

Adapting Information Technology (IT) for Land Market Institutional Development: With Special Reference to Albania

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ABSTRACT

Information technology (IT), which has developed so rapidly in recent years, offers large potential gains in the efficiency of the management of land information, a particularly attractive option for land market “framing” entities which manage information about land. While this potential in land institutional development from IT is immense, one should also consider the complexity of the factors that influence whether IT becomes (or not) a valuable and useful tool. This paper presents an analysis of these factors, with a special reference to the Albanian Land Registration project. This analysis is followed by a set of recommendations for land information system designers, who intend to use IT to assist land market institutional development.

I. INTRODUCTION

Land markets, as well as financial, commodity and equity markets do not involve the transfer of physical objects from sellers to buyers. Rather in land markets, people transfer the rights to occupy and enjoy a piece of the earth as well as the obligations to refrain from using the land in ways proscribed by law or custom. These transfers of rights and obligations from one person to another in complex societies rely on documentation of the nature of the transfer.

This documentation of transfers has traditionally been done with words or sketches on paper and requires that people be able to read and understand the words and sketches providing information about who owns what right to what property. But there are other ways for recording and “reading” the information contained in words and sketches.

Information technology is developing rapidly the positioning of machines, which magnetically produce digital recording of words and sketches in digital form in front of people who use these machines for transmitting information. There are many advantages of this new IT, as witnessed by its rapid diffusion around the world.

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Many countries are giving special attention to improving the operations of land market institutions by improving the management of information about land. Some land market institutions are designed to facilitate transactions, such as the registration agencies, which display and constantly update authoritative information about ownership, use, mortgaging, leasing, servitudes and other interests in land. Other such institutions include mortgage banks, real estate agencies, and offices of licensed assessors, notaries, attorneys, and land surveyors. All these entities manage information about land.

Other institutions influence how land markets function. These “market guiding” entities include zoning and development authorities, which implement the mandates of legislation regulating the uses of land. Property taxation offices administer legislation which require property owners to pay a tax based on the value of their properties, which when effective motivate owners to use their properties or sell them when their use is not sufficient to satisfy the tax obligations. Other agencies subsidize the acquisition of properties by disadvantaged sectors (subsidized housing, mortgage guarantees, subsidized loans for the acquisition of property). Others subsidize the acquisition of land by development corporations by exempting them from taxation.

All of these land market facilitating and guiding entities manage land information. However, land information is no panacea for the ills of the environment (Dale and McLaughlin, 1988). Naisbitt warns that 'we are drowning in information but starved for knowledge' (Naisbitt, 1984). In this paper, we address the issue of how to gain the best of information technology, especially in the context of the conversion of information from paper or analogue forms to digital forms.

The purpose of this paper is to propose some guidelines to the managers of these land market entities on incorporation of information technology into their operations. We start with a discussion of the information management strategy in land registration project in Albania, and further develop criteria to be considered in decisions about the use of information technologies under different conditions.

II. WHY CONSIDER INFORMATION TECHNOLOGIES?

The computer revolution has become a subject of extraordinary importance for developing countries, because of the rapidity of technological change and the resulting global impacts on production and consumption. It makes it possible to collect, process, and transmit information rapidly and at declining cost, thereby increasing productivity, and improving the quality and efficiency of all types of industries and services (Hanna et al., 1994).

Information technology is based in computerized information processing. IT and computerization offer several advantages for the management of land information:

- a) The amount of information, which land market agencies gather and manipulate can be managed in paper form and has been so managed for centuries. However, the growth in information volume is more than matched by the tremendous information processing capacities of IT.
- b) The speed by which IT can process information is obviously superior to manual information processing techniques.

- c) The transfer of data by IT is much more rapid than the transfer of information by manual techniques.
- d) IT techniques for the archiving of information minimize space requirements. Digital archives are much more compressed physically than paper archives, making digital archives valuable as back up security copies of paper archives.
- e) faster and cheaper access to information (multi-user, multitasking, multi-location)
- f) Copies of digital data are extremely easy to make on massive scales in very short periods of time, with copies of the same quality as the original information.

III. COMPUTERIZATION STRATEGY FOR LAND REGISTRATION IN ALBANIA

A. Albanian Immovable Property Registration System (IPRS)

The IPRS is composed of Registration Offices in each District which record and display information about the rights that people and/or agencies hold in immovable properties. The IPRS and the laws which protect such rights provides significant psychological security to the holders of property rights, and is, thereby, a central institution for assuring societal stability.

The IPRS also enables people and agencies to engage in transactions involving such properties without physically exchanging them (a necessity for "immovable" properties!!). The characteristic of the IPRS distinguishes it from market institutions which structure transactions in reference to commodities and to labor, and even fundamentally the institutions, which structure the market transactions involving capital (money).

Since the IPRS structures market transactions involving immovable properties, what people and agencies "exchange" in such instances is information about immovable properties. When a family decides to give a piece of land to a child as an inheritance, they decide to change the name of the owner on the register (kartela) to that of the child. When a person "sells" a property to another, he agrees to change his name as the owner on the kartela to the name of the buyer.

But this information change in the records of the IPRS is not simply a change of words, but is also a change in the form of wealth of the two parties, with the family providing a child with a basis for his/her future, or the seller accepting money or some other thing of value and the buyer accepting the control over the property to use it to achieve his goals which money was not able to do. Since the transaction involves wealth, power, control, and the future well being (the property rights) of the two parties to the transaction, a large body of law defines how the information about the transaction is recorded, and what it means. People get very disappointed when this information is inaccessible to them when they need it, and even more frustrated when this information is incorrect.

The Law on the Registration of Immovable Properties (Law 7843 of 13 July, 1994) and other legislation define the institutional structure of the IPRS and the procedures, which the IPRS uses to make the information about rights to immovable property accessible and an exact reflection of what people know to be their rights to such properties. Figure 1 shows how the IPRS functions to accomplish its management of very important information.

The entity with the responsibility of managing information about property rights is the Registration Office, which has a specific geographical area as its jurisdiction. That means that the Registration Office contains all relevant and legally required information about rights to immovable properties, which are located within this area (called a Registration Zone, which is usually a District, but may be a part of a District, or may be a combination of two or more Districts).

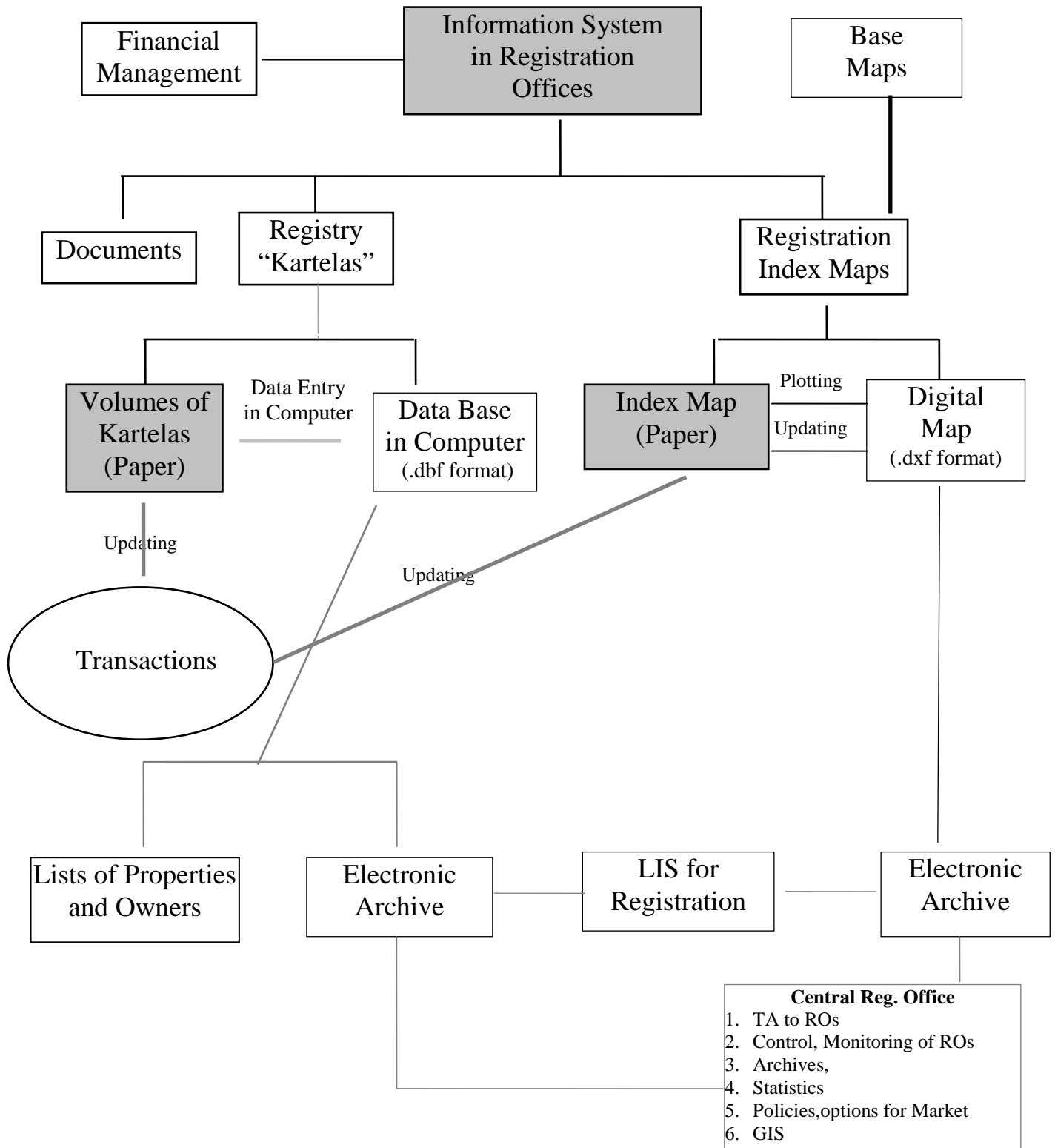
The legally necessary information about immovable properties is of three types, in physical and digital form:

1) Maps.

- a) The "Registration Index Map", plotted on paper or other physical format shows in a graphical form information about the location of the boundaries of immovable properties, and the unique identification number of each property.
- b) A topographic base map without property boundary delineation is used to create this Index Map, and this base map can be a physical copy of a topographic map or a digital copy of this topographic map (in .dxf format).
- c) This digitized topographic map can be updated to show the location of property boundaries as a copy of the physical index map, once the property boundaries are located from the field updating process. This updated digital copy of the physical index map can be used to plot a new physical index map, when the changes in boundaries have accumulated to warrant the preparation of a new physical copy.

At present, the physical, paper-based index map -- updated by any more precise survey in the document files -- is the authoritative source of information about property boundaries. However, a digital copy of this index map is produced once the first registration process is finalized, and is updated once the number of changes in property boundaries clutter up the paper copy too much.

FIGURE No. 1:
INFORMATION SYSTEM FOR IPRS



2) The "kartela".

A kartela is a registry page. A kartela exists for every immovable property identified during the process of first registration. The kartela contains information about the rights, which people and agencies hold in each immovable property (as well as other identifying information), with the same unique identification number as shown on the Index Map.

The physical kartela is, at present, the only authoritative source for describing the rights, which people and agencies hold in immovable properties.

A digital copy of the kartela is created (in dbf format) for indexing and archiving purposes. This database is used for preparing lists of properties and holders of rights, which are used during initial registration displays of kartela and index map information.

3) Other documents

Other documents typically exist to support the rights noted on the kartela and the boundaries shown on the Index Maps. These documents include the original privatization agreements, supporting evidence in the cases of private houses which were privately owned before 1991, agreements in the cases of disputes which emerged during initial registration, court decisions granting property rights, boundary fixing surveys, and agreements which document transactions following initial registration (sales, leases, inheritances, mortgages, easements, restrictions, etc.).

Any action which changes the information contained on a kartela or on the index map by law must be registered, that is, the parties responsible for the change must apply to have the change introduced into the kartelas and/or index maps which comprise two of the most important elements of the IPRS information system. This means that if the change has to do with information on the kartela, the change must be made in the physical kartela and in the digital data base copy of that kartela. If a change involves a boundary change (subdivision of an existing parcel or merging of two existing parcels, or correction of an error on the index map), it must be recorded on the physical index map and the digital copy of that index map.

B. Information System for IPRS

As set out in the design of digital information system, during the stage of creating new Registration Office, computers play an assisting role in the process of first registration and in the functioning of the IPRS. More concretely, they are used to:

- (a) Generate lists for correcting kartelas and for the display of ownership and other rights as determined during the first registration process.
- (b) Provide lists and indices for registering subsequent transactions in the Registration Offices (RO).
- (c) Create backup, archival copies for the kartela and index map information in case the kartelas or index maps are destroyed or improperly altered.

(d) Enable a linking and comparison of the kartela and map information after display and for error correction.

(e) Generate revenues for ROs by selling information to certain users of land registration information.

During the first few years of the Action Plan, we have agreed that the IPRS will work on a dual approach: **paper** kartelas and index maps and **digital copies** of the kartelas and index maps. The information basis of the IPRS is the *paper system*, which is legally the official record of ownership and other rights to registered immovable properties.

In this context, the creation of the digital kartela databases (legal information) and the digital index maps is designed to be introduced step-by-step, without requiring expensive 'big' computer solutions. Such a strategy was forced by the following:

- lack of dependable electricity infrastructure in Albania, particularly the frequent and long outages of electricity which means that an information system which depends on the computer has to devote substantial resources to infrastructure substitution (generators, UPS)
- lack of functioning telephones and clean telephone lines outside of the capital, which requires networked information systems to invest substantial sums in establishing telephone lines or in inter-city transportation of digital records by bus or car;
- lack of a pool of people who are "computer literate", who know the basics of computer use and maintenance and virus control, and who can be employed in the IPRS;
- lack of computer service providers to fix problems which inevitably arise with computers and their associated equipment (computer specialists have been concentrated in Tirana, and many of them leave Albania each year);
- there are still employees in the registration office that are not familiar on how the system functions when they can see and read the records directly;
- IPRS is in the process of building itself, and regulations and procedures for the operations of offices are still being changed and refined;
- uncertainty about IPRS financing and the ability to maintain computer technology in the future.

Hence, the focus on information system development in the IPRS has been to:

- establish the new IPRS information on paper records which people can read and update with widely known and mastered technology;
- develop digital data bases for kartelas and index maps for specific purposes not absolutely necessary for the functioning of the IPRS offices;
- define procedures for having a good archiving system in the Central Office of the IPRS;
- work with well-known and standard digital data structures (.dbf and .dxf), in order to be compatible with computer applications developed in the future;
- work with small files, i.e. one file for each cadastral zone;
- solve the specific functions for the digital information as outlined above;
- provide a learning process for everybody involved with the computerization of the IPRS.

Figure 1 graphically presents the dual approach that we implemented in Albania. Although we realize the extra costs related to the implementation of this dual approach, we considered it as the best choice given the specific conditions in Albania, which make the immediate introduction of a fully digital property information system less than feasible. However, by implementing simple computer solutions to specific problems in a step by step way, which are based on standard exchange file formats, we have created the flexibility and experience needed in case of expansion of the digital systems.

In the following section, we discuss reasons for our choice and provide recommendations on criteria to be used by other information system designers, as they have to make decisions about property information systems development and the roles of information technologies in that development.

IV. CRITERIA FOR DECIDING ABOUT INVESTING IN DIGITAL LAND INFORMATION (W7 Problem)

Different authors have addressed the issue of introduction of information technology looking at it from different views. These views range widely from consideration of national policies for land information (Munasinghe, 1995) to discussions of different specific impacts of technology, such as gender biases of IT (Goonatilake, 1995). While our discussion focuses more on the implementation of a combination of analogue and digital information management for land market institutions, it builds on the very basic, simple, and easy to generalize, questions that should be considered for any other information system.

1. Why IT?

We discussed some of the advantages of the information technology in section II of this paper and the list could be extended even further. We confirm our positive position towards IT by stating that the list of advantages is limited only by the imagination and abilities of potential users. But this does not mean that IT is automatically and completely relevant to the solution of specific problems under specific conditions. There must be a justification and complete analysis for the switch from analogue to digital information systems.

2. What?

“When all you have is a hammer, everything looks like a nail”

One of frequent mistakes made by decision makers, often encouraged by information system specialists, is to see IT as the key to the solution of any problem. We argue that unless the system is properly designed, procedures clearly stated and simple, the IT, instead of helping, might even add more confusion into the system. For example, long waiting times in a land registry might be related to ill-defined procedures for registration rather than in the need for faster processing of the information via technology. This issue becomes even more important in the conditions of initial setup of systems. For example, Albanian registration system started as a new system, with new legislation and regulations, which are still in adjusting phases. Although the efforts of Albanian specialists and foreign technical assistance have been substantial, the immense number of legal and procedural subtle issues limits the possibility of large investments in technology. We would

like to call the attention of both experts from developing countries and international organizations to consider this criterion necessary to be met before any IT implementation.

3. Who?

"When in Rome, do as the Romans do"

It has been already generally accepted that people are the most important element of any information system. Our concern is twofold, and relates first to people who build the information systems (IT specialists), and second to people that will use such systems in their every day work. While systematic training is a way to increase people's efficiency professionally, we would like to emphasize other factors that limit the human input. In Albania, for example, we are facing the problem of continuous emigration of skilled IT specialists abroad in search for jobs that are better paid. Also, in general the higher education system in Albania has not been able to recover since the democratic changes took place, bringing out to market specialists that are less in number and poor in quality. Differences in the payment level between private and public sector also reduces the ability of the latter to draw the best specialists and comfort them for a reasonable amount of time. For example, in the project management unit (PMU) for creation of IPRS, more than eight IT specialists have been hired, trained, and then left the PMU in a period of less than three years.

It is imperative that users of the IT systems accept and understand such systems. For systems that have been in place for a long time it is easier for users to adapt to the technological changes. Instead, much longer training is required for people that are new to the system, such as is the case of IPRS in Albania. While understanding these IT systems is usually solved through training and design of user-friendly systems, we see as more important to verify how receptive would these users to such systems. There is a feeling that in developing countries chances that public employees engage in misconducts is considerable. In these conditions, one should answer the question of whether such users will ever be in support of IT systems, which they might consider as one way of reducing their personal profits through misconduct.

4. Where?

"You cannot make bricks without straw"

Infrastructure is another important criterion directly affecting any design of information systems. Many developing countries do not have the luxury of having even elementary conditions such as telecommunication or even electricity. For example, it has taken more than three years for the PMU (35 employees with an activity that involves more than 500 people in different contracts nationwide) to have one more telephone line added to the only phone line that had from the beginning. Cases of long electricity outages are common in the capital of Albania and the situation is even worse in districts.

Maintenance and support services that is usually taken for granted in the developed countries should be faced against shortcomings such as unavailability of spare parts, trained maintenance technicians, which add to the vulnerability of developing countries as reliance on information technology increases.

5. How much?

"Do not stretch your legs longer than your blankets"

We are living in a reality where prices for hardware and software are declining continuously, and this is often used as the main argument for the implementation of technology, especially from the computer system salesmen. Usually, it is the international donors who have supported technology investments in developing countries. Therefore, it appears that the problem of cost is not an important concern. However, we insist that it is imperative that costs of maintenance in the long-run management of the system should be considered and financial resources should be located, an issue that is often overlooked. Even more important becomes the evaluation of system costs in the case when local financial resources are used to build and also maintain IT systems.

6. How?

"Why to keep things simple, when we could complicate them"
Jaroslav Hasek, Good Soldier Schweik

While many writers claim simplicity as one of the corner stones for success in IT development, we often see very sophisticated systems that try to cover even the very little details of the current manual systems. Especially in the cases of the first-time introduction of IT, we argue that procedures for any new development of IT systems should be simple, user-friendly, and solve the most important needs of users of such systems. We are in favor of a step-by-step approach, coupled with a precise and measurable feedback process after each step is taken. At the same time, it is very important that such systems be open and flexible to accept any extension and expansion in the future. And, simple systems are easier to adapt.

7. When?

"Hasty climbers have sudden falls"
"The best is the enemy of the good"

In many instances, technology has deceived decision makers and divided them in two groups of the "deceived". The first, and the more frequent group in countries dependent on external financial support, is represented by those who embrace the first IT solution they are shown, often pressured in their decision by the donor agency. Those who endlessly are in search of a better solution, and delay any decision about IT development until the next technological fix comes along represent the second group. Finding the balance between these two tendencies is more than art, and requires a good cooperation of local experts with many independent foreign IT experts.

8. Combinations of Constraints

"A chain is no stronger than its weakest link"

Often information system designers carry out a substantive and insightful evaluation of a subset of issues that we described above and still manage to overlook one or more of the factors we have identified. While this weakness might be due to lack of knowledge of IT systems, more often it is the institutional context that creates difficulties with what appears to be an excellent technological proposal. Also, it is difficult to find IT systems designers who have the experience with the extreme sensitivities of immovable property information and its management. Taking seriously all of the factors that affect IT development and finding how these factors inter-relate is the challenge for the decision makers.

V. CONCLUSIONS

In creating or drastically reforming a land registration system, we would argue for defining the new system based on paper records, under conditions of social and economic disruption with ill functioning electric and telephone infrastructure, and with low salaries for IT specialists as compared with international market.

At the same time, this land registration system should gradually experience the introduction of IT, first in non-essential aspects (back up archiving, indexing), and then as the conditions improve switch from the paper based (analogue) system to the digital information management system.

We have developed a list of “W’s” for the information system designers to consider in making the gradual investments in IT for land registration.

We recognize that the dual system approach, analogue and digital functioning simultaneously, appears to be more expensive than moving directly to an analogue or to digital system. However, we argue that the gradualist approach is in fact less expensive and more likely to succeed than the radical adoption of IT.

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