New and Expanded Addressing Systems

practical observations of what works and what doesn't in recent address initiatives around the world by an observer from outside government and postal operations

Merry Law

Editor
*Guide to Worldwide Postal-
Code and Address Formats*

Contents

This paper was made possible through the proud support of

GrayHairSoftware.com

DTPsystems.net

About the author

Merry Law, president of WorldVu LLC, oversees their publications and worldwide marketing programs. She is editor of the authoritative *Guide to Worldwide Postal-Code and Address Formats* and author of *Best Practices for International Mailings.* Merry is a member of the Universal Postal Union POC Addressing Work Group and of the U.S. International Postal and Delivery Services Federal Advisory Committee. She can be contacted at mlaw@worldvu.com.

About the sponsors

GrayHair is an industry leader in the development of critical services that improve business mail, including Intelligent Mail® barcode assignment, mail tracking, address quality, presort analysis, postage reconciliation, mail monitoring, consulting and global mail services. GrayHair offers direct marketing consulting services through its GrayHair Advisors division, which provides independent guidance on strategic issues. For more information, visit www.GrayHairSoftware.com and www.GrayHairAdvisors.com.

digitaltoprint the leader in the global hybrid mail and distributive print marketplace provides global solutions to multinational companies. Moving the digital images of our clients' paper-based communications closer to end destination country saves time, money and the environment. Deploying a cloud based solution for easy and secure access via an electronic dashboard, our customers are afforded total internal and external compliance. Visit DTPsystems.net for more information.

Introduction

After my many years of observing and reporting on international postal addressing, *addressing* is receiving more attention from top levels of international organizations and governments. From the World Bank to the United Nations Development Programme (UNDP) to the Universal Postal Union (UPU), studies have been done and papers have been written – all about the address. All of this interest has been generated by the basic idea that *having an address* provides an incredible economic and civil advantage. The cost of providing that address, while it may be substantial, is minor compared to the benefits to the newly-addressed individual and to that individual's society. So say multiple studies and papers.[1]

This paper presents my perspective on what works and what does not, on what has helped and what has not when countries introduce changes to their postal addressing systems. It draws on more than 30 years of experience in working with international addressing and address databases and more than 12 years as the editor of the *Guide to Worldwide Postal-Code and Address Formats*.

Why should **you** care what encourages acceptance of new postal addressing systems somewhere else? What difference does this make to mailers? It has become apparent that there are some basic practices in addressing systems and in introducing new address initiatives that work better – are more efficient and cost-effective – in real-world applications. Better acceptance leads to more consistent use and to less frequent change in address formats. It affects all of us and we need to understand the discussion to have a say in it. And particular professions benefit in some very practical ways from an understanding of addressing systems.

For postal and distribution professionals and for government planners, a knowledge and understanding of what works can save time and money. Saving time and money, while improving services, is a basic goal for most businesses and governments. Rather than instituting changes that are short-lived and ineffective, this understanding can lead to improvements that last. Both ineffective and effective changes to addressing are costly. Obviously, spending on real improvements is wiser.

For database designers and mailers, knowing what works will allow them to better predict which addresses will be stable and deliverable over time and which ones will likely change. It is an indicator of which countries are most likely to have a better rate of deliverable addresses and an indicator of the market's development. This knowledge can help make decisions on where to concentrate marketing efforts and dollars. Finally, an understanding of addressing systems leads to better and more correct addressing of mail: telling the recipient that the mailer understands something about that recipient and getting the mail delivered more quickly with fewer costly undeliverable items. Thus, correct addressing is simply a best practice.

There are altruistic reasons why this should matter to us in a world of finite resources and expanding expectations. Suffice it to say, understanding and instituting good addressing systems benefits us all.

---

[1] The following are among the recent papers and presentation on the advantages of postal addressing.

Farvacque-Vitkovic, C., Godin, L., et al., (2005) *Street Addressing and the Management of Cities*, Washington, DC, USA. WorldBank

Coetzee, S. & Cooper, A.K, 21 August 2007, "The value of addresses to the economy, society and governance – a South African perspective", *45th Annual Conference of the Urban and Regional Information Systems Association (URISA)*, Washington DC, USA.

World Bank (2009) "Systems of Cities: Harnessing Urbanization for Growth and Poverty Alleviation", Washington, DC, USA: World Bank.

Land Tenure and Development Technical Committee (2009) "Land Governance and Security of Tenure in Developing Countries", French Development Cooperation White Paper.

Universal Postal Union Addressing Conference (9 November 2010**)**

Universal Postal Union (2012) "Addressing the world – An address for everyone", Bern, Switzerland: Universal Postal Union White Paper.

Advantages of Having an Address and of Address Systems

Many of the advantages of having an address are unrelated to postal services and the receipt of mail. Some of these advantages directly benefit the addressees. Visitors, emergency services, and postal and other delivery services can locate an individual with a standard address more easily. Potential employers can contact the addressee and may look more favorably on someone with an established residence, as evidenced by an address. Banks may also look more favorably on an individual with an address, making establishing an account possible or easier. In some places, an address makes voting and other civil participation possible. Put concisely, an address allows and encourages social integration, which can have many positive consequences.

Address systems, as opposed to a collection non-systematic addresses, create a comprehensive scheme for identifying locations, such as specific buildings. The system may further allow the identification of sub-units, such as apartments or offices, within larger buildings. An address system would, as a best practice, cover the entire territory of a country and include a methodology for describing all locations where individuals live or businesses reside. Within the system each address would be unique. That is, any address would identify a single location with no duplication possible. So, a building number and street name or a post office box number would not occur more than once within a city or town or postal code. Each address would be locatable, i.e., its location is specified or identified.

The importance of an address system as part of a country's infrastructure, going beyond its use as a mail-delivery point, is increasingly being recognized. Unlike a collection of non-systematic addresses, one can usually predict or calculate the addresses of expansions to existing addresses as new construction occurs if one knows the schema used by the address system. An address system provides standards for addresses, defining the elements of an address type and the placement of those elements in an address block as it would be written on a label or envelope.

Addressing systems allow businesses to deliver goods and services and to locate new clients and markets more easily. They permit individuals to locate friends and family. Building addresses facilitate the planning and delivery of government and utility services, more efficient tax levying and collection, and the response to disasters by governments. With the recognition of these additional applications, newer national schemes are multi-functional and allow for identification of the location without an intimate knowledge of the local area.

Other advantages benefit the government or civil administration. With most modern address systems, delivery of mail becomes more efficient and less costly. Addresses often make the physical location of residences and businesses clearer and easier to find. This allows for a better population census; improved planning of utilities, roads, and emergency and other services; and more efficient tracking of crime and criminal activity. The assessment and collection of taxes and fees is also simplified by a database of all addresses. Obviously, some individuals may not see better tax assessment and collection or more efficient tracking of crime or criminals as benefits. They do, however, benefit the society as a whole if not all the individuals in the society equally.

Another set of potential positive or negative results of address systems are more dependent on the use to which they are put by the government and an individual's viewpoint. For example, addresses also make tracking individuals easier. This can facilitate the location of criminals or of political opponents or dissidents. It can lead to an invasion of privacy or not. Expanding the number of residents with addresses may expand political and civic participation to previously excluded groups. This might be seen as a boon or as a threat.

Countries without address systems face a number of problems in creating them. The logistics and costs can be formidable. According to the Seychelles Postal Service in 2008, "There is presently no formally accepted address format in Seychelles, and postcodes have not yet been introduced. Furthermore, outside the capital, Victoria, there are no street names and most houses have neither name nor number. The effectiveness of our delivery service… [relies] on the personal knowledge and experience of our postmen

and on the fact that about 60% of all mail items are delivered to private boxes." The lack of infrastructure on which to base an address system was, and is, formidable.

Simply naming streets or roads can be a massive project. The numbering or naming of every building on those streets and roads is an even larger project. Add to that the likelihood that some areas would not have roads but informal paths and tracks. The problem of residences or other buildings on paths or other non-roads must be confronted. Altogether such a project would require considerable resources devoted to planning a scheme for names and numbers plus the resouces to implement such a plan. The time and cost are extremely large no matter what country one is discussing.

Unaddressed and Under-addressed Populations

Particular groups of people have had either no access or insufficient access to addresses. Those living in unofficial settlements are frequently identified among the unaddressed, as are the rural poor in developing countries. However, there are other groups who often do not have easy access to an address. Nomadic groups, migrant workers, refugees, homeless individuals or families, illegal immigrants, undesirables (socially, religiously or politically) in both developed and developing countries may not have access to an address.

The problems with expanding addressing to these groups vary depending on the group and the country in which they are located. Nomadic groups in some African countries have very different characteristics from migrant workers in the United States or the Roma (gypsies or travellers) in Europe, even though they share the primary characteristic of moving regularly. They may also cross national borders, compounding the problem of providing an address. Nomadic or migrant groups are most likely the greatest challenge to providing "an address for everyone".

Providing addresses to other groups can also present multiple problems. Illegal immigrants may live in unofficial settlements and hide from authorities. Homeless individuals may be illiterate and unable to understand the advantages of an address or unable to access those advantages. These problems are not limited to developing countries. Indeed, some groups may resist being provided with an address and be suspicious of the motives of whatever authority attempts to do so. [The United States has groups that reject any and all government authority over them, as do some other countries. – M.L.]

Current Addresses and Addressing Systems

An address system may describe multiple types of addresses that can vary in format. Building or house addresses will differ from post office addresses. Building addresses may include apartment, office or floor designations. Post office addresses might include post office box or bag addresses and *poste restante* (or general delivery). Government, large recipients, and military addresses might add to the variations.

All extant postal address systems have certain basic characteristics. Postal addresses, when written, are hierarchical to a greater or lesser degree, with lines for an individual or company name (the most specific level) up to the city or province, or country for international items (the broadest level). Most fundamentally, mail can be delivered to that address. For mail delivery to an address requires that the address can be written, that the physical premises can be located from the written address, that there is some way for mail to be left or held at the premises. (As of this writing, all mail services deliver physical items to physical locations – a post office box, a home or office, etc. Other options are technically possible but not in regular use.)

There are additional characteristics of an address system that might be desired, such as that addresses can be sorted by machine, that the addresses are maintained in a database, and that they meet international standards. These components are commonly considered "best practices" and elements of a modern address system. Some components are subject to more disagreement about whether they are needed for "best practice", such as a precise GPS location.
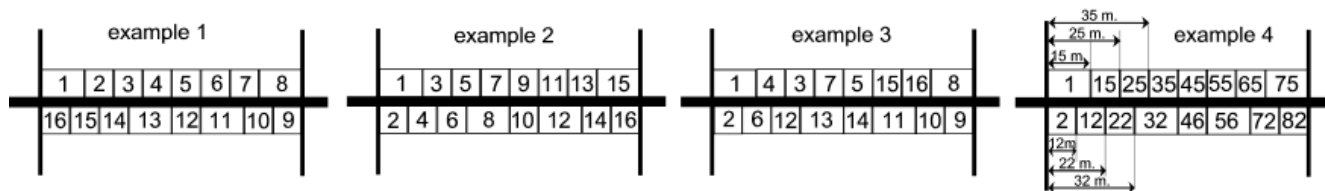
There is a great deal of variation among the current postal addressing systems. Some countries include a state or province in all or in some addresses or do not use one in any addresses. Some use postal codes,

known variously as PLZ, ZIP or PIN code and many other names, while others do not. The order in which the various items in the address, or address elements – building number, street name, postal code, etc. – are placed and what punctuation, if any, is used varies greatly among the addresses worldwide. Mail may be delivered only at post offices (post office boxes or bags and *poste restante* or general delivery) or may also be delivered to building addresses.

There is no single "correct" address system that will meet the needs of all countries. Historical and cultural factors that might impact the address system would include the traditional methods of addressing, the layout of towns and cities and the roads between them, the relative importance of administrative units below the national level, and many more. Beyond historical and cultural factors, population density, degree of development, size of the territory, proportion of urban and rural populations, and population growth rates will all affect what addressing system works best.

For example, not all address systems use building number and street name combinations for building addresses. They are the most common form of building addresses in the developed countries of Europe and North America and countries in other regions have adopted this address type. There is nothing inherently superior about this form of addressing over the form that designates a building using section (or area) and plot (or structure) numbers or over other possible address forms that can meet the requirements of a modern address system. If the section and plot numbers offer a unique combination within the city or town or postal code and are systematically assigned, they can offer the same level of premise identification, uniqueness, and locatability as a building number and street name schema.

Even within similar and simple-seeming address items, a great deal of variation can exist. A few possible building number schemes and some of the many postal code formats are illustrated below to provide some idea of the possible variations and combinations. This same kind of variety can extend to other items in addresses. Buildings can be numbered sequentially or in some other order. If they are numbered sequentially, a number of different patterns can be followed.

example 1							
1	2	3	4	5	6	7	8
16	15	14	13	12	11	10	9

example 2							
1	3	5	7	9	11	13	15
2	4	6	8	10	12	14	16

example 3							
1	4	3	7	5	15	16	8
2	6	12	13	14	11	10	9

example 4 (35 m. / 25 m. / 15 m.)							
1	15	25	35	45	55	65	75
2	12	22	32	46	56	72	82

(12 m. / 22 m. / 32 m.)

Building numbers that are non-sequential, as in example 3 above, generally make finding an address more difficult. Non-sequential building numbers are less amenable to simple geo-locational calculations without resorting to a database or other reference.

Postal codes are numeric or alphanumeric in every country that uses a postal code system. Although no current codes are alphabetic, such a code is feasible. The codes create a unique identifier for each area of the country and are particularly useful when names of towns may be duplicated. The codes can be formatted in a number of different ways. Some current codes are

H3C 3X2   12345-67890   AD123   9876   375 009   KY1-1106   MD-3527   2582 ND   DN16 9AA

Postal codes are also useful for automated sorting and are particularly useful in countries with multiple languages and scripts. The codes can represent geographic areas that are numbered sequentially from one point in the country and continuing in some geometric pattern until the entire country is covered. They can also be assigned to administrative areas in a pattern that is not readily discernible to someone unacquainted with the reasons for the code assignments. Postal codes remain constant for an address in some countries. In others, the codes are reallocated as population shifts occur.

Taking into account the variety of elements in addresses, the variation in each element, differences in placement of the items within the written address as seen on an envelope or labels, and punctuation used, the number of variations in the way addresses are written worldwide is between about 100 and 2000 depending on the expert consulted. Considering the possible permutations, we are fortunate that there are

not more. By my count, there are over twenty major variations among the world's countries just on use and placement of postal codes and provinces or province abbreviations.

New and Expanded Addresses and Addressing Systems

The expansion and modification of postal addressing is creating unique new systems. Countries that were limited to post office box delivery are developing new building addressing schemas and those that did not allow for accurate location of a specific address are being modified. Taken together with the formation of new countries, the introduction and modification of postal codes, and of new address formats, these changes and expansions have led to revisions in postal addressing in at least 40 countries over the past 5 years. Not all of these changes to addressing resulted in new address systems as defined above.

New or expanded national addressing systems are an extremely expensive proposition. It follows that the benefits to all the stakeholders – the postal system, the national and local governments, businesses, addressees, and any other stakeholders – should be commensurate with the cost and efforts required to plan, design and implement an expanded or new address system. The advantages of new or expanded address system may be difficult or impossible to quantify and are spread over a long period of time. The very real expenditures of planning and implementing new addresses are more easily calculated, very immediate, and quite high.

Government agencies, postal authorities, business groups, and citizens' advocates must all come together and agree to the new structure of addresses for its introduction and use to be effective. This may be no easy feat. Ease of postal processing might conflict with government administrative goals or potential uses. Since these addresses permit mail delivery, the postal authority must find advantages in the new addresses. Privacy concerns of residents or governmental authorities might conflict with a desire to have a greater degree of detailed information in the address. Business might find the new system confusing or disadvantageous. Some of these plus language issues (English vs. Irish) were raised in both of the unsuccessful attempts to institute a postal code in Ireland.

Once the issues of planning and implementation are resolved, residents must find the new addresses acceptable and useful. If they do not, the new address system will not be used. Residents must know about, understand, accept and use the new system. Many new postal code systems failed because they were not used by residents. Some of these were due to a lack of understanding or information; others were due to suspicion of the government's intentions or rumors about why a new system was being implemented.

The time and effort and cost and risks of a new address makes it imperative to look at what appears to be working well and what may not be working as well as desired. What can we learn by looking at different initiatives? What works and what doesn't? Why does one system work well while another limps along? Do the savings and benefits offset the costs of a new system?

Recently Modified Addressing Systems

As mentioned above, a number of countries have instituted enhancements and improvements to their addressing systems. Among them, Costa Rica, Saudi Arabia, South Africa and South Korea – four countries with very different histories and cultures – have implemented major changes to their addressing systems in recent years. These four are described because of the magnitude of the projects undertaken and the amount of information available from each country.

The four countries created very different solutions from different starting points in addressing and with different logistical problems. The uniqueness of the addressing developed by each country may provide ideas that can be applied by others. Yet, all four systems confer advantages to the postal authorities, the addressees, and other stakeholders in efficient postal systems.

A briefer discussion of some less successful initiatives will follow the descriptions of the addressing changes in Costa Rica, Saudi Arabia, South Africa and South Korea. From the examples of more and less successful introductions of new addressing protocols, some notions on what works and what is required

for success and what might lead to failure can be drawn. These conclusions on what is needed for success are drawn from countries on different continents and with different histories and cultures.

Costa Rica

Population[1]: 4,615,515   Area: 19,700 sq. miles (51,049 sq. km.)   Letter-mail Volume per capita[2]: 6.51
Adult Literacy[3]: 96%   Population Density: 234.3/ sq. mile (90.4/sq.km.) GDP per capita[4]: US$6,395

Costa Rica began implementing a standardized system of street addresses in 2010. In its fifth year, the US$4.8 million address-development plan has been implemented for the area in which 70% of the mail volume is delivered, which has about half of the nation's addresses. Implementation in the rest of the country continues.

In conjunction with the 5-digit postal codes that were introduced in 2010, the new addresses provide efficient delivery to buildings. They also allow for the automated processing of mail and the identification of address's location by emergency and government services. Geovanni Campos, postal distribution director at Correos de Costa Rica, said, "We are in the presence of a cultural change – not only for the mail staff, but for all the citizens."

According to Mr. Campos, the lack of an address system cost the national economy US$720 million a year, in a country that had at that time 4.4 million inhabitants. Under the old method of addressing, all mail processing was manual with low postal productivity, a high rate of non-deliverable mail returned to senders (17%), a large number of incorrect deliveries, and low customer satisfaction.

Addresses prior to the new system

Traditional descriptive addresses had been used, although most businesses and many individuals used post office box addresses for mail delivery. (Apartado, abbreviated Apdo., is the term for post office box.) The 4-digit postal code that existed prior to 2010 was used sporadically and its placement varied. In post office box addresses, the postal code was variously placed to the right of the post office box number or to the left of the locality name, as shown below

Apdo. 2301   *or*   Apdo. 2301-1000
1000 SAN JOSÉ   SAN JOSÉ
COSTA RICA   COSTA RICA

The traditional descriptive street addresses required knowledge of the local area and could to be complicated and lengthy. The first two examples of traditional addresses below were provided by Correos de Costa Rica. The third example is the previous postal address of Insidecostarica.com.

Original Spanish-language address	Approximate English translation
Puntarenas, Garabito, Tárcoles, Lagunillas de Garabito, del Centro Educativo Lagunilla 2 KM Noroeste, sobre la calle principal, cerca con llantas pequeñas de bicicleta, contiguo a casa en construcción	Puntarenas, Garabito, Tárcoles, Lagunillas Garabito, Lagunilla Education Center 2 KM west on the main street near [the fence] adjacent to house under construction
San José, Central, Rohrmoser, de casa Oscar Arias, 200N y 50E, casa blanca puertas madera	San José, Central, Rohrmoser, Oscar Arias home, 200N and 50E, white house wood doors
Plaza Mayor, del Fogoncito, 25 metros oeste, 50 sur, casa mustaza con amarillo con porton negro	Plaza Mayor, the Fogoncito, 25 meters west, 50 south, mustard and yellow house with black gate

---

[1] United Nations *Demographic Yearbook*, http://unstats.un.org/unsd/demographic/products/dyb/dyb2.htm, 2011 figures, for national areas, national populations, and population densities for all countries.

[2] Universal Postal Union Postal Statistics, http://unstats.un.org/unsd/demographic/products/socind/default.htm.

[3] United Nations *Social Indicators*, http://unstats.un.org/unsd/demographic/products/socind/default.htm, Table 4a, Costa Rica, Saudi Arabia, and ssouth Korea: 2010 figures.

[4] United Nations *Social Indicators*, http://unstats.un.org/unsd/demographic/products/socind/default.htm, Table 5a, 2011 figures.

For delivery of mail, these addresses required local knowledge with no possibility of automated sorting. The delivery agent would need to know the previous color if a building or door is painted or the recent location of construction projects.

New system of addresses

In 2010, a new postal code, to be placed consistently to the left of the locality or city, was introduced based on the official administrative divisions of the country. The first (left most) digit indicates the province, the next 2 digits indicate the canton, and the final 2 digits indicate the district. (Costa Rica has a total of 7 provinces, 81 cantons, and 473 districts.) This code allows the mechanized sorting of mail into those items destined to each of the 473 districts. (In early 2010, the Correos de Costa Rica stated that the postal code would eventually include a 4-digit extension following the 5-digit code.)

The provinces and their codes are

Province	Code	Province	Code	Province	Code	Province	Code
San José	1	Cartago	3	Guanacaste	5	Limón	7
Alajuela	2	Heredia	4	Puntarenas	6		

The postal code 11501 would indicate the province of San José (1), the canton de Montes de Oca (15), and the district of San Pedro (01).

Post office box addresses remain as before and are still commonly used for the delivery of mail. The postal code should not appear to the right of the box number, as they did previously. Some addresses are still seen with the code in that position.

Addresses to building have undergone a complete transformation in an ambitious project to designate each street and building. Streets are designated by a type and a number. Buildings are identified by distance to a designated intersection of streets. When combined with the postal code, each building address is unique and identifiable.

The street type – avenida, transversal, calle, and diagonal – is determined by its angle from an east-west axis. Plazas are used in addition to street types for, well, plazas. The diagram below gives the angles and associated street types.
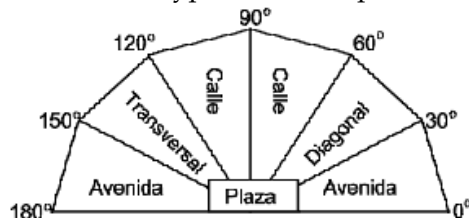
Streets are numbered from a central "0"point, with one east-west street designated as Avenida 0 and one north-south street designated as Calle 0. Odd numbered streets are to the east and to the north and even numbered streets are to the west and to the south of this point. Signs were posted to identify each street. To partially underwrite the cost of the signs and the new system, these signs could be sponsored by a business, an association or individuals for a fee. The sponsor's name appears on the sign.

Each address is given as an intersection of two streets (for example, Av 28-Ca 13) and a building number. The building is located on the first street. (Avenida 28 in the example above.) Building numbers are determined by measuring the distance from the corner of the indicated intersection to the entrance of the building, going away from the center point 0 in the city or town. Thus, Av 28-Ca 13 #70 would be on the 28th street south of the 0 point 70 meters from the intersection of the 13th street east of the 0 point in town indicated in the address.

Examples of new addresses:
Av 5 Ca 56 # 48   Ca 31 Av 15 # 23
Heredia, San Isidro, Concepción   Cartago, Oreamuno, San Rafael
40603   30701

Obviously, there were costs to planning and instituting such an addressing system and Correos de Costa Rica worked for five years on this US$4.8 million address development plan. This cost must be compared to the estimated US$720 million a year that the lack of an address system has cost.

Assigning a monetary value to the benefits derived from the new address system is not possible at this point. Correos de Costa Rica expects savings from operational efficiencies through automated sorting, better rates of deliverability, and staff efficiencies. These will continue over many years, creating an increasingly positive cost/benefit ratio. They may also realize higher revenues, increased customer satisfaction, and more mailers using their services.

A well-defined address system and more efficient postal delivery confer many advantages to diverse groups beyond the postal operator. Mail recipients will receive better access to written communication: quicker delivery with fewer pieces returned to sender, misdirected, or missing. Mailers benefit from this improved delivery and also realize savings on printing and postage for undeliverable mail. The country itself also derives social benefits from better information for planning and deploying emergency services, improved tax assessment and collection, and improved transportation services.

Is it working?

A review of addresses used by companies in Costa Rica show that they are now frequently using the new addresses, rather than their previous descriptive addresses. While more companies appear to be using these addresses for mailing purposes, sometimes in addition to a post office box address, some companies give both a descriptive address and a new street address or combine the two into a single address. Consumers are also providing both styles of address in one address block. The descriptive addresses may disappear in favor of solely the new address as confidence is built among mail recipients and education programs improve understanding among mail recipients and mailers. Some publishers and catalog companies are reporting an increase in the use of the new street addresses by consumers.

A more serious problem may be that the new system has not been extended to all parts of Costa Rica. It does not seem well adapted to addressing in rural areas, as it requires a central point from which to number the streets. This may eventually result in dual systems: one for cities, towns and villages and another for rural areas.

Saudi Arabia

Population: 28,376,355   Area: 830,355 sq. miles (2,151,711 sq. km.)   Letter-mail volume per capita: 2.80
Adult Literacy: 87%   Population Density: 34.2/sq. mile (13.2 sq. km.)   GDP per capita: US$14,353

Building addresses did not exist in Saudi Arabia. Mail was picked up directly from the post office, usually at a post office box. Mail sorting was done manually, a difficult and time-consuming job. In an effort to improve the efficiency of mail delivery services, Saudi Post decided to align the postal services with global standards. A key objective in doing this was to create a mailing and residential address system for the entire country with a complete system of addresses for, and delivery to, all premises. The new system provides efficient delivery to buildings and complete coverage of the entire geography of the Kingdom, allowing for any future building and development.

To create a distinct postal address for every premise, Saudi Post mapped the entire Kingdom in conjunction with other government agencies and created a unique geographic information system (GIS). The GIS system coordinates the postal address and its GPS location, allowing for routing of not only mail but also for road network data analysis and distribution analysis. Further analysis is used to equally distribute home and building route assignments to couriers.

Addresses prior to the new system

Delivery of mail was mainly to post office boxes and businesses and individuals picked up mail addressed to them at the post office. For delivery of non-postal items, such as parcels or express letters

through private delivery services, descriptive addresses were frequently used because not all buildings had been numbered and street names were sometimes given differently depending on the source. Local knowledge and experience were often needed to locate a particular building address. Descriptive addresses would contain "addresses" such as

- Alkefah Street out of Abdullah Oraif Street
- South of Prince Ahmed Mosque
- Near the Chamber of Commerce
- Behind Zumurrudah Supermarket
- The brown door opposite Anwar Shopping Center

Adding to the difficulties, Arabic is not consistently transliterated into the Western alphabet and Saudi Arabia received almost 83,000,000 pieces of international mail in 2011 including all classes of mail[1]. Transliterations are different between Western languages and Arabic words may also have multiple transliterations in a single western language.

New system of addresses

Saudi Post created the Unified National Addressing System for the Kingdom using the GIS they developed. The system is controlled by a single unified database for all addresses and provides the information for address verification and sorting.

For delivery to homes and business locations at street address, the postal address consists of a 4-digit building number (XXXX) for each residential, governmental, and commercial location used with the street name, a 5-digit Zip Code, (NNNNN) and a 4-digit Extended Number (YYYY). The basic address format in English is

XXXX Any St., Zone
City NNNNN-YYYY
Kingdom of Saudi Arabia

The numbers, represented by X, N, and Y above, are always written from left to right, where the address is written in Arabic or Western characters. (Arabic is written from right to left.) The Zone and City names are not always used and, along with the street name are not necessary for delivery if the building number, postal code and extended number are correct.

The first digit of the postal code identifies the postal region. The remaining 4 digits designate the sector, branch, section and block from left to right. Each successive digit represents a smaller geographic area. They regions and their codes are

| Region	1st digit of code	Region	1st digit of code
Riyadh	1	Qassim & Hail	5
Makkah	2	Asser, Najran and Baha	6
Eastern	3	Northern Frontier & Jouf	7
Madinah & Tabuk	4	Jazan	8

Within each postal code, the building number and extended number were assigned using a grid system. All locations within a postal code were given x-coordinates with a value between 2000 and 5999 and y-coordinates with a value between 6000 and 9999. A unique code was applied every meter (approximately 39 inches). The x- and y-coordinate numbers closest to the center point of a building designate that building.

For streets with a north-south orientation, the y-coordinate is the building number and the x-coordinate is the extended number. For streets with an east-west orientation, the x-coordinate is the building number and the y-coordinate is the extended number. On north-south streets, odd numbers are on the east side and even numbers are on the west side. For east-west streets, odd numbers are on the north

---

[1] Universal Postal Union Postal Statistics, http://unstats.un.org/unsd/demographic/products/socind/default.htm.

and even numbers on the south side. Angled streets are assigned an orientation based on their predominate direction.
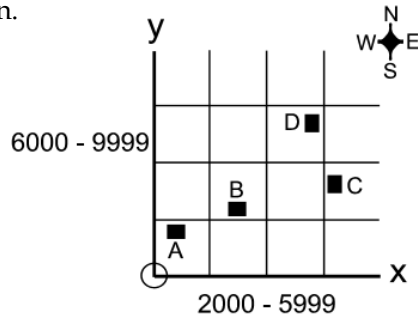
Building A in the diagram above would have an even building number between 2000 and 5999, building B would have a odd building number in that range, and both would have an extended number between 6000 and 9999. Building D in the diagram above would have an even building number between 6000 and 9999, building C would have a odd building number in that range, and both would have an extended number between 2000 and 5999.

Since the previous system of mail delivery was only to post office boxes, homes and offices did not have mail boxes. Saudi Post installed mail boxes at all residences and business as part of the launch of the new address system. The mail boxes contained RFID chips (radio-frequency identification chips) to allow the tracking of deliveries and monitoring of mail delivery efficiencies and problems. These RFID chips became the subject of controversy and many misunderstandings.

Basic advantages of the new system:

The Unified Addressing System allows Saudi Post to calculate the distribution route for each delivery courier, sort the mail pieces, and generate a distribution plan for it. Sorting machines are connected to the GIS database, verifying each address. Data about the mail is also registered in the database, allowing further analysis for planning purposes. Since the GIS system covers the entire territory of the Kingdom of Saudi Arabia, addresses for new buildings can be assigned using the existing structure. Any future development can be accommodated without new planning and at a minimal additional cost.

Beyond the postal uses, this system provides information that benefits other government agencies and furthers development of the Kingdom's e-government and e-commerce initiatives through an online postal locator, which allows government agencies and the public to access the postal data via an interactive map. Private businesses are also benefitting from the database, by verifying addresses and locating addresses for deliveries.

Is it working?

Postal sorting can be automated and the postal address database provides precise locations, which eases route planning and delivery costs. The cost of updates and upgrades may be met by the savings, benefits and potential income from the system, as it is licensed for private use. The initial cost of planning and mapping was great (and undisclosed) but does not need to be repeated. Banks and other commercial enterprises are using the system to verify client addresses. Delivery companies are coordinating the GIS information with GPS coordinates to deliver goods to customers.

Acceptance by residents has been problematic. Because of fears that the government was spying on individuals via the RFID chips used to track mail delivery, destruction of the Saudi Post-installed mail boxes has presented a predicament for the postal authorities, according to Dr. Muhammad Saleh bin Tahir Benten, CEO and President of Saudi Post. Most businesses and many residents continue to use post office box addresses. A planned E-Mall service to make it possible for an individual to buy a product via the Saudi Post web site and have it delivered to the customer's home has been put on hold.

Saudi Post is rightly proud of its accomplishment in providing a systematic address system for the entire country. Since the system covers the entire territory in units of one square meter, it will cover any

expansions required by new building developments and is independent of naming conventions for streets and towns. Because the numbers are written in the Western way (0, 1, 2, 3, etc.), this latter feature makes sorting independent of the language in which the address is written or its accurate transliteration.

South Africa

Population: 50,586,757   Area: 471,647 sq. miles (1,222,186 sq. km.)   Letter-mail Volume per capita: 25.62[1]
Adult Literacy: 89%   Population Density: 107.3/sq. mile (41.4/sq. km.) GDP per capita: US$5,707

South Africa had a different goal and a different starting point than the ones in Costa Rica or Saudi Arabia. There is, and has been for some time, a functioning address system in cities and towns but it did not extend to rural villages or to informal settlements. Although post office boxes are available throughout the country, the goal was to expand systematic home addressing to permit automated processing and geolocation of addresses to the country's entire population. The South African Post Office was cognizant of the potential advantages to other public- and private-sector groups, and the social and economic implications of the initiative. Their "Addressing the Unaddressed" initiative was strongly backed by the government.

Addresses prior to the new system

Most addresses in the rural villages and informal settlements were descriptive. Mail was often sent to a store, church or other known location to be held for the mail's recipient or passed along an informal network to the intended recipient. The problems for addressing were multiple and profound. And the problems varied between the informal settlements (both urban and rural) and rural villages. The sophisticated addressing system used in more developed areas of towns and cities which had named streets and building numbers did not exist in the rural areas or the changeable informal settlements.

In both informal settlements and rural villages, narrow tracks and walking paths are more common than roads. When they existed, roads were unnamed or informally and variably named depending on who provided the name. Houses appeared to be randomly placed, with no consistent pattern. There was no defined road network or grid pattern as is common in the countries of Europe or North America. The cost of creating a network of named roads, even if it were possible, would have been prohibitively expensive and taken too many years.

The challenges for rural villages and informal settlements differed. Informal settlements have a great deal of variation and disorganization. They can be urban or rural; established and stable or completely uncontrolled and disordered. They might have services or utilities or might not and are usually very changeable with residents, buildings, and pathways changing regularly. Rural village, however, have a well-laid out structure that reflects its social structure, although this may not be apparent to outsiders.

New system of addresses

To determine the structure of each rural village, postal authorities worked with the local community, as an entire village was mapped. Each village was given a 2-digit number that is unique within its postal code. To define each residence, a village was divided into sections or zones, which were assigned 2-digit numbers. Then, each house was assigned a 2-digit number. The resulting number (village, zone, dwelling) is stenciled on each dwelling. The numbering was done in consultation with the local community, which took some time and effort.

Name of recipient	Mr. A_____ L_____
Village/zone or section/house numbers and village name	110203 Pongola Village
Post office name	Bamba Zonke
Postcode	9719

A Postal Agent, a respected permanent resident of the village, is appointed in each village. The Agent is paid by the South Africa Post Office and is responsible for mail delivery. A Post Office vehicle is

---

[1] South Africa Post Office statistics for 2012

provided to each postal delivery depot. The Agent provides information on changes in the village to the South African Post Office and information to other providers of goods and services on the location of residents.

The situation in informal settlements is less structured, with high rates of change, variation, and migration. They are difficult to document because they can change daily. Some residents – refugees, criminals, fugitives, among them – resist being recorded for any official purpose. Physical addresses are usually informal "site" addresses, most often with no street name. The municipal authority is the custodian of the data.

Name of recipient	Mr. A_____ L_____
Plot or site and zone numbers	5285 Zone 12
Township designation	Sebokeng Ext 3
Postcode	1982

As a final complication of addressing in both rural villages and unofficial settlements, entire communities can move to a different location but still expect to keep the same addresses. (This latter concept is known as address portability, a term more commonly used for electronic addresses.)

The Statistics South Africa Community Survey of 2007 placed the total number of households at 13.2 million. The number of households targeted for rural addressing was estimated to be 8 million. From 2005 to 2009, 6 million rural households received rural addresses. The cost of implementing a rural address was R28.76 (or about US$4 of €3), according to Pierre Rossouw of the South Africa Post Office in a 2010 presentation to the UPU. The cost of delivery was also higher at R0.64 (approximately US$0.09 or €0.07), as compared with R0.28 for urban street addresses and R0.13 for post office box addresses.

Basic advantages of the new system

For the residents, all of the advantages of having an official address apply: the ability to establish a bank account, to register a business, to receive mail, to register with the government, etc. The new addresses were designed and intended to expand these advantages to previously unaddressed populations. For the different levels of government, the system is providing better information on the population and residents and their locations. This allows for better and more precise planning and provision of government service.

Is it working?

In postal terms, the new addresses are a success as mail service was expanded to previously unserved areas using a systematic address scheme captured in a national postal database. Increased inclusion of all residents in the country's civil and economic life was one of the goals of the new system. Postal and government sources provide numerous examples of the positive benefits of the new addresses. Successfully finding employment, establishing registered businesses, and access to banking services are mentioned often when the postal authorities and others in South Africa discuss the new address systems. In addition, South African Telecom is providing more services to the newly addressed, since they can now receive a bill by mail. Private sources in the direct marketing community agree, although they are more apathetic. This may be due to the economic profiles of many of those with the new addresses. (They are often poor.) However, many marketers see a nascent and expanding market, further incorporating those with the new addresses into the economic life of the country.

The issue of address portability still needs a solution, as individuals or communities move to new locations taking their address identification along with them. The door or door frame or wall with the address number painted on it is often moved to a new location, with the expectation that mail delivery should continue. While this is a positive sign that the address system has been accepted and that an address is considered advantageous, it remains a problem.

Some companies using the new addresses have complained that the addresses do not provide a sufficient degree of information about the location. They are recording separate geo-locational information,

although that information is already available from South African Post Office's database. While this seems a minor complaint at the moment and subject to simple solution, it has been used to fault the new addresses. (These complaints may be due more to bureaucratic posturing than to a serious flaw in the address systems, since no address provides absolute geo-locational information without mapping.)

South Korea (Republic of Korea)

Population: 50,111,476   Area: 38,739 sq. miles (100,023 sq. km.)   Letter-mail Volume per capita: 100.90
Adult Literacy: 99%   Population Density: 1319/sq. mile (501/sq. km.)   GDP per capita: US$23,067

Unlike Costa Rica, Saudi Arabia and South Africa, South Korea had a nationwide postal address system, the land-lot system. That system was introduced under Japanese rule in the early 1900's. As expansion and urbanization occurred, with increased building, the land-lot system became more difficult to keep up to date. The task of maintain location information using the land-lot system had become increasingly costly and was not completely reliable.

The Japanese mandated land-lot address system has been completely replaced by building number and street name addresses. Both the new addresses and the old addresses will be accepted through 2013. According the Korea Post's plans, the old addresses will not be accepted after that.

Establishing a new nationwide address system required many changes. With authorizing legislation passed in 1997, the project has moved forward in a series of methodical stages. Planning began in 1996 and posting of assigned street names began in January, 1997, anticipating legislative approval. With 230 self-governing bodies (various levels of governmental administrative units), the project required complex coordination between governmental authorities. The road posts, doorplates, real estate registers, resident registrations, building registers and other official documents and signs needed to be changed to reflect the new addresses.

<u>Addresses prior to the new system</u>

The land-lot addressing system, similar to that used in Japan, designated each parcel of land by reference to the hierarchical governmental units where it was located. Addresses had two or more of these administrative units in addition to the local delivery information, such as street and building information. A province (-do), city (-si) or municipality (-gun) were further subdivided in –gu, -dong, -myeon, -ri and –ga. (In transliterated names, the suffix following the hyphen indicated the unit type.)

The specific units required depended on the location, with differences in the units used in major cities, smaller towns and rural areas. An address might include the following designations, all of which were used in the South Korean land-lot system, in addition to more specific information identifying the recipient and the premise.

- Oechi-ri Worya-myeon Hampyeong-gun Jeollanam-do
- Worya-myeon Hampyeong-gun Jeollanam-do
- Juseong-dong Sangdang-gu, Cheongju-si Chungcheongbuk-do
- Daerang-dong Jecheon-si Chungcheongbuk-do
- Doma-dong Seo-gu Daejeon
- Gangyeong-ri Okpo-myeon Dalseong-gun Daegu

A typical land-lot address in Seoul might be

Mr. M. PARK	[honorific and name]
Hana Apartments, 9th floor, Apt. 912	[building name, floor, and apartment number]
1308-25 Seocho 2-dong, Yongsan-gu	[building number, neighborhood, and ward]
Seoul 135-283	[city and postal code]
SOUTH KOREA	

Existing roads have been given names that reflect the local history and character, in consultation with local residents and Office of Street Administration. Building numbers were assigned sequentially with odd numbers on one side of each street and even numbers on the other. As local governments pave roadways, they will be responsible for assigning street names and building numbers. They will also be responsible for updating, "in realtime", the database of addresses maintained by the Ministry of Public Administrator & Safety.

The new street addresses eliminate the series of administrative units that were used in the land-lot addresses, simplifying the address structure. The addresses are composed of the building number, street name, district, city or province, and postal code.

Examples:

Mr. Hong Gil Dong	[honorific and name]
14-41, Junam-ro, Yangsan-si	[building number and street name, district name]
Gyeongsangnam-do 626-300	[city and postal code]
Mr. Hong Kil-Dong	[honorific and name]
100 Sejongno, Jongno-gu	[building number and street name, district name]
SEOUL 110-050	[city and postal code]
Republic of KOREA	

Basic advantages of the new system

The systematic nature of the addresses plus the database of all address locations will provide significant advantages over the current system. According the South Korean government, "The new address system will fundamentally make it easy to find a road, expedite the distribution and reduce the expenses. This system will also make it possible to effectively cope up with the disaster such as fire, first aid, urgent rescue and the like, and to make an intelligent system when responding to crime. In addition, this will also energize throughout IT-related industry such as mobile navigation, ITS, LBS, telemetrics and the like."

The database of addresses that will allow quick identification of locations will be made available at a low cost. Ideally, that would allow private sector companies to take advantage of the information in the database for address hygiene, delivery services, and any other permitted uses. This would further advance the use of the new addressing system.

Is it working?

It is too soon to come to a conclusion regarding how successful the new address system will be. The extensive planning, consultation with local governments and residents, and the time between initiation and final implementation should all contribute to success of the new system. Residents are providing the new addresses when giving an address and businesses are using them. There seems little resistance to the new addressing.

Some observers in South Korea have noted minor resistance to the elimination of the *dong* or other neighborhood identifier, which is no longer used in the address. Since there is considerable connection to the neighborhoods, the new addresses may still be given with the neighborhood indicator. This is not a fatal problem and the residents will adjust to the new system – or the government will modify it. Most likely, residents will eventually use the new addresses with the neighborhood omitted.

Businesses and mailers outside of South Korea remain largely unaware of the changes, leading to potential problems when the old land-lot addresses are no longer accepted. This could lead to an unusually large quantity of mail from outside the country that is undeliverable as addressed and would require return to mailers in other countries.

Unsuccessful Address or Postal Code Introductions

These four cases are all more successful introductions of new address systems. There have been other implementations or tests and trials of new addressing schemes that were not as successful. Some of these were later revised or reversed or cancelled.   All of these less successful projects contribute to the knowledge of what works and what does not.

As with the more successful cases, these countries were selected because they provide a range of geographic areas and experiences. Other countries have had similar, less successful, experiences with addressing and postal code changes. Most of those noted below revolve around the most common element to change in addresses, the postal code.

Colombia introduced a postal code in 2008 and completed code assignments in 2009. The code is rarely used. Information about its proper placement in the address is not available online and inquiries to the postal authorities in Colombia have not been answered.

Ireland, the only country in Western Europe without a postal code, has twice initiated and then cancelled projects to establish a postal code. There has been considerable speculation about the reasons for the termination of both projects. Downturns in economic conditions and the cost of implementing a postal code are certainly among them. During the second initiative, discussions and disagreements about language (English and Irish), who would approve the potential code, and political considerations were all at issue.

Mauritius cancelled use of the trial postal code introduced in Curepipe, with the postal authorities stating the code was "found to be not user friendly and has been scrapped." A new code that has more benefits to groups beyond the postal authorities is planned.

Senegal moved from street delivery to post office box address, with no reason given publicly. Senegal faces the problems associated with unnamed roads, unnumbered and unnamed buildings, and informal settlements.

Serbia introduced a new Postal Address Code (Poštanski adresni kod or PAK) in 2005, meant to replace the existing Post Number (Poštanski Broj). Both codes are currently used in addresses. Serbian postal authorities are still awaiting authorizing legislation that to allow complete transition to a new system using only the Postal Address Code.

Viet Nam suspended use of its postal code because the code was not adopted by most residents and businesses. The Viet Nam Post & Telecom (VNPT) has reintroduced the postal code in 2012. Since some time is required to allow for acceptance and use of changes, it is not possible to tell if the recent re-introduction of the postal code will be successful.

What is needed for success

As mentioned earlier, the time and effort and cost and risks of a new address system makes it imperative to look at what can be learned from the introduction of address systems in other countries to ascertain any advantages and avoid any known drawbacks. In all four cases above, the time from conception to implementation was years and the costs were very high. Both the Costa Rican and South African systems took 5 or more years and costs from almost US$5 million to over US$20 million to reach their current stage. The South Korean initiative began in 1996 and continues through 2013. Less successful address initiatives have also been lengthy and costly.

Address Systems

Many experts are proponents of the street name and building number system originally used to Europe and spread successfully to other areas, notably North America and Australia and New Zealand and now to South Korea. The UPU paper "Addressing the world – An address for everyone" and the World Bank publication *Street Addressing and the Management of Cities* advocate this particular system. Yet it is clear from looking at addressing systems around the world and the ones introduced in South Africa and Saudi

Arabia that there are other solutions to addressing. The question then is whether the alternative address systems provide the requisite features for a modern address system.

It is generally agreed that there are some basic components to an ideal modern address systems. First, an address needs to uniquely identify a location and that each location should be uniquely identified by one address. That is, the address describes only one location and any one location has only one address. (While this is ideal, there may be multiple residences at one address with no address differentiation in reality.) Further, the method of assigning addresses should be follow a pattern and, ideally, be predictable. Those "systems" with descriptive addresses such as Costa Rica's previous addresses fail to meet either of these tests. Address systems with non-sequential building numbers are much less likely to meet this latter criterion, as they often do not follow a pattern but are relatively random.

In addition, modern address systems require that the system be maintained over time as expansions or, less often, contractions and other changes take place. This is most often, and most easily and efficiently, met with the creation of an address database containing all the addresses in the system. This database requires updating as changes occur. Frequently this database provides a link between any address to the coordinates of its geophysical location. (An address, per se, does not translate to a set of geophysical coordinates without local knowledge or a map or other aid.)

Three of the four systems described above do use an address format that has a number and a street name. However, the street name is not needed in the Saudi Arabian address. The numbers – building number, Zip Code and Extended Number – suffice as a complete address without the street or a city name. South Africa does not use street names in its rural addresses, having confronted and solved the problem of postal addressing in areas without streets.

Other building addressing systems exist or can exist. For example, the land-lot system in South Korea did not lend itself to modification as new buildings were built and parcels were divided. It would be possible to imagine a similar system that would accommodate those and other changes. For example, most properties in the United States are identified for property tax purposes with section, block and lot numbers or some such combination. These numbers are unique and systematic, meeting all the criteria discussed above and coordinated in most tax record databases with the street address. If there were signs with the area numbers similar to those for street names, one could locate a plot of land for any building by this system.

There are other potential and completely different models for building addresses that may work as well. Various private-sector companies have developed addressing models that assign each location a code that is related to its GPS coordinates. This code is the complete address for a building with no need for a street name or a postal code. It remains to be seen what other solutions are developed and successfully deployed, for there are certainly problems that remain unsolved.

In addition to the building addresses, addresses must identify the location of that building with a village or town or city name and perhaps a province or state or other larger region of the country. These names most often are already in existence and widely known. They may, however, be different in various languages or be duplicated elsewhere in the country. In the South African rural addresses, each village was assigned a unique number, eliminating problems with duplicate or multiple names.

Postal codes also provide a solution to this problem. The codes are not ambiguous, unlike village or town names, in that each area is assigned a unique code. There is wide agreement among addressing experts that postal codes are a necessary component of a modern address system. However, their design and use may be controversial in the larger governmental and civil contexts, as they were in Ireland, requiring give and take in their planning and implementation.

Postal codes also provide many advantages for the sorting and delivery of mail. They can be quickly and easily read for the preliminary sorting of mail and are more easily read by automated sorting equipment. The codes have particular advantages in multi-lingual countries because they are not language

dependent when written in Arabic numerals[1], as is common. In India, with more than a dozen official languages written in a number of different scripts, the postal authorities wrote in the preface to their country's postal-code directory, "In a multilingual society such as ours, we have the onerous responsibility of correctly delivering letters and articles of mail addressed in many scripts and languages. Further, there are several different towns in [this] country having the same name. The addition of the code after the address enables the sorter to identify the destination correctly, thereby eliminating chances of mis-sending and consequent delay."

Country-wide or local addressing

While this paper has been primarily concerned with building addresses, all countries have a variety of address types, such as those for buildings, post office boxes, *poste restante*, and many others. All of these types of addresses in a country must combine into a cohesive system that meets the addressing needs of the entire country. In many countries, the addresses for buildings follow the same general format nationwide.

In the four countries discussed above, this varied from the complete territorial coverage in South Korea and Saudi Arabia by their addressing systems to South Africa's concentration on unaddressed populations in rural villages and informal settlements with an address format that was different from the one used in cities and towns. Costa Rica's new system does not lend itself to rural addressing, leaving some proportion of the populace unaddressed by this system. Costa Rica's system covers mainly the greater metropolitan area, which is where "about 75% of the country's socioeconomic activity is concentrated."[2] While this is a major improvement, it leaves a significant proportion of the population unaddressed by the new system. It remains to be seen how this will be remedied, if it is, by the government or postal authorities.

In South Africa's case, the new addresses were integrated into the same system of postal codes that was used for the existing well-developed address system in cities and towns. The new addresses were designed to fit a systematic structure that would accommodate both extant town addresses and the new addresses. All address are part of a database that contains GPS and delivery route information, adding value to the information for postal authorities, the government and other potential users of the database.

The example of South Africa may contain a crucial lesson. Whether a new address initiative takes in the entire country depends on the circumstances and goals of the country and financial restraints. The most important element for new or expanded addressing systems may not be a single country-wide format but integrated addressing for the entire country.

Beyond the address itself

Beyond the practical elements – a methodical system, postal codes, identification of each premises, etc. – that make up "good" addresses, there are factors that contribute to the successful deployment and acceptance of a new addressing scheme. These factor apply even though opinions on what constitutes good addresses vary.

Early planning is essential.

With the need to identify millions of locations with unique identifiers, the need for meticulous planning is not surprising. But the need to solicit support from the government, the public sector, business and residents also creates a need for preparation and planning, meetings and presentations, consultations and adjustments. Who must be consulted before others and advised of the plan can be a delicate and important decision.

---

[1] Arabic numerals are those used in this document, 1, 2, 3, etc., not those used when writing numbers in the Arabic language.

[2] Universal Postal Union (2012) "Addressing the world – An address for everyone", Bern, Switzerland: Universal Postal Union White Paper. p. 6

The success of any new addressing system may depend on those discussions and consultations. So, the time spent planning and discussing the plan with the stakeholders may well be essential to the success of the new addressing system.

Government and the Public Sector

Government support is crucial. Successful launches of new addressing schemes and postal codes most often require coordination between the postal authorities and other government departments. Saudi Arabia's geographic mapping was done in coordination with other government departments and with government funding. The governments in each of the four countries detailed above provided funding for the address project and backed it as a policy initiative. The British Virgin Islands postal service carefully coordinated the numerical segment of their postal code, introduced in late 2006, with the Town & Country Planning Department according to Postmaster General Kevin Smith. Adoption of the code by the populace has also exceeded estimates.

As important, if not more so, a lack of government support can prevent action on addressing changes. Serbia has been unable to proceed without authorizing legislation. Mauritius's postal authorities could not continue without government acceptance of their postal code test in the capital, Curepipe. While the issues in Ireland's two unsuccessful initiatives to establish a postal code were more complex, a lack of strong support in all branches of government was a contributing factor.

The government can, of course, be a source of much needed funding in addition to practical support, such as mapping or assistance from local officials.

Residents

Acceptance by residents is very important. If postal codes are not used on mail, their value is limited. Postal code introductions, like Viet Nam's, have failed because the code was not used by residents. The use of postal codes in about 32% of the countries where they officially are part of the address is rare or occasional. For countries with a province or province abbreviation in the official address, it is used only rarely or occasionally in 45% of those countries by residents and businesses.[1]

South African postal authorities spent a significant amount of time and effort on this particular aspect of the system. It has resulted in acceptance of the new addresses and contributed to the success of the new addressing initiative. This acceptance, in turn, allows for the other economic and social advantages that benefit both the residents using the new addresses and the society as a whole.

Saudi Arabia, on the other hand, did less to solicit popular support and has had problems with the acceptance of the new addresses. In particular, rumors that the RFID chips in the mail boxes supplied by the postal authority are used in some way by the government to spy on residents have led to destruction of those boxes by resident. Post office box addresses remain the predominate form of addressing used by both residents and businesses.

Costa Rica falls somewhere between the other two examples. Residents use the new addresses but still add descriptive elements to the address. For example, the new address of building number and street coordinates might also contain a line giving identifying features, such as the house color or location with regard to a local landmark.

Residential acceptance of changes in addressing can be very difficult. Although the United Kingdom eliminated the county from the official address some numbers of years ago, some residents still insist on the county as part of a "correct" address. Addresses in the United States have used official, and well-known, two character abbreviations for the states for over four decades but some residents continue to write the full names of their state when providing an addresses on forms without pre-provided state abbreviations.

---

[1] Figures from research by WorldVu LLC.

<u>Private-Sector Business</u>

Benefits to business appear to be less important than those to government and acceptance to residents, since the majority of addresses will be used by individuals for their residences. One must bear in mind that most businesses are owned and operated by individuals who are residents of the country. Support and acceptance by residents may lead to business support. However, business can be partners in supporting new address systems, sometimes in unique ways. As the experience in Costa Rica shows, business can help defray the cost of the new system where support was expressed in business-sponsored street signs.

Cooperation and support of the business community can in turn foster government support if businesses promote the advantages of the new system to government officials. If, as is the case in Costa Rica, businesses have stake in the success of the address system, they will use the new addresses and encourage their use by residents. This promotion of the address systems use can be simple, such as using the new addresses on brochures, cards, and web sites or it can be more complex, such as passing out material about the new address scheme and soliciting customer's new addresses. In any case, these actions promote knowledge and use of the new system.

Other Challenges to Address Systems

Social and technological changes continue to provide challenges for traditional mail and postal services. More technologically sophisticated people are moving away from traditional mail services causing losses of revenue and eroding the base of support for postal operators. There are many views among postal operators on how to handle the competition from electronic communications from ignoring it to competing directly with private email service providers.

The loss of revenue from a decrease in traditional letter-mail will make providing traditional mail delivery services more difficult. There are no apparent solutions for the loss of mail volume since physical delivery of postal mail requires an infrastructure not required by email. That infrastructure of roads, buildings, post boxes, and vehicles must be maintained to continue the delivery of still fewer pieces of mail. As populations or address systems expand, more delivery points are added but may not provide the revenue to cover the cost of regular deliveries.

Populations have become more mobile. In developed countries, a new group of nomads has developed who travel with the seasons, wintering in warmer southern locales and spending the months traveling or in a different location than in the colder seasons. In the U.S. where they have been growing in number, their need for mail to follow them from location to location is often met by private postal forwarding services, rather than directly by the U.S. Postal Service. This is a variation on the mail portability problem raised by the South African Post in its efforts to address nomadic or frequently moving segments of society. No good solutions have been proposed.

Other groups outside the "normal" social structure of their countries, whether migrant workers, those living in informal settlements, nomadic communities, or homeless populations, are particularly difficult to address. Individuals and families in these groups often move more frequently than the population in general. Some segments within these groups may be less amenable to official (i.e., postal operator or government) contacts and tracking. Yet addressing these groups provides inclusion in civil society, with its attendant benefits of improved economic conditions and lower crime rates.

Conclusions

Establishing a new address system is slow and expensive, as shown by the figures from Costa Rica, South Africa, and South Korea. The experiences in these countries also show that the efforts are worth the cost in future savings and economic and social benefits. Unfortunately, many addressing changes are unsuccessful but still costly.

To succeed, new or expanded address systems need the support of the government and must be accepted and used by the residents. A successful address system introduction requires sufficient lead time and

planning before implementation and an investment in promoting use of the new addresses during and after the implementation of the changes. Otherwise, the time, effort and money may be wasted when the addressing changes are not supported by the government and not used by the populace.

Many different address schemas exist and can be devised that meet the requirements of a modern address system. Indeed, there can be more than one address design in a country, as in South Africa. However, all address types need to integrate into a single unified national system of addresses.

Postal address databases that contain the correct, deliverable addresses in a country have proved to be a source of revenue in many countries. A database, freely provided on the Danish model, offers benefits as well. Integrating location identification (such as GPS) and an electronic address would add substantial value for the postal authorities, government, and potential private-sector users of this information.

There are challenges ahead for postal authorities and governments, as additional services are offered in some countries (but not others) and as private-sector businesses offer services that infringe further on the postal sector. Scheduled deliveries, hybrid mail, reverse hybrid mail, postal liberalization, and other endeavors will add to the challenges to come.