

What is the Value of an Address?

Abstract: The history of street addressing and several different examples of valuing address systems are explored. The valuation calculations from the US, UK, Denmark, and Costa Rica each have unique aspects. The fact that “without an address you do not exist”, and thus cannot participate fully in economic, political and civil society is noted and the consequences from several points of view explored. A recommendation to find new ways of valuing the address is put forward. Information is provided about a current Universal Postal Union competition in solving “address-less situations” and participation is urged

Charles Prescott is Executive Director and Founder of the Global Address Data Association, a non-profit organization committed to promoting global street addressing and development of location identification technologies. He challenges our readers to contemplate the value of an overlooked public infrastructure: the street address. .

Addressing the World – *An Address for Everyone*, is the Universal Postal Union’s campaign to encourage all nations to install complete building and residence address systems. That this campaign should be necessary, let alone fall to the world’s UN agency devoted to regulating international postal traffic, seems to the author to highlight the world’s ignorance of what an address is, and its importance.

In fact, the responsibility for development of address systems of nations should probably be assigned, of preference, to a sophisticated special measurement agency that rests within a larger economic development agency, or an infrastructure development body, or even a civil rights body. Address systems partake of the nature of subjects within all these areas of expertise.

That street addressing in many countries is tasked to the postal system is an historical accident based on the fact that the post is a major user of this infrastructure. But then, so many public responsibilities seem to be accidents, and in any event, the posts generally are very good at the job if they’ve been at it for a while. Unfortunately, many posts are starved for funds, and skills, to do the job.

Addresses as Location, yes. But more fundamentally as Identity.

Street layouts in cities have been the subject of government exercises of authority since before the earliest recorded history. Addressing as a location device is historically recent. In some generally rare cases streets bore names, often those of the trade practiced on them, or of great conquerors or royalty. Streets were organized in different ways for a number of public purposes: ease of movement of troops, location of public buildings, provision of housing for the leadership, and location of certain trades, especially those involving loud noises or noxious smells. But building numbering was unknown until recently.

Some sources date the beginning of numbering buildings on named streets to the 1512 numbering of the shops on Notre Dame bridge by the tax authorities! In short, the tax authorities perceived a value in the exercise of allocating addresses, at least to that location. However, address allocation was often used for more uncomfortable government purposes, as when in the early 18th century the city of Prague, then part of the Austrian Empire, numbered the buildings in the Jewish Quarter.

Street numbering began in earnest in the late 19th century with the urbanization of populations seeking employment in the “industrial revolution”, the development of the science of “urban planning” and the growth of postal services. Increasing literacy, a vast increase in communication traffic by a mobile population, an expanding growth in commerce requiring secure written communication, and ever larger urban landscapes called forth the evolution and growth of postal and other governmental services. And these changes challenged the efficiency of posts throughout the industrializing world.ⁱ

The posts needed street addressing to differentiate people and businesses, especially with the advent of “sender pays” postage, which was made possible with the development of the postage stamp by an Englishman, Rowland Hill.ⁱⁱ Prior to the commencement of having senders pay postage (proven by the stamps on the letter) in the 1840’s in Great Britain, postage was paid by recipients. Postage was based on the distance the letter had traveled within the country to reach the addressee.

“Sender pays” postage speeded up postal deliveries, ensured more predictability of the post’s income, and relieved Postmasters of a thankless and error-prone task. No longer did the postmaster in the receiving/delivery post have to consult a complex chart to determine how much to charge an addressee to hand him a letter from his son in St. Louis. The son had paid the postage already in St. Louis.

“Sender pays” enabled all those young people who had fled the farm or up-country village for the city to stay in touch with loved ones without imposing costs on them. No longer did a sender have to worry that his addressee would not (or could not) pay to receive his communication.ⁱⁱⁱ If he could afford the postage, he knew his addressee would receive the letter. Even bad news would get through.^{iv}

This massively encouraged the use of the letter post as it was introduced from country to country. And it created a demand for better “location” of individuals to whom letters were addressed. Street numbers began to be used to distinguish among many “Mr. Washingtons”, as were corporate names and building names.

A letter to “Mr. Woolworth, New York City“ could be delivered in New York City in 1912 only through trial and error. There were lots of Mr. Woolworth’s. But in 1913, a letter to “Mr. Woolworth, 233 Broadway, New York City” could be delivered efficiently. In that year, the revolutionary Woolworth Building, the company’s headquarters, was completed and given that address by the US Postal System.

From the mid to late 19th century, the world’s populations have continued to migrate to urban areas. Governmental processes and programs reached deeper into individual lives; literacy expanded and communication volumes increased. Consequently, easy differentiation of locations with which individuals were connected, usually by residence, became increasingly necessary. In countries providing residential postal service, addresses were critical, and for the most part allocated by the primary user – the post.

For most countries, this differentiation among citizens was accomplished by addresses and birth dates and then citizen numbers. And, in much if not most of the developing world, that identification is through birth dates and names. Identity is difficult to establish and communication is difficult to achieve.

Without an address you do not exist

In most of the world, if you have no address, you do not exist, and you have few rights. To vote in an election in the United States, you must be resident in an identifiable place in a voting district, any voting district. But if you live in a residence without an address, you may not be able to register.

In most of the world, you cannot board an aircraft, leave the country (legally), open a bank account, get a credit card, receive medical treatment at a hospital, register to go to school, obtain legal employment, obtain a license to drive an automobile, join a union or professional organization, borrow money, incorporate a company.....

In short, an address is now an identity element of a very unique sort. It has outgrown its rather modest beginning as a location device for purposes of taxation or location of human beings who wanted to receive mail and be locatable by other people. Many institutions have adopted the individual’s street address as an identity proof element. This element distinguishes the individual from others bearing the same or similar name and it is given credibility and gravitas because it is a government-validated physical address.

The airline does not need your address to deliver you an airplane ticket or interact with you for any other purpose, other than to distinguish you from all other clients with a similar name, or to comply with security regulations.

Of course, there are many other distinguishing devices one could employ for such purposes, such as your airline loyalty card number, your phone number, your age, your email address or mobile phone number. And of course many of these are often used together for identification and security purposes. The choice of which identity validators will be demanded generally depends on the availability of the data points in a country and the availability to cross-check their validity against large databases.

Some commentators have suggested that one's e-mail address or mobile phone number could serve as an identifier, and in many instances they serve this purpose well, especially when combined with other data unique to the individual, such as a password. But they require additional identification points, just like an address. After all, e-mails, like physical addresses, can become publicly known, and mobile phones can be stolen.

Of course they can serve as adequate "addresses for a location", but only for those media. An e-mail's "address" is a server whose physical location can be many miles from the email's origin.^v

Mobile has more possibilities since it is true, of course, that one can send a text to a friend inviting them to meet you at the coffee shop from which you are texting and it is a small matter to include one's geographic co-ordinates. However, if you want to meet at your professor's office at the university a kilometer away, the mobile signal alone won't be helpful.

Addresses as labor saving device

In short, the physical street address where half of the world lives is an identifier of the individual. Its creation was in many countries "devolved" to the postal system because it was the only government service which needed to know where people were in order to accomplish its mission without those people fleeing.^{vi} And with time, in much of the world, the systems became very complex indeed. In others, unfortunately, they did not develop at all.

An address, if part of a coherent system, saves the postal system, and anyone using the address for a similar purpose, the enormous expense of mapping the location. This is a task which parcel delivery companies and anyone else needing to locate buildings must do in countries lacking street/address systems.

This is to say that if 18 Elm St. bears a consistent nation-wide positional relationship to 20 Elm St. throughout the postal territory, then the postal system and anyone else using the address system can locate any address on Elm St. fairly efficiently.

The efficiencies, some of them life-saving, are obvious. Emergency services can route their personnel to the sites where needed more quickly than otherwise possible. This is especially important where emergency situations require the deployment of assets not normally operating in

a locale. If there is standardization of address information, ambulances from outside the locale can efficiently find the site of the incident.

The “value” creation of an address system is felt by many other, if not even all, government services. Authorities can plan asset allocations by reference to addresses. An awareness of the “density” of the number of addresses, combined with some knowledge of what is located at the address, gives planners a beginning point from which to assess potential risks (police, geology experts) or service (public utilities, roadways, public health) demands.

For example, a neighborhood having many commercial or manufacturing facilities (sequential addresses will be at large intervals from one another) will create less demand for schools and libraries. An area with a clear preponderance of single family dwellings (many streets with buildings on each side having consecutively numbered addresses) will need schools, playgrounds, more bus stops, possibly different sewage and electric service, and even a different schedule of snow removal than the industrial area.

And most of this is obvious to the eye, or in today’s technological realm, from the satellite photo. And the “value” of the application of the knowledge gained thereby is probably significant, but so far unmeasured.

Even more disturbing is the fact that this numbering and addressing is not taking place. Half of the world does not have an address. And thus no identity. Why?

Address as asset to be valued. ^{vii}

After speaking with policy-makers from many countries, I have concluded that they do not comprehend the value of an address. Indeed, until one has lived first without an address and then with one, it is hard to comprehend the real “value” of an address.

But how much is an address “worth”? What is its value? I have examined the public stock offering documents of all the European Posts which have become listed on stock exchanges, including their balance sheets, and not one of them includes the value of their address system.

I have posed the question of the “value of an address” to every CEO of every post I have ever met. I am normally greeted with a puzzled look followed by a contemplative speculation on the subject, and a reflection that this merited more thought. ^{viii}

However, in the last few years, the subject has been addressed by a number of postal service providers with some surprising results. For this, I salute the US Postal Service and the Postal Address File (PAF) group of the UK. They have each made an effort to determine the value. And the results are staggering.

In the US case, the valuation has not been made of the address system, but of the more manageable system of “regions” into which the postal system’s geographical area of responsibility has been divided. This is called the ZIP Code system, for “Zone Improvement Plan code”. The “zone” refers to the various regions into which the postal system divides territories for the most efficient routing of mail using automated sorting machinery. It originated as an efficiency tool to improve the speed of mail sorting and delivery in this huge country.

However, since its introduction in 1963, the ZIP code has become a social and business tool which probably all industries use for market area identification and a myriad of other purposes. For example, automobile companies may locate sales offices in certain ZIP codes because of sales experiences; insurance companies and real estate companies may experience significantly different business currents from different ZIP codes and may structure their businesses around them. Certainly high-end fashion, jewelry and furniture companies migrate to ZIP codes proven by other data to have significant numbers of wealthy residents.

For the OIG study, four values were calculated for a 10 year period. These represent a discounted present value of a ten year stream of both additional revenue received and reduction in costs. Both of these, increased revenue and reduced costs, were treated as received value. The numbers are enormous: (1) the Postal service realized \$16.8 billion of value in managing the mail, primarily cost savings; (2) firms that enhance mail-related products (eg., courier firms, catalog companies, direct mailers) realized \$21.3 billion of value; (3) firms that use the ZIP Code to enhance non-mail-related products (real estate firms organize advertising and lists around ZIP Codes) realized \$24.4 billion of value; and, (4) Consumers, governments and non-profit companies realized \$30.6 billion using the ZIP Code for informational purposes.

Without the savings portion of the \$16.8 billion number realized by the USPS, there is no doubt that postal rates would have had to be much higher than they were. ^{ix}

Even more astounding in Great Britain.

The study by the UK Postal Address File^x (PAF) was very similar in its undertaking to value the revenues attributable to businesses employing the file and the additional costs they would have incurred in arranging for an alternative if the File did not exist. It should be noted that the PAF contains much more data than the ZIP Code system, as it contains every business and residential address in the UK and is used directly as a business asset input by many users. That is to say, for example, that businesses confirm addresses given to them by clients actually exist.

The methodology followed was significantly different from the USPS as it was based on a survey given to businesses using the PAF in business solutions and major end users of the PAF. They were asked to assume a “counterfactual”, that is, to calculate what their earnings/expenses

would have been in the absence of the PAF. The “values” discovered were similar: the value of the presence of the PAF.

Here again was a discovery of “how much would you *not* have earned if PAF was not available”. Commercial users of PAF (market research companies, distance sellers and e-commerce companies, and address management service providers would lose annual revenues (value) of between £358-696 million per year. On the subject of “how much more cost would you have without PAF”, postal providers (Royal Mail, competitive service providers, E-retailers) would have additional expenses of from £634-£684 million per year.

The annual budget of Royal Mail to maintain the PAF is a bargain at about £24 million per year.

That is to say the PAF’s “value” is in the range of £992-£1380 million (\$1.69 billion-\$2.35 billion). This is, on a size-adjusted basis, somewhat similar to the USPS calculation of the ZIP Code’s contribution of approximately \$10 billion per year to the US economy. The population of the US is 5 times that of the UK. This value calculation is 4 times that of the UK. Of course, the USPS calculation related solely to the ZIP Code system and not the address file, as here. Nevertheless, the concept holds: across nations, address systems add enormous value to the economy of a nation and to the cost-efficiency of the postal provider.

And real measured money in the pocket.

One other country has published a calculation of the value which its address system provides directly to the country’s economy.^{xi} Denmark entrusts its national address database development to the Danish Enterprise and Construction Authority rather than to the Post. To conduct its calculation, it licensed the data to the business community for no charge with a requirement that users report back the income earned from their use of the data. Against the Authority’s 2005-2009 expenses to maintain the data of €2 million, the largest 1,200 licensees realized revenues of €62 million.

Again, the sums are extraordinary and the amounts attributable to use of the PAF by businesses, and the measurable benefits to an economy shown by the USPS and Danish cases are certainly enough to convince policy-makers to keep their systems operating. Again, the concept holds: across nations, address systems add enormous value to the economy of a nation.

It is not a developed country story.

But is this enough to convince policy-makers in other countries to allocate sparse public resources to developing a system? Do these numbers constitute sufficient proof of a “value” that would convince governments to incur the development expense? After all, these three are developed countries.

There is a partial answer to that question. It comes from Costa Rica, a developing country of some 4.4 million inhabitants.

As is usual in much of Latin America and other countries without address systems, the “addresses” used in daily life are descriptive of the location. For example, a bank’s address for a client which appears on an envelope sending her a bank statement reads: “San Jose, Central Valley, Rohrmoser, 200N and 50E from house of Oscar Arias, white house with wooden doors.” When there are addresses like this, it is impossible for the Post to automate mail sorting and handling. The cost to companies to maintain customer lists and to communicate with customers by letter is very high. Adding value to the customer relationship through regular postal communication, or delivery service, is very expensive and time-consuming. Government records relating to individuals are more complex and error-prone because using addresses as an identity validation tool is nearly impossible.

Countless “values” of addresses in this scenario are unrealized, the most unique perhaps being that described by Costa Rica of the “value” missing because foreign visitors have difficulty finding locations in the country, some of them being views of the sea or jungle, local shops and restaurants, boat rental locations and many other categories of locations that provide “value” to foreign guests, and income for the community.

The postal operator in Costa Rica calculated that the lack of an address system costs the economy US\$720 million per year! That is \$164 per person.

This calculation was based on the labor expenses attributable to the time inefficiencies experienced in three important parts of the economy in which locating addresses is critical: logistics transport, postal deliveries, and the tourism industry, which is a major contributor to the Costa Rican economy.

The costs of their new system, covering the major urban area, was a social and civil bargain of the highest order: US\$ 315,000 per year for physical address location of 180,000 locations, and US\$4.8 million for signage and public education! That is \$1.16 per person. To potentially save \$720 million, or \$164 per person.

In the poorest of the poor...

Costa Rica’s story is heartening. A determined Post backed by a motivated government can build an address system. And they can be thrifty about it. One of my favorite stories of the Costa Rica exercise is that the Post raised a substantial amount from the private sector by selling advertising space on the intersection street signs installed on every street corner. No self-respecting bank or hardware store or restaurant would let all that advertising opportunity go to its

competitor! And where there is no competitor, the advertiser is demonstrating his commitment to the neighborhood. To him, the new street signs have a value – marketing value.

There are even poorer places which have installed address systems, sometimes with assistance from the private sector. For example, the Irish non-profit company Addressing the Unaddressed uses GO Code geolocation technology which facilitates the creation of a unique alphanumeric “address” for every spot on Earth.. And in partnership with another Irish non-profit organization called the HOPE Kolkata Foundation is providing GO Coded addresses to the 1.7m people who live in slums in Kolkata, India.^{xii} Over 12,500 people now (July 2014) have GO Code addresses affixed to their dwellings.

The company also visited the local Postmaster of this area of Kolkata and the managements of nearby banks, electricity companies and central and local government agencies. These officials all agreed that for their purposes, such as the delivery of mail, the opening of a bank account, or the provision of government IDs, they would accept the GO Codes as legally sufficient unique address identifiers. The cost of allocating and affixing each GO Code unique address identifier to each house is 100 rupees (US\$1.67), significantly cheaper than using traditional methods.

What is the value of such an address? It is heartening. Please visit the project’s [website](#) for interviews with some residents.

Valuing the asset another way...or finding other “value”

Undoubtedly, logistics and other communications efficiencies are important. So also are the wealth and incomes generated, and savings realized, in the use of addresses. We can calculate these, albeit imperfectly.

But there are other reasons, invisible and intangible reasons, why address systems have value. And sometimes these reasons are not as easily measured. But, like the “value” of a public park with shade trees and a children’s playground, they are no less important. What is the value of a child being able to go to school to learn to read and write? What is it worth to the local school officials to know how many children will be attending this year?

What is the value of regular electricity or a municipal water supply, now made possible by identification of each residence and its owner? What is it worth to the supplier of water and electricity to have customers who report problems and needs and thus generate data useful for planning and security purposes? What is the value to the local health authorities of reductions in diseases through better waste management?

Many rural citizens of South Africa comprehend this value quite clearly. The South African Post has published touching interviews with people from villages describing the changes to their lives

that having addresses has brought. One young woman was able to borrow money from a bank in order to go to university and improve her life, and that of her entire family. All because she could fill out the forms and put down an address.

Another family was able to buy their first set of furniture, including beds, on credit from the store in a nearby town, and the furniture could be delivered.

In one village people who were troubled by petty crime were made more at ease knowing that they would be able to tell the police the addresses of the petty criminals who preyed on the village.

If it is true, as Costa Rica calculated, that delivery vehicles waste significant time and gasoline looking for locations to deliver goods and messages, what cost is imposed on the environment as a result of the extra time those vehicles are operating? If emergency vehicles spend 30% more time responding to a citizen's call for help or a fire, how much is that home or life worth? How much is lost?

If a child needs an address to register for school, what value to the individual, to his family and to the society, is lost from that one person growing up illiterate and without skills?

A challenge to the reader....

Do we really need numbers to convince policy-makers of the need for address systems?

If so, then the challenge we pose to the reader is to give thought to this problem. Governments and political and civil authorities allocate time and assets to measurable problems. An address system is really another infrastructure like a road, a sewage system, or an airport. Many of these had to make their case with numbers.

How else can we measure the "value" of an address? What cost is imposed on the individual, and government agencies, and the society by not having one? What "value" will government realize through use of an address system? What wealth is not created or realized because of its absence?

How else can we pose and answer that question, which goes to the very core of what it is to live in a society? What, in short, is the meaning of "value" in the case of the address?

Help find new answers and discover new value

These are fundamentally the questions being posed by the Universal Postal Union in its call for papers for a global conference on the address. This ground-breaking conference is being organized by the UPU's Addressing Group for October 2015. The event has four main goals: 1. To illustrate the value of an address infrastructure; 2. To reveal challenges to development and

implementation; 3. To find new solutions for developing an installing address systems, and 4. To identify viable funding models.

In addition, and an exciting opportunity for students of value, there is a competition based around five different scenarios requiring design and implementation of address systems. Ideas for papers must be received by 21 December and finalists will be chosen in early 2015. The three best ideas will earn their authors a trip to the October 2015 conference to present their works, and the UPU will pay travel expenses.

For more information and to download detailed information about entering the competition, go to : <http://www.upu.int/en/activities/addressing/call-for-papers.html>.

The hypothetical addressing challenges put out in the scenarios are diverse but they all call on the digerati to be inventive. What new tools can be developed in this global, digital, hyper-technological economy? What phenomenal new tools are being developed in university labs around the world? ^{xiii}

But then again, in many parts of the world, societies don't have the luxury of investing in digital tools, and their wealth lies in their people. Perhaps a writer, or a group, will develop a "crowd-sourced" solution to one of the challenges which employs hundreds of people who can accurately create that addressing system!

This conference and this call for papers will provide an opportunity for the imaginative to bring forth new ideas and concepts to tackle this perennial and difficult subject for the betterment of the entire world.

For more information, monitor the UPU's website at the site noted above. You may also register at the author's website and blog at www.globaladdress.org. You will automatically be sent news on the conference as it issues. If all else fails, email the author at charles@globaladdress.org.

Charles A. Prescott, December 7, 2014

Notes

ⁱ Our focus on the function and actions of the postal systems is primarily due to the historical allocation of addressing to the postal systems. It is of course true that many different government authorities recognized the efficiencies and "value" inherent in addressing for their missions.

ⁱⁱ The invention of the postage stamp printed in bulk and bearing an adhesive backing made "sender pays" more efficient and cost effective. This was one of many contributions of Sir

Rowland Hill, a man of great vision and social conscience who can rightly be called the “father of the modern postal system”. He recognized the “value” of the postal system earlier than anyone else.

ⁱⁱⁱ In the author’s village’s museum is a letter dated 1842 from a young man from the village who had left home to seek his fortune on the frontier, in this case in the new town of St. Louis on the Mississippi River. He complains that his family isn’t writing to him and that they must think he can’t afford to pay to receive their letters. He very energetically confirms that he has a well-paying job with a growing business, a clothing store.

^{iv} The new system also put an end to people putting their real messages in code on the visible face of the letter. When the addressee looked at the letter tendered to him by the postmaster, he read the code (which was the message and undecipherable by the letter carrier), and then refused to pay for the letter.

^v The author back-tracked an email from a friend and the system traced the email’s origin to Chennai in southern India. However, he was actually in Delhi. The DNS server, the “physical address” of the email, was thousands of miles from the sender’s physical location.

^{vi} It is true that in many countries street addressing is the responsibility of a government entity other than the postal service. Denmark is one such country, where the system is maintained by the Danish Enterprise and Construction Authority. In Japan, the local municipality is responsible for numbering buildings.

^{vii} The examples of valuation exercises discussed below are much abbreviated. For an excellent primer for all three studies, the interested reader would profit from *The Value of Addresses*, Merry Law, ©2013 WorldVu LLC. It may be downloaded at <http://www2.grayhairsoftware.com/WorldVuValueAddresses>.

^{viii} This may well be an unfair question. There is substantial authority in the accounting world for the proposition that an address systems is not the type of asset subject to valuation and entry into a Post’s accounts. This subject is beyond the scope of this particular paper. See Law, note 7 above, for a very clear description of this point.

^{ix} For the USPS study, *The Untold Story of the Zipcode*: <https://www.uspsaig.gov/sites/default/files/document-library-files/2013/rarc-wp-13-006.pdf>. The study includes a very detailed discussion of the methodology used by the researchers in calculating values and the choices made.

^x For the PAF study: [http://www.pafboard.org.uk/documents/PAF\(12\)24%20Estimating%20the%20Economic%20Value%20of%20PAF.pdf](http://www.pafboard.org.uk/documents/PAF(12)24%20Estimating%20the%20Economic%20Value%20of%20PAF.pdf)

^{xi} For the Denmark study, download it here:

http://www.adresseinfo.dk/Portals/2/Benefit/Value_Assessment_Danish_Address_Data_UK_2010-07-07b.pdf

^{xii} [Addressing the Unaddressed](#)

^{xiii} For those who wish to read further on the justification for investing in address systems, and to obtain the widely-recognized and generally-accepted blueprint for implementing an address system, the unquestioned authority on this subject is *Street Addressing and the Management of Cities*, Catherine Farvacque-Vitkovic, Lucien Godin, Hugues Leroux, Florence Verdet, and Roberto Chavez © 2005 The International Bank for Reconstruction and Development / The World Bank. This very comprehensive book is available to be downloaded for free at http://siteresources.worldbank.org/CMUDLP/Resources/461753-1160058503655/Street_Addressing_Manual.pdf?resourceurlname=Street_Addressing_Manual.pdf

References

Addressing the world – An address for everyone-the white paper. (2012). International Bureau of the Universal Postal Union. ISBN 978-92-92025-27-1. ©Universal Postal Union.

Danish Enterprise and Construction Authority. (July 2010). The value of Danish address data: social benefits from the 2002 agreement on procuring address data etc. free of charge. Retrieved from http://www.adresseinfo.dk/Portals/2/Benefit/Value_Assessment_Danish_Address_Data_UK_2010-07-07b.pdf

Law, Merry. (2013). The Value of Addresses. ©2013 WorldVu LLC. Retrieved from <http://www2.grayhairsoftware.com/WorldVuValueAddresses>.

Lind, Morton. (2008). Addresses as an infrastructure component – Danish experiences and perspectives. ISO Workshop on address standards: Considering the issues related to an international address standard 25 May 2008, Copenhagen, Denmark, ISBN 978-1-86854-689-3. Retrieved from http://www.isotc211.org/address/Copenhagen_Address_Workshop/papers/Lind_AddressesAsAnInfrastructureComponentDanishExperiencesAndPerspectives_ISOWorkshop_May2008.pdf.

PAF Advisory Board. (September 2012). Estimating the Economic Value of PAF®. Retrieved from <http://www.pafboard.org.uk/documents/PAF%2812%2924%20Estimating%20the%20Economic%20Value%20of%20PAF.pdf>

Street Addressing and the Management of Cities, Farvacque-Vitkovic Catherine, Godin Lucien, Leroux Hugues, Verdet Florence, and Chavez Roberto. © 2005 The International Bank for Reconstruction and Development / The World Bank. Also at: <http://siteresources.worldbank.org/CMUDLP/Resources/461753->

[1160058503655/Street_Addressing_Manual.pdf?resourceurlname=Street_Addressing_Manual.pdf](https://www.usps.com/1160058503655/Street_Addressing_Manual.pdf?resourceurlname=Street_Addressing_Manual.pdf)

Terblanche Tascha, & Vivas Patricia, & Anson José. (2010). Getting an Address. Bern: International Bureau of the Universal Postal Union.

U.S. Postal Service Office of Inspector General. (April 1, 2013). The Untold Story of the Zipcode. RARC-WP-13-006. Retrieved from <https://www.uspsoig.gov/sites/default/files/document-library-files/2013/rarc-wp-13-006.pdf>