

Leveraging IT to enhance IA outcome validity

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Abstract

Impact assessment nowadays faces the fundamental challenge of improving outcome validity. In this regard, IT tools have played in Chile an important role, which has yielded relevant lessons and is expected to generate more useful experiences in the forthcoming years. From the information management standpoint, the Chilean government has faced this issue through incrementing the overarching capability of the IA process to build trust, utilizing various IT tools. The strategic approach has been developed in two phases. First, the emphasis was oriented towards accomplishing full process and information transparency, so as to provide multiple stakeholders equal access to information and unbiased privilege to overlook decision making and activity development. Once transparency was reasonably attained, information quality and quantity emerged as key elements, since analysis precision and completeness grew into the next objective. Then, data abundance, accuracy, reliability and updated status became pivotal, along with connections among different datasets. This paper aims at exhibiting a complete set of IT systems put in place by the Chilean Government and its specific features that are targeted to increment transparency, information quality and knowledge creation. Among these tools we include a complete geographic information system and other innovative applications, some of which are nowadays in a prototyping phase. Based on real data gathered over several years, the paper analyzes the effects of the implemented systems. It concludes that IT system implementation has played a significant role in attaining environmental license validity, and that several enlightening lessons can be distilled from this experience.

Introduction

Economic development should foster social development; however one of the necessary conditions for this cause-effect relationship to happen is that Impact Assessment outcomes be generally accepted by all interested parties and that lawsuits be avoided. The long period that takes the courts to emit a verdict results in unproductive resources and lost opportunities.

In this regard, the strategic decisions undertaken by the Chilean Government might generate experiences and lessons that might be useful for public sector decision makers in other countries, where the problem is similar and solutions are sought.

To partially fulfill the need, the Chilean government has pursued IA outcome validity enhancement by building confidence on the IA process. One of the most relevant approaches intended is to shed light on this matter through improved information management backed by IT investments and best practice implementation.

For this purpose, an IA information management strategy was devised and already implemented in its first phase, whilst its second phase has just started. This effort, although not finished yet, has yielded relevant lessons and is expected to generate more useful experiences in the forthcoming years. These lessons are based on the authors' direct involvement and on data collected throughout the last three years by the Environmental Assessment Service (EAS).

IT and Information Management Strategy

This strategy consists of a number of guidelines that inspire a set of measures oriented to improve IA process efficiency, process transparency and information quality. By enhancing these three features, EAS is trying to increment IA outcomes validity.

Efficiency is devoted to support a higher level strategy demanding public services to obtain the best results possible from the available resources. Within process efficiency, assessment time is a metric of interest for uncertainty reduction, as it contributes to pin down the evaluation period timespan, which, in general terms, reflects stable and controlled practices.

Process transparency is regarded as a means to provide the multiple IA stakeholders equal access to information and unbiased privileges to overlook decision making and evaluation activity development. The more transparency provided during the assessment process, the more all parties trust the process and the lower probability of licensing validity questioning.

Finally, Information quality –considered the most important attribute of the strategy– is oriented to accomplish higher scientific rigor and solid foundations for the licensing resolution content. Its implementation demands careful design to improve data quantity, accuracy and updating, as well as developing and implementing knowledge management tools that assist in keeping quality assurance over time.

Evolution of IT systems and relevant data

Due to legal requirements, the IT and Information Management Strategy was divided into two phases, the first one was devoted to increment process efficiency and transparency. Efficiency was tackled through the IA process automation and development of electronic interactions, whilst transparency was undertaken via on-line publication of all relevant information on the IA process, including: IA dossier, activities performed, community participation and observations; etc.

The second phase –still in implementation– is targeted to obtaining important improvements in information quality. For this purpose, detailed information is mandatory in early stages of project presentation. Thus, the requirements for project description data are being significantly increased, in terms of number of parameters and format, so that the effects of each undertaking can be assessed with scientifically valid data. Additionally, IA information quality is being tackled by improving the internal knowledge base and implementing the appropriate procedures to make this knowledge available to all stakeholders through formalized guidelines.

All the above described has been implemented nationwide in more than 15 different office locations.

The IT tools developed during the first phase, consisted of:

- A system that carries all evaluation process electronically, from project preparation and presentation to environmental license issuance, which includes electronic signature (implemented in 2003).
- A digital library and search engine that grants access to IA dossiers of all projects evaluated in electronic format (implemented in 2003).
- A BI application oriented to monitor deadline compliance by public services participating in the IA process (implemented in 2007).
- A system offering on-line public participation in IA studies that provides functionalities to search for participatory processes and to submit observations (implemented in 2010).
- Two GIS applications granting access to baseline information of previous projects, which can be utilized to build the baseline description of new projects (implemented in 2012-2013).

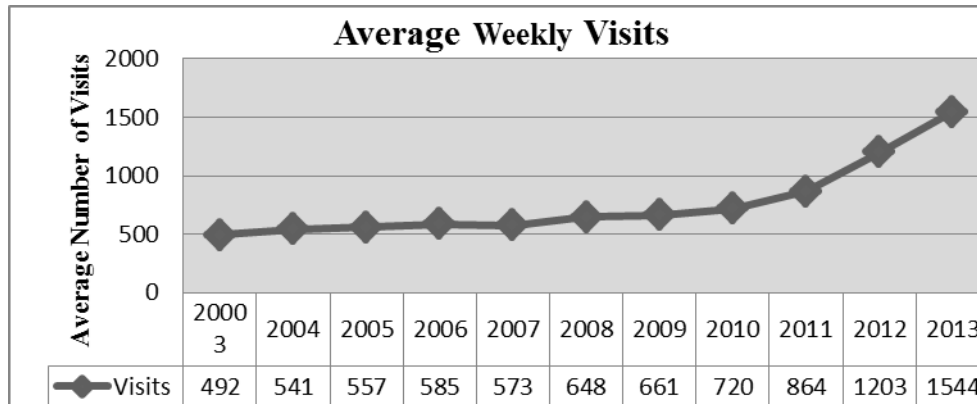
- A digital library and search engine providing access to old project dossiers (before year 2000), which were worked out in paper format and are now digitized (implemented in 2012).
- A system offering on-line public participation in IA statements, which provides functionalities to find projects that are in the observations stage, to open a participatory processes, and to submit observations (implemented in 2013).
- An on-line repository of IA guidelines, procedures, legal documents, standards, among other official documents providing information on how the process is carried out (transparency) and also on what information should be provided, in what format and when during the IA process (information quality).

The IT tools developed during the first phase, consisted of:

- A new system that carries all evaluation process electronically, from project preparation and presentation to environmental license issuance (includes electronic signature). This system is nowadays implemented for project description in a “beta”. Experiences will be distilled from its usage so as to improve its functionalities and continue its development (implemented in 2013).
- A GIS application providing access to a variety of layers containing environmental information from the Government that is of interest for IA purposes (in 2012 and 2013).
- A GIS application that enables pinpointing the exact location of investment initiatives and also to edit those locations that may have been wrongfully loaded (implemented in 2013).
- A complete internal suite of knowledge management applications that enable information and knowledge creation, capture/retention, transfer and utilization, in a continuous improvement fashion. This suite includes, among others: video conferencing, , instant video calling, chat, distance teamwork functionalities, communities of practice, communities purpose, wiki environmental glossary, knowledge map, procedures, practices and guidelines repositories, information sharing repository, and so on (implemented in 2014, in prototyping stage).

Contribution of IT systems to information management strategy

IT systems usage has constantly incremented over the last 10 years. Therefore it is foreseeable that IT availability is an independent variables affecting the evolution of the depending variables that the strategy has attempted to affect, which are: efficiency, transparency and information quality.

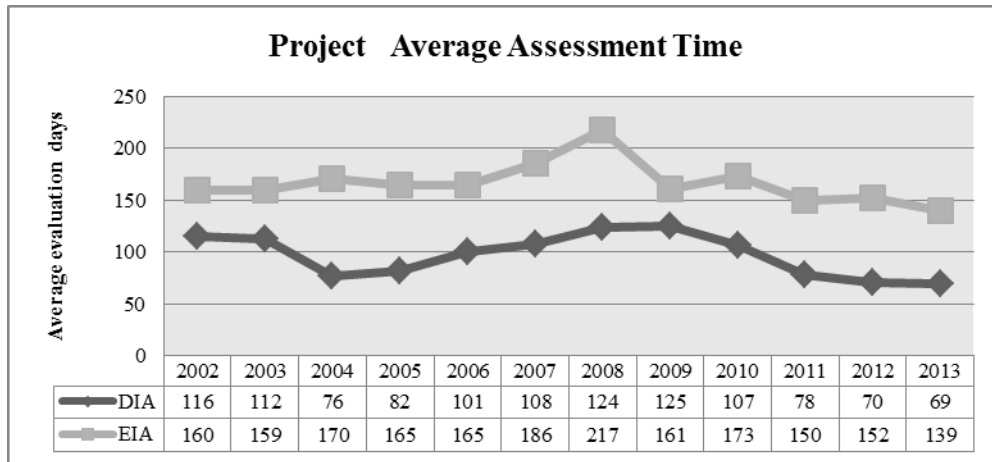


Sources: EAS e-SEIA system statistical reports, available at <http://www.sea.gob.cl/awstats/awstats.pl?config=www.sea.gob.cl>; EAS, Archives of IT and Information Management Division.

Figure N°1. Average weekly visits

The chart in Figure N°1 shows the average number of weekly visits at the most popular pages of the EAS web portal: project information search engine and IA knowledge base. Even though there are a couple ups and downs, the general tendency of IT usage is clearly incremental with a rate increment in years 2012 and 2013.

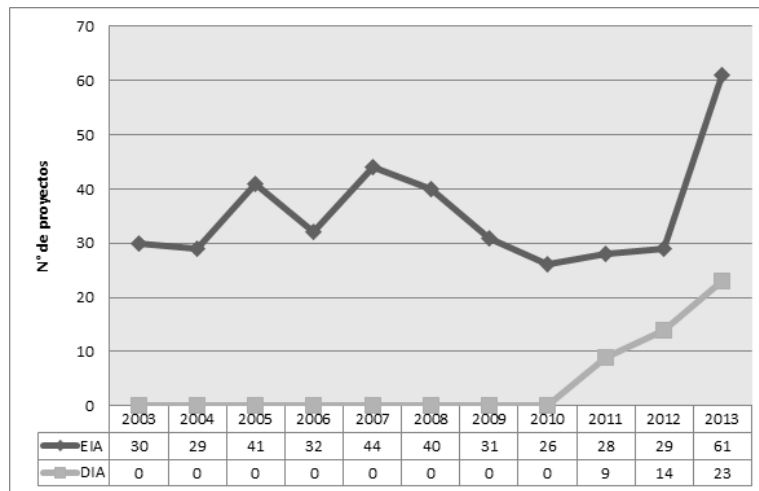
IT systems have, in general, reduced the average of total assessment time, which is a neat signal of efficiency attained over time. However this efficiency was threatened in the timespan 2007-2009, when the workload was significantly enhanced (see Figure N°2).



Source: EAS e-SEIA system, available at www.sea.gob.cl

Figure N°2. Project evaluation average time

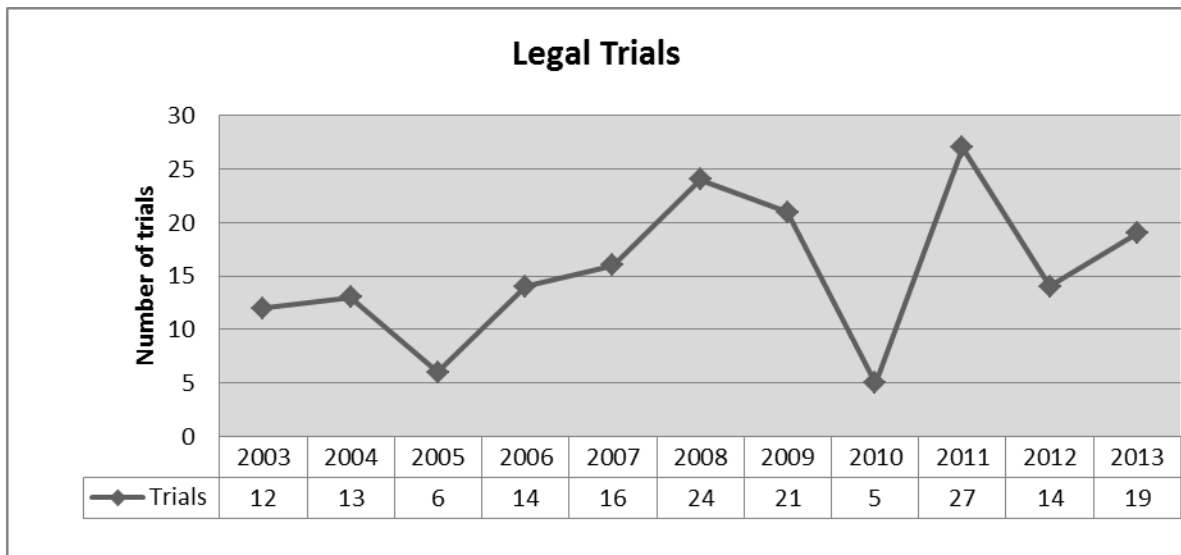
Regarding transparency, although it was intended to generate confidence grounded on fairness, the consequence was that total public participation increased (except for years 2010), as those who ignored many aspects of IA obtained a reliable source of information not available before. See Figure N°3 for public participation evolution over the years.



Source: EAS e-SEIA system, available at www.sea.gob.cl

Figure N° 3. Public participation over the years

Public participation fueled by transparency ended up with many confronting relationships among stakeholders, some of which were eventually taken to courts of justice (See Figure N°4). Consequently, transparency did build confidence; but additionally informed a section of the society that started demanding their rights, which somehow developed a new balance inexistent before.



NO: Non ILO Convention 169 related trails
 SI: ILO convention 169 related trails

Source: EAS Legal Division Annual reports 2012-2013

Figure N°4. Number of projects taken to courts

Information quality, on the other hand, is a delayed effort undertaken from 2012 onwards, which started strongly with IA guidelines provision, along with more accurate project location and baseline information requirements. It is undeniable that the humble improvements attained in information quality so far, have had a positive impact in confidence allocated to the IA process. This is reflected in the number of projects taken to courts during the period 2012-2013, excluding ILO Convention 169 related trials (see Figure N°4). A 50% reduction compared to the previous year was attained in 2012, with roughly an even number of assessed projects. Thereafter, in 2013, the number increased; however it never reached the previous levels. Most of license issuances that have ended in trails are related to energy projects.

Conclusions

The experiences of implementing the IT and information management strategy simply indicate that efficiency and transparency are quite necessary to generate a sense of fairness in all interested and affected parties; however they are not enough, for incrementing IA outcome validity. They have to be combined with information quality, in terms of quantity, accuracy and updating.

Our figures show that confidence on the IA process has increased over time and IT systems availability may be a contributing element. People are progressively querying EAS's Internet portal, which indicates that a number of decisions people make nowadays are taking into account the information government is providing. Additionally, community participation in EIA has incremented after 2010 and boosted in 2012 and 2013. This, again, points towards an enhanced confidence on IA process results.

Although confidence improvements are clear, the number of conflicts between companies and communities has kept exhibiting inconsistent figures. While the number of cases taken to court of justice decreased significantly in 2012 (14 cases), it slowly rose in 2013 (19 cases); but never to the level shown before in 2011 (27 cases). These data are not conclusive and we believe this is probably because IT systems is only one of the factors that are responsible as to how EIAs are accepted in Chile, the IT system is one mechanism that can help improve it but it is not the only mechanism.

Based on the transitory results we have been able to analyze so far, we can ascertain that the policies implemented by the Chilean government have been successful in providing information to interested parties, which seems to be building trust on EIA process. However, it is not that clear that this policy is

contributing to reduce conflicts, which is a difficult-to-attain result that is pending up to now. In any case, if conflict reduction is accomplished, it will be a consequence of a number of factors, including transparency and information quality.

References

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