

`Simplifying the Business of Land Information Administration

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Key words: Land Administration, Strategy, Cadastre, Technology Innovation.

INTRODUCTION

The terms of reference for the simposium for which this paper was developed was as follows: ” ... to explore the developments in technology (with a focus on information technology) as they are expected by the IT industry. Emphasis will be on innovations that are of strategic importance, and most likely will impact on the way land administration organizations in the future will be operating both at strategic and operational level. Technological innovations might lead to new strategic business opportunities, while developing appropriate IT policies how to use the opportunities of the IT market. ... ”

The FIG Commission 7 Annual Meeting preceded the Symposium on Innovative Technologies and for Land Administration. The Annual Meeting provided much opportunity for comparative analysis and benchmarking through the different country reports and discussion of specific country challenges.

It provided the opportunity to rediscover that the developing and developed economies share many of the same core challenges in Land Administration and Land Information Management. One of the conclusions from the Annual Meeting a consensus that the Business of Land Administration – especially with regards to management of innovation and technology – need to be conducted differently.

The discussions during the annual meeting shaped the contents of this paper towards focusing on strategy and technology aspects that can contribute to the resolution of a few of the core common challenges in the land administration sector globally, rather than stricly keeping to the terms of reference for the simposium.

There is general agreement that current land administration projects and practices are not yielding the anticipated returns on the investments made globally. This is driving the land administration community to look for ways to improve, renew, grow and transform towards a more successful future.

The premise of this paper is that while technology will continue to evolve, organizations in both the developed and developing countries will only benefit sustainably from new technological innovations, if they adopt a more holistic and strategic view of their business, capability and resources.

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Simplifying Land Administration.

FIG Commission 7 Symposium on Innovative Technologies for Land Administration,
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Organizational renewal, growth and reform are the subject matter of Strategic Management. This paper applies some of the tools offered by this discipline to evaluate the current state of Land Administration and suggest strategy for the future.

STRATEGIC MANAGEMENT (FOR LAND ADMINISTRATION)

What is Strategic Management? It is a process for conducting the entrepreneurial activities of an enterprise – public or private – for organizational renewal, growth and transformation.

The primary tasks in the Strategic Management Process are shown in Figure 1 .

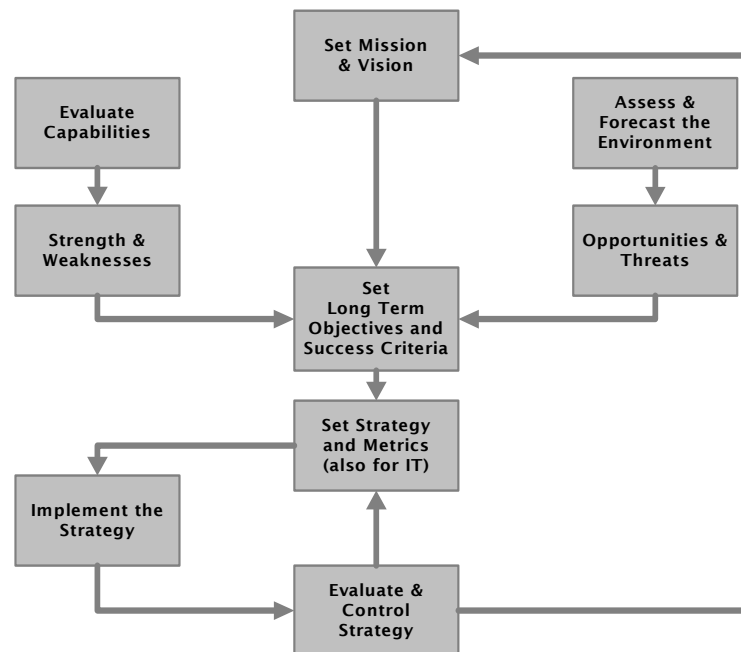


Figure 1: Typical Strategic Management Model

This paper does not present in depth details of the Strategic Management Process and readers are encouraged to refer to any of the classical books on Strategic Management for in depth study on each of Strategic Management and each of the tasks shown in Figure 1 .

The primary inputs to the strategic management process are the following:

1. Organizational Mission and Vision
2. Environmental Assessment and Forecast(s), and
3. Capability Evaluation

The end game in setting strategy is to give an enterprise consistency of direction towards long range goals, or towards the enterprise's strategic intent.

For any organization to determine their strategic intent, it needs to a) understand what "business" it **is** in, and b) what "business" it **should** be in. With these two questions answered, an organization can start on the path to designing its Vision and Mission and set a strategy to towards these.

In this paper it is recognized that Land Administration Agencies are usually public sector organizations. As such the Mission and Vision of these agencies are typically influenced by a) national land policies and b) general government policies.

This paper does not discuss what the mission and vision of a land administration agency should be. It is assumed that such a mission and vision is established, and that sustainable land administration within a specific country or regional context is a foundational component of the established vision and mission.

The next step in the process is an environmental assessment and forecast. A complete strategic management consultancy project would typically include the assessment and forecast of a wide variety of factors – both at the macro and micro environmental levels. In this paper the assessment is limited to small subset of factors.

ENVIRONMENTAL ASSESSMENT

CURRENT STATE: THE INSTITUTIONAL IMPACT OF TECHNOLOGY AND FAILED INVESTMENTS

In September 2003, the United Nations Economic Commission for Europe's Working Party on Land Administration (UN-ECE WPLA) reported that "Land administration reforms across the world during the past decades have focused on building or rebuilding land title registration and cadastral systems. Grants or loans that supported capacity building concentrated on providing the necessary skills to operate the new technologies. However, strategies for long-term sustainability were rarely built into these programs. The development of business skills and a business ethic has not always been regarded as a priority. Today the beneficiaries of many of these programs are facing difficulties since much of the technology of the 1990s is obsolete. It needs to be replaced but how can this be achieved? Who will pay for what some call a 'technology refresh'?"¹

Similar reviews of Land Administration related IT projects globally by organizations such as the World Bank, the United Nations, and the US Agency for International Development (US-AID), leading technology providers such as Intergraph and others, shows an alarming similarity: The availability and deployment of technology is not translating into sustainable and successful land administration success stories at a

¹ Report from Workshop on Spatial Information Management for a Sustainable Real Estate Market. Economic Commission for Europe. Working Party on Land Administration 3rd Session. Geneva, 17-18 November 2003. <http://www.unece.org/env/hs/wpla/3Session.htm>

pace fast enough to effectively contribute the resolution of global challenges such as the reduction of poverty, sustainable rural development and improvement of the quality of life globally.

John E. Ettl (from the Rochester Institute of Technology) provides one possible clue as to why investment in technology has not produced the results that were anticipated. In 2000 he wrote: “If the technological innovation involved – whether new product or process - is radical, then substantial changes in the organizations involved will be required for successful development and use of these innovation”.

The introduction of technology into many land administration agencies have not had risk mitigation strategies to offset the impact Ettl refers to above.

Another clue as to the existence or the current state is found in the fact that cultural factors, value systems, education and local support capacity have not been taken into account when project, funding and technology decisions were made.

Other contributing factors to failed projects include the following:

- 1) There is no strategy in place to guide donor aid.
- 2) Donor countries and programs ignore strategies that are in place to follow their own agenda without regard to program sustainability within the context of a country or region.
- 3) There is no local ownership, appreciation or pride IT solutions, land tenure or land administration systems that have been developed based on cultural and societal concepts that differ widely from that in the recipient country.

Over the course of many years, a large amount of money and effort has been invested globally on the implementation of land information and cadastral related technologies. (It could be argued that in some instance money and resources were simply just spent – rather than invested).

The global challenges that confront us, such as HIV/AIDS, reduction in poverty, and improvement of quality of life across the globe, demand that from now on we ensure that investment in the evolution of information infrastructures worldwide produce the returns that stakeholders in the developed, developing and transitional economies expect and deserve.

ORGANIZATIONAL ASSESSMENT

Figure 2 shows the enterprise model to which organizations are evolving.

The model shows that Interoperability transcends all aspects of an enterprise’s operations and that is a foundational component of business and organizational strategy.

The ability to efficiently interoperate and interface through processes with people and other entities adjacent to, or outside, the enterprise is just as crucial as ensuring internal efficiency.

A recent Gartner Group survey states the following “Business process improvement is no longer about making individual processes within a business unit or geography faster- it is about **business process fusion** - provides the opportunity to re-engineer processes end-to-end from the customer perspective and integrate previously autonomous business processes, information and application software across business units and geographies.”

From an IT and Process perspective this model recognizes that an organization will for ever be in a state of migration wherein legacy systems and new technologies will have to productively and cost effectively co-exist and interoperate. Interoperability is driving the Service Oriented Architecture, Business Process Modeling (BPM) Tools and Technologies, and Data and Protocol Standardization.

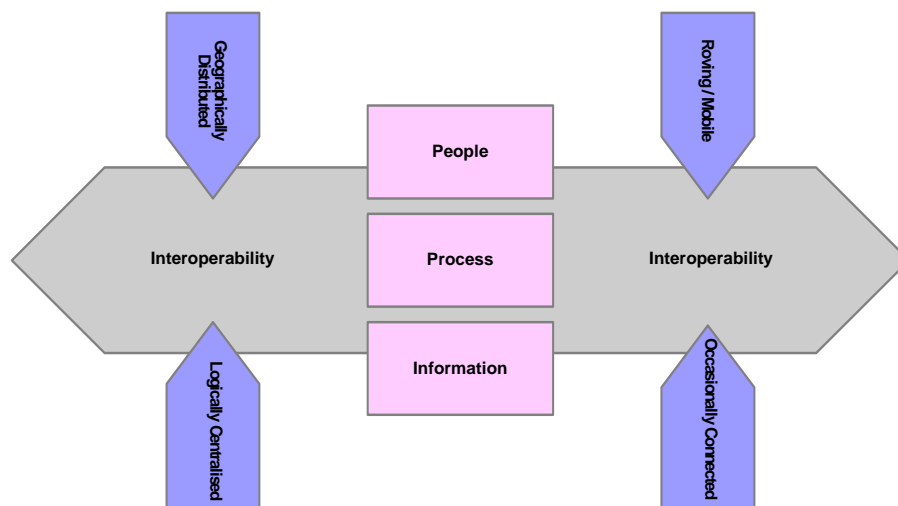


Figure 2: Enterprise Model

This model also recognizes that enterprises are information dependent and will continue to evolve towards being process-driven. Enterprises will continue to decentralize – both virtually and physically – to be closer to their customers and to improve service delivery. The enterprise is logically centralized, with mobile technologies and distributed systems both 24/7 and occasionally connected to a “network”.

Organizations also consist of people who serve other people. In Land Administration especially this is a very important fact to consider. It is thus very important to understand what the resource base is that the land administration agencies will have to draw from in future and also who it will serve.

DEMOGRAPHICS

Since Land Administration has extensive needs for Information Technology it is appropriate to review demographic forecasts from an IT perspective.

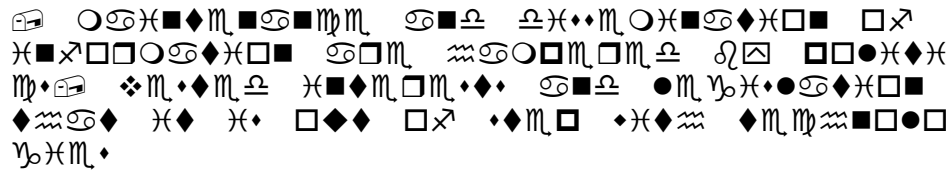
IDC research quoted in *The Economist*² showed the segmentation of the world’s population by “digital status” to be as follows:

- 70% of the global population is “terrified by technology”. (These are the “Digital Analogues”.)
- 15% of the global population is teenagers and young adults who were born into the information age. (The “Digital” Natives).
- The remaining 15% are the “Digital Immigrants”. This segment represents those who have adopted technology.

The IDC research projects that by 2014 the entire population would have made it into either the “Digital Native” or “Digital Immigrant” segment. The needs of these converts point to a hugely increased demand for simplicity – and to grow industries and business that use IT and technology – such as Land Administration – the challenge for simplicity must be met.

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² http://www.economist.com/surveys/PrinterFriendly.cfm?Story_ID=3307363



TECHNOLOGY ASSESSMENT

Land Administration requires a broad spectrum of technology – land administration cannot be done without the use of technology. It is used to automate tasks, it supposedly makes organizations and people more efficient, lower operational costs, and increase profits.

Two of the most commonly used technology marketing messages are that it makes life or tasks simpler or easier, and that it gives us more time.

Every computer user knows that these messages are unfortunately not universally true. When a system suddenly crashes, when months of research data is corrupted, and we toil many hours to repair the damage, we have probably all wondered whether technology or the user is in charge. This is a simple example of what may be the IT industry’s greatest challenge – conquering complexity.

It is safe to say that technology has made life more complex, also in the land administration domain. End-users in all industries are searching for solutions and applications to simplify their daily tasks.

In an October 30, 2004, survey on information technology published by *The Economist*³, Donald Norman is quoted, “Today’s technology is obtrusive and overbearing. It leaves us with no moments of silence, with less time to ourselves, with a sense of diminished control over our lives”⁴ and “... it is time for human-centered technology, a humane technology.”⁵

Research from the IDC quoted in *The Economist*⁶ leads to the conclusion that ICT complexity – and, by implication, complexity in the ICT infrastructures that support cadastral systems and real estate markets – will continue to haunt the operators and owners of ICT infrastructures. The IDC figures show that the ratio of expenditure on fixing existing systems vs. buying new systems (75 percent vs. 25 percent) has reversed from 15 years ago. A recent sample of firms surveyed by the IDC shows that 70 to 80 percent of their IT budget now goes toward fixing old systems. This leaves only 20 to 30 percent available for new purchases.

³ *The Economist*. October 28, 2004. http://www.economist.com/surveys/PrinterFriendly.cfm?Story_ID=3307363

⁴ D. A. Norman, *The Invisible Computer* (Cambridge, MA: MIT Press, 1998).

⁵ *Ibid.*

⁶ http://www.economist.com/surveys/PrinterFriendly.cfm?Story_ID=3307363

These IDC statistics have a direct impact on land information management infrastructures around the world. The figures validate investments that technology companies, such as Intergraph, Oracle, MapInfo, Autodesk and LaserScan, have been making in standards and technologies for interoperability.⁷

In the context of the management of geospatial information some database vendors, such as Oracle, have addressed the simplification challenge and ensured that all Oracle databases are geospatially enabled by treating geospatial data simply as another data type, accessible through SQL and XML Query.

To achieve affordable, effective production and delivery of the appropriate information to the right place at the right time, land information management agencies (which are still very much government centered) continue to drive solution providers toward sustainable solutions that also simplify life for employees. At the same time Land Administration agencies are searching for sustainable ways to increase their agility – their ability to deal with frequent change.

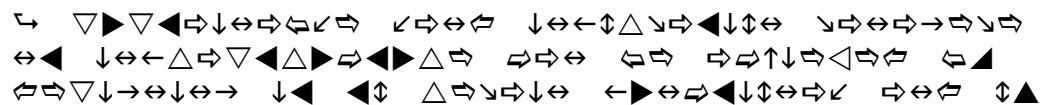
To reduce the barriers to optimizing and changing processes, land administration agencies to becoming process-driven. It is forecasted that Business Process Management (BPM) tools will set the standard for workflow automation.

These BPM tools will sit on top of existing IT systems to model, execute and measure the effectiveness of processes. This will also give business process owners power to monitor and refine processes without engaging IT developers.

In concert with BPM, Service-Oriented Architectures (SOA) are taking center stage as the methodology that maximizes re-use of existing IT assets, promotes platform independence and reducing the cost of changing direction and incorporating technological innovation.

Google.com presents a very good example of simplicity. The user interface consists of approximately 31 words, a textbox, and two command buttons. This extremely simple interface hides some very complex logic and operations.

Simplicity is a foundational concept upon which future land information and land administration infrastructures and programs should be architected.



⁷ <http://imgs.intergraph.com/interop/>

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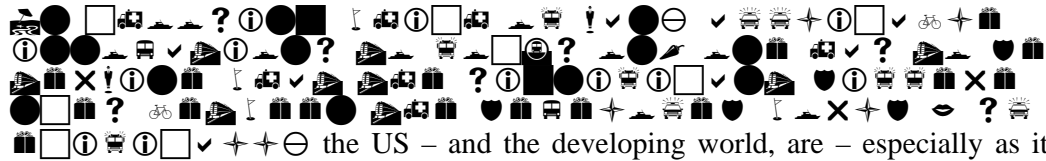
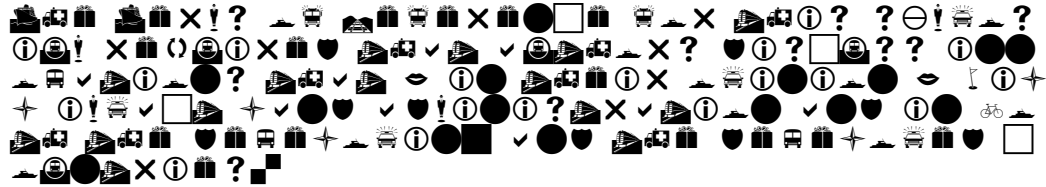
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SETTING LONG TERM OBJECTIVES AND SUCCESS CRITERIA

COMPARATIVE INDUSTRY ANALYSIS BETWEEN THE US (DEVELOPED) AND THE DEVELOPING ECONOMIES



the US – and the developing world, are – especially as it relates to land administration. This comparative process resulted in the following observations:

- **National Cadastre:** As is the case in many developing countries, the US has no up to date, all encompassing and inclusive public national cadastre. The public cadastre in the US is essentially decentralized and localized to approximately 3000 fiscal cadastres maintained for property tax collection. Public registries are similarly decentralized. Unlike many countries with national cadastres, the US has an active and thriving real estate and mortgage market – without a “real” national cadastre. A “National Cadastre” and “Land Registry” do in fact exist in the private sector. It consists of systems – or networks of systems – established and maintained by the US Title Insurance Industry.
- **Deeds and Title Registration:** While it is generally not legally compulsory to register deeds and Titles in the US, it is generally done and it is relatively inexpensive to do so. In many developing countries with national land registries, cadastres and compulsory registration legislation – citizens want to register their land ownership and land transactions – but for a variety of reasons they cannot – one of these are often cost.
- **Digital vs. Paper Land Records:** As in many developing countries the US still has relatively large amounts of paper based land and survey records and these continue to be produced and used.
- **Data Duplication:** Duplication of data and effort is alive and well ...
- **Public Sector Challenges:** We have learnt that all over the world land administration agencies seem to be experiencing the same challenges:
 - Their budgets are decreasing
 - They cannot attract and retain qualified staff
 - An Aging Workforce
 - They have to do more with less

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- Government Services are generally less consumer oriented / friendly – than the private sector.
- Partnerships and Cooperative Agreements seem to be the only way to get important things done – and it takes a long time.
- **Economic and Political Challenges:** We have heard from the BLM and other public sector agencies that best efforts to streamline production, maintenance and dissemination of information are hampered by politics, vested interests and legislation that it is out of step with technologies
- **Native Lands and Land Tenure:** We learnt that the US, Canada and Australia also have native land tenure issues to deal with.

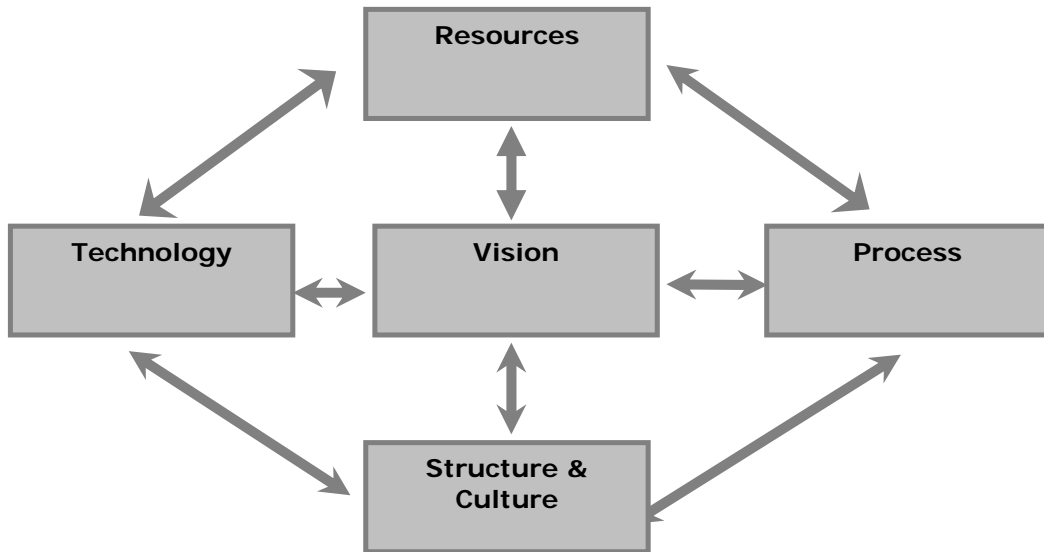


Figure 3: Elements of Organizational Alignment

CONCLUSIONS

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