

Re-engineering Survey Offices: Role of Young Surveyors

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SUMMARY

Cadastre is one of the most important infrastructure of development in any country. Land is operated and administered through well established cadastre in Nepal. For many decades though survey and mapping has been developed and been continuously improving, yet there has been bottlenecks in service delivery by the survey offices. New generation of surveyors called Young Surveyors now have the challenge to restructure the service delivery and promise fast, efficient and quality service delivery. Young surveyors have ability to learn new concepts, excel in digital tools & techniques and incorporate best practices, yet there are several hindrances. So it is important to re-engineer the survey offices and young surveyors are expected to play major role in structuring cadastral SDI and making it operational.

1. BACKGROUND

There are more than 100 survey offices spread over 75 districts all over Nepal. Survey office and Land Revenue Office (*malpot office*) are involved in carrying out cadastral activities in Nepal. Service to the public, in the form of facilitating land transfers and registrations, land measurements, updating and safekeeping of land records and cadastral plans etc. are the main jobs of these offices. The service delivery mechanism in offices are still paper based and analog. If we assess the institutional mechanism of land administration, technology adopted in cadastral surveying, political awareness about the essence of cadastre, and other various factors with the FIG Agenda of Cadastre 2014 it is out of reach for Nepalese context. (Bhatta, 2008)

A Young Surveyor is defined by FIG as a person 35 years old or younger or within 10 years of graduation with a Bachelors or Masters degree in surveying/geomatics. So a young surveyor is a professional with sound academic knowledge of surveying and geomatics. As we have embarked on the technological age where information is available on finger tips with use of computers and internet, most of the disciplines and institutions have embraced the use of technology to provide efficient services and meet organizational goals. In Nepal private institutions have been successful in reaping benefits of modern tools and technologies but it has been equally difficult for the government offices due to traditional policies, acts, procedures etc. In many offices some part of components have been automated or computerized but not the whole process or entire workflow. It is a difficult process to redesign the system and functioning of the survey offices. We need a rational approach in reengineering the office which can be done by exploiting young surveyors.

Here we use reengineering in the form of Business Process Reengineering (BPR). Davenport and Short (1990) defines BPR as: The analysis and design of workflows and processes within and between organisations. Also Whereas Hammer and Champy (1993) defines it as The

fundamental rethinking and radical re-design of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed. Wikipedia states Business process re-engineering is a business management strategy, originally pioneered in the early 1990s, focusing on the analysis and design of workflows and business processes within an organization. BPR aimed to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors.

It is important to view the survey offices as competent business organizations if we are to improve the efficiency and services to the service-seekers.

2. WORKING MECHANISM OF SURVEY OFFICES.

Survey offices perform regular activities related to land transactions and updating of land records. Apart from that it is also involved in carrying out cadastral surveys – In many part of the country digital equipments like total station are being used for surveys and use of computers are in place for mapping but still in many places paper and pencil cadastre is being practiced due to lack of trained manpower, instrumentation etc.

Parcel subdivision is one of the major activities performed in Survey Office. Whenever there is a land transaction that requires parcel subdivision the deed is prepared by *Likhandaas* which is brought to survey office and parcel subdivision is done by local surveyor called Ameen either on paper map or in computer. The land ownership information is updated in Land Revenue Office where such records *Shresta* are kept. Here two organizations are involved which takes time and workload to the service seekers. Most of the offices uses paper maps which are originally prepared from cadastral surveys done more than 30 years ago. The maps of urban areas in paper form are hard to read. In such areas where land transaction is quite high, maps are continuously folded which have eroded the linework and brought speckles. Department of Land Information and Archive(DOLIA) undertook the task of digitizing the land records and maps in form of digital geodatabase. But due to many inherent errors in maps, it cannot be used efficiently. Moreover, the database has not been spatially referenced to fit into national coordinate framework and integrated into a SDI. Digital cadastral database (DCDB) should be optimized and enhanced to act as a regional or national SDI, so that it can give complete situation of public, private ownership information and statistics of land important in policy making and development purpose.

Survey Department, the umbrella organization for survey offices has developed software to carry out parcel subdivisions and cadastral mapping called Parcel Editor. This software is not tailored enough to model all the mandatory paper processes. For example while registering a new parcel application has to be received by the landowner, the related documents, photographs, he/she needs to sign in the field-book, the authority has to sign off the ownership certificates which has not been automated. Therefore, still the mechanisms used are analogue. Government has put efforts to digitize the workflow by piloting in some survey offices but still the processes has to be redesigned by careful study of all the parameters.

3. NEED FOR RE-ENGINEERING

As the population continues to grow sharply and rural areas convert to urban pressure on land also increases. Increasing pressure on land means increased workload on the survey offices. Though traditional thought has been to add the service centres or add the number of offices, but that is not the ultimate solution in the changing world. Banks in 80's have transformed significantly by use of modern techniques and are able to provide fast and efficient services by deploying ATMs, online banking etc. Database systems and softwares have developed to cater needs of large organizations. They have gone successful re-engineering with the help of state-of-art technology and modern systems.

In the sector of cadastre and land administration too, we have seen drastic developments in GIS, spatial databases, algorithms etc. It is important to reinforce the technological developments into the current practice in other words paradigm shift is needed in our offices. If we take a scenario of a general govt. office paper and pen still continues to be workhorses in our offices, even if a piece of document is typed, it needs to be signed off by the related authority. Official communications are still paper based and whenever a document has to be searched pile of file has to be searched which takes lots of time and burden. This practice still continues though we have computers and internet almost everywhere. So there is a need of radical redesign of the core system and workflow. BPR in this context is needed as a sustainable solution.

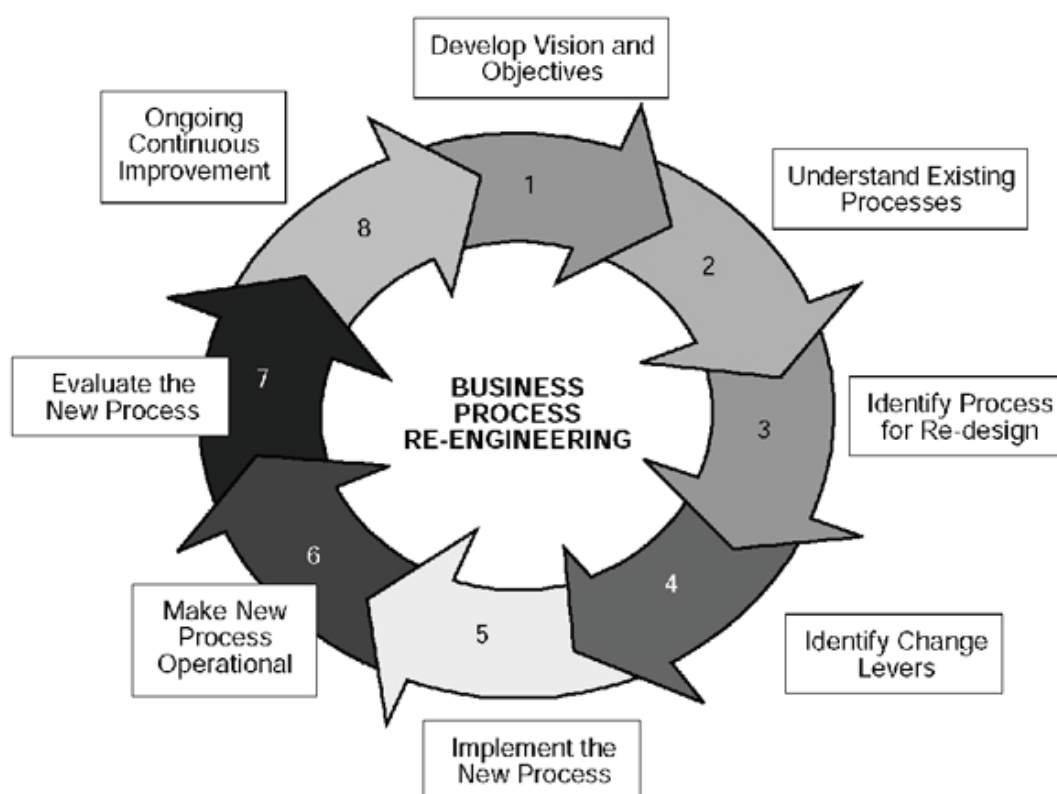


Figure 1 A generic model for business process re-engineering (Vakola et al, 1998)

The above process flow diagram depicts how a business process can be re-engineered. The procedures of survey office also can be considered as a business process with so many sub-processes which has to be carefully studied before redesign. Reengineering can be catastrophic to the organization if it cannot function well, particularly in govt. offices like survey office which are directly related to the people, there are millions of records and documents related to land parcels and owners. The reengineering should guarantee efficient, sustainable and accurate services incorporating all the parameters into the process.

3.1 Problems in re-engineering

The formulation and implementation of reengineering can be quite challenging. Careful attention must be devoted in a reengineering process design. Potential problems faced can be as follows:

- Poor knowledge of know-how of functioning of survey offices.
- Interrelationship with line agencies and related institutions, change in system should go in harmony with the related agencies.
- Technical ability of human resources and their ability to respond to re-engineering.
- Digital divide prevalent in Nepalese society can pose problems.
- Loadshedding and frequent power outage.
- Traditional work-culture and red-taping.
- Corruption
- Failure to manage the system and inadequate qualified personnel.
- Need of rigorous and systematic research.
- Reengineering may demand amendments in acts, procedures, laws which in turn affects other institution workflows.
- Engage with national, regional networks like FIG YSN to share and learn from the practices used elsewhere.

4. ROLE OF YOUNG SURVEYORS

Young surveyors have the ability to learn new concepts, apply new tools and techniques to solve the problems. But when we are thinking of reengineering young surveyors alone cannot solve the issue there is a need of teamwork with other professionals however when the organization is equipped and optimized after reengineering young surveyors have the responsibility to keep offices up and running with new paradigm. In order to recognize the role of YS, SWOT analysis is performed here to have a better insight. This analysis has been performed based on interaction with several young surveyors in different survey offices of Nepal. Such analysis gives helpful information in guiding the reengineering efforts and avoids potential pitfalls while accepting inputs from a YS.



Figure 2 SWOT analysis of YS in Cadastral institution.

As YS have academic knowledge and competency in using modern tools they have the stake to bring principles to practice. When YS undertakes their responsibility in any survey office they are required to act and work according to established norms and practices, which is far from the concepts learned in the university. It is their responsibility to apply the knowledge in effective manner but working for a public institution is not an academic exercise so it is important to restructure the organization through re-engineering. A young surveyor can carry out following tasks to contribute towards it.

- Actively engage in workshops, seminars, group discussions.
- Engage with mentors and peers
- Be creative and try to enforce innovative practices.
- Organize meetings and endorse the practices carried out by each surveyor.
- Connect with higher officials and propose policy improvements.
- Be fluent with practices and workflows in place.
- Consider continuous learning environment.
- Be ready to take up responsibilities and be public-oriented.
- Think about automation.
- Able to communicate ideas effectively even to non-technical person.

In recent years there has been good influx of young surveyors in cadastral institution, and they are sure to get promoted to policy making levels. It is important to keep up with the passion and stay updated and informed of technological improvements and practices. GIS technology is being increasingly used to store parcel data, so they have the managerial role in acting as custodians of digital cadastral database(DCDB) and transforming the paper records like field-books, plot registers, maps into spatial database. Such database design must be tailored

towards fast & easy service delivery. YS must be involved in redesign process which needs intervention from higher order officials and must be “thick skinned” to argue with the ideas.

5. CONCLUSION

Survey offices have increasing public pressure of service-seekers. Traditionally professionals without adequate academic background have been working in such offices due to which the systems and structure continue to be analogue and time-consuming leading to red taping and slow inefficient services. With time it is imperative to reinforce the working mechanism with digital tools and techniques. Efforts to make improvements have either aimed to develop only part of service with limited success. Reengineering in this context seems to be a promising tool to bring paradigm shift towards modeling the current work processes and shall bring about promising changes to the structures of service delivery. Human resources must be knowledgeable, technically oriented to handle the role of redesigning and implementation of new models. Young surveyors now have that role and must take up the responsibility in making survey offices a new generation *service-hub*. National and international organization must provide mentorship and opportunities to young surveyors to handle this challenge and make surveying profession more people oriented.

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BIOGRAPHICAL NOTES

I am currently working in Survey Office Sarlahi as Survey Officer. I have over 2 years of experience in Govt. sector and over 2 years experience in different land related consulting projects. I have been active in FIG YSN since 2013 and participated in different international conferences and workshops. My job responsibilities spans from cadastral surveys to GIS based mapping.

Academically I have Bachelor degree in Geomatics Engineering from Kathmandu University and currently I am pursuing Graduate degree in Geography from Central Department of Geography, Tribhuwan University.

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