

Towards a Framework for Analysing and Comparing ICT for Aging Society Policies: a First Approximation

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ABSTRACT

This paper provides a framework for analysing and comparing ICT for aging society policies by delineating 5 broad areas of contextual considerations. This framework is not a comprehensive list of all considerations but is intended to aid governments in their policy transfer decisions by providing flexibility in elaboration of relevant policy components based on countries' resources and peculiar conditions.

Categories and Subject Descriptors

K.4.1 or K.4.2 [Computers and Society]: Social Issues or Public Policy Issues – *Assistive technologies for persons with disabilities, Handicapped persons/special needs, Regulation.*

General Terms

Management, Measurement, Documentation, Design, Economics, Experimentation.

Keywords

Demographic aging; ICT policy; Policy transferability; Lesson drawing.

1. INTRODUCTION

All industrialized and many developing countries are experiencing a demographic transition from predominantly younger populations to a much larger proportion of old people. Especially, Japan and Europe are at the leading edge of the aging population curve. In 2050, it is predicted that the proportion of elderly people will increase to almost 50% for all member states of EU-27 [1]. The consequences of population aging among others include a shortage of a productive workforce to contribute to the creation of economic wealth and to the financing of health and social services; a shortage of caregivers providing support to older, often impaired people.

Addressing the challenges of the aging society became a key policy target in many countries. Besides viewing the consequences of demographic changes as threats requiring substantial amendments in current welfare schemes and healthcare

systems, aging countries also came to realise emerging market opportunities resulting from demographic aging. Information and Communication Technologies (ICT) are recognized to have potential for becoming a strong basis for new industries accommodating the needs of graying populations. ICT-based solutions can be used for sustaining independent living, enabling older people to participate longer in working life, enabling their greater democratic engagement and societal integration [2]. Recognizing the importance of ICT in exploiting opportunities for future societal development, aging countries have launched a number of initiatives addressing various aspects of the aging problem by means of ICT applications.

However, given the worldwide increase in population aging, the challenges faced in developed countries will soon be faced by other countries. According to UN estimations, though at present, the percentage of elderly people in developing countries is relatively low, the proportion of elderly people in developing countries is increasing more rapidly than in developed countries. Thus, these countries will have less time to adjust to the consequences of population aging. Already from 1980s, the number of elderly people in developing countries outstripped that of developed countries [3]. Looking at the situation of China alone, the number of people over 60 years is expected to reach 400 million by 2040, which represents 26 percent of the total population and is larger than the combined current populations of France, Germany, Italy, Japan and the United Kingdom [4].

In this light, lesson-drawing and international policy transfer becomes very attractive for governments seeking solutions for newly arising problems confronting their economies. Common challenges motivate governments to transfer successful policies, import certain ideas or create awareness, stimulating development of original policy measures. The latter dictates the need for development of practical solutions and analytical tools allowing monitoring, comparison and lesson-drawing of relevant policies introduced by different governments.

Though growing debate and on aging and ICT contributed positively to the number of research within this broad topic, there is a general consensus about a lack of solid empirically grounded and targeted market research as well as practical tools evaluating impact of ICT for aging. Much of the early research has approached the problem from the age-divide perspective, viewing elderly as a homogeneous group. Later studies research has been concerned with investigation of specific motivations underlying adoption of ICT by older people with different backgrounds [5, 6, 7]. Age-divide in e-Government has also been a focus of several studies contributing to the literature on inclusive e-Government strategy development [8, 9, 10]. Less attention has been given to

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the development of analytical tools for measuring the impact and return of ICTs for benefiting the elderly, practical tools for monitoring and assessing the effectiveness of implemented government initiatives directed towards development of ICT for aging industries.

In order to pave the way toward that direction, this article proposes a framework for analyzing and comparing ICT for aging society policies which can be used as a meaningful tool to aid governments in their policy transfer decisions. The framework is meant to be further applied to compare the policies between different countries. The structure of this paper is as follows. First, intended comparison implications are discussed in relation to factors having a significant effect on the success of policy transfer. Outlined problems are further translated into specific requirements the framework should meet in order to prove useful for policy transfer decisions. Next, the authors present a framework for analyzing and comparing ICT for aging policies between different countries. The last section details future steps within this research.

2. THEORETICAL AND METHODOLOGICAL BACKGROUNDS

This study is built on comparative public policy research which explores how nations and jurisdictions make policy transfer decisions to address shared problems [12]. Successful policy transfer requires careful exploration, monitoring and analysis of specific policy measures introduced by different governments. Insufficient information possessed by a borrowing country about the policy and how it operates in the country from which it is transferred is one of the main factors leading to implementation failure [11].

The choice of indicators for inclusion in policy comparison framework should be grounded in relation to its practical purpose. The purpose of intended comparison of ICT for aging policies is to aid developing countries in lesson-drawing and other variations of policy transfer decisions. Lesson-drawing examines whether and how a subject country should apply lessons as opposed to looking at how different countries adopt particular measures [12]. Therefore, besides or rather than providing a comprehensive list of all policy considerations the framework should provide a possibility to make a judgment about the fit of measures into a particular country.

In order to comply with this requirement this study uses a comparative method. This form of research methods is used to study divergent policies across countries and is driven by two primary research questions— how policies differ across contexts, and why they are different. The method, thus allows to explore “public policy outcomes in different contexts” and “to investigate the ways in which different configurations moderate the relationship between policy inputs and policy outputs” [13].

Identification of ICT for aging policy success and failure itself requiring a separate discussion seems even more complicated at the moment due to a number of reasons. First of all, these are relatively recent measures and therefore, it is still difficult to judge their success or effectiveness. In addition, ICT for aging policies were introduced on top of long-existing policies in the healthcare field, general information society strategies and some specific regulations concerning accessibility. The latter makes it difficult to detect what the exact factors are contributing to the success of more recent ICT for aging strategies. Failure to

recognize the aforementioned complexities may have a significant negative effect on policy transfer resulting in what is called “incomplete transfer”, i.e. a situation when a policy is transferred without crucial elements of what made the policy a success in the originating country [11]. Moreover, policies that have been successful in one country will not be necessary successful in another. Recommendations which can be derived from the analysis of regulatory and market conditions of countries with developed economies, can be well suited for the realities of societies with similar economic conditions and where older persons and persons with disabilities are often found to be willing and economically able to secure independent living. In addition, the older population in developed countries is generally in good health and has a long life expectancy. This combination of the financial situation and health condition of the elderly contributes positively to the development of the silver market, indicating significant potential for the business sector. Obviously, these favourable conditions are not typical for all aging countries, in particular countries with developing economies. Insufficient attention paid to such differences as described above along with other differences between the economic, social, political contexts of the countries might result in unsuccessful policy transfer or what is referred by [11] as “inappropriate transfer”.

Thus, there are three major problems with lesson-drawing and policy transfer decisions. The first relates to difficulties with identification of successful policies and best practice solutions. The second refers to the difficulty of detecting what exactly made a certain policy a success. And finally, even if we could identify successful policies, it doesn't mean they will be successful if implemented elsewhere. Thus, context having the critical role in policy transferability needs to be reflected when analysing both internal system variables and external conditions. Next section translates the discussed problems in specific requirements the framework should meet in order to prove useful for policy transfer decisions.

3. FRAMEWORK REQUIREMENTS

The simple definition of the word “effective” is being successful in producing a desired or intended result. In the context of policy making effective can be understood as an extent to which policy achieves the aims set by a government [11]. As was mentioned earlier, it is still difficult to judge about the success of recently introduced policies. However, policies are not necessary transferred in their entirety. Policy consists of goals, content and instruments [14]. Thus, a borrowing country may adapt a number of measures or programs which it finds suitable and affordable for its conditions. Dolowitz and Marsh [11] identify four main degrees of transfer: “copying, which involves direct and complete transfer; emulation, which involves transfer of the ideas behind the policy or program; combinations, which involve mixtures of several different policies; and inspiration, where policy in another jurisdiction may inspire a policy change, but where the final outcome does not actually draw upon the original”. Thus, between-countries comparison of policy elements even at the relatively early stage of their inaction can benefit a potential borrowing country by providing it with a range of alternative measures for achieving identical policy aims.

Not only policies and programs require scrupulous exploration of their applicability to different contextual settings. In order to ensure understanding of how a certain policy operates within a particular country, a framework should encompass various system variables including institutions, existing policies and strategies addressing to some extent challenges of aging society

such as policies relating to the development of information society, informatisation of healthcare systems, accessibility of ICTs and other relevant government initiatives.

And third, comparison framework needs to be able to capture wider contextual peculiarities of countries adopting the policies. As has been put by Rose [16] “comparison is not simply about identifying best practice solutions but about establishing the circumstances and extent to which positive measures can be applied elsewhere.

4. PROPOSED FRAMEWORK

One way to meet the requirements is look at the policies in the terms of Draw-See-Think-Plan approach widely applied in strategic planning. “Draw” outlines the ideal image or the desired end state. All other policy elements and programs are directed at achieving that vision. Therefore, policy analysis for its consequent transfer should start not with investigation of policies and programs but with examination of ideal view. An “idealised” view, however, is not only something desirable but also probable. In context of present study it means that the ideal image should be within possible scenarios for technology impact on aging population of a particular country. This requirement is important in the view that although visions of the future or scenarios articulated by leader countries might appear desirable for borrowing countries, they are not equally probable in different settings. As such, they have to be carefully elaborated for adoption in compliance with the principle of reality of foreseeable development in a borrowing country’s environment [17].

“See” reveals current situation, the gap from ideal and reasons for the gap. The latter can be formulated as barriers that prevent progress towards a desired situation. Gap represents an initial point for developing actions (i.e. policies and programs) for closing it. It should be carefully examined by a borrowing country since major differences in current situation call into question appropriateness of corresponding policies for a borrowing country which in turn can result in implementation problems.

“Think” outlines specific actions to be taken to close the gap between current situation and the ideal state. These actions encompass policy initiatives, rules and regulations as well as the processes by which they are executed, including the implementation of new legislation, the workings of regulatory bodies, the development of special programs and others [18].

Policies are seen as statements of intention and generally denote the direction policy-makers wish to take. They consist of policy goal, policy content and policy instrument. Policy goal is the

priorities which the government aims to archive by policy actions or content. Policy content, or more specifically the particular program in question, includes policy instrument which refer to methods used by governments to achieve a desired effect [19]. Programs, in turn, represent the specific means of the course of action used to implement policies.

“Plan” defines resources required to execute the ‘plan’. As has been fairly noted, national policies are constrained or facilitated by available resources, such as financial resources or skilled ICT knowledge workers. For example, countries where governments face resource constraints may not be able to offer extensive funding schemes for community-wide pilot projects which has found to be a widespread approach for facilitation of innovations in the field of ICT for the elderly. Thus, resources required for implementation of a certain policy is yet another factor conditioning transferability of positive measures to another settings and therefore, necessary to be taken into account when comparing policies.

Besides resources necessary for implementing certain policies, there is a range of broader national conditions, such as social and legal norms, the size of the ICT sector, training and education for ICT, the readiness for ICT uptake by businesses and citizens, establishing the circumstances and extent to which positive measures can be applied elsewhere. Analysis of these factors can be conducted by application of PESTEL analysis lowing to reveal political, economic, social, legislative and technological contexts of countries adopting the polices.

Thus, application of proposed framework allows making a comparison of desired images, initial situations, policies and programs, broad national contexts and available resources. Comparison of desired images allows us to reveal whether countries share a common vision of future society or whether they differ in that desired vision and anticipation of probable technological impact. Given similar vision we then can identify differences in the approaches to ICT for aging policy in those countries.

In particular, application of framework will allow interested countries to understand contextual differences when analyzing the policies. It will reveal how countries with different initial conditions are building strategies towards a common vision. On the other hand, comparison of countries with similar conditions will reveal a range of possible strategies given common vision and starting points, allowing to detect with time those, proving more successful.

Table 1. A Policy Comparison framework

Vision	Gap	Action	Context	Resources
What is the ideal image or the desired end state?	What is today's situation? What is the gap from ideal and why?	What specific actions must be taken to close the gap between today's situation and the ideal state?	What are the policy's constraints or incentives?	What resources are required to execute the 'plan'?
Desired and probable scenario	Current situation and barriers	Policy goals Policy content Policy instruments Programs	Political Economic Social Technological Environmental Legislative	Financial resources Knowledge Human resources

Moreover, it will be possible to analyse how resources in possession and wider country settings affect elaboration of strategies given common visions and similar barriers.

From the practical point of view, the framework will aid policy transfer decisions by providing flexibility in elaboration of relevant policy components based on countries' resources and peculiar conditions. Policy analysts will be able to identify suitable countries for lesson-drawing providing detailed data on policy implementation with minimum contextual differences.

5. FUTURE DIRECTIONS

Given multiple challenges in exploiting opportunities provided by ICTs for social and economic benefit of rapidly graying societies, there is a growing need for practical solutions and analytical tools allowing monitoring, comparison and lesson-drawing of relevant policies introduced by different governments.

Context has been seen by policy researchers as the main difficulty in identification of best practice examples and their subsequent transfer to other countries. The objective of this paper was to develop a policy comparison framework that would aid policy transfer decisions by allowing to establish the circumstances and extent to which positive measures can be applied elsewhere. It delineates 5 broad areas of contextual considerations within which policy variables are to be analysed providing flexibility in elaboration of relevant policy components based on countries' resources and peculiar conditions. The framework will be further refined and applied to compare the policies between aging countries. The study will be conducted based on the analysis of a broad variety of documentary sources, including policy documents, regulations and legislation, research projects, databases, third party assessments and reports of programs, and other publications. One of the difficulties envisaged in this study is associated with further specification of contextual settings. The latter might not only complicate the interpretation of policy outcomes but also make it difficult to find similarities between the countries and thus to meet compatibility principle, necessary to be considered when selecting a country for policy transfer. Thus, there is a balance between generality and overspecification which needs to be found when applying the framework.

6. REFERENCES

- [1] Gaßner, K., Conrad, M. (2010) ICT enabled independent living for elderly: A status-quo analysis on products and the research landscape in the field of Ambient Assisted Living (AAL) in EU-27, Institute for Innovation and Technology.
- [2] T. Obi, et al. (2012), Promoting ICT innovations for the aging population in Japan, *Int. J. Med. Inform.* <http://dx.doi.org/10.1016/j.ijmedinf.2012.05.004>
- [3] Lloyd-Sherlock, P. (2000) Population aging in developed and developing regions: implications for health policy. *Social Science & Medicine*, 51, 887-895
- [4] Zhang, Y., Goza, F. (2006) Who Will Care for the Elderly in China? A Review of the Problems Caused by China's One Child Policy and their Potential Solutions. *Journal of Aging Studies*, 20, 151-164.
- [5] Maier, C. et al. (2011) Technology Adoption by Elderly People – An Empirical Analysis of Adopters and Non-Adopters of Social Networking Sites, *Wirtschaftsinformatik Proceedings* 2011. Paper 25.
- [6] Selwyn, N. (2004) The information aged: A qualitative study of older adults' use of information and communications technology, *Journal of Aging Studies* 18, 369-384.
- [7] Vyas, A., Choudrie, J. (2013) Online Social Networking in Older Individuals: A Study of Hertfordshire, *Proceedings of the 21st European Conference on Information Systems*, June 5-8, Utrecht University in Utrecht, the Netherlands.
- [8] Choudrie, J. et al. (2013) Silver Surfers, E-government and the Digital Divide: An Exploratory Study of UK Local Authority Websites and Older Citizens, *Interact. Comput.* doi:10.1093/iwc/iws020
- [9] Niehaves, B., Becker, J. (2008) The Age-Divide in E-Government - Data, Interpretations, Theory Fragments. In: *Proceedings of the 8th IFIP Conference on e-Business, e-Services, and e-Society (I3E 2008)*. Tokyo, Japan, 279-287.
- [10] Niehaves, B., et al. (2009) The Demographic Challenge: Aging and Depopulation and their Consequences for eGovernment. In: *Proceedings of the 42th Hawaii International Conference in Computer and System Sciences (HICSS-42)*. Waikoloa, Big Island, Hawaii.
- [11] Dolowitz, D. P. and Marsh, D. (2000) Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making. *Governance*, 13: 5-23. doi: 10.1111/0952-1895.00121
- [12] Murphy, L., et al. (2009) Improving the energy performance of Dutch houses: drawing lessons from neighbours, *RICS COBRA Research Conference*, University of Cape Town, 10-11th September, pp. 1697-1709.
- [13] Gupta, K. (2012), Comparative Public Policy: Using the Comparative Method to Advance Our Understanding of the Policy Process. *Policy Studies Journal*, 40: 11-26. doi: 10.1111/j.1541-0072.2012.00443.x
- [14] Dolowitz, D. and Marsh, D. (1996) 'Who Learns What from Whom: a Review of the Policy Transfer Literature', *Political Studies*, 44, 343-57.
- [15] The Australian Academy of Technological Sciences and Engineering, *Smart Technology for healthy longevity*, May, 2010.
- [16] Rose, R. (2005) *Learning from comparative public policy: a practical guide*, Routledge, New York.
- [17] Godet, M. (2000) *The Art of Scenarios and Strategic Planning: Tools and Pitfalls*, *Technological Forecasting and Social Change* 65, 3-22.
- [18] Molas-Gallart, J. et al (2003) A review of the ICT policy in the Netherlands and the UK: A study for the evaluation of the Swedish national IT-policy, ITPS, Swedish Institute For Growth Policy Studies A, 2003:015
- [19] Newmark, A. J. 2002. "An integrated approach to policy transfer and diffusion" *Review of Policy Research* 19, no. 2: 153. (formerly *Policy Studies Review*).

