

MAKING ADDRESSING SMARTER

LOOKING AT A NEW APPROACH

GILES RHYS JONES, MARKETING DIRECTOR, WHAT3WORDS, PRESENTS THE CASE FOR A NEW UNIVERSAL ADDRESS SYSTEM.



The United Nations states that globally there are an estimated four billion people who do not have an address. An address is one of the first steps to legal recognition and the associated social and economic development. In its absence people are unable to access many services we take for granted, including the post.

People in rural areas often have to walk miles to collect their mail from post office boxes; services within urban areas are, at best, satisfactory given that over half of the world's urban dwellers do not have access to named streets. Even if there is a 'to-door' delivery service people have to resort to using long landmark based descriptions or to add mobile phone numbers on the packages so couriers can call them to be guided in. And if you live in a favela, barrio or slum? Forget it. Yes, satnavs can give you four possible routes, with state of the art traffic avoidance and points of interest along the route. But defining "there" is actually our single biggest issue.

The UPU suggests that there are around 150 national postal services that operate in countries with inconsistent, poor or no street addressing. That makes it difficult to schedule deliveries and easy to lose mail. It is incredibly inefficient to scale up and operations are often loss making.

By 2050, the world's cities will absorb three billion people, at which point 70% of the planet will live in urban areas. Keeping up with addressing in this sprawling and constantly changing conurbation is one of the greatest challenges facing the postal industry.

Hack the neighbourhood

Without a basic address infrastructure the work of a postal service is pretty challenging. Yet to set up a national address system from scratch costs millions and takes years. It took highly developed countries such as Ireland and South Korea many years to develop new address systems, and both are currently struggling to roll theirs out.

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In Ghana, five pilot projects to develop the country's first address system have failed so far to deliver a working model. On houses in the capital, Accra, you often see four or five different combinations of letters and numbers scrawled on the walls, each an attempt to identify and address the building.

The simple fact is that in most emerging economies neither the state nor utility companies have the resources to develop a universal address system. So people have to hack their neighbourhoods: like the case of the bicycle courier who delivers medicines in a South African township, and draws his own maps to keep up with this sprawling and constantly changing settlement. It may be entrepreneurial, but it is not scalable.

No global system

The geospatial industry is worth an estimated US\$150bn annually, yet there is no precise global address or location reference system that can be used easily by everyone outside of it. People need a simple, accurate and unambiguous solution. We could use GPS co-ordinates, of course, but as they require us to remember two sets of eight to ten digits and some letters, they are too difficult to use for most people. So, although they have been available for years, they have never been used outside the professional geographic community.

Latitude and longitude coordinate pairs do provide a precise location reference but, whilst this is great for machines and trained professionals, it is ineffective for people. Coordinates are impossible to remember, even in the short term, and errors in understanding, transcription and communication make the widespread use of geospatial information prohibitive.

A new approach

what3words is a global address system based on a grid of 3m x 3m squares. It uses an algorithmic engine similar to that of a coordinate system and has given each of the 57 trillion squares a pre-assigned and fixed address of three words.

The use of words means non-technical people can find any location accurately and communicate it more quickly, more easily and with less ambiguity than any other system. Words can easily be remembered, written, said, printed or shared digitally.

As an example, look at a map of Rochina, one of the Brazilian favelas, and you will see ten to fifteen roads. In reality, there are more than 3,000. It is a tough place, but also full of economic ambition, with nearly

half of the population rich enough to own a flat screen TV. However, much of the economic development has been stunted, because the favela was more or less without addresses: until now.

what3words is working with Carteiro Amigo, Friendly Postmen, a co-operative which uses its native app to give people three word addresses so that they can get mail and packages delivered. Addresses are written on stickers for the residents who can use them when ordering online. The system understands the district the three words are in and the delivery station that the package needs to go to. This allows Carteiro Amigo to scale its operations, to reduce the time needed to educate new postmen and postwomen, and to work more efficient routes.

To date the system has been integrated into twenty five other apps and services. For example, you can use three word addresses with Point Plot and iBuild map surveying apps on your iPhone. You can also navigate to a precise location using Navmii, an app used by 25m people worldwide, or Kartverket, the Norwegian national mapping agency. It has also been integrated into Taarifa, an open source reporting tool used by the World Bank which is planning to use Swahili three words in Tanzania to map water points and to minimise typical address transcription errors. A company in South Africa is also using it to control anti-poaching drone reconnaissance missions.

Sorting out the words

An algorithm & wordlist underpin the system. Since the what3words system works via algorithm as opposed to a database, the core technology is contained with a file around 10MB in size. It means it can be used offline with no data connection and installed on the simplest of smartphones or devices.

The wordlists have 25,000 words per language, 40,000 in English as the sea has been addressed as well as the land. The words are sorted by the algorithm that takes



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into account word length, distinctiveness, frequency, and ease of spelling and pronunciation. Simpler, more common words are allocated to more populated areas that speak that language and the longest words are used in three word addresses in unpopulated areas.

The system is non-hierarchical and, since all the units referenced are the same size, there is no need to interpret the code to know what size of area is being referenced. It is also non-topological; the three words used to reference any square on the Earth's surface are not dependent on the three words to reference any of the adjacent squares. Importantly the algorithm shuffles similar sounding three word combinations around the world to make it really obvious if you have made an error in typing or when saying them. For example, "table.chair.lamp" and "table.chair.lamps" are purposely on different continents.

From music to addressing

Having spent ten years organising live music events around the world, Chris Sheldrick, CEO of what3words, constantly faced the huge logistical frustrations that came with poor addressing. He resorted to using the latitude and longitude coordinate system to be precise but realised that human beings are not designed to input eighteen numbers without errors. Sure enough, every event without fail, trucks carrying equipment

and musicians themselves simply did not arrive where they were supposed to. A particular low point was having bands and equipment strewn across various hillsides near Rome because the "address" they were given took everyone to different places, and a phone call from a keyboard player who said "it appears we may have sound checked at the wrong wedding".

Chris discussed the idea of a more usable and less error prone version of the latitude and longitude coordinate system with a mathematician friend, who subsequently wrote an early version of the what3words algorithm on the back of an envelope. The company was founded by the pair, and two other friends, in London in March 2013.

An address for everyone

We see the solution as a radical one, with a human friendly approach, born not from the geo or delivery industry. It is refreshing and disruptive, in a good way. Will we achieve our target to be a global standard for communicating location, used by billions? I do not know; but our mission to give everyone and everywhere a simple three word address is something we feel passionately about.

To find out more, become a partner, or play with our API, visit what3words.com or contact@what3words.com

