

Map Industry Perspective on Volunteered Geographic Information

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I hasten to preface these remarks with a disclaimer that the Perspective that follows is my own and while I've attempted to make it consistent with Tele Atlas' views, it doesn't represent official company policy or plans. Also, because of the possibility of Tele Atlas' acquisition by TomTom, I'm further constrained to avoid commenting on anything related to TomTom, such as their MapShare program. Finally, because of my personal experience and parochialism, please forgive a US-centric point of view.

Tele Atlas is one of two global commercial map database vendors. We're actually the concatenation of three digital map database corporations, Tele Atlas having acquired ETAK in 2000 and Geographic Data Technology (GDT) in 2004.

Our product line is suddenly becoming quite complex, as our customers are requesting 3D city models, which the "Google Earth Revolution" recently added to cartographers' vocabulary. I'll concentrate these observations on street centerline databases, which presently are the focus of open street mapping enterprises.

My experience in this realm goes back to the New Haven Census Use Study, where Bill Maxfield and I made the first DIME (Dual Independent Map Encoding) files in 1967. The Census Bureau adopted the DIME idea too late to affect the 1970 census, but it immediately launched the "CUE" (Correction, Update and Extension) program in the mid 1970's to generate GBF-DIME files for the 1980 enumeration. CUE initially depended on volunteered geographic information to the extent that the Bureau induced early-adopting regional agencies to conduct CUE operations with no compensation, following strict Census procedures. As 1980 approached, the Bureau found it had to pay increasingly larger portions of the agencies' costs to complete GBF/DIME coverage of 345 metropolitan areas. The early adopters' realization that they had been snookered into "volunteering" pretty much ended this kind of VGI in the United States.

Nevertheless, Bob Marx' TIGER team raised well over one hundred million dollars from Congress to expand the 345 metro GPF/DIME areas to nationwide TIGER coverage during the 1980s. Because of the USA's laws public domain laws, TIGER can be downloaded free by anyone anywhere in the world with an internet connection. The current "MAF/TIGER Improvement Program" currently churns out hundreds of counties every six months with vastly improved coordinate accuracy, again funded by hundreds of millions of tax dollars. The good news is that TIGER exists and is free; the bad news is that it stifles formation of VGI in the USA.

I tell this story about the Census Bureau for many reasons. One is that TIGER is a minor miracle of government enterprise which should instill great pride-of-authorship in anyone associated with its creation. I'm proud to relate that GDT and ETAK did the majority of private-sector contracted work on TIGER in the 1986-88 timeframe. I feel TIGER contributed to the USA's lead in some GIS activities, especially in business applications. Finally, TIGER provided a foundation for commercial street mapping ventures, my own included, and set the stage for an exquisite win-win public-private symbiosis in its ongoing maintenance.

Tele Atlas harvests useful content from every release of TIGER. We import some new developments and streets from GIS data that we buy from cities and counties. We digitize other developments from aerial and satellite photos and drive yet others with our fleet of mobile mapping vans and smaller vehicles, collecting GPS breadcrumb trails and recording street addresses.

None of our street data are VGI, and we make a point of letting this be known. Basically, our customers want assurance that we take responsibility for every byte in our products, which confers an expectation that we will fix errors if a customer points them out. Street centerline spatial databases have become critical infrastructure for many of our customers, especially those dispatching and routing large fleets. They want a reliable supplier and one who will listen and respond quickly if something isn't working up to par.

We do accept volunteered *indicators of change* through two channels: ERs (Enhancement Requests) and Map Insight, which is an open web-based portal.

Most ERs are generated by our customers and partners: operators of large fleets, for example. We have a variety of agreements with ER users, delivering daily transactional map database updates in some cases. Tele Atlas employees, myself included, also submit ERs when we notice discrepancies. Most of us take pains to put in an ER at the request of a family member or friend. Because of their controlled origin, we consider ERs to be an extremely reliable and valuable change-detection channel.

Map Insight (<http://www.teleatlas.com/ForConsumers/MapFeedback/index.htm>) is a new program at Tele Atlas. The web interface allows anyone to report a discrepancy between what they see in our database and what they observe on the ground. Because of the lengthy food-chain between when one of our Digital Map Technicians adds a new street and when a consumer can download an updated database for a Mio or TomTom, the first thing Map Insight lets you do is view a current version of the database. Often we've added that missing street already; it just hasn't filtered down to you yet. Check out Map Insight at the URL above.

I don't want to leave the impression that Tele Atlas isn't interested in VGI and Open Map initiatives; quite the opposite. We view Map Insight partially as a testbed for the reliability of VGI and the possibility of spoofing and/or erroneous or ambiguous data reporting.

It's one thing to accept and acknowledge an indicator of change, and something else to respond to it in a positive and useful manner. Ideally we would like to be able to fix a problem or add a missing street quickly and then immediately post a transaction to update the database in the PNAV of the person who reported the discrepancy as we already do with some of our corporate partners. Obviously we would need close collaboration with the PNAV manufacturer to achieve this, so it remains a goal for the future.

But, as I'm sure we've all noticed, the future seems to be coming on us quicker and quicker these days; stay tuned!