ask for them. This policy helps standardisation within the public sector and supports interoperability.

The quantitative research revealed that the Comply or Explain principle was applicable in 56 cases and a specified open standard should have been asked. Out of these 56 cases there were 20 cases (36%) in which the tender documents followed the policy and actually mentioned a need or want for one or more open standards. In the remaining 36 cases (64%) the CorE standards were not requested. In the annual reports no formal explanation has been published by the noncompliant organisations.

Table 1: Frequency of needs and wants for CorE open standards

Request for open standards	Frequency	Percent
Yes	20	35.7
No	36	64.3

Policy 2: The use of ODF

Open document formats are important for the exchange and processing of documents within organisations. Citizens and businesses should therefore have the possibility to send and receive documents to and from organisations in the (semi-) public sector using the ODF format (ISO 26300). According to the action plan all the ministries and subsidiary government bodies should have been able to receive documents in the ODF open standard by January 2009 at the latest[4].

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3   www.forumstandaardisatie.nl
4   Actionplan Netherlands Open in Connection, p.9 http://www.whitehouse.gov/files/documents/ostp/opengov_inbox/nl-in-open-connection.pdf

In the quantitative research the possibility of a vendor using the odt (ODF) format for his bid was considered. It was found that in almost half (45%) of the cases (n=80) the use of ODF was actually possible. In the other 46 % it was not possible; however this was mainly caused because the contracting authorities demanded the use of the PDF format. Only in one case both PDF and ODF were not possible because a vendor was obliged to use a Microsoft Word and Excel format suitable for Windows XP.

In the 7 remaining cases (9 %) a digital bid was not requested by the tendering organisation.

Table 2: Frequency of possibilities to deliver the bid in ODF

Possibility of using ODF	Frequency	Percent
Yes	36	45
No	37	46.2
n/a	7	8.8

These results suggest at first sight that this particular part of the Dutch policy is in fact supported by the contracting authorities.

Policy 3: Creating a level playing field.

To guarantee that providers of open source software will get the opportunity to make a competitive offer there ought to be a 'level playing field' for the open source software providers and the closed source software suppliers.

In the quantitative research the tender documents were examined for a preference for closed source software and in particular a preference for a named closed source product or vendor. The mere use of a trademark or product name in public procurement (which is actually a widespread practice[5]) was not, by itself, considered sufficient to demonstrate such a preference. In lots of cases trademarks and product names are used to describe both the current architecture, as well as the software the new solution has to integrate with[6]. For the purpose of this study such a use of trademarks and product names was not believed to establish a clear preference for a product or vendor, although one could argue that it becomes a discriminating preference the moment compatibility is required with previously purchased proprietary software, especially if the technical specifications needed for that compatibility are not publicly available and freely usable[7].

For the purposes of this study actual discriminatory use of trademarks, patents, types, and legal and technical conditions in relation to the vendor or product which was the subject of the procurement needed to be present in order to establish a preference for closed source vendors or products. In 29 cases (36 %) a clear preference for a named closed source product or a closed source vendor was found. Accordingly, other vendors than the preferred one did not have a fair chance to win a bid in these 29 cases.

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5   See e.g. OpenForum Europe, 2011. "OFE Procurement Monitoring Report: EU Member States practice of referring to specific trademarks when procuring for Computer Software packages and Information Systems between the months of Februari and April 2011", where 147 out of 441 tender notices mention trademarks in procurement documents. http://www.openforumeurope.org/

6   According to Gosh 2010, this might not be a legitimate functional requirement according to article 23 (8) of the Directive 2004/18/EC since software can usually be described in terms of standards and functionality.

7   In decision T-345/03 of 12/03/2008 the Court of first instance of the European Community considers that the Commission infringed the principle of equal treatment between tenderers by failing to make available to all the prospective tenderers from the beginning of the tendering procedure the documentation relating to the technical architecture and source code and that that infringement could thus have affected the award of the contested contract. http://curia. europa.eu/

Table 3: Preference for closed source vendor or product

Preference for closed source vendor or product	Frequency	Percent
Yes	29	36.3
No	51	63.7

In two of these 29 cases the tendering organisations specifically mentioned that they had a preference for a named closed source product and vendor.

Finally some of the other criteria that could prevent vendors, and in particular FLOSS vendors, from making a bid and having a fair chance of winning were considered. In 9 other cases indirect restrictions were found that made it very difficult or impossible for vendors to offer a FLOSS product.

Table 4: Frequencies of restrictions for Open source software vendors

Restrictions preventing fair competition	Frequency	Percent
Yes	38	47.5
No	42	52.5

This shows that despite the Dutch policy and despite the European procurement rules in almost half of the sampled tenders there still is a preference for closed source vendors or products. This preference inevitably results in vendors of open source products not receiving a fair chance to win the bid. From these results one can also draw the conclusion that this particular part of the Dutch policy is resisted, regardless of the fact that also European procurement rules prescribe a fair chance for vendors.

4. Qualitative results

When asked for the drivers and barriers all the respondents mentioned at least one or more of the following four reasons why they resisted or followed (a part of) the policy:

1. Technical reasons

2. Legal reasons

3. Financial/economical reasons

4. Knowledge/experience reasons

Comply or Explain policy

With regards to the Comply or Explain policy the respondents did not feel a negative or positive influence of any kind related to technical, legal or experience reasons. All the respondents seem to be positive about open standards. Some of the respondents did, however, mention that the board of their organisation adopted their own version of the government policy on open standards, which could indicate that there is an additional positive influence. Some of the respondents argued that asking for open standards would most certainly cause vendors to demand a higher price. That idea alone was enough for them to resist the policy. Not all the policy takers resisted or supported the

policy deliberately. A rather large proportion of them were simply not aware of the existence of the policy, which could indicate that the government did not communicate enough about the strategic IT plan in general or specifically about the Comply or explain policy. This is also an explanation for the quantitative results that were found.

The use of ODF

Comparing the outcomes of the quantitative research into the possibility to use ODF with the given answers by the respondents gives the following result: The found compliance is not the result of the policy. Only two respondents indicated that they are aware of the existence of the policy. The others said that they have not heard of any policy regarding the use of ODF and that in case no particular format is demanded they expect vendors to use Microsoft formats. When asked about any negative or positive factors the respondents mentioned that their organisations were already "standardised" on the proprietary .doc format. That should, however, not hinder the use of ODF. The government did offer organisations a physical solution in the form of a free USB stick with an ODF converter on it. Within regards to reasons of knowledge and experience some negative influence came from the fact that Microsoft promoted OOXML which made some organisations reluctant in using ODF. As a "countermeasure" the Dutch government supported the ODF-policy with a small communication campaign. In this campaign they called the use of ODF a "right" for citizens in the communication with government organisations, although that right is not based on a specific rule of law, and citizens cannot legally force government organisations to accept their ODF documents. There has not been a negative legal influence. With regards to the financial/economical reasons to follow or resist the policy there are no financial incentives in place. The implementation of the policy however also did not have a significant negative impact on the finances of the organisation.

Creating a level playing field

When asked about the Creating a level playing field policy a strong negative influence comes from the fact that organisations are locked in to a technical solution and cannot freely choose to adopt a new technical solution. The respondents feel that the government did not offer a solution in their strategic IT plan to counterbalance this negative influence. Some respondents mention a negative influence with regard to knowledge and experience in the form of misinformation about open source software, most commonly known as fear, uncertainty and doubt (FUD). According to some respondents this is primarily caused by negative experiences in municipalities. Although at first the government tried to do its best to communicate about the positive results of vendor independence through the use of open source software, after some months the focus seemed to shift to other parts of the strategic policy, such as the use of open standards. This may have caused the fact that the positive experiences did not reach the media as much as their negative counterparts. A second negative influence with regard to knowledge and experience is the fact that users within organisations want to work with an IT product they are already familiar with. This subjective compatibility plays a strong role within the decision-making process of most government buyers. Another negative influence felt by the respondents is caused by the so-called switching costs that are considered higher when switching to an open source solution. When it comes to legal reasons some respondents feel a negative influence caused by intellectual property law and running contracts, both protecting monopolists, which makes it in some cases difficult for the respondents to really have a free choice. Despite the fact that according to European procurement law one is not allowed to give preference to a certain vendor, the results from both the quantitative as well as the qualitative research show that the positive influence from this legal driver seems to be heavily outweighed by the negative influence caused by the other reasons.

5. Interpretative framework

Based on the research results a theoretical and interpretative framework is constructed that can help policy makers to evaluate (ex post) and forecast (ex ante) IT related policy outcomes.
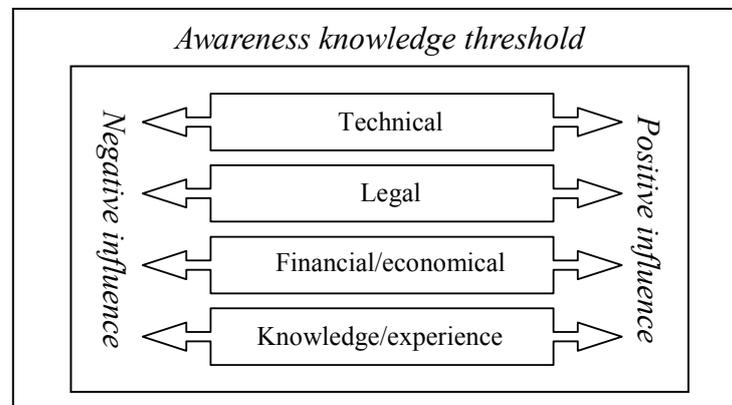
Figure 1: Interpretative framework for strategic IT policies.

Awareness knowledge

The necessary first step for all strategic policies is that a policy taker needs to be exposed to the policy's existence. In order to be able to support or resist it the policy taker needs to become aware of the policy and the problem the policy is trying to solve. This is called 'awareness knowledge' (Rogers, 2003). The research results clearly show that the awareness knowledge threshold is the most important barrier a policymaker has to address. In at least two cases the observed policy outcomes are not the direct result of the policy performance. This means that the policy maker should think beforehand about possible ways of communicating about the policy to the intended policy taker. Does the policy taker even know that there is a problem and that he or she has to play a certain role in order to solve the problem?

Only after this so-called 'knowledge phase' will the policy taker enter the 'persuasion stage' where a favourable or unfavourable attitude towards the policy will be developed. The policy taker will then try to find out what the advantages and disadvantages of the policy are and in particular what the short-term relative advantage is for his organisation.

The persuasion stage

In the persuasion stage the proposed framework describes four dimensions: technical, legal, financial/economical and knowledge/experience. Within each dimensions there can be negative and positive influences that should be taken into account by the policy maker. When there is a strong negative influence within a dimension the policy maker should counterbalance that influence by using a positive instrument within that same dimension. These instruments that the policymaker can use are legal rules, financial compensation/incentives, communication and marketing, and physical solutions (Fenger & Klok, 2008).

Technical dimension:

Within the technical dimension the negative influence is coming from the "objective compatibility" established by current vendors. Vendor lock-in is the situation in which customers are dependent on a single manufacturer or supplier for a product or service and cannot move to another vendor without substantial costs and/or inconvenience. It is that inconvenience that is strongly related to the technical dimension. In the case of IT one must take into account that in most cases there is no greenfield situation. Often an organisation has some sort of legacy where an existing architecture and system are the departure points for future actions. Certain policy choices can be obstructed by technical architecture or technical possibilities (Mifsud Bonnici, 2008). For example new application software must be capable of being installed on the existing platform (e.g. Windows) and must be compatible with the existing applications. These applications usually do not support multi platforms. This headlock also applies the other way around because a new platform must also be able to support the platform-dependent applications already in use. There are also situations in which several applications interweave with each other in a way that makes it impossible to remove an application. With closed source software and closed standards it is difficult to discover how the interaction takes place, but even more difficult to discover how to break free from that 'physical' boundary. A trapped mouse can proclaim that he will stay away from the cheese next time, however that policy will not help him to get out of the mousetrap. To counterbalance the influence of the "objective compatibility" a strategic IT policy should contain a solution to this barrier. One could think of prescribing certain behaviour by means of technology, or offering an alternative and free product. Both are examples of physical solutions.

Legal dimension:

As soon as a software product (or a standard) has acquired a certain monopoly the supplier of the product is able to exercise additional power on the basis of intellectual property law. The supplier can legally oblige the software user to participate in or to abstain from certain actions. Running contracts could make it impossible to choose a new product or to get the co-operation of the current vendor in creating compatibility with open source software. When the compatibility of products is prevented by exercising the rights of intellectual property or contract law this could also result in an obstruction of competition (van Loon, 2008). This negative legal influence can be counterbalanced by a positive legal influence such as National law, European directives or other forms of legal regulation that can proscribe a certain action. The results from the research do show however that the expected positive influence from this legal driver can be outweighed by the negative influence caused in other dimensions.

Financial/economical dimension:

Not all policy takers will be very supportive of a policy that will cost the organisation money. This specifically applies to government buyers who see it as their primary goal to get good value for money (Arrowsmith & Kunzlik, 2009). Because of the technical dependence on the current software the costs of a migration to a new innovation from a different vendor will in most cases be higher than a migration to a product of the current supplier. Moreover there are possible migration costs resulting from the fact that users need to learn to use a new product. These migration costs can be the reason to resist a policy. This is the financial/economical dependence. This negative influence needs to be counterbalanced by the policy maker using financial incentives, such as government grants.

Knowledge/experience dimension:

In this dimension the perceived "subjective compatibility" and the communication about the use of the policy can have both a negative and positive influence on the decision to resist or support the policy. The perceived subjective compatibility is the compatibility of the policy or the policy outcomes with the personal experience the policy taker has with a certain technology. The policy taker is also being influenced by the opinions and experiences of his social network. Just like the people in his social network the policy taker wants to work with technology he is already familiar with or with technology that has benefits due to network effects. Any policy that wants to change or challenge that subjective compatibility should address this issue and take the relevant constraints into account.

Policy makers often use communication as a policy instrument (Fenger & Klok, 2008). Within this particular dimension the use of communication can establish the so-called 'how-to knowledge', where a policy taker needs to understand how to use a policy and the 'principles-knowledge', where a policy taker gets an understanding of the principles behind the policy. This policy instrument usually focuses on the use of a policy and results in the production and communication of "guidelines" or "good practices". This particular form of communication will however not establish awareness knowledge. If the policy taker is not aware of the problem and of the policy that tries to solve that problem, he will not be receptive or looking for the 'how-to knowledge' or the 'principles-knowledge' (Rogers, 2003).

6. Conclusions

The four described dimensions together establish the relative advantage that will influence the degree of willingness to adopt and use a new strategic IT policy. Together with the awareness knowledge threshold they can function as an interpretative framework helping policy makers understand better why an IT-related policy is supported or resisted. Based on the proposed framework a reasonable hypothesis for further research would be that the desired performance of a strategic IT policy is only possible if the policy maker addresses the awareness knowledge threshold and takes all relevant constraints within the four dimensions into account. The research results show that in the case of the Dutch action plan this has been partially disregarded by the policy maker. The policy maker should think beforehand about possible ways of communicating about the strategic policy to the intended policy taker, and the policy itself should at least contain, announce, or support the use of one or more policy instruments within the four dimensions. When there is an expected negative influence within a dimension the policy maker has to counterbalance that influence by using a positive instrument, preferably within that same dimension. The research results of the "creating a level playing field" policy clearly indicate that for instance the mere use of the legal instrument (e.g. the European procurement guidelines) is not enough to change behaviour and to counterbalance negative influences coming from within the technical dimension and the experience/ knowledge dimension. Although it might prove to be possible to use legislative measures or financial investments as a positive instrument within one dimension to counterbalance a negative influence in another dimension, the instrument needs to be strong enough to convince the policy taker that there is a relative advantage big enough to disregard the negative signals coming from the other dimensions.

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An interdisciplinary and critical analysis of the developments and troubles of EU-funded eParticipation

This article reflects, from a holistic and interdisciplinary perspective, on the challenges surrounding the development of eParticipation in Europe, with special focus on EU programmes. To this end, first, we assess the field's practical and theoretical achievements and limitations, and corroborate that the progress of eParticipation in the last decade has not been completely satisfactory in spite of the significant share of resources invested to support it. Second, we attempt to diagnose and shed light on some of the field's systemic problems and challenges which are responsible for this lack of development. The domain's maladies are grouped under tree main categories: (1) lack of a proper understanding and articulation with regard to the 'Participation' field; (2) eParticipation community's 'founding biases' around e Government and academy; and (3) inadequacy of traditional Innovation Support Programmes to incentivize innovation in the eParticipation field. In the context of the 'Europe 2020 Strategy' and its flagship initiative "Innovation Union", the final section provides several recommendations which should contribute to enhance the effectiveness of future European eParticipation actions.

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" In order to promote the development of the (e)Participation field, the EC should stop considering Participation and eParticipation as different things. They are not just the two sides of the same coin; in the 21st century they are simply one and the same thing. "

1. Introduction - Setting the 'wider context': Public Participation in the 21st century

Leonardo Lisandro Guarcax serves as the head teacher of a primary school in Sololá, one of the poorest departments in Guatemala, with 95% of indigenous population. Since its foundation in 2001, he has also been the leader of the 'Sotz'il Jay' –the 'House of the Bat'–, an indigenous Cultural Centre devoted to the research and promotion of pre Columbian Mayan arts. By uniting ancestral forms of theatre, music, dance and Mayan spirituality, Sotz'il Jay has transcended previous folkloric approaches to create a new kind of "holistic performing art", which aims to convey a deeply political message: it vindicates the very existence, and the evolving vitality, of the Mayan culture (Thelen, 2008). In the last years Lisandro led Sotz'il to perform throughout Guatemala, as well as in Venezuela, Norway, France and several Central American countries. Sotz'il Jay is thus regarded as an important driving force for the revitalization of Mayan culture and consciousness (Thelen, 2010). Since 2008, Sotz'il has been directly cooperating with several municipalities in Sololá, using new media and arts training as a means to raise young people's awareness on subjects like political participation, gender equality, environmental sustainability and the Mayan worldviews (Sotz'il Jay, 2009). Last August 25th, just three days after the birth of his second child, on his way to work, Lisandro was forced by strangers into a car. Next morning, his lifeless body was found, showing signs of severe torture (Corcuera, 2010). Just turned 32, Lisandro has thus become a 'tat' –a respected wise Mayan ancestor– who will continue to inspire and guide the paths of his folk. And indeed: his death sparked a civic outcry against violence and impunity in Guatemala, and his memory stirs up the work of a new generation of indigenous artists and leaders, which will maintain and re-generate Lisandro's legacy.

This sad and compelling story reminds us how 'citizen participation' –understood in the broad sense of 'engaging with public authorities to assist them in the development of policies that promote social justice'– continues to be a dangerous occupation in many of our modern democracies. In most countries however, and particularly in European liberal democracies, public participation turns out simply to be 'almost irrelevant': its practical use is so low that few citizens feel motivated to make any use of it. To comprehend why this happens, we need to consider that participatory arrangements have always played a subordinate role within representative democracies' decision-making mechanisms. Representative democracy, meanwhile, is best understood as a form of "thin democracy" (Barber, 1984), which does not rely much on citizens for actual decision-making, except perhaps on election day. In fact, most historical moves toward democracy only took place in the face of significant social conflict and the treat of revolution (Acemoglu et al., 2006). The case of the UK provides us with a very good example: the First and Second Reform Acts, which were passed in 1832 and 1867 and introduced wide-ranging changes to the electoral system, were indeed surrounded by mass political agitation. Earl Grey, the Prime Minister sponsoring the first reform, declared: "There is no-one more decided against annual parliaments, universal suffrage, and the [secret] ballot than I am. My object is not to favour, but to put an end to such hopes and projects… The principle of my reform is to prevent the necessity for revolution" (Acemoglu et al., 2006). In the run-up to the 1867 Bill, Lord Salisbury –himself an expert in electoral statistics, who later served as Prime Minister for almost 14 years– stated: "The test by which a good Reform Bill may be distinguished from a bad one is that under it the working classes shall not now, or at any proximate period, command a majority in this House" (Osborne, 2006). These assertions serve to illustrate the intentions of democratic reforms' proponents: reforms are rarely devised as a way to bestow voice and power on the common people but to restrain their achievement. Democratic system's 'good behaviour' is secured by including in its institutional design some checks against the redistributive powers of majorities (Easterly, 2007) and by making sure that money can be spent to influence its performance through lobbying, bribery and corruption (Ferguson, 1987; Prieto-Martín, 2010). Although these

Reform Acts initiated the gradual process of changes that would lead to the advent of modern democracy in the UK, in the short term they always favoured the interests of the elites over those of the common citizen. This is, in fact, the way in which peaceful 'political development' –understood as "an interactive, public decision-making and learning process, within and between government and civil society, based on power creation and dispersion" (Fisher, 1998)– usually happens: political development is only achieved when an important share of the elites realises that it is in their own interest to progressively incorporate into decision-making some previously excluded groups, as a way to create the new forms of 'shared power' deemed necessary to cope with societal challenges.

And if this is the case for liberal democracy as a whole, it should come as no surprise that 'participatory mechanisms' were not really functional or relevant during the 20th century. Given the difficulty of sustaining autonomous forms of citizen participation, governments have exercised a quasi-monopoly on the citizen engagement avenues. Political representatives, precisely the actor less interested in developing independent and real citizen influence (Mahrer et al., 2005; Verlet et al., 2007), are in charge of promoting and channelling public participation. As a result, participatory mechanisms are typically conceived as a means to provide legitimacy for power-holders without really compromising their leeway and prerogatives to administer public resources. Participatory spaces are thus not usually shaped as special "deliberative arenas" sheltered from partisan politics, but as instruments that allow them to subtly bolster their political agendas (Cornwall et al., 2006; Kadlec et al., 2007). Even the most celebrated participatory practices, like the Brazilian Participatory Budgeting experiences, have been called into question because of their manipulative and instrumentalist essence (Prieto-Martín, 2010; Wampler, 2008).

It was against this gloomy backdrop for public participation that the first web browser –named 'WorldWideWeb'– was created by Tim Berners-Lee at the end of 1990: the World Wide Web came into existence. As a result, the last 20 years have witnessed dramatic changes affecting most economic and social spheres: communications, education, finance, entertainment...changed forever thanks to the integration of ICT. Strange as it may seem, politics stands as the field least impacted by the Internet, with representative institutions still closely resembling those established during the 19th century. But delay does not mean immunity: social computing and the extension of social networks are expected to have a profound impact on governmental institutions and practices in the next years (Punie et al., 2009; van den Broek et al., 2010).

There is a widespread expectation of increased opportunities for citizens and businesses to participate in public decision-making using ICT. Consequently, the pressure on the public sector to prepare for these changes does nothing but grow, and official declarations in favour of transparency, open government and a culture of engagement succeed each other through the world. The recent 'Ministerial Declaration on eGovernment' stated, as a shared objective of EU countries, that by 2015:

"Citizens and businesses [will be] empowered by eGovernment services designed around users needs and developed in collaboration with third parties, as well as by increased access to public information, strengthened transparency and effective means for involvement of stakeholders in the policy process." (European Commission, 2009)

This declaration also set the base for a new *European eGovernment Action Plan 2011-2015* (European Commission, 2010b), whose first priority is precisely to promote 'user empowerment' and the collaborative production of innovative services. In this context, the question concerning the extent to which these intentions are being transformed into real changes, becomes very relevant: *How are ICT affecting the development of public participation in a region like Europe, which prides itself as a beacon of democracy and social and political rights? Is participation becoming any more effective thanks to the Internet?* During the last ten years, fruitful experimentation and research

in the area of electronic Participation has been carried out in Europe, mostly funded by the EU (Panopoulou et al., 2009). As part of the ePractice Journal special issue on "Policy Lessons learned from a decade of eGovernment, eInclusion and eHealth", this paper critically reflects on the progress of eParticipation in the European context, with a special focus on EU projects and policies, aiming to identify and explain, beyond conventional thinking, the main reasons explaining the development and underdevelopments of the field. By analysing and articulating the evidence and the somehow counter-intuitive results obtained so far, our research draws some policy lessons which should orient the development of innovative policy approaches in the future.

The paper is organised as follows: section 2 aims to identify and examine the main achievements and limitations of EU programs in relation to the practice and theory of eParticipation, section 3 attempts to diagnose and illuminate some of its most pressing troubles and challenges, while section 4 provides some final recommendations which could contribute to enhance the effectiveness of future European eParticipation actions.

1.1 Research Methods

To address this wide-ranging explanatory objective, our research design was based on grounded theory methods (Bryant et al. 2007). Grounded Theory is a qualitative research method that emphasizes triangulation among multiple data sets and fosters an iterative, comparative process of theory-building and explorative analysis-testing, in a context of theoretical and purposive sampling. It is especially suited to generate theories regarding social phenomena in domains without a dominant theory. By comparing data from a variety of settings, sources, and perspectives, this type of trans-disciplinary research aims to illuminate the complex interrelationships among political, legal, historical, social, economic and cultural elements (Muller et al. 2010), developing a higher level understanding that is "grounded" in, or derived from, a systematic analysis of data.

Our appraisal is thus based in the extensive analysis of distinct sources and datasets, which included:

1. The most recent reports, articles and literature reviews dealing with eParticipation research, practice and theory;

2. Documentation and data sources related to EU Innovation Support Programmes and their evaluation;

3. Data on more than a hundred EU-funded projects with some relation to the eParticipation field, mostly from FP5, FP6, FP7, eTen, INTERREG and CIP programmes (European Union 2011);

4. For some of the projects, especially those included in the eParticipation Preparatory Action and the ICT-PSP programme, an extensive analysis of projects' documentation was performed, which included brochures, newsletters, project websites, deliverables, evaluations and academic publications;

5. Research from other scientific domains, like economic theory, sociology, civic engagement and systems design, whose insights and theories could be applied to advance our research;

6. Direct examination, interaction and technical analysis of the eParticipation platforms developed as part of the projects;

7. Finally, the data employed in the analysis includes feedback on the preliminary findings collected from experts, practitioners, participants in EU-funded projects and EU officials involved with the Innovation Support Actions, in order to confirm and clarify emerging themes.

The iterative and purposive analysis of these data sources progressively engendered and substantiated the explicative theories that are presented in the 'assessment' and 'diagnosis' sections, as well as the recommendations included in the final 'treatment' section.

2. Assessment: the unsettling development of eParticipation in Europe

> "It scratches. And scratches a lot, and scratches very well. But it scratches where it doesn't itch" (Galeano, 1992)

eDemocracy is defined as "the support and enhancement of democracy, democratic institutions and democratic processes by means of ICT" (CoE, 2009). Its transformative potential is being increasingly acknowledged by governments and international institutions, as illustrated by the ever growing attention that eParticipation receives in the UN eGovernment reports (United Nations, 2008, 2010). The development of eParticipation is, however, proving to be harder and slower than expected (United Nations, 2007). Over the past years, many experiments have been carried out worldwide that intended to use ICT to strengthen democratic processes (Coleman et al., 2009b; Peart et al., 2007; Sasaki, 2010), but their overall impact has been quite modest. This is not surprising: many different challenges and barriers that hinder eParticipation's advances have been identified, including political, organisational, technological, legal, economic, social and cultural hurdles (CoE, 2009; Kubicek, 2007; Prieto-Martín, 2006b). To help to deal with these challenges, the EU has promoted several eParticipation programmes as part of its research agenda. The 5th, 6th and 7th Framework Programmes, the 'eTEN' and the 'ICT-PSP' Programmes and the 'eParticipation Preparatory Action' have funded a significant number of eParticipation development, trial and deployment actions (Chrissafis et al., 2010). Since 2000, the EU has thus financed at least 74 projects in this field, whose total cost amounted to 187 million euros (European Union, 2011). These aimed to address very different goals at the local, regional, national and European levels, by applying various technologies and methodologies. As it is usual in EU funding programs, the execution of these projects was mostly channelled through consortiums, which were created ad hoc to implement each project and included governmental, academic and business partners coming from several EU countries. A Network of Excellence for eParticipation Research, DEMO-net, was established in 2006 with 6 million Euros funding, and was later complemented with several research and evaluation studies, including the European eParticipation study, Momentum and Crossroad, and with further initiatives to establish networks of eParticipation stakeholders and experts, like Pep Net. In addition to supporting pilot and demonstration projects, the overall aim of the EU programs was to strengthen and consolidate the eParticipation research landscape, bring together key stakeholders and enable a more structured cooperation. These general objectives have indeed been achieved: an active European scientific and practitioner community has emerged, which is made up of academia, governments and solution providers (Molinari, 2010) and actively exchanges ideas, practices and tools through informal networks as well as through personal relationships and joint projects. Several journals and international conferences are now devoted to eDemocracy and, more recently, important studies and reports have been published, aiming to disseminate eParticipation knowledge to political actors and the citizenry (Albrecht et al., 2008; CoE, 2009; European eParticipation, 2009e).

2.1 Practical achievements of eParticipation actions

No systematic appraisal of the EU eParticipation actions, as a whole, has been performed so far. But a special evaluation effort was applied to the *eParticipation Preparatory Action*, a programme that supported 20 'real-life' trial projects at local, regional and national levels, between 2006 and 2010 (Chrissafis *et al.*, 2010; Momentum, 2010; Rambøll Management, 2008). It is thus possible for us to depict its 'archetypal project' as follows (Momentum, 2010): it involved 7 different partners from 4 countries, including some academic, governmental and business partners.

In some cases, NGOs or organisations with eDemocracy expertise were part of the consortium too. Each initiative typically tested its own technological and methodological approaches by means of 3 pilot projects that were executed in 3 different countries. These trials were devoted to one or various issues with some kind of 'transnational relevance', like waste management or smoking regulation, and often incorporated a mix of offline and online activities. The project focus was on experimentation rather than on supporting theoretical research. Development effort was limited, with most projects merely adapting or integrating several existing technologies, such as an open source CMS, data mining and a visualisation tool, into a website.

Each project lasted two years, had a medium cost of 715 000 Euros and paid special attention to promotion and dissemination actions like press releases, online activity, social networks and events organisation. The number of participants was however very low compared to the expectations, with just 450 registered users that submitted around 1 300 contributions (posts or signatures on petitions). The trials also failed to attract the interest of representatives and decision makers, and rarely had any measurable impact on the policy.

The evaluation reports mentioned above are unanimous in regarding the projects –as well as the whole Preparatory Action– as a success. And indeed the trials have supported wide-ranging practical experimentation and helped to improve some valuable open source eParticipation platforms (like 'Gov2OSS', 'Demos@work' and 'CitizenScape'). But a critical reading of the project deliverables and evaluations, as well as the direct interaction with the systems, does not paint such a flattering picture. Some recurring deficiencies in many of the trials suggest that there are systemic problems in place, which need to be honestly acknowledged and tackled in order to increase the effectiveness of future EU eParticipation programmes. Due to space limitation, in this assessment section we will mention just some examples of the technical, organisational and evaluation issues, which will serve as a basis for diagnosis.

Project reports and deliverables claim that "state-of-the-art" technologies are being used, but the eParticipation systems were normally built upon tools and features that had already been available for several years, mostly as general purpose tools not specifically designed for eParticipation (Panopoulou et al., 2010). Very short development cycles, multi-language pilots, and a failure to integrate 'agile' development methodologies made the systems error-prone, with many minor bugs reaching production (e.g.: not working hyperlinks, missing documents, issues with some browsers, obscure error messages, news section with no date-stamp, wrong or mixed translations, etc).

The sites' layout and logical structure are often confusing for a casual visitor, especially when the project integrated different tools into one site. Web 2.0 mindset and tools (Chadwick, 2009), though often trumpeted in the project plans, have not been successfully integrated into the systems' design and into the participatory methodologies (CitizenScape, 2010a). For example, the decision to pre-establish the discussion topics –taken by most of the eParticipation Preparatory Action projects– (CitizenScape, 2010c) clearly contradicts the most basic Web 2.0 notions.

As a result of all this, the pilot websites look quite rigid and unappealing, lacking the friendliness of modern successful sites. Even in cases where an administrator keeps regularly posting updated information, the discussion or petition areas may seem to be non-operational when a 'critical mass' of participation is not achieved, as is frequently the case. Consequently, it should come as no surprise that few users make a real and continuous use of the sites: why should they be willing to invest their scarce time and energy in an unfriendly web, if it does not even clearly state how or even whether their participation will have any influence on the policies at hand? In many cases, indeed, the projects had not devised any process to ensure political impact.

Moreover: getting familiar with a system, extending its user-base and building trust in a novel participatory avenue always takes time (CitizenScape, 2010b; De Cindio et al., 2009). The very short period stipulated to complete all project's activities made it very hard to achieve those objectives. And hard becomes impossible when we recognise that each pilot is executed in a different country and the whole project is managed by a big international consortium, which needs to devote much energy to coordinate its work and to comply with the bureaucratic requirements associated to EU grants (European Commission, 2010). Although the support action 'Momentum' was introduced to monitor and coordinate the projects and to consolidate their results, significant overlapping of the methods, concepts and tools tested by the projects couldn't be avoided (Ferro et al., 2010).

It is also interesting to notice that project owners frequently stated accessibility levels that were not really attained (Momentum, 2010). For example, for the FEED project an AAA level was claimed, but according to experts not even A level was reached. Considering that accessibility is just one of the 69 requirements established for the FEED system –and actually: the one that is easiest to verify– (FEED, 2009) the following disturbing question arises: how many of the projects' planned requirements and aims were really completed? It is quite difficult to evaluate this kind of question, because many projects' deliverables are not available for public scrutiny. What is more: the project evaluations are frequently performed by the project managers, or are based on interviews and workshops attended by them. Reports thus tend to be rather shallow and self-indulgent, and disregard the examination of certain uncomfortable questions. For example, when measuring the achievements of the Ideal-EU project, the registered and active users at its 'Social Networking Platform' are counted, as well as the visits to the site (Ideal-EU, 2009); but no analysis is performed on the visits' high bounce rate (72%) or their very low permanence (less than two minutes), which could possibly indicate a failure of the platform to achieve its aims.

In order to assess the user satisfaction, ease of use and the perceived utility of the systems, most projects relied on surveys applied to system users, which invariably showed reasonable satisfaction levels with the system's functionalities. It was not taken into account that such surveys are biased and do not show the real appreciation of the target users: in order to understand the systems' very low rate of participation, insights on the opinion of 'those who chose not to participate' would have been much more valuable. One final example is that, despite requests to "incorporate rigorous evaluation and cost-benefit analysis into all [eParticipation] implementation and research initiatives" (European eParticipation, 2009e) no report has ever mentioned the fact that, based on the data provided by 'Momentum' (2010), the cost of each users' contribution (post or petition's signature) was around 550 Euros.

This figure is too high, specially when compared with other systems operated by non-governmental organisations, whose technical standards and operational efficiency tend to be much higher (Albrecht et al., 2008). Most of the trials were clearly conceived to last just as long as the funding lasted, and even if many projects included deliverables analysing its potential sustainability, we are afraid that –as in the case of former government-initiated eParticipation applications (Macintosh et al., 2006a)– the political and social impact, scalability and sustainability of these systems seems questionable.

To close this section, which assessed the practical achievements of eParticipation actions, it should be noted that subsequent EU's eParticipation calls, included under the ICT-PSP and FP7-ICT programs, continued with the trend we just showed. The calls' provisions and guiding principles have not changed much and, actually, most of the leading institutions behind the analysed projects are currently implementing projects under the new calls.

Many of the reflections presented maintain therefore their validity for the present moment. Current projects pay indeed much more attention to scalability and attempt to take advantage of citizens' interactions in the existing social networking services –like Facebook– to support the policy formulation processes, instead of inviting them to visit government websites. But their organizational and institutional arrangements are essentially the same. The most visible difference would actually be the projects' size: the fourteen projects approved in 2009 and 2010 have increased their average cost to 2 775 000 Euros (European Union, 2011).

2.2 Theoretical and academic achievements

eParticipation, understood in a broad sense as 'ICT-enhanced civic engagement that empowers citizens to influence political decisions', is considered a very dynamic and transformative area with an increasing capacity to disrupt existing power balances (van den Broek et al., 2010). In Europe it has also been regarded as an 'emerging research field'. As we mentioned before, in the last years several European initiatives, sponsored by the EU, the Council of Europe and European national governments, have contributed to the consolidation of this field as a scientific and research domain (Albrecht et al., 2008; CoE, 2009; European eParticipation, 2009e; Panopoulou et al., 2009, 2010). A big share of recent eParticipation research papers has been linked, in one way or another, to these initiatives and/or the eParticipation trials funded by the EU.

However, recently published literature reviews which analysed several hundreds of scientific articles related to eParticipation (Freschi et al., 2009; Medaglia, 2007; Sæbø et al., 2008; Sanford et al., 2007) give us reasons for concern. They depict eParticipation as an incipient field still characterised by fragmentation and lack of common definitions, theories, methods and tools. Its research and reporting standards are quite low, with a large share of eParticipation research consisting of 'anecdotal' and speculative case studies, with little theoretical foundation and no comparative value. All relevant 'agendas' of eParticipation research (theoretical, methodological, normative, instrumental, technological, descriptive and evaluative agendas) are reported to be underdeveloped. Despite the significant amount of public resources invested to support eParticipation trials and experiments, the field does not seem to have advanced as much as expected in the last years. Most initiatives apparently worked on their own to discover, once and again, a set of basic 'lessons learnt' that, in fact, should better have been the projects' starting point (Prieto-Martín, 2006b). Some examples of these lessons are: eParticipation should be analyzed in the context of other forms of participation; usability of the eParticipation websites as well as dedicated moderation of the sites are critical success factors; new media supplement traditional forms of participation rather than replacing them, and often reinforce the traditional patterns of participation; serious involvement of decision-makers throughout the participation process is a critical (and often missing) success factor; building trust with the citizens takes time; politicians are reluctant towards eParticipation; etc. (Freschi et al., 2009). Thus, to our knowledge, no real breakthrough or even any significant research milestone can be reported for the field (Sæbø et al. 2008; Freschi et al. 2009, Kubicek 2010).

In an article that appraises the development of eParticipation over the last decade, Prof. Ann Macintosh and Prof. Stephen Coleman (2009), two renowned eParticipation scholars, reflect on what they call eParticipation 'research gaps'. Their aim is to identify the field's main challenges and

barriers in order to establish future research directions. According to them, eParticipation research is suffering from being seriously under-theorised, with analysis often lacking critical distance and conceptual clarity. Some basic elements that would be required to consolidate eParticipation as a functional research field –like agreed definitions for eParticipation or a basic understanding of its dual nature as something that can be driven by administrations or by citizens themselves– are still missing. The paper also acknowledges an "institutional and political resistance to introduce, use and act on eParticipation applications", as well as frequent methodological shortcomings in the research designs that, all the same, tend to focus upon government initiatives and undervalue the importance of spontaneous participation driven by citizens, voluntary organisations and pressure groups. No clear demarcation has been established between the conduct of eParticipation and its study: the same team that designs, promotes and manages a project is often responsible for observing, researching and reporting on it. Traits like disinterestedness and critical distance –which are essential for researchers to question the political, technological and cultural assumptions upon which projects are based, as well as the empirical claims made by project managers, politicians, technology vendors, journalists and interest groups– are thus often missing. Nevertheless, the most pressing and important challenge of the field is the fragmentation and dispersion of research, which is considered responsible for triggering a number of other obstacles. This fragmentation is closely related to the interdisciplinary character of eParticipation, which has a very technical foundation but at the same time encompass mainly political, cultural and social implications. Consequently, its research is necessarily linked to a wide range of disciplines, like democratic theory, political science and communication, information and technology studies. But alas, literature reviews show that inter-disciplinarity is not really working: cross-fertilization between disciplines is still rare (Freschi et al., 2009) and works that refer several disciplines do not as much combine them, but gather them together. Even though all eParticipation researchers no doubt praise inter-disciplinarity, "paying more than lip service to interdisciplinary research" (Westholm et al., 2007) continues to be too hard a challenge.

It must be recognized that the eParticipation scientific community, has done a hard work trying to establish methodological, analytical and theoretical frameworks for the field, as well as providing ontologies and evaluation models, which aim to guide research, design and practice (European eParticipation, 2009a; Lippa, 2008; Tambouris et al., 2007; Westholm et al., 2007). The fact is, though, that these frameworks are still too exploratory and it is difficult to apply them to 'real-world' initiatives (Aichholzer et al., 2009; Ricciardi et al., 2010). eParticipation research seems thus to be trapped in a kind of vicious cycle: since there are no truly functional eParticipation systems or experiences, it is very difficult to research empirically or to perform comparative analysis to test hypotheses; at the same time, the lack of clear concepts and theories means that experiences' and systems' designs are not adequate.

Propelled by the boom of social networks, the autonomous advances in eParticipation practice are speeding up, and eParticipation research and theory may soon not be able to keep pace with them (Handler et al., 2008). Experts are increasingly conscious that the approaches used by governments for promoting and implementing eParticipation need to change, and are making different proposals as to what should be done (e.g.: Bannister, 2009; Bruns et al., 2011; Chadwick, 2009; Charalabidis et al., 2010; Hermida, 2010; Howe, 2009; Johnston, 2010; Linhart et al., 2010; Maier et al., 2010; Smith et al., 2009). But the sole willingness to reform, if not informed by a proper understanding of 'what went wrong and why', may very well leave the problems' root causes untouched. For this reason, the next section will present some institutional and holistic explanations that, in our view, partially account for the current situation and thus shed light on the best ways to move forward.

3. Diagnosis: Untying eParticipation troubles and challenges

"It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail" (Maslow, 1966)

The previous assessment of eParticipation theory and practice suggests that some of the problems that have hampered its progress have a systemic, overarching character. Handling this kind of 'elephant in the room'-issue is always problematic, as their very existence tends to be denied because of their complexity or the embarrassment they cause and, as a result, they cannot be acknowledged or discussed, let alone get properly sorted out.

This 'diagnosis' section will concentrate on identifying and illuminating some of these *'relevant but unspoken'* eParticipation problems, as a way to complement and deepen the valuable reflections that were previously referred to (Albrecht et al., 2008; European eParticipation, 2009e; Freschi et al., 2009; Macintosh et al., 2009). To enquire how these problems relate to each other and how they jointly contributed to lower the profile of eParticipation research and practice during the last years, the assumptions of eParticipation researchers, practitioners and promoters will need to be scrutinised and challenged. This task demands from us not only an inter-disciplinary and critical approach, but also a healthy dose of humorous irreverence. For that reason, we beg our readers, in advance, to excuse our impudence, and at best consider it as an essential tool in our quest for understanding.

3.1 The missing foundation of the e   research domain

As odd as it may sound, most problems of eParticipation's research and practice, as well as most of the paradoxes afflicting eParticipation as a scholarly domain, are ultimately related to a very special repeating decimal, whose relevance has not been sufficiently recognised, so far, by the eParticipation scientific community: $0,\overline{076923}$.

This rational number expresses the mathematical relation existing between the 'e' and the 'Participation' portions of the term 'eParticipation', as measured by their amount of letters: one thirteenth. 1/13. This means that 92.9% of the domain's name corresponds to 'Participation', while the 'e' represents just a 7.1% of its extension.

Based on these figures, the natural expectation would be that eParticipation, as an academic domain, would maintain a close and privileged relationship with the Participation (or 'Civic Engagement') domain (Brodie et al., 2009). In fact, it would make a lot of sense to consider eParticipation as a sub-domain of 'Civic & Political Engagement field'. A sub-domain which concentrates its research on those specific issues related to the utilisation of ICT for participation, while relying upon the bigger, older and more developed domain for all the rest. This way, it would not be necessary to create for the field, from scratch, a whole corpus of concepts, theories, methods, evaluation approaches, etc. By accepting all knowledge on 'participation' as its own legacy and inspiration, the new field would not need to solve on its own issues that are probably better approached from the main field. After identifying its specific areas of competence –those where eParticipation can comparatively offer more value– a lot of creative cooperation and knowledge exchange between researchers and practitioners from the core 'Participation' field and the peripheral 'eParticipation' field would be easily attained.

Let's take, for example, the problem of 'fragmentation of research' that was mentioned previously as the main barrier for the eParticipation domain. Inter-disciplinarity is clearly not a problem restricted to eParticipation, but rather an issue that has affected the whole Participation domain for decades. With the emergence of the World Wide Web and eParticipation, new ICT domains need

to be added to this interdisciplinary landscape. Nobody doubts that ICT components are acquiring a critical relevance for the development of Participation. Public participation without an 'e' backing will soon become a 'contradiction in terms', as any credible participatory exercise will need to include some 'e(lectronic)' supporting infrastructure. Consequently, the eParticipation scholars' task of articulating these new ICT fields into the Participation domain is truly essential. But in order to accomplish this mission they clearly need to comprehend and leverage all previously accrued knowledge about Participation and inter-disciplinarity. Ignoring all these advances would possibly lead to a chaotic situation like the one we described in the previous section.

Paradoxically enough, a critical analysis of last years' eParticipation experiences and literature reveals some kind of undeclared –and possibly unconscious– attempt to develop the eParticipation domain as if the "Citizen Participation" domain would not exist as such. From the moment it emerged, eParticipation was presented by its proponents as a new and eclectic research field that brings together a number of different disciplines, fields and research areas (Macintosh et al., 2006a; Sæbø et al., 2008), with frequent mentions to sociology, political sciences, law, information systems, psychology and other social sciences (Freschi et al., 2009). In spite of this, 'Participation' or 'Civic Engagement' are very rarely mentioned as a pre-existing research field that requires special consideration. It could be argued that this kind of relation goes without saying, that it does not need to be explicitly mentioned. However, this seems dubious. In fact, the special connection between Participation and eParticipation should be one of the initial topics to be explicitly clarified in any attempt to establish eParticipation as a (sub)research field. But no matter how many related fields are identified –Kubicek et al. (2007) mention 41 different disciplines as relevant for eParticipation– participation itself is never mentioned as an established research domain to be taken into account. It is indeed remarkable that the relationship of eParticipation with the e Government domain is more frequently mentioned than the linkages with the Participation field. Article selection strategies used to perform literature reviews for the field are also revealing, as they tend to exclude any work on participation that do not include 'e-', 'electronic' or 'e-Government' attached to it, no matter how 'highly relevant' its reflections, theories and methods could be for the whole (e)Participation area (Freschi et al., 2009; Sæbø et al., 2008; Sanford et al., 2007).

What is more: the weaknesses that literature reviews have repeatedly attributed to most eParticipation works –conceptual vagueness, dominance of descriptive approaches, lack of theoretically grounded contributions, etc.– are at best explained as resulting from a poor understanding of the problems and dynamics associated with traditional 'offline' Participation. Thus far, the most important theoretical influences in eParticipation literature came from political philosophy and political science, mainly referring to the Habermasian ideal of a deliberative public sphere and to some theories on democracy models (Macintosh et al., 2009; Sanford et al., 2007). However, this kind of 'romanticized' and rudimentary understanding of participation has contributed to narrowing the debate and has burdened eParticipation research and practice with unrealistic assumptions (Chadwick, 2009), which are in turn partially responsible for the unsatisfactory results obtained so far.

The Participation field has indeed a lot of useful concepts, theories, methods, etc. that could benefit eParticipation researchers; but these understandings have so far been just partially and inconsistently transferred to the eParticipation literature (Sæbø et al., 2008). Most of the knowledge developed lately –in the areas of participatory processes' evaluation, typologies of public engagement mechanisms, or the critical appraisal of participatory governance schemas, to name but a few (Cornwall, 2008; Cornwall et al., 2008; Gaventa et al., 2010; NCDD, 2009; OECD, 2007; Parés et al., 2007a, b; Prieto-Martín, 2010; Pruitt et al., 2007; Rowe et al., 2005; Wampler, 2008)– have a direct application for the eParticipation domain, and cannot be neglected any longer. This need to reach out becomes even more apparent when one considers that the own European Union has been investing, as part of its

'Socio-economic Sciences and Humanities (SSH) Programme', a lot of resources to develop this field: within the last ten years at least 37 projects with direct relation to the (e)Participation field could be identified, with a total investment of around 74 million euros (European Union, 2011).

3.2 The Founding Biases of a brave new domain

How could it be that the insights and expertise coming from such an adjacent and crucial domain have not been properly considered and leveraged by the eParticipation community, more than ten years after the first EU's eParticipation initiatives were launched? The most revealing explanation for this is the one that regards Innovation Support Programmes as 'path dependent' processes, much influenced by phenomena like institutional inertia and self-serving and self-reinforcing dynamics (Pierson, 2000; Sydow et al., 2009). Path dependency means that choices made on the basis of transitory conditions can persist long after those conditions change. In order to understand the present situation it is thus necessary to pay attention to past conditions and choices, rather than simply looking at current conditions and preferences. In regard to the eParticipation research field, it is critical to consider how its first seeds were sown and, equally important, by whom.

The first European eParticipation projects were started in the late nineties, long before terms like e Democracy, eParticipation or Social Software became fashionable. These initiatives were mainly funded as part of EU's e Government research agenda, which had a marked technical and academic character. Not surprisingly, the initial projects were thus implemented by scholars and companies that were formerly working in e Government and e-Business fields, who already had experience of working in EU research programmes and were willing to transfer their knowledge and expertise to the incipient and promising 'e Voting and e Democracy' fields.

eGovernment policy has for a long time been characterised by its focus on individualistic service delivery, a technocratic top-down approach, a proclivity towards system deployment without much previous theoretical reflection and a measurement strategy based on supply-side benchmarking of e-Services availability and sophistication (Verdegem et al., 2010). e Government has thus traditionally lacked the user-centricity and the broad understanding of governance (Zouridis et al., 2003) that underlie eParticipation as a research field. And indeed, most of the institutions that first 'colonized' the eParticipation field had less knowledge and/or research experience in relation with the socio-political dimensions surrounding democratic and participatory practices, and were also lacking in connections with social movements, participation practitioners or elected representatives, the stakeholders more interested in benefiting from the incorporation of ICT into their participatory practices. The way in which "[e-Government and eParticipation initiatives] are implemented and the factors that might be used to evaluate their success should be significantly different. In this respect, e-government and e-democracy are incompatible processes that should be subject to very different strategies" (Pratchett, 2006). As eParticipation is "counter-cultural to the prevailing ethos in e-Government" (Scherer et al., 2008), it is not surprising that most EU projects did not properly consider 'Participation' and its troubles: the social, political, organisational and technology issues associated with public engagement contexts were rarely integrated in an holistic view of the design, application and research of eParticipation technologies (Macintosh et al., 2009). Thus, European programmes were not able to promote a 'citizen-oriented / people-empowerment-centred' eParticipation. Instead, they adopted a 'government-oriented / tools-centred' approach which envisaged civil society as an "external factor" (European eParticipation, 2009e), asymmetrically focused on government-driven eParticipation (Kubicek et al., 2007) and did not succeed in devising "analytical frameworks that took into account the values and preferences of the various stakeholders and civil society groups involved in eParticipation" (Freschi et al., 2009).

In this way, European e democracy experiments were typically "more aligned with the requests and requirements of formal political bodies than with those of citizens' and civil society organizations" (Maier et al., 2010), even though these actors have shown their initiatives are more innovative, agile and mobilizing than top-down projects initiated by governments (Albrecht et al., 2008). As Stephen Coleman expressed it in a speech: "If you would have asked me ten years ago, I would have said very firmly: 'we need government to take the lead in this area'. I now don't think that anymore. Cause I've watched government trying to do it. I take the view that the best initiatives always come from citizens themselves. And the best two things governments can do are: one, get out of the way; and two, give them some money... In reverse order" (Coleman, 2006).

Despite the increasingly perceived need to change the research approach and partners, the institutional inertia affecting innovation programmes made it very difficult to attend any call to align eParticipation research and funding with citizens and civil society needs (Prieto-Martín, 2006a). It has taken several years till projects like 'Crossroad' gain enough momentum as to propose essential changes in the ways 'ICT research in Electronic Governance' is conducted (Crossroad, 2010, 2011). Crossroad final deliverables overtly recognize, for example, that the current public support programmes do not match the rapidity of today's innovation processes, do not remunerate novel and risky ideas, do not take into account the citizen's (end-client) views, are too technology-led and tend to favour bigger and more experienced organisations rather than the best ideas and implementation. The aforementioned "Ministerial Declaration on eGovernment" recently called, similarly, for an "active collaboration with businesses, civil society and individual citizens in order to develop user-driven eGovernment services" (European Commission, 2009). It is thus becoming more and more clear that "traditional policy tools to stimulate public innovation do not work very well in the context of 2.0 public services" (Osimo, 2009), where innovation is very much bottom-up, emergent, design-driven, serendipitous and multidisciplinary.

This kind of problem not only affects eParticipation, but many other research fields. However, because of its multidisciplinary, nascent and disruptive nature, eParticipation arises as one of the fields that better exposes the limitations of the broad European innovation landscape. In fact, it is the entire European 'Research and Innovation Funding Programmes' which are currently being scrutinized as part of the 'Europe 2020 strategy'. The 'green paper' recently presented by the EC to launch the overhaul of its funding programmes openly recognizes that existing instruments are too complex, over-bureaucratic and lacking in transparency (European Commission, 2011a). It also acknowledges the limitations of collaborative networks of researchers "in achieving the necessary flexibility, creativity and cross-disciplinary research needed". On its part, the 7th Framework Programme interim evaluation recommends that the research agenda is set by Civil Society Actors for those areas mostly related to "society", like eParticipation (European Commission, 2010). The next years will show to what extent this new awareness is translated into meaningful policy changes. Aiming to support this reflection process with practical observations, we now finalize this 'diagnosis' section by identifying some dynamics and characteristics of EU programs that, in our view, have contributed to lowering the profile of the eParticipation research field in the last years.

3.3 The horse and the cart, the stick or the carrot: framing (dis)incentives for digital civic innovation

In marketing, as with innovation policies, two basic approaches can be used to develop a 'market', namely push and pull strategies. Pull strategies attempt first to understand final users' characteristics and needs as a basis for tailoring the products to their necessities, and then try to motivate users to demand these products from the 'providers'. Push strategies, on the contrary, concentrate the incentives on distributors, stimulating them to provide users with the products that better suit the producer's interest. European innovation policies have traditionally followed this kind of top-

down 'push strategy': the research aims and the range of expected results are established up-front, conditions to access the funding are determined, and thus a certain kind of participants in most cases, established organizations with resources allocated to write proposals and cope with EU programs' bureaucratic requirements (Crossroad, 2011)– are commissioned to provide the research products, which are later fed to the final users.

But money is not the most relevant factor in order to promote web 2.0 and eParticipation initiatives. No matter how much public funding is made available, it will not stimulate innovation if it is not channelled in a way that is consistent with the research topic and with the objectives, motivations and the environment in which the domain's 'trendsetters' operate. Moreover, the availability of too much money could be counterproductive, as it often "attracts the wrong kind of applicants, the opportunists, and the consultants able to build any kind of project by paying lip service to the right buzzwords" (Osimo, 2009). Hence the way in which monetary and non-monetary incentives are framed to align the stakeholders' efforts and to catalyse advancements is by far more important than "how much" funding is pooled.

As the previous assessment section evidenced, EU's mechanisms have not been very successful in attracting and incentivizing the assortment of projects and participants that would have been required to boost innovation in the eParticipation field, despite having invested millions of euros. During the last decade, most government-driven eParticipation projects have typically shared several important weaknesses (Charalabidis et al., 2010), like topics being distant from people's priorities, websites unknown to the general public, tools not appropriate, methodologies not scalable, usage much lower than expected, very limited impact, poor evaluation, unrealistic assumptions all-around, etc. The assessment section provided many examples of these kinds of generalized and systemic problems, which seem to derive from a severe inconsistency between the constraints established for the projects and the character of the field being supported. Important project characteristics, like the project size and duration, the multi-country consortium requirements, the kind of partners involved, the dispersedness of the trials, the pilot projects topics or the focus on "experimentation" that is disconnected from theoretical research, are better understood as an expression of EU programmes' idiosyncrasy than as a conscious attempt to optimise and align the program incentives with the state and characteristics of the eParticipation field.

Thus, the 'push strategy' dominated, and forced the 'cart to be put before the horse'. At the same time, several critical project dimensions –like the sustainability, scalability, replicability and comparability of the tools and experiences developed– were not properly considered, what in turn seriously hampered innovation and scientific progress in the field. For example, a common complain about eParticipation experiences is that they differ so much that it is very difficult to perform empirical and comparative research (Kubicek, 2010). This 'inherent difficulty' is worsened because of the soft spot EU programmes have for multi-country consortiums. These consortia frequently implement their pilot projects in distinct countries and, as a result, their topics, partners, methods, resources, etc., are all different. In many cases they diverge so much that even the comparison of trials within the same project becomes "like comparing apples and oranges" (Aichholzer et al., 2009). The projects' short duration and the focus on initiatives and consortia that depend on the funding to remain operational prevent the projects from nurturing the trust and learning-processes that eParticipation requires to blossom (CitizenScape, 2010b; De Cindio et al., 2009) and also make longitudinal research impossible (European eParticipation, 2009b).

Innovation in 'ICT for Governance' fields –such as eParticipation– has been characterized as being demand- and user driven, highly multidisciplinary, serendipitous and tightly amalgamated with

research; all of them are characteristics which are "not always fully compatible with existing FP7 type of research" (Crossroad, 2011). Attracting the best innovators and researchers for the field and motivating them to perform superbly requires funding programmes that provide them with appropriate lures and bridles. But the 'sticks and carrots' supplied by the existing mechanisms have not been framing incentives fittingly nor have been really attracting the right kind of innovators (Osimo, 2009).

eParticipation is certainly an area that would benefit especially from the involvement of creative 'activist-researchers', heartily committed to advance and develop their projects and the field "no matter what", even if this means setting aside their own personal interests. But current funding programmes appeal more to scholars and to a kind of 'consultant-researchers'. As analysed in the assessment section, project managers in EU programmes are often not just responsible for writing the project proposals, designing, promoting and managing the project, and additionally coordinating the consortia, the partners and the stakeholders. They are furthermore expected to observe, evaluate, research and report on the whole project. Accordingly, participants frequently have "difficulties in distinguishing between areas of their work in which they were establishing and running eParticipation projects and aspects of their work in which they were researching such projects" (Macintosh et al., 2006a). Researchers are clearly burdened with too many and too conflicting responsibilities: they are asked, on the one hand, to manage the projects 'successfully', but on the other hand they are requested to critically report on the projects' failures and mistakes. The kind of hands-on 'activist-researcher' we previously mentioned, when confronted with some unexpected problem, is motivated to openly acknowledge the issue, as the best way to trigger a change of route, quickly adjust the system and its procedures, and thus continue advancing with no delay. "Build early and fail fast to succeed sooner" is a mantra for web 2.0 entrepreneurs (Crossroad, 2011). But confronting failure is much more difficult for 'consultant-researchers', as they are committed to fulfilling the project plan and do not want to jeopardize their future funding and/or their academic publications. If the project ends up not fulfilling its objectives –as is frequently the case– they will need to recognise it; but there is always enough room in evaluations to present additional reasoning and evidence that justify a moderate satisfaction with the results obtained.

Actually, one of the most important obstacles for the development of eParticipation as a scientific domain is the virtual inexistence of sound evaluations. Although its need has been stressed for years, "evaluations are very rare and, at best, carried out in a methodologically questionable manner, so that there is neither well-founded knowledge of success factors nor any quality standards" (Albrecht et al., 2008). The first reason for this under-development derives from the intrinsic difficulty of evaluating eParticipation: all evaluation methodologies that have been proposed so far are quite complex and have not provided satisfactory results (Aichholzer et al., 2009; Panopoulou et al., 2010; Ricciardi et al., 2010). Nevertheless, the aforementioned 'misaligned and conflicting incentives' provided by the innovation support programmes have also contributed to strongly aggravate this problem. Not just because of the practice of commissioning the project's evaluation to someone affected by conflict of interest –the consortium responsible for implementing the project, generally–, but also because the research programmes have frequently not demanded –nor, consequently, really desired– critical and insightful evaluations as a standard tool to measure the cost-effectiveness of the investments performed. In the same way that traditional funding mechanisms tend to favour the best-written proposals rather than the best ideas and implementation (Crossroad, 2011), they also seem to lay more importance on receiving and filing all agreed project deliverables and outputs rather than on obtaining rigorous evaluations and significant impacts.

4. Treatment: The 'yellow trick' road ahead

"There are a thousand hacking at the branches of evil to one who is striking at the root" (Thoreau, 1854).

The aim of the previous section was to diagnose the most relevant weaknesses and problems of European eParticipation, and thus focused more on 'lacks' than on 'haves'. Needless to say, there were also remarkable experiences and projects that offered a significant 'value for investment' like, for example, the 'CitizenScape' project (CitizenScape, 2010a, b) or 'Pep-NET', an informal network of eParticipation practitioners and researchers swarming around a collaborative blog. But it must be acknowledged that, in general, the innovation environment promoted by the EU was not conducive to incentivize similar good results. The objective of this final 'treatment' section is to present several recommendations for improving the research and innovation policies in the field, and thus provide some guidance for the tricky and challenging road ahead of us, which –like the yellow road of Oz– will demand a big deal of courage, intelligence, good-heartedness and empathy of the EC and the whole eParticipation community.

As we have mentioned before, during recent years a lot of self-questioning has been already happening in Europe. In fact, the EC is currently appraising and reframing –as part of the overarching 'Europe 2020' strategy and its flagship initiative 'Innovation Union'– not just its eParticipation initiatives, but the whole European research and innovation programmes. Its aim is to develop a radically new approach to EU's research and innovation funding (European Commission, 2011b), "bringing together current funding instruments under a Common Strategic Framework that will offer a seamless set of financing instruments, supporting the whole chain from blue sky research to demonstration and financing of SMEs". A key element of this strategy will be a radical simplification and harmonisation of rules and procedures across the board, as well as a stronger focus on tackling societal challenges and the mobilization of public procurement as a driver of innovation (European Commission, 2011a, b). An additional declared goal is to attract the brightest researchers, social innovators and most inventive organizations –be them from industry, academia, SMEs or Civil Society–, boosting cross-border mobility and research collaboration through Europe.

And indeed, a great deal of attention and reflection has been specifically devoted to the eParticipation field. In addition to the array of proposals advanced by scholars and experts –which we have referenced through the paper– we want to stress the relevance of four far-reaching studies which aimed to inform and orient public action in the eParticipation domain. They are: (1) the "Recommendation on electronic Democracy" commissioned by the Council of Europe (CoE, 2009); (2) the study on the "Electronic Participation of Citizens and the Business Community in e Government", conducted on behalf of the German federal government (Albrecht et al., 2008); (3) the "Study and supply of services on the development of eParticipation in the EU" (European eParticipation, 2009c, d, e); and finally, (4) the "Crossroad project: a participative roadmap for ICT research in electronic governance and policy modelling" (Crossroad, 2010, 2011). These studies concur in their general analysis and conclusions, like considering that e-democracy should be inclusive, deliberative and empowering; that its focus should not lie so much on technology, but on "democracy" and its many stakeholders; that it is necessary to integrate electronic and non-electronic forms of democratic engagement; etc. All studies come somehow to evidence the unsatisfactory development of the field in the last years, and together supply more than seventy wide-ranging guidelines and recommendations for policy-makers; fortunately, many of these recommendations are, again, aligned among the studies.

Their most important conclusion, for the purposes of this paper, is the corroboration that current European funding models, such as FP and CIP, are not working well for the eParticipation field.

Research in such rapidly developing, complex and demand-driven applied research fields cannot be planned linearly, several years in advance (Crossroad, 2011). But European instruments are typically characterized by tedious bureaucratic procedures, long selection processes and lengthy documents required to be submitted. They thus tend to favour bigger, established research organisations, grouped in wide international consortia –which "spend a big portion of budget for coordination and travel", and "may not necessarily have the right skills to power the participatory paradigm"–, rather than the agile and small 'pioneer organizations', which are garnered with the best ideas and are capable to plough and harvest the serendipitous innovation that characterises the domain (Crossroad, 2011; European eParticipation, 2009c). European programs have also favoured a top-down vision of eParticipation, much centred in one-shot government-oriented initiatives, which rarely generate ground-breaking advancements, because of their lack of technical competence and because of the strong level of administrative and political coordination required, that hinders innovation (Albrecht et al., 2008). In such a context, existing mechanisms must be reformed and complemented with more flexible and open funding models, applied both to basic and applied research (Crossroad, 2011).

Thus, the policy recommendations demand the creation of "specific funding programmes that tap the innovative energy of NGOs", ensuring that at least low-level financial support is available to innovators on the periphery and funds are not monopolised by the major research centres (European eParticipation, 2009b, 2009c). Many of these initiatives typically suffer from limited visibility and face funding problems to ensure sustainable operations (Albrecht et al., 2008; European eParticipation, 2009e). The EU should devise mechanisms for identifying and supporting such exceptional initiatives and help to subsidise the creation and experimentation with new system and tools which could then be replicated within Europe (European eParticipation, 2009e). Governments should consequently be proactive in order to integrate, and eventually support, bottom-up social innovation initiated by new emerging actors, like individuals, formal and informal civil society organisations, start-ups, and civil servants (Punie et al., 2009).

Since web-based innovation does not require extensive investment, it is now possible to start up projects with small development teams and tiny budgets –even in the case where no public funding is available– that can be presented to financiers as a 'proof of concept'. Through competition-based funding, the innovators and researchers can be incentivised to achieve stretching targets through the prospect of securing a financial award (European Commission, 2011a), a follow-up grant, a temporary fellowship or some kind of institutional support for the project. Public funding should thus be used to encourage the creation of basic prototypes, and subsequently to integrate the best ones in a multi-staged process of improvement, deployment, replication and sustainability, conditioned to the achievement of progressively more demanding outcomes. In this way, small grants could be given to a large number of applicants to enable them to develop advanced prototypes of the proposed applications, and following waves of funding would only be available for the most promising applications. This kind of 'create-then-fund' mechanism makes money follow results, not the opposite, crowding away the 'experts in proposal-writing' and attracting the innovative 'doers' (Crossroad, 2011; Osimo, 2009). These instruments allow much open-ended innovation, as they do not normally demand any specific solution but simply define the problem to be solved. With no money provided upfront they reward the best actual result and not the best-written proposal, and thus "open up the often self-referential circles of government-funded projects" (Crossroad, 2011).

Governments are finally encouraged to help establish and/or support independent and trusted third party services for eParticipation, better than attempting to run them on their own (Albrecht et al., 2008; Coleman et al., 2009a; Millard et al., 2010; Smith et al., 2009). This way, the credibility and neutrality of the participatory processes are increased, encouraging public acceptance and wider participation, which are both necessary to get valuable outcomes. Governments should therefore provide and support frameworks for building citizen participation from the bottom, and maintain a

strong commitment to participate in the citizen engagement process and to seriously consider its outcomes as potential policy initiatives, but avoid any attempt to directly control the eParticipation avenues (Bruns et al., 2011).

Most of the recommendations provided by the studies are thus, overall, consistent with the analysis we have performed in previous sections. We would like, nevertheless, to supplement them with several succinct suggestions, which stem directly from the issues we highlighted in our diagnosis section.

Our first recommendation is quite obvious: in order to promote the development of the (e)Participation field, the European Commission should stop considering Participation and eParticipation as different things. They are not just the two sides of the same coin; in the 21st century they are simply one and the same thing. If the European (e)Participation dwarves hope to see farther than ever before, they must be willing to stand on the shoulders of the Participation giants. Existing research and project funding silos need to be mixed together: EU programmes should encourage sociologists and political scientists to devote a significant part of their energies to integrate ICT at the core of the citizen engagement initiatives they devise; correspondingly, technical and socio-technical researchers should not be allowed to impersonate participation practitioners, but forced to dialogue and partner with them. Experimentation needs to be linked to theoretical reflection and research: the strategy of 'short pilots' that the EU intensively promoted has proved unable to advance the field. At the same time, cross-disciplinarity must become real and kaleidoscopic, and scholars need to recognize that academia cannot be the source of agile innovation in this field. Yet researchers, once released from the burden of having to design, manage and report on whole projects, can nevertheless play an essential role for maturing the eParticipation field, by acting as advisers, theorists, inquirers and evaluators of real world eParticipation systems and experiences. The best way to make eParticipation research effective is to open it up to social innovators, giving them the lead and putting research and projects to the service of Civil Society needs (Prieto-Martín, 2006a). By nurturing and supporting this kind of experiences, the EU could influence them to better accommodate the kind of empirical, longitudinal and comparative experimentation that is required to scientifically advance the domain (European eParticipation, 2009b, e).

Accordingly, the EU would need to abandon its previous 'push' approach, in which it acted as the field's biggest contractor and main driving force. It now needs to favour a 'pull' scheme in which the EU plays a supporting –but still essential– role. Instead of directly leading –by 'sub-contracting innovation' to multi-country consortiums, which implement ultra-expensive projects that, in many cases, do not make any sense– the EU should become the 'catalyst' of the dialectical and endogenous change processes happening within the eParticipation domain. EU's aim should paradoxically be 'to achieve much more, by spending much less'. In order to achieve it, it should cultivate a profound understanding of the field –of the stakeholders involved, the capacities and expertise of each of them, their motivations and potential conflicts of interest, etc.– and devise an innovation support framework that effectively articulates the various actors and aligns their incentives, with the explicit intention of shaping their behaviour toward an effective cooperation that truly advances the field. Each actor should concentrate their work in the areas where they have real value to add –e.g.: the Innovator should create, the Scholar design experiments and evaluate them, the Consultant manage projects, Civil Society Organizations and Governments should disseminate and use the tools, etc.–. Ideally, each actor should work in the topics that intrinsically motivate them, i.e., those tasks that they would be willing to do even if they were not paid for them. Each stakeholder would mind its part of the business, but all of them would need to share a common vision and thus, for once, "sing from the same hymn-book" (Kolsaker et al., 2009).

A focus on impact evaluation is also required: the contributions of each actor need to be regularly assessed by independent evaluators with metrics that adequately measure their performance and impact (eGovMoNet, 2010). Evaluations cannot just be a collection of hardly comparable measurements, that supposedly "identify strengths, weaknesses and improvement opportunities", but finally fail to provide enough insight as to detect the projects' core problems (Loukis et al., 2010a; Loukis et al., 2010b). Impact evaluations should, actually, be the foundation for decision-making; most particularly, the decision to continue –or discontinue– the funding of a project or an action within a project, would be derived from the evidence concerning its impact. New data-driven evaluation models need to be devised, that go beyond the benchmarking strategies used to date in the e Government domain (eGovMoNet, 2010; Verdegem et al., 2010), and are able to better capture and judge the goals and achievements obtained. For the area of social web applications, for example, evaluation models could be borrowed from the epidemiologic field, to assess the 'viral growth' and 'infectious quality' of the system's user base, and verify whether the desired diffusion rates were met or not.

To establish this incentivizing 'innovation environment', the EU should remain open-minded, act agilely and be willing to partner with any institution that can provide relevant expertise and capacities. For example, the kind of innovative mechanisms mentioned above, like fellowships for social innovators, competition-based funding, code-camps or conditional support for projects, could possibly be more efficiently developed by institutions like the Ashoka foundation, which already possess the infrastructure, processes and experience required to carry them out. Another promising tool that the EU should be willing to experiment with, are the 'crowd-funding' platforms like 'Kickstarter' or 'Flattr', as a way to support the engagement of end-users and promote more demand-driven innovation (Crossroad, 2011).

4.1 Concluding remarks

All in all, what we have been describing so far corresponds, to some extent, with an attempt to apply the notions of 'positive deviance amplification' (Pascale et al., 2010; Waugh et al., 2001) to the research and innovation support landscape. This approach, which has been successfully developed in the international cooperation and health-policy fields, requires that the 'positive deviants' operating within a system are firstly identified. In our case, positive deviants are those institutions and individuals that are already embodying the kind of innovation and/or research excellence that the EU desires, and that have results and working prototypes to show. The quality, depth and the potential – especially in terms of scalability, sustainability and replicability– of these projects and achievements would need to be assessed to determine whether or not they deserve support. Then, the focus would be placed on increasing the visibility and impact of positive deviants, by helping them to make their projects successful and facilitating the establishment of empowering partnerships for them.

In summary: what the EU somehow needs to do is '*to commit itself, assume its responsibility for 'putting the horse before the cart, hanging the carrot in the right direction and holding the stick close to the rump'*, and thus start acting as a catalytic force that stimulates eParticipation change-makers, links them together and empowers them to boost their most relevant scientific and creative endeavors, both theoretical and applied. Only in this way the EU will be able to influence, for the better, the holistic development of this crucial research domain.

5. Conclusion - Back to the 'wider context': Waiting for the barbarians

"Our lies reveal as much about us as our truths" (J.M.Coetzee, "The slow man", 2004).

Meanwhile, in Guatemala, *Sotz'il Jay* has presented its new staging, which not only dances the myths of the *'Book of the People'* –the sacred Mayan *'Popol Wu'uj'*– but also conveys a "vivid evocation of hope", by showing how "the [forthcoming] inauguration of a new cycle of the Mayan calendar offers a chance for humanity to seek balance and equality in the spiritual, social, cultural, political, and economic realms" (Neff, 2011). Through their artistic and cultural work, through their courageous fight on the stages, the *Sotz'ils* encourage their fellow citizens to believe in their own capacity to progress and to materialise that ideal of a multi-cultural and democratic nation, which so many Guatemalans dream of (Zardetto, 2011).

Europe is currently, on its part, facing its own democratic challenges. The traditional political class is losing the respect of the citizens and, with it, the democratic legitimacy of their mandates is vanishing too. Despite all official declarations of concern about the growing political apathy of European citizens, no significant changes have been introduced in the European or national levels, and the abstention rates continue to grow. In 1994 participation still defeated abstention by 56,7% to 43,3% in the European Parliament elections. 15 years later the situation has reversed: in the last elections it was 57% of voters who chose not to participate. And although voting is legally compulsory in Greece, 57% was also the percentage of citizens that refused to vote in the mayoral elections of the city which is considered as *"the birthplace of democracy and western civilization"*; thus, fewer than 4 in 10 Athenians voted for any of the contenders. The new mayor was finally elected, in the second round, with the votes of 15,81% of citizens; a quite meagre share, when compared to 69,57% not voting for him nor his opponent. In this troubled times of financial calamity, growing inequality and euro-scepticism, nationalist and far-right parties have also been gaining ground in several European countries: the recent cases of the Netherlands, Hungary, Sweden, Denmark, France and Finland are all examples of this tendency. If these dissenting parties achieve a sizeable influence in their national governments, EU's governance arrangements –much based on consensus– could soon become ineffectual. The whole European integration project is, as never before, deemed to be "cracking" (Torreblanca, 2011).

There has been talk about reducing the 'democratic deficit' of European institutions always since the term was coined 34 years ago (JEF, 1977). But even the reforms introduced with the 'Lisbon Treaty' did not mean a significant change in the eyes of citizens. On the contrary, the process of enacting the Treaty has damaged the democratic credentials of the EU, as it implied a factual disdain for the referenda from the Netherlands, France and Ireland that rejected the European Constitution and the Treaty. To make things worse, the first hundreds of US diplomatic cables released by Wikileaks already sufficed to "reveal comprehensively [...] to what extent the political classes in advanced Western democracies have been deceiving its citizens" (Moreno, 2010). They have exposed, as never before, the 'theatrical' nature of our representative democracies: politicians that say one thing publicly but do the opposite behind the scenes; governments that claim to adhere to high spirited principles, but are willing to contempt democratic and international laws whenever it suits their interest, if they have the power to do it; double-standards on human-rights, and thus the encouragement in 'friendly' countries of the same acts that are harshly criticized in others; etc.

Democracy was the product of an age where effective representation was constrained by disconnections of time and distance. As these barriers are transcended by communication technologies, democratic institutions can only flourish if they become more porous, accessible,

accountable and rooted in public space (Coleman, 2003). It is understandable that, in the 18th century, remote political representatives were considered by the Founding Fathers of the United States as "the only defence against the inconveniences of democracy consistent with the democratic form of government" (Farrand, 1911). But a lot has changed since then, and those representative arrangements are becoming more and more ineffective and illegitimate. Nowadays, a much better informed, educated, active and connected citizenry is becoming tired of interpreting the figurant role in a "democratic play" where their interests are not properly protected nor taken into account. Will this dramatic farce continue if the choir refuses to perform?

Existing political power balances are already shifting due to the empowerment of groups of citizens using social computing applications (Huijboom et al., 2009; Punie et al., 2009). Eight years ago neither Twitter, nor Facebook nor even the Web 2.0 existed. The 'Cablegate' leaks –of which 95,5% are still pending to be released by Wikileaks– are considered as instrumental in triggering the Tunisian revolution, the first of many uprisings that are currently convulsing the political landscape in the Middle East. One week before the last regional and municipal elections, the Spanish youth took also the streets, after organizing themselves via social networks, to demand –as was previously done in Tunisia and Egypt– a "Real Democracy NOW".

'Avaaz', an organization that aims "to close the gap between the world we have and the world most people everywhere want" by means of citizen mobilization actions worldwide, was born in 2007. It has now 9,3 million members and is getting twelve thousand new each day. Its extraordinary advocacy capacity has been recognized by media as The Economist, Süddeutsche Zeitung or The Times (Bentley, 2011). In Europe Avaaz was able, for example, to present to the EU Commissioner for Health the first 'one million signatures petition', more than a year before the legislation on the European Citizens' Initiative enters into force. And they claim to have obtained several significant victories in the last four years, "from establishing the world's largest ocean preserve and protecting the bans on whale hunting and ivory trading, to passing strong forestry and anti-corruption laws in Brazil, to shifting Japanese, German and Canadian policies on climate change".

Like it or not, the 'Facebook of civic engagement' is about to be created somewhere, probably at a negligible cost and with less official support. For the first time in history, public participation will become a reasonably useful occupation. Or even worse: by means of these platforms, civic engagement could turn into an amusing activity, or even an addictive and fashionable endeavour. The usage of these systems will spread, virally, and its accumulated effect will grow exponentially (Reed, 2000). Taking roots in local politics, it will empower citizens everywhere to increasingly cooperate one with another, and to collaborate with those politicians sensible enough as to care and listen. Insensitive politicians and parties, on their part, will be hold to account for their deeds much more easily, and in many cases they could be curtly 'replaced'. Internet will thus finally impact political structures, and representative institutions will –after centuries of relative stagnation– evolve.

To "sustain its legitimacy, democracy as we know it will have to change, and to change significantly" (Schmitter et al., 2004). The time has come for European institutions to decide if they want to be architects of the future or defenders of decline; to resolve whether they are willing to play a leading role in the political and democratic developments that our representative institutions demand, or rather prefer to wait until social unrest, once more, makes the transformations towards balance, equality and efficacy unavoidable.

But the democratic e-[R]evolution won't be EU-funded, will it?

Acknowledgement

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Re-interpreting the Relevance of eAccessibility from the Perspective of the Individual Public Authority

Despite major political focus the accessibility of public web sites is improving at a much slower rate than expected. Counter-intuitive results of eAccessibility policy may be explained by applying Niklas Luhmann's theory of social systems. According to Luhmann, society may be understood as a complex system of communication turned into a network of interconnected social subsystems through which the world is interpreted in various ways. Research suggests that the limited improvements in eAccessibility may in some part be due to a lack of understanding the benefits of eAccessibility by the responsible authorities. This may be explained by the different logics of the individual authorities. Recent political communication does not seem to catch on to the relevance and success criteria of the individual authorities to a sufficient degree, thus leading to a limited diffusion of eAccessibility. The analysis suggests that by targeting information and communication about eAccessibility to the affected public authorities, eAccessibility can be integrated into their communication and workflows on an everyday basis, leading potentially to an improvement in the accessibility levels of public sector web sites.

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Keywords

eAccessibility, eGovernment, social systems theory, eInclusion, policy implementation

" "Based on the empirical evidence and on the theory of social systems, we suggest the particular tool of presenting the potential of eAccessibility to the individual public authorities according to their specific relevance and success criteria" "

1. Introduction

Recent years have seen a surge in the number of eGovernment solutions across Europe, and the political focus on eAccessibility has never been greater. However, as is noted in the Call for Papers for this issue of the European Journal of ePractice (ePratice.eu, 2011b), several examples of counter-intuitive results and of policy resistance can be identified. Some examples of special relevance to this article are that citizens' use of the public digital solutions is limited compared to the number of internet users (European Commission, 2011) and that the accessibility of public web sites improves at a much slower rate than desired (European Commission, 2008).

In order to comprehend the reasons for these counter-intuitive effects of recent policy implementation in the field of eAccessibility, we suggest a change of perspective to a level of abstraction which focuses on society's structures of meaning, i.e. the social filters which interpret and make sense of the world. Thus we follow German sociologist Niklas Luhmann's theory of social systems (Cf. f.ex. Luhmann, 1995; Luhmann, 1997a; Luhmann, 1998). According to Luhmann, society may be understood as a complex system of communication that has differentiated into a network of interconnected social subsystems through which the world is interpreted in various ways.

We shall suggest that Luhmann's theory will help us understand why political arguments which have hitherto centred almost exclusively on those aspects of eAccessibility that benefit end users have proved to be insufficient. Further, the theory may help us highlight how we have to focus also on the possible benefits for the individual public authorities according to their specific perspectives of the world. Eventually this may contribute to the creation and application of an interpretative framework that is well suited to explain the effects of policy in this and other fields, and which may also serve as an analytical tool that can be used in the development of new policy and support initiatives.

The argument is partly theoretical and partly based on analysis of existing data, but should be seen more as an example of how social systems theory may explain shortcomings in this area than as a thorough analysis of all available information.

2. The theory of social systems

The theories of Niklas Luhmann are wide-ranging and complex. They are descriptive rather than normative and provide a useful framework for analysing society and its differentiated systems and subsystems.

According to Luhmann, all social actions are anchored in social systems (Luhmann 1995). These social systems are abstract social networks with each their way of interpreting the world. In this way specific patterns of action, knowledge, ability, motivation and dynamics are created within the boundaries of the systems. *Personal social systems* depend on human beings (but are not comprised of human beings). They range from *interaction systems*, e.g. a meeting or a conversation, to *organisation systems* (Bakken & Hernes 2003; Luhmann 2000), e.g. a ministry, a business enterprise, a municipality and sub-units within these organisations. At a different level we find *function systems* – systems of politics, economy, law, science, education, health, culture etc. – which fundamentally structure society on the level of meaning, sense-making, relevance and success, and to which personal social systems refer in various ways (Luhmann, 1997). Organisations that refer primarily to law, culture, science, education or health respectively will relate to eAccessibility from the specific success and relevance criteria of law, culture, science, education or health respectively.

Social systems create and recreate themselves through processes of communication which are anchored in the individual system's specific structures of relevance and success. The system is open to information from the environment, but whether and how the information is processed within the system depends on the internal structures of the system, of the way the system interprets the world (Luhmann 1997b). All states, events, and conditions in the environment are translated by the system. Consequently, an institutional body may be able to change the framework conditions for another body, i.e. a ministry of finance by changing the funding of other ministries, but it cannot control how these bodies react to the change. The same is the case with legislation, where new laws from one government department will have to be implemented by another government department, but the affected department decides how to interpret and implement this legislation.

In the following, we shall apply this theoretical framework in our attempt to explain why the accessibility of public web sites is improving at a much slower rate than desired. We shall suggest that exactly the differentiation of society into social systems with specific logics, success and relevance criteria impair the diffusion of eAccessibility measures.

2.1 eAccessibility

When applied to available data and research the systems theoretical approach appears to be able to explain or suggest the reasons for counter-intuitive policy effects in various policy areas. In the context of this article we will focus primarily on the development in the field of accessible public web sites. In the following chapters data will be presented, and the theory of social systems will be applied, leading to a possible explanation of why existing policy initiatives have not hitherto led to the desired increase in the accessibility levels of public web sites.

Despite explicit European goals concerning the accessibility of public web sites (i.e. the Riga Declaration, European Commission, 2006) and the ratification in all EU member states of the UN convention on the rights of persons with disabilities (2006), the majority of European public web sites are still nowhere near full conformance to the Web Content Accessibility Guidelines 2 level AA, which is specified in many countries and by the EU as the desirable standard to be met (European Commission, 2010a). Experience shows that even though the original WCAG guidelines were published way back in 1999, only few web developers implement these guidelines and many are not even aware of their existence (van Isacker et al., 2010).

In Denmark, conformance to WCAG AA has been a mandatory requirement for the web sites of public authorities since January 1, 2008[1]. Nevertheless, a recent Danish survey (Rambøll Management Consulting, 2011) has shown that among those persons responsible for ensuring compliance with the guidelines in the individual public authorities, only 19 % claimed that they use and conform to the WCAG requirements in practice and a huge 56 % that they apply the criteria "to some extent". The remaining 25 % had only a limited working knowledge of the requirements or did not know them at all. Some respondents thought that accessibility was primarily about usability and ease of reading. Interestingly, the respondents had wildly differing approaches as to how big a part of their potential users would benefit from eAccessibility, with 32 % answering "less than 5 %" and 16 % answering "more than 75 %".

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1   The requirement, which is set down in an agreement between national, regional and local government, is only mandatory for new or revised public web sites, but is widely considered to be a recommended, although voluntary, target for "older" sites as well.

The Danish survey seems to indicate that there is a limited working knowledge of the WCAG requirements and, perhaps more important, no clear understanding of their benefits to end users or to the authority itself. This suggests that existing policy, or rather, the implementation of this policy, has not had the intended effect of making authorities sufficiently aware of the guidelines.

2.2 Policy analysis

The main recent European policy documents dealing with eInclusion, i.e. the Riga Declaration (European Commission, 2006) and the Digital Agenda (European Commission, 2010) have focused almost exclusively on the rights, needs and benefits of the end users, i.e. people with disabilities, disadvantaged social groups and elderly people. Recent council conclusions on eGovernment underlined *"the need for inclusive and accessible eGovernment solutions in order to make people with disabilities and other groups at risk of exclusion more self-reliant and able to use self-service solutions, thus providing equal opportunities for all and minimising the risk of social exclusion"* (Council of the European Union, 2011).

The above mentioned documents are policy documents intended to set overall political priorities. However, very little concerns the effects for those responsible for implementing and reaching these policy objectives, namely public authorities at all levels.

A brief application of systems theory to this situation seems to lead to some interesting, preliminary conclusions: Individual public authorities, no matter the level of government, usually have some very specific priorities, pursued under certain financial constraints. For example, a ministry of the environment is entrusted with implementing environmental policy, a ministry of culture implements cultural policy, etc. At some point, it may not be clear to these organisations how eAccessibility is at all relevant to them, i.e. how eAccessibility leads to more support and resources to environment or culture respectively. This is a basic consequence of the closed communicative nature of the individual organisational system, i.e. a ministry or a local government unit.

In this respect eAccessibility seems to differ from many other types of government policy. In the area of accessibility there may be one central government department responsible for the overall coordination, but it is often the practical responsibility of multiple units in each and every single government department, region or municipality to actually realise the targets (see f.ex. the national eInclusion factsheets on ePractice.eu, 2011a). To give a counter example, other specific types of welfare policy such as social security benefits, health services, etc. are usually coordinated by one primarily responsible core ministry and the actual implementation responsibility lies with individual units charged with implementing this specific policy, and just this policy, in the relevant regions, municipalities, counties, etc. In contrast, few if any countries operate with a purely centralised government communication unit responsible for procuring and maintaining public websites across the public sector. Therefore, eAccessibility becomes the practical responsibility for each and every single public authority and government unit using digital communication, no matter how far from the eInclusion agenda its own priorities may be.

A cursory analysis of the data presented above seems to indicate that somewhere communication fails; communication from the nationally responsible authority does not connect to the internal communicative processes of the individual authorities. In theoretical terms this is to say that there does not seem to be sufficient *structural couplings* between the overall eAccessibility goals and political communication about these on the one hand, and the internal goals and communication of the individual departments on the other hand.

A social system has difficulties in finding issues relevant that do not connect to their specific criteria of relevance and success. "Access to all" and an inclusive society may be well and good in the eyes of all government departments, but individually each department has a primary responsibility to focus on their own area of jurisdiction within a given financial scope. And perhaps even more critically, if a social system has an understanding of an outside influence as impeding its own way of functioning, it will not just ignore it - it will work against it.

This may be contrasted to the development of eGovernment services as a whole. The number of eGovernment solutions made available by authorities across Europe has surged in recent years (European Commission; 2010b) - and in contrast to policy concerning eAccessibility, eGovernment policy has focused also on the ways in which it can improve and make government administration more cost efficient and how it can contribute to lessening administrative burdens to authorities and companies alike (see f.ex. Council of the European Union, 2011).

It should be noted, that following the theoretical approaches applied in this article, the systems affected does not ignore eAccessibility because of "bad will". Rather, as demonstrated above, it is a basic condition for all social systems that they can relate to eAccessibility only through their own unique logic and way of perceiving the world.

3. Consequences for eAccessibility policy

This article does not intend to propose solutions. However, based on the empirical evidence and on the theory of social systems, we suggest the particular tool of presenting the potential of eAccessibility to the individual public authorities according to their specific relevance and success criteria. If a public authority can be made to see that eAccessibility is neither irrelevant nor in opposition to its own area of responsibility, the subject of eAccessibility will catch on to the communication processes of the authority in question. If it can be demonstrated in a way which connect to the individual perspective of a public authority that eAccessibility may lead to resources being used better and to the authority being able to communicate more efficiently with its target groups, eAccessibility may be seen as helping to reach the priorities of the authority rather than to impair them. And, as Luhmann remarks: "Any system is defenceless when connections are made to the code specific conditions [of the system]" (Luhmann 1986:22). In other words, when a public authority sees that eAccessibility meets with its specific relevance and success criteria, it cannot help finding eAccessibility relevant and beneficial and cannot help connecting to the subject in the internal workflow and communication processes.

To conclude, in order to penetrate successfully within the diversity of public authorities, eAccessibility has to be interpreted according to their individual relevance and success criteria. From this also follows that those of us working with the penetration of eAccessibility have to be cautious to pragmatic, intuitive approaches and probably will have to adopt more counter-intuitive methodologies. Following Luhmann (1995), there is no such thing as one common sense. Sense will vary according to the individual public authority, and an effective approach in promoting eAccessibility will require counter-intuition. What seems logical and natural to one department may seem strange and irrelevant to another.

Therefore it is necessary for a ministry or other national entity responsible for promoting eAccessibility to work in a more focused way to make these benefits visible to the individual public authority. An analysis of social systems can be highly complex, but basically it can offer tools to observe and analyse the communication of a social system (Andersen, 2003), i.e. a government department, a web communication unit or a local municipality.

This analysis can lead to a more profound understanding of the internal logic of the relevant systems, which may again be helpful when trying to ascertain whether and how eAccessibility may help a system reach its own objectives and how to communicate it to the specific social system in question, i.e. a specific public authority.

4. Conclusion

Recent policy actions in the field of eInclusion have not had the expected impact. Surveys have shown that among practitioners with public authorities, some general knowledge of accessibility requirements and guidelines usually exist, whereas there is a more limited practical knowledge of the technical details and the potential benefits of eAccessibility for the individual organisation.

The article has suggested that these findings can be explained by applying Niklas Luhmann's theories of social systems in the analysis of political communication about eAccessibility. A cursory analysis suggests that recent political communication in this area has not to a sufficient degree been perceived as relevant by the individual public authorities responsible for making their web sites conform to accessibility requirements. As has been shown, this may be because the political communication has hitherto centred almost exclusively on those aspects of eAccessibility that benefit end users, instead of also focusing on the possible benefits to the individual public authority. Thus the lack of perceived relevance becomes one of the major factors for policy resistance within the individual public authorities.

The analysis suggests that by targeting information and communication about eAccessibility to the affected public authorities, eAccessibility may be integrated into the communication and workflows of these bodies on an everyday basis, leading potentially to an improvement in the accessibility levels of public sector web sites.

Finally, it has been demonstrated how the systems theoretical approach of Niklas Luhmann may serve as a theoretical and interpretative framework to better understand the internal logics of individual authorities and organizations. The results of an analysis based on this framework may then be used as a tool to explain the reasons for any possible policy resistance in these organisations, as well to develop policy in these and other areas.

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Our Internet and Freedom of Speech 'Hobbled by History': Introducing Plural Control Structures Needed to Redress a Decade of Linear Policy

This paper details and interprets evidence of the historical shift of internet control, and particularly the control of the Domain Name System, from a public trust to private parties. It examines the ramifications of these shifts on (i) political dynamics and user autonomy in the Internet's infrastructure, (ii) 'freedom of speech', and, more generally, (iii) the power of the Internet to influence individuals and to shape societies. It concludes that future policy should recognise the possibilities of non-linear and plural control structures as alternative mechanisms for promoting greater eInclusion, eAccessibility and democratisation than is permitted by the hierarchical control structures of Internet History. Within this context, the paper notes that Internet free speech and future priorities of global society are being seeded at this very moment by policies of Domain Name System and Internet architecture control that need to be more fully and more publicly monitored.

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Keywords

Free Speech, Domain Name System Policy, Internet Privatisation, ICANN, Internet Governance

> " The enactment of policy that encourages technical non-linearity and is sensitive to multiple social, political and economic networks may foster a more flexible and organic outlook for an Internet that recognises participation at every level of its structure, more fully promotes eInclusion and eAccessibility, and genuinely democratises the network. "

1. Introduction – A property analysis of DNS controls on information liberties

The first decade of the public Internet has been marked by a continual confrontation of property ideologies, not only as to how the Internet should be managed, but also by whom. This confrontation resulted in technical choices and jurisprudence that tended towards central control and linearity. These favoured short-term stability but, by reducing the structure of the Internet to a hierarchy of control, negated alternative possibilities of building a structure for eInclusion and eAccessibility that was plural and flexible at all levels. Policy resistance towards non-linear and distributed control can be explained by the contemporary worldviews of the socio-political and technical interests directing the development of the Internet, and by attempts to harmonise the new and potentially innovative ecosystem to existing legislation for existing technologies and existing paradigms. With the benefit of over a decade of hindsight, this paper now analyses evidence of the confrontation of ideologies which marked the development of the Internet to provide the basis for a more socially and politically sensitive framework for future Internet policy.

In this paper, detailed evidence of the ways in which the Internet developed is analysed to deduce that two conflicting interests have prevailed in its development - private property versus public trust - and that the conflicting expansion of these interests implies current ramifications on policy development. The current concern, then expressed, is whether policies should (i) define the Internet as private property - to be divided between those with means to develop it, and in line with their commercial interests - or whether they should (ii) define the Internet as a public trust - for promotion of information sharing and free expression of opinions, in short, for the promotion of informed free speech. This vital debate inevitably demands examination of the fundamental interests having directed Internet policy and selected its governance, so as to determine the nature of the Internet and the consequent shaping of our global social and political priorities for eAccessibility and eInclusion.

A purely technical analysis of the Internet might consider the technology as little more than a massive communication network: a mechanism for sharing information on an unprecedented scale. Yet the choice of what information is to be shared, which social groups will control the expression of, and access to, such information, and which interests will benefit from its use, are of considerable importance to the development and sustainability of society in general. Indeed, the multitude of interests which exert influence over the Internet, be they research, social or commercial, and the diverse motivations for which each party uses the network for communication, be it from privacy or security to free speech or information control, raises often competing relationships among user interests.

The balanced consideration of competing interests for future policy is perhaps best encompassed in the partly theoretical study of what is termed here as 'Internet freedom' - that is, the freedom of information afforded on the Internet. It is hence of substantial importance to consider to what extent freedom may exist on the Internet and, in doing so, to analyse the very processes which allow for its existence. To such an end, this paper analyses the Domain Name System (DNS) as the foundational mechanism allowing for Internet freedom and, further, applies property ideology in order to offer an innovative and comprehensive understanding of the evolution of Internet freedom. To this end, the privatisation of the Domain Name System is analysed through a discussion of the introduction of private sector parties in the process of Internet governance, the effects of such privatisation on information liberties, and attempts at impeding privatisation. It is through such a retrospective understanding that the current state of Internet freedom, as exclusively afforded through the DNS, can perhaps most clearly be understood, and a framework for future policy development that is sensitive to complex, non-linear socio-political interests can most explicitly be distilled.

2. Retracing the Early Privatisation of the Domain Name System

Being originally a research-oriented network, the structure of the Internet has been largely modelled on the public interest, rather than the private. The original packet-switching network, the ARPAnet, was established by the Department of Defense's Advanced Research Project Agency (DARPA) which, having standardised the network in October 1967, and continued funding its development throughout the next decade, managed the network until the early 1980s. The maintenance of the network comprised of two major aspects, which directly granted access and the dissemination of information. First, the publication and organisation of a series of non-binding documents, titled 'Request For Comments' (RFC), sought public consideration in standardising technical parameters and procedures of the network for the purpose of furthering development (Denardis, 2009: 26). Secondly, the assignment of IP addresses and the regular updating of a crucial list of Internet numeric identifiers and names were required for the operation and continued growth of the Internet (Feinler, 2011: 74-75). These functions collectively became known as the Internet Assigned Numbers Authority (IANA) (National Telecommunications and Information Administration, 2011).

For 28 years from 1969, the management of the numeric identifier and names list was delegated to Dr. Jon Postel, originally a graduate student at the University of California in Los Angeles (UCLA), who would eventually relocate his functions to the Information Sciences Institute (ISI) at the University of Southern California (Denardis, 2009: 26). There being no formal contract to explicitly state the authority of Postel in relation to other Internet responsibilities, his IANA duties were based largely, if not entirely, on the consensus of the then-small and homogeneous Internet technical community (Feld, 2003: 340). As a memorial RFC acknowledged, Dr. Postel would "keep track of all the protocols, the identifiers, networks and addresses and ultimately the names of all the things in the networked universe" (RFC2468, 1998: 1). As the network grew in size and efforts needed to maintain the list of names and numbers became greater, Dr. Postel delegated, under the discretionary authority vested in IANA, part of the duties of IANA to the Stanford Research Institute (SRI) (see RFC1174, 1990). However, the maintenance of the list soon became an impracticable and inflexible task (RFC799, 1981, p. 1), and IANA began to develop the Domain Name System (DNS) to help improve this function. Starting in the early 1990s, the new DNS would be shifted from an administrative task to become a lucrative commercial business in its own right.

The involvement of the private sector in the Internet was perhaps first seen in a secondary network that was funded by the National Science Foundation (NSF), NSFNET. NSF provided funding for the development of the network to a coalition of two commercial companies, IBM and MCI, with the Merit Network of Michigan's public universities. The size of the network increased tremendously during the beginning of the 1990s; indeed, performance statistics collected and maintained by the Merit Network indicate that the number of hosts on the network almost doubled from 617 000 hosts in October 1991, to 1 136 000 in October 1992 (Merit, 1997), and that bandwidth usage more than doubled from 1 879 bytes in October 1991, to 3 903 bytes in October 1992 (Merit, 1995). The rapid growth of the network prompted NSF to solicit proposals to manage directory services and manage registration services, including domain name registrations, for the non-military portion of the network (NSF9224, 1992). Furthermore, being an agency of the United States Government, NSF proposed an estimated $ 2 million in annual federal 'funding' for the project (NSF9224, 1992). In 1993, NSF announced that AT&T and General Atomics had been respectively chosen to provide directory services and information services, and that Network Solutions Inc. (NSI) was chosen to provide registration services for the network (National Science Foundation & Network Solutions, Incorporated, 1993). Hence, NSI, through its cooperative agreement with NSF, became the first commercial company to maintain massive control over registration services for non-military Internet domain names. NSI maintained authority over the DNS until the expiry of the agreement on September

30th 1998, after which the Department of Commerce granted authority to the Internet Corporation for Assigned Names and Numbers (ICANN), which has since continuously maintained this authority (Department of Commerce, 1998b).

The selection of NSI to manage the entirety of registration services for the network placed the private company at the forefront of the procedure for public expression on the Internet. In all practical terms, domain name registration is one of the first steps towards using the Internet as a means of expression. In order to locate an information-sharing host on the Internet, a unique numeric identifier, called an 'Internet Protocol' (IP) address, is attributed to each networked host. An IP address is implemented as a string of four sets of numbers, separated by periods, such as '192.168.0.1'. The domain name registration agreement allowed NSI to manage the creation of records which, in turn, allow for relatively obscure IP addresses to be resolved to more memorable alphanumeric 'domain names' (RFC1480, 1993). Domain names follow a hierarchical structure that is useful in roughly organising hosts on the network into general categories. Specifically, this allowed for an organisation of the network into seven generic top-level domains (gTLDs), which were available to the general Internet public, as well as over two hundred country-code top-level domains (ccTLDs) which were made available and organised at the discretion of individual countries. NSI would maintain direct control over mapping domain names to IP addresses, and it would hold responsibility for registering these maps daily on the root servers of the Internet. Hence, even though the Internet was largely a public network and, as Lessig notes, "…was born at universities in the United States" (Lessig, 1999, p. 25), it would be directly regulated by a single private company.

3. The Extent of 'Speech' on the Domain Name System

Prior to considering any evaluation of the practical ramifications of DNS privatisation on the freedoms of the network, and particularly on free speech, it is important to first qualify the extent to which domain names constitute expression that may be protected under the laws and ideals of free speech. The issue has arisen in legal actions against NSI, where two principal judicial stances have been assumed on the issue, most notably by two separate court rulings, the first being countered by the second. At the turn of the millennium, the law had been only tepidly applied to the Internet: as the Second CircuitCourt has stated, albeit within the context of trademark law, attempting to apply law "…in the fast-developing world of the Internet is somewhat like trying to board a moving bus" (*Bensuran v. Restaurant King, 1997*) and, within another case, the Court later stated itself to be "wary of making legal pronouncements based on highly fluid circumstances, which almost certainly will give way to tomorrow's new realities"(*Name Space, Inc. vs. Network Solutions, Inc., 2000*). Nevertheless, the arguments which are at first presented, and those that are then assumed in these rulings, are of foundational importance to the practical operation of Internet governance - the direct ramification of explicit judicial decisions is to form the legal framework which has manipulated the private sector actors of Internet governance in their policies regarding freedom of speech on the Internet.

Although it may be an established presupposition beyond the legal institution that "the right to express oneself in the creation of an Internet name is guaranteed by the First Amendment to the US Constitution and the People's Communication Charter, and is highly encouraged"(Name.Space, n/d), the legal stance towards the issue is less straightforward. The extent to which free speech may be protected or infringed through the DNS has been discussed in a series of court hearings during the late 1990s, almost all of which were the initiatives of legal action taken against NSI. The first of the series began after PgMedia, the alternative domain provider which would later become Name.Space, alleged First Amendment violations against NSI and the NSF (*pgMedia, Inc. v. Network*

Solutions, Inc., 1999). The court decided against the allegations, stating that domain names are not expressive speech, and cannot therefore be protected under free speech. In its argumentation, the court simplified domain names to 'source identifiers' akin to telephone mnemonics, such as 1-800-FLOWERS[1], which themselves are not considered to express speech. It was also stated that a 3-character gTLD was not substantial enough to be speech. The plaintiff appealed to the Court of Appeals in *pgMedia, Inc. v. Network Solutions, Inc.* (1999), which revised the previous ruling so as to recognise the potential expressive value of a domain, although stating that domain names in their current form do not constitute freedom of speech. It should perhaps be noted that a similar ruling was reinstated in a 2000 lawsuit, which also drew a resemblance to telephone and social security numbers, and stated that "domain names were not designed, intended, or traditionally employed to act as a fora for speech" (National A-1 Advertising, inc. v. Network Solutions, 2000).

The court rulings show a significant misunderstanding of the DNS. As was acknowledged in *Name. Space, inc. v. Network Solutions* (2000), existing 3-character gTLDs are only non-substantive "afterthoughts" due to non-technical limitations set on the DNS. Indeed, as the Court of Appeals continued, "the district court did not address the possibility that longer and more contentful gTLDs like '.jones for president' and '.smith for senate' may constitute protected speech, such as political speech or parody" (Name.Space, inc. v. Network Solutions). Yet even with the assumption of such a possibility, both courts seem to ignore that a domain name in its entirety may consist of expressive speech. In this sense, a domain name as a whole - that is, consisting of both a top-level-domain and of a second-level-domain[2] - may be expressive. For instance, the domain JonesForPresident.com is clearly expressive and may be protected under free speech, even though the gTLD itself is not. Further, this paper herein proposes that domain names may be of significant importance to the issue of free speech in that they are accessories to free speech, at least to the extent that they act as portals to protected speech.

Indeed, the uniqueness of domain names coupled with the choice of their registration process imposes a censorship requirement which implies that free speech is handed out on a 'first com[e], first serve' basis. In effect, if JonesForPresident.com has already been registered, no new user can decide to acquire the domain in order to ease the sharing of their speech – which is not so much expressed through the content of the domain itself, but through the website to which the domain points. Instead, users are forced to choose less popular extensions, such as .net or .org[3], which might themselves be of uncertain availability, in order to express themselves. The discrepancy in gTLD popularity as a factor in free speech is not substantially considered in the *Name.Space* and *pgMedia* rulings, nor is it viewed as an impediment to free speech by the judiciary in general. Indeed, a further suit initiated against NSI rather superficially concludes that "impeding access to a domain name is not the same thing as impeding access to the Internet… a web site's content is not connected to or restricted by the domain name under which it is accessed" *(Lockheed Martin Corp. v. Network Solutions, Inc., 1999)*.

The proposal of this paper, then, is that whether or not a domain name can be expressive in itself, although important in a more limited scope and although clearly possible, gives way to a larger issue of eAccessibility; considering that domain names are unique, and their distribution limited, it can be

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1   The 2nd Circuit Court of Appeals notes that the adoption of the telephone mnemonic analogy to domain names is not new, citing the Ninth Circuit decision in Panavision Int'l, L.P. v. Toeppen (1998); seeName.Space Inc. v. Network Solutions Inc.(2000).

2   In a hierarchical view, a second-level-domain is the part of a domain name below the top-level-domain, and is identified as the part of the domain name which proceeds the final period in a domain name (RFC 920, 1984). For instance, in EFF.org, EFF is the second-level-domain.

3   Popularity differences among gTLD usage can be shown in registration statistics. As of May 2011, there were 973 million .com registrations, as opposed to only 14 million .net registrations and 9 million .org registrations (Internet Corporation for Assigned Names and Numbers, 2011)

seen that the current domain system imposes stringent and unnatural requirements on free speech. Likewise, although free speech on the Internet may resemble the publication of books in a library, it is the control of the keys to the library which also determine the freedom of speech. Indeed, the right to free speech is most certainly important and may be afforded, although to an uncertain extent, through the DNS, but the visibility of free speech is just as crucial in affording free speech - for free speech is of little effect when the expressive element is present but access is lacking.

4. The Effects of Early Domain Name System Privatisation on Free Speech

The early privatisation of the DNS, and particularly its monopolisation by NSI, provided a large degree of inflexibility within the growth of the Internet. Whereas IANA had previously rested largely upon community participation in developing and maintaining the DNS, NSI held little obligation towards the public and became a clearing-house for deciding upon which names would be registered. Indeed, NSI had been accused of routinely refusing to register names that it considers to be objectionable, and has justified this by claiming "a right founded in the First Amendment to the U.S. Constitution to refuse to register, and thereby publish, on the Internet registry of domain names words that it deems to be appropriate" (cited in *Name.Space, Inc.v. Network Solutions, Inc. and National Science Foundation*, 1999). Such a reference to the constitutional protection of freedom of speech may appear contradictory, as NSI seems to have applied its advantageous contractual status in order to privilege its own private interests over those of an entire infrastructure for expression. After NSI had refused to register approximately thirty domains proposed by National A-1 Advertising, Inc., under the pretence that the domains contained sexually-oriented words and phrases, National filed suit against NSI for first amendment violations (see *National A-1 Advertising, inc. v. Network Solutions*, 2000).

The court deemed that domain names were not a public forum afforded first amendment protection, and that NSI is not capable of violating first amendment rights, due to its contract with the federal government. Moreover, even beyond concerns related to speech limitation, the foundational privatisation of a public trust raised contempt in parts of the Internet community (Lioy, Maino, et al., p.1, 2000). Perhaps due to a general maturing of both camps, it would be in the latter half of 1990s that the distinct division between the application of public and private property ideologies would be perhaps most visible, specifically through the development of alternative networks that would initially bypass NSI, NSF and, ultimately, U.S. Government control of Internet-based expression.

4.1. Rise of the Alternative Internet as Extended Speech Production

Although Internet governance of the early 1990s tended towards private control of the Internet in general, and of the DNS in particular, the protocols and technology used to communicate over the network remained public. Furthermore, where institutionalised Internet governance had gained its power, such as over the administrative tasks that had previously been operated by IANA, its power was only enforced by a general consensus of its authority.

Indeed, the root servers that were maintained by NSI were only a central tenant of Internet control to the extent that the root servers were used to resolve domain names to IP addresses. Yet, just as a domain name could be resolved to its IP address using name servers controlled by NSI, the same domain names could equally be queried using an alternative root server, which could resolve them to

entirely different IP addresses. Even more significant, however, was the possibility of expanding the DNS name space to include further domain name extensions which the privately-regulated Internet denied. Such technical possibilities allowed for the application of alternative gTLDs and for the creation of potentially unrestricted new portals to information; that is, an alternative Internet.

The emergence of alternative networks, outside of the authoritarian reign of NSI, may have permitted much of the theoretical complications associated with the monopolistic private control of the Internet to be resolved. Kashpureff, who founded one such network, stated that the new, independent namespace came partly in response to the "lack of choice" in the current system (Diamond, 1998, p. 2). So as to not overlap the existing namespace, many networks replicated the domain name lists in the NSI root server and, additionally, introduced alternative extensions. Many such networks appeared, including most notably enhancedDNS (eDNS), Name.Space and Alternic. Alternic, which became operational on April 1st 1996, introduced new TLDs such as .porn for pornographic websites, .med for medical websites, and .exp for experimental uses, among others (Wilson, 2001, p. 61).

Name.Space introduced extensions such as .forpresident, .formayor and .microsoft.free.zone (*Name.Space, Inc. v. Network Solutions, Inc.*, 2000, §578). Such alternative domains extended the namespace so as to provide a larger degree of flexibility in registering domain names, and so as to curtail, as Kashpureff asserted, the "...fact that the control of domain-name space still lies with the US government" (Diamond, 1998: 2). Nevertheless, the alternative namespaces were not universally resolvable and were not accessible by most Internet users (*Name.Space, Inc. v. Network Solutions, Inc.*, 2000: §II). Since official requests to locate a host on the DNS necessarily had to pass through the configuration file and root servers at NSI in order to be resolved to an IP address (see PGMedia complaint v. NSI), the inclusion of these alternative domains on the Internet were under the direct control of NSI. Since NSI had not amended its root zone file to include the alternative gTLDs, these alternative domains were only accessible to those few users who were aware of the existence of alternative networks and technically-savvy enough to manually reconfigure their web browser to point to one of the alternative network's root zone file (Brophy, 2002: 14).

The implementation of alternative gTLDs predates any significant debate on name space extension by official actors, and this exemplifies how democratising the DNS alters the pace of developing Internet policy, the nature of decisions that justify that policy development, and political dynamics and user autonomy in the network infrastructure. At the time of writing, IANA maintains 310 top-level domains, including generic, country code, infrastructure and internationalised domain names (Internet Assigned Numbers Authority, 2011a).

However, some of these are not open to the general public and require industry affiliation – for example, .museum restricts registration to groups and institutions recognised by the International Council of Museums, and .aero requires registrants be affiliated to the aeronautics industry. Other domains registrars enforce civil registration restrictions, such as the .au domain which limits registrations to residents and entities registered in Australia (*.AU* Domain Administration, 2008).

Some registrars enforce direct government oversight over which names can or cannot be registered, a process which often has little democratic recourse. For example, AFNIC, which operates the French .fr domain, maintains a list of prohibited terms that is modifiable only by the Minister in charge of Electronic Communications (AFNIC, 2010: 17). Based on this list, AFNIC denies registration for many generic terms pertaining to political institutions (e.g. 'democratie.fr' and 'justice.fr'), country names (e.g. 'Vietnam.fr'), and regulated businesses (e.g. 'artisan.fr' and 'dentiste.fr'), among others, even though these domains may resolve to legitimate speech (AFNIC, 2011).

As opposed to the almost immediate TLD inclusion in the alternative namespaces of the 1990s, the inclusion of official TLDs by ICANN have been cautious. For instance, while Alternic introduced .porn as early as 1996, the official inclusion of a TLD for pornographic websites occurred only when ICANN introduced .xxx on March 31st 2011, although the inclusion had been officially proposed as early as 2000 and had been variously denied and reconsidered (Internet Assigned Numbers Authority, 2011b).

In practice, with the exception of the 2001 introduction of few generic domains such as .biz and .info to alleviate "concern over lack of choice" (Internet Assigned Numbers Authority, 2001: 1), as well as the 2009 introduction of internationalised domains to cater to the internet's multilingual user-base (Internet Corporation for Assigned Names and Numbers, 2009), introductions of new domains were rarely justified by principles of free speech and choice, but rather on individual proposals from sponsoring industries and formal cultural interests, such as has been the case with .aero or .museum (see Internet Assigned Numbers Authority, 2011b: 1-2). Debate over domain inclusion may drift to elements alien to protecting speech and ensuring choice through a neutral registration service. This was seen in the specific example of the recent .xxx TLD, in which debate can be generally divided along the three lines of whether the domain would encourage pornography production, whether the domain legitimises pornography, and whether the domain would be harmful to children (Mac Síthigh, 2010, 295-297).

The definition of the name space is, then, a challenge of ascertaining the popular desire of the global internet community and infrastructure needs from the top-down - as supported by formal institutions, interests and governments - rather than a democratic endeavour of internet users in recognising the free speech value of domains, both in themselves and as portals to information.

The existence and popularity of alternative networks spurred neither the official acceptance of the extended namespace, nor the inclusion of alternative top-level domains. In 2000, Name.Space stated in an accreditation application to ICANN that it had faith in the future success of its alternative domains and that it "…strongly believes that the gTLDs that it publishes and operates will be highly popular, and as proven by our own usage statistics, users will seek them out as they now do with 'legacy' domains" (Name.Space, 2000, §3.4).

Regarding Alternic, Kashpureff claims that at times "as much as three per cent of the Internet was running off our root name servers as opposed to the government's, which is very healthy, because that three per cent made a conscious choice to change" (Diamond, 1998, p. 6). In 1997, Name.Space [4] requested that NSI amend the root zone file to include the alternative gTLDs, an inclusion which would have allowed universal resolvability of the alternative extensions (*Name.Space v. Network Solutions*, 1999, §III).

The request was initially refused but was then referred to IANA and eventually to NSF, which would finally decline the request, reinforcing the decision with a directive that NSI not add any new gTLDs until NSF completes a then ongoing internal review of the United States' role in managing the DNS (National Science Foundation, 2002). After failing to receive the inclusion of its domains, Name. Space began legal action against both NSI and the NSF, alleging antitrust and First Amendment violations[5]. As PgMedia asserted in the oral court hearings against NSI and NSF, the limits of domain name registrations and the refusal to add new domain names is a clear prior restraint on free speech

4   The Name.Space network was originally represented by the company PGMedia, which would only become Name.Space following initial legal action against Network Solutions, Inc. Hence, both Name.Space and PGMedia are referred to herein to represent the Name.Space network, albeit at differing times.
5   The National Science Foundation was not initially included in the Name.Space complaint, but was only added as a non-party co-conspirator in a second complaint lodged on September 17th 1997, after the National Science Foundation denied the inclusion of the alternative gTLDs and issued a directive to Network Solutions, Inc. (Name.Space v. Network Solutions inc., 1999).

in that "…it says to the plaintiff, you must speak our words, .com, .net, .org; you can't speak .arts, .web, and you can only speak if your speech complies with the guidelines that we limit" (Southern District Court of New York, 1998, p.25).

However, Name.Space would lose both its case and a consecutive appeal following two court rulings[6]. Firstly, the court deemed NSI to be immune from antitrust due to its contractual status with a government agency and due to this status being in accord to the United States' policy of DNS management. Secondly, it was decided that domain names in their current form are not considered expressive speech and that they are, hence, not protected by the First Amendment.

4.2. Cyber Protests Bypass Monopoly over the Means to Free Speech

Whilst some in the alternative network community fought a legal battle against NSI and its external hierarchy, others floated the idea of a cyber-protest in favour of alternative namespace acceptance. In January 1998, Dr. Jon Postel himself organised a short-lived protest by redirecting the root servers away from the official structure (Mueller, 2002: 142). In June 1997, only a month after Name.Space requested NSI to merge the official and unofficial domain lookup tables, Kashpureff hacked the NSI root server through cache poisoning. The 'hacktivism' in which Kashpureff engaged allowed up to 90 % of the Internet to gain access to the Alternic gTLDS, without any reconfiguration of their browser (Brophy, 2002: 17). Hence, although only momentarily, the extended namespace became theoretically democratised, as the large majority of Internet users of all levels extended their reach away from the conventional Internet. Having attacked the technical underpinnings of the NSI private monopoly, Kashpureff completed his protest by then attacking the monopoly itself.

Thus, in July 1997, Kashpureff defaced the InterNIC website, which, at the time of writing, states to exist for the purpose of providing "…public information regarding Internet domain name registration services" (Internic, 2011). The defacement provided a link to the original Internic website as well as a protest stating that "by redirecting the domain name 'www.internic.net,' we are protesting the recent Internic claim to ownership of '.com,' '.org,' and '.net' which they were supposed to be running in the public interest" (*cited* in Brophy, 2002: 17).

The protest was technically successful, if only in its duration. Indeed, Kashpureff would begin the hijack on July 11, end the attack on July 14, but then become angry and start again on July 18 (Kornblum, 1997: 1). The protest was investigated by the FBI, which pushed for Kashpureff's gunpoint arrest in Toronto and his extradition to the United States in order to face wire fraud charges (Brophy, 2002, p. 18).

In retrospect, it can be seen that resistance to the privatisation of the Internet seems to have been of little impact. Whether considering the context of legal action taken by Name.Space against NSI and the NSF, the grass-root protests of Kashpureff or Postel, or even the very existence of alternative name spaces, the constant failures to take notice of a general need to reform DNS management are no less dramatic than the political history of the DNS itself.

Further, although there clearly existed a movement in opposition to NSI, and although this movement would eventually gain the support of founding Internet architects such as Postel (Feld, 2003: 342), the perspective of this movement was certainly not universal. For instance, whereas alternative networks are now hailed by some academics as the 'Outlaw Net' which defy authoritative rule and increase competition (*see* Brophy, 2002), others have labelled them as 'rogue servers' which destabilise the Internet (*see* Davidowicz, 1999: 10).

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6   See Name.Space v. Network Solution (2000); and PGMedia v. Network Solutions (1999).

This latter, and rather apocalyptic scenario, implies that a public and non-monopolistic Internet would not be able to sustain an organisation capable of respecting domain name uniqueness – a view held despite there being already established solutions to this complication[7]. Nevertheless, this view is adopted by a majority of technical proponents (Feld, 2003: 351), and most probably by only a minority of idealists. Hence, one often needs not look far for literature criticising a public and decentralised Internet, or within much the same spirit, negatively construing the cyber-protest of Kashpureff as being filled with "…propaganda surrounding his motives and objections" (Davidowicz, 1999: 10). Despite protests against the disadvantages of a monopoly, and particularly the potential restrictions on free speech, DNS management has historically swayed towards private regulation.

5. Conclusions: A Change in the Perception of the Nature of the Internet

The political history of the Domain Name System presented here is relevant as a basis for considering how the structure of the Internet may be used to democratise the network and support both eAccessibility and eInclusion. Whereas the structure imposed upon the Internet by the official institutions of Internet Governance is hierarchical – policy was made by Network Solutions Inc. through contract with the National Science Foundation in the 1990s and ICANN through contract with the Department of Commerce today – considering the ability to create alternative Internets suggests the possibility of a horizontal control structure. Officially integrating alternative networks would have been a timely method of realising this possibility in the 1990s, but the decline of the alternative networks, and consequent growth of internet customs and technologies based on a hierarchal structure, renders this an anachronistic solution today. Nevertheless, the more general principle remains that integrating direct public control into structure of the DNS would not only democratise the content of the network by recognising domain names as 'speech', and so facilitating direct access to online material, but it would also democratise the Internet itself simply by providing a dynamic infrastructure more dependent upon its users. Through an analysis of the politics of the DNS one may note not only the infrastructure decisions taken in a pre-Web 2.0 Internet, but also how recent intellectual developments in how the Internet is perceived – the recognition of peer - production in the "networked public sphere" (Benkler, 2006), the value of the extended content of the "long tail" (Anderson, 2006),the importance of "generative technologies" (Zittrain, 2008), the formalisation of distributed production through GNU and Creative Commons copyright licenses, to name a few – may allow us to employ new social and technical conceptions to re-open a debate on the popularisation of the Internet's structure.

As has been shown, the Internet is rooted in public development and research, for the purpose of free information sharing. In its initial sense, the Internet has often been equated to the frontier, that region of the world where all is possible. Yet, the virtual frontier seems to have developed contrary to its natural, or at least original, freedom; it is the epitome of Rousseau's statement that 'man is born free, and everywhere he is in chains'. An appropriate allusion may perhaps be made to the Enclosure Movement of 18th and 19th century England, where common land was fenced off and transformed into private property (Boyle, 2003: 33-34); the parallels between the Enclosure Movement and the Internet are expressed most notably in Hunter's use of the phrase "the digital anticommons" (Hunter, 2003). Nevertheless, the century-old problematic of enclosure property ideology, and most notably the Lockean definition of freedom that seems to complement private property ideology so well, seems as pertinent today as it has seemed in the literature of the time:

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7   Domain name uniqueness can be maintained through consensus amongst networks as to which IP addresses a domain name should resolve. Such consensus is possible through an organisational grouping of namespaces. Further, such grouping has already occurred, such as in the Open Root Server Confederation (ORSC) and PacificRoot networks (Brophy, 2002, p. 8).

The law locks up the man or woman

Who steals the goose from off the common

But leaves the greater villain loose

Who steals the common from off the goose.

The law demands that we atone

When we take things we do not own

But leaves the lords and ladies fine

Who take things that are yours and mine.

The poor and wretched don't escape

If they conspire the law to break;

This must be so but they endure

Those who conspire to make the law.

The law locks up the man or woman

Who steals the goose from off the common

And geese will still a common lack

Till they go and steal it back

(Anonymous, in Boyle, 2003, p. 33)

The privatisation of the Internet reflects more than a policy change: it reflects a change in the perception of the nature of the Internet itself. Internet Protocol addresses permit communication and sharing of information through a wide range of protocols, some of which operate in a distributed manner without third parties; but the Domain Name System and, most notably, its registration service, facilitate more immediate recognisability of services, individuals and institutions on the network. It is what allows for the creation of domains, here considered as portals to information, and hence, it is what allows non-technical users to access and browse information through the Web. The political development of the Domain Name System has provided a large literature exploring the responsibility of maintaining this means of production, from the earliest Request for Comments of Jon Postel to the White House (1997a; 1997b), Department of Commerce(1998a; 1998b) and ICANN reports, as well as academic analysis - Michael Froomkin (2011), an eminent academic expert on ICANN, in particular, clearly details the risks of a single entity overseeing the Domain Name System as being associated with political power and with economic power exerted over registrars, registries and registrants, although he finds that control over the DNS entails little geo-strategic risk. This essay has shown that by shifting such means into private and even monopolistic control, the public benefits of the Internet in communication, such as freedom of speech and autonomy over the infrastructure allowing that

speech, are minimised in relation to private interest, the extent to which these interests permit public or government advisory, and top-down decision structures. Although indirect, it is important to note, as has this paper, that this change is in effect a limiting and most fundamental mechanism of information control. In applying property ideology to the Internet, it can be seen that just as controlling information within a society in general, and even more so in an 'information society', acts as an "essential part of the process of social control" (Schiavetta&Komaitis, 2003: 1), so too does controlling the dissemination of information within society. Thus, to the extent that domain names act as portals to information, the privatisation of the Domain Name System does just that, by placing the public ability to share information under private control. Analysing the history of Domain Name System development brings to light the technical and legislative possibilities of plural and multi-dimensional control structures that no longer reduce the Internet to a hierarchal structure – one thus would no longer democratise 'from the ground up', but 'from the inside out', that is, across levels of user control. The enactment of policy that encourages technical non-linearity and is sensitive to multiple social, political and economic networks may foster a more flexible and organic outlook for an Internet that recognizes participation at every level of its structure, more fully promotes eInclusion and eAccessibility, and genuinely democratises the network.

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