

Case Summary

One of the main functions of Knowledge Society Agency (UMIC) is to develop monitoring and benchmarking projects in Portugal concerning the usage of ICT applications, to promote policy evaluation and to support public policy. These benchmarking initiatives have been realised mainly by adding on specialized questions to the sectoral statistics already available, but also by carrying out large spectrum surveys, in cooperation with the Portuguese Institute of Statistics (INE). These surveys pertain i.e. to ICT usage by families, companies, schools, public and regional administrations.

In 2004, UMIC and INE carried out a survey of all Portuguese hospitals. The aim of the survey was to gain first information on the availability and use of ICT in hospital. The main focus of the study was on ICT infrastructure and applications and its use on hospital environment, by doctors, other employees and patients (intern or not). This survey will be carried out (and updated) every two years, so as to allow quantitative monitoring throughout time (with regional disaggregation) and trend identification, in a field where there is too little information and an extreme need for comprehensive data on which to base policy making.

Background and Objectives

Objectives

This project regularly monitors ICT usage in Hospitals. It intends to promote a deeper knowledge of ICT usage in hospitals. The study is based on the assumption that an increase in management efficiency is needed in the Portuguese health care sector which could be achieved by the introduction and development of ICT solutions. The study tries to take into account the high rate of change in field of technology development.

The study intends to give insight into the availability and use of ICT. Questions are related to the existing ICT infrastructure, usage of PC and Internet, usage of online ordering/procurement, and the availability of technological resources allowing inpatients to access to computers and internet. Another part of the study is concerned with the hospitals presence in the Internet and the provision of ICT-based health services to citizens, such as those stipulated by the i2010 framework.

Background Information

UMIC is also responsible for the elaboration of an annual report on ICT usage in Portugal – Knowledge Society in Portugal, where the health related data is integrated (with INE's collaboration in most chapters).

This report includes information on ICT infrastructures, ICT usage by the population; e-Government (at national, regional and municipal level); ICT use in schools and ICT training in higher education; and ICT use in private companies.

The Information Society in Portugal 2007 - ICT usage in Hospitals

Executing agency



Statistics Portugal, INE Knowledge Society Agency, UMIC

Year of publication 2007

Year(s) of available data 2004, 2006, 2008

Geographic coverage Portugal

Further information http://www.osic.umic.pt/governo/relatorio_ficha.aspx?id=69

There is a Work Group for the follow up of Information Society Statistics where all of the institutions that contribute to the report are represented. This has a positive impact on the coordination of all processes of data collection and production concerning the Knowledge Society.

Type of activity

- Measuring eHealth / ICT availability and use
- Measuring attitudes towards eHealth and eHealth use
- Data gathering with the aim of eHealth market sizing
- Evaluation of an eHealth application / Service

Budget

INE's budget for this project was approximately 50.000 Euro. It was mainly needed for human resources.

UMIC's budget was also spent mainly on human resources. The exact amount of the overall budget allocated to this study is unknown, since contributions were made by several staff members attributed to different observation and benchmarking projects.

Main Actors

UMIC - Knowledge Society Agency

Public Agency coordinating the knowledge society policy and working towards its implementation through dissemination, qualification and research activities. Namely, UMIC is responsible for ensuring the objective and transparent observation of the *Information and Knowledge Society*, and to study prospectively its evolution.

In this project, UMIC was responsible for the initial methodological development (in 2004), and presently it is also co-responsible for the questionnaire elaboration (specifically concerning telemedicine and internet connection questions), data analysis and results publication.

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INE - Statistics Portugal

Public Institute

Mission : Effective, efficient, neutral production and diffusion of official statistical data.

In this project, INE is responsible for the fieldwork and initial data analyses, and also co-responsible for the [methodological adjustments](#), questionnaire elaboration, and results publication.

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Implementation

Data gathering approach

The survey was based on a questionnaire using mostly multiple-choice answer categories.

Evaluation of implementation aspects

Quality Criteria	Score	Explanation
1. Relevance and transferability		
"The indicators clearly refer to eHealth."	○●●●	eHealth is not the main focus of this study. However, it covers the prerequisites for eHealth projects such as the ICT infrastructure and use habits.
"The indicators cover the respective issues/topics in sufficient depth."	○●●●	Not being designed as a specific monitoring process of eHealth, the survey lacks details that would be useful for a better understanding of the eHealth initiatives and the problems faced by Hospitals implementing this kind of projects. Therefore a greater overall depth of the survey would be useful.
"The indicators allow regular measurement in the same context in the future".	●●●●	The indicators were chosen taking into consideration the need for continued monitoring.
"The indicators can be applied to a different national context."	●●●●	The indicators were conceived in order to reflect not only the national need for information, but also to allow for international comparisons.
2. Accessibility of information		
"The publication of the study presents enough methodological information to enable the reader to judge its validity. (i.e. information on sample size, weighting etc.)"	●●●●	The national report presenting the survey results provides a direct link to the excel file containing all the data collected by the survey as well as a specific worksheet with They contain information on the

The questionnaire was structured in four sections: 1) ICT usage; 2) internet access and usage; 3) online ordering/procurement, and 4) the hospital's internet presence. Further details can be found on the list of indicators already made available. The questionnaire was sent to the administrative or technical services of all hospitals by mail.

Sampling and fieldwork

No sampling was carried out: the questionnaire was sent (and returned) to all Portuguese hospitals (public and private) by mail, and the response was mandatory.

Timing

- Questionnaire, validation rules and methodology document development - April to June
- Data collection / Fieldwork – June to October
- Data coherence analysis - August to October
- Data diffusion – November
- Final report publication – December

Analysis and Reporting

No advanced statistical analysis was performed. The final report was restrained to total numbers and percentages (i.e. of the total number of hospitals, or of the certain subgroups such as hospitals with computers or with internet access).

The results were made available on the websites of UMIC and INE.

Concerning UMIC, which is responsible for the monitoring of all ICT usage and related initiatives, these data are available on its internet site and can be found separately or integrated in a national report with brief framing observations and comments stressing the main conclusions.

INE, being a statistical office, releases the same indicators but usually a little earlier.

		scope of the survey, the universe, the reference period, and the methods used for data collection. A methodological framework document was also published and can be found online (5).
"The research results have been published in English"	○●●●	The quantitative data is available in Portuguese and in English (1).
3. Validity of measurement		
"The concept of eHealth used by the study is clearly expressed and therefore understandable for a variety of survey respondents."	●●●○	The concept of eHealth is not defined, because it is not directly referred to, but concepts such as electronic transmission of credentials, telemedicine, telediagnosis, teleappointment, electronic prescription, telemonitoring, telesurgery and telecare are clearly defined.
"The operationalisation of the indicators has been validated before use."	●●●○	The indicators' calculation was followed by a comparative detailed analysis for each institution of the results obtained, and also between the results obtained in 2004 and 2006. The inconsistencies detected were reviewed with the corresponding institution, in order to guarantee the information accuracy and coherency.
"The likelihood of social desirability bias/context bias is avoided as much as possible"	●●●○	The type of survey used (closed - multiple choices), and the objectiveness provided by the definitions of all concepts help to avoid social and context bias.
"In the case of a multinational study: appropriate translation procedures of survey instruments are used."	NA	
"The instrument follows the general rules for questionnaire design:" Question wording: simple, unambiguous, defining unclear terms Question wording: single stimuli Question wording: factual, not hypothetical Question wording: clear time and actor reference Question wording: neutral, not suggestive Question content: respondent has necessary knowledge and information in order to answer the questions	●●●○	Since professional statisticians were involved in the questionnaire elaboration, all general rules for questionnaire design have been respected. However, the comparison between the 2008 and 2006 survey results discovered inconsistencies. These are most likely due to the fact that in 2006 some respondents misunderstood certain questions. This misunderstanding might be caused by the fact, that the survey includes questions on innovative technologies that some respondents might not have used or even heard of prior to the study.

Population validity

Sampling frame quality: No sampling was made, since all hospitals were included in the survey.

Data collection quality: The data collection process involved an initial contact by mail, which was repeated up to three times, in the case of a non-response. If there was no answer after the third mail contact, the person in charge was called and the information collected via telephone. The phone-interviews were conducted by a person trained for this purpose in order to guarantee the data quality.

Documentation of non response rate: No cases of non-responses were registered.

Respondent load

Due to the simple wording and the short length of the questionnaire, the respondents did need only around 15 minutes to fill them in. However, as there were different topics included in the questionnaire the respondent probably had to consult a second or third person in order to obtain the required information. This might have led to an increased time need.

Conclusions and learning points

From the point of view of the ordering customer / funding organisation

Strengths

This project allows the creation of official data on the ICT penetration on Hospitals, not existent until 2004 with the 1st version of this survey. It is therefore the reference instrument in Portugal for the observation of ICT usage in the health sector.

Facilitators

The use of administrative data already available for statistical purposes contributed to complement the survey data.

Constraints

The respondents overload is a factor that prejudices the project, since besides this questionnaire there is another national survey health statistics. To avoid overburdening the respondents and to ensure that the answers were given in time and with the necessary quality, the survey did not probe deeper into additional dimensions of observation that would have been useful to add.

Usefulness of the activity

The survey resulted in information on an emergent research area in Portugal that is of great importance for policy making and also for research and development studies. Another positive result of the study was that the institutions involved agreed on common, shared concepts and definitions of several terms relating to eHealth.

The project also led to a progressive development in the inventorying and definition of other indicators relevant for the monitoring of ICT usage in hospitals, contributing to the increase of knowledge on specific methodologies in this field.

From the point of view of the implementing organisation

Strengths

This project guarantees a constant improvement of the statistical information on ICT usage in Portuguese Hospitals (which otherwise would be scarce). A follow-on survey is being carried out bi-annually. There are usually only 6 months between data collection and the publication of the survey results.

Weaknesses

The timing of the study was not very well chosen since the data collection coincided with summer holidays. This meant that many key contact persons could not be reached immediately. Follow-up mailings and phone calls were introduced in order to overcome this problem. This measure resulted in a final 100% response rate.

Another weakness is the lack of depth of the questionnaire. It could be improved i.e. by introducing some specific and more detailed questions i.e. pertaining to types of internet connection, internet bandwidth and details relating to e-procurement.

Facilitators

The willingness of the respondent institutions to collaborate was essential for this initiative. Another facilitator was the experience gathered in the first study, in 2004. The results gathered in the first round helped to guide the 2006 version of the ICT Hospital usage questionnaire.

Constraints

Considering that the survey focused on emergent realities, the main constraint of this project was that the people who responded did often not know enough about these new concepts, instruments and processes.

Usefulness of the activity

INE, as a statistical office, considers that this is a useful study, namely because its first hand user, UMIC, continues to demonstrate interest in these results and in the continuance of this survey - 2008 edition is already complete and was made available (6), and there are indications that the 2010 edition will be carried out. The media have shown also a great interest in the results, both on 2004, 2006 and 2008 editions.

In INE's point of view, all objectives were accomplished, since the data could be collected, treated and made available for anyone, with political functions, as UMIC, or without.

Learning points

This initiative provides urgently needed information to the Portuguese policy makers. The statistical data gathered by the survey are fed directly into policy since UMIC is responsible for both data collection and the elaboration of a knowledge society strategy as well as the coordination of the main instruments related to ICT policies.

Information needs have been reflected in the questionnaire, which is updated every edition, in a way that allows for a comparable analysis while giving room for new and emergent questions.

The flexibility and the customized design are important for the decision makers who make use of the survey results.

Due to the census methodology the study provides data for all Portuguese hospitals. This extremely high response rate results in encompassing and very reliable data.

Because the survey participation is mandatory for all hospitals, a continued high-quality data collection activity is guaranteed.

Therefore in the future long-time longitudinal data on ICT availability and use in Portuguese hospitals will become available.

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The eHealth Benchmarking Study

The "eHealth Benchmarking" study is carried out by empirica on behalf of the European Commission, Information Society and Media Directorate-General. The study aims to collate and analyse existing eHealth monitoring and benchmarking sources in order to identify best practice in data gathering and to develop a framework for an EU-wide eHealth benchmarking activity. The intention is not only to help better understand eHealth progress but also to identify the main gaps, obstacles and barriers in relation to eHealth monitoring / benchmarking to be overcome in the next few years. In doing so, the study covers the Member States of the European Union, Norway, Iceland, Canada and the United States.

The benchmarking sources were identified by means of a combination of different research methods, including a survey among the experts of the EEA Working Group on Information Society statistics, desk research on sources of eHealth data and measurements on a supranational and European level, and research on the national level carried out by a network of national correspondents.

More information on the study is available online at <http://www.ehealth-benchmarking.eu/> or from the project coordinator:



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This case was written by the case owner organisation.

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