Who Has the Most Accurate Information?

Brent Jones, Esri surveying and engineering manager, talks about building accuracy into all our workflows and how to gather the most recent and accurate data.

http://video.esri.com/watch/206/who-has-the-most-accurate-information_question_

Video Transcription

00:01 Well I'm here to talk about something not quite so glamorous and it's not sunshine. Accuracy.

00:06 And accuracy is important and that's why you need volunteered geographic information.

00:13 Doesn't sound quite right, does it?

00:14 What's a surveyor doing talking about accuracy and a bunch of guys running around with cell phones collecting information?

00:20 Well if we believe the currency and correctness and completeness are forms of accuracy, then we all need VGI.

00:26 We need accurate information to get the efficiencies out of our systems.

00:31 We need accuracies to expand the uses.

00:33 And we need accuracy just to get the right answer.

00:36 So accuracy is improving at a rapid rate in all forms of data.

00:41 So let's look at a parallel.

00:45 How accurate is this?

00:46 Eons ago you want to meet for a beer at 3:00.

00:49 This is what we had.

00:50 Good to about 20 minutes on a sunny day and in the daytime.

00:56 And not everybody had one.

00:58 So we put them on the walls of public buildings and churches, so it kind of brought us together little bit as a community.

01:02 We're beginning to synchronize and get some efficiencies from time.

01:06 And as technology progressed, we built pendulum clocks.

01:09 Want to meet for 3:00 at the community pub?

01:12 No problem.

01:13 Good 24/7.

01:14 Even multimedia, had chimes, right?

01:16 So we really gained a lot of efficiencies through this synchronization.

01:22 And we could even meet after dark, right, because it worked after dark.

01:27 At this same time, for a couple centuries from about 1500 to 1750...

01:31 ...the Europeans were crashing ships into the east coast of the Americas, and they were losing thousands of ships.

01:37 They couldn't calculate longitude.

01:39 Actually, Sir Isaac Newton thought that longitude was not a calculable thing, it's a function of time.

01:46 But pendulum clocks were fixed.

01:48 The most important invention at the time was the Harrison clock.

01:51 This is the H4 that's revolutionized navigation.

01:54 It revolutionized time.

01:55 It allowed us to take time from being fixed and we could...it was now portable.

02:00 This actually ended up becoming wristwatch and all kinds of things.

02:02 Technology was going from a pendulum to a clock spring.

02:06 Huge change.

02:10 The next change is the Casio watch.

02:14 This is when we went from a mechanical device to a digital device.

02:19 It's hard to think about any piece of electronics right now without a clock on it.

02:24 It's just a little chip.

02:25 It's just a little piece of electronics, faster, cheaper, better, smarter.

02:28 Just the whole way electronics goes.

02:32 GPS is the Casio watch of positioning.

02:36 Right now, we can do subcentimeter worldwide in real time.

02:41 Devices are getting smaller.

02:42 They're getting cheaper.

02:43 They're getting easier to use.

02:45 We're attaching GPS to everything.

02:48 It's in our phones of course.

02:50 Nokia owns all the patents to make our phones good to 10 cm.

02:56 What happens when the accuracy of the phone is better than your basemap?

03:02 What happens when everybody's phone is better than your basemap?

03:06 What do we do?

03:07 We can't remap.

03:09 It's too expensive and we don't have the time.

03:12 So what do we do?

03:14 We need to build incremental improvement of accuracy into our daily workflows...

03:19 ...and using all different types of data, lidar, imagery, even volunteered geographic information.

03:25 So let's take a look at an example.

03:28 County does a new ortho project, 6-inch positional accuracy, 3-inch pixels.

03:32 Pretty good stuff.

03:34 Parcels don't overlay.

03:35 We're not going to go remap the parcels.

03:37 But we can harvest the measurements from those parcels and build a measurement network...

03:41 ...to improve the parcels and synchronize them with the orthos.

03:46 We can actually take the information from that synchronization and use that to control the accuracies of other features in GIS.

03:53 We have time/date stamps and we have feature-level metadata.

03:57 So we have a lot of tools in the toolbox to build these workflows to keep ahead of the improving accuracy.

04:06 Alright, now let's look at another example here, everybody's favorite, sewer manhole.

04:11 Who has the most accurate information on this manhole?

04:16 Well the engineer has the rim to about a hundredth of a foot which is about an eighth of an inch...

04:19 ...so you don't go thump, thump when you drive over it.

04:22 He also has the inverts or the flow lines so things flow the appropriate direction.

04:27 Now the public works director has a mapping location, and he's got inspection reports, and he's got construction specifications...

04:34 ...he's got all kinds of information on this manhole.

04:38 But who really has the most accurate information on this manhole?

04:41 The manhole cover was stolen.

04:45 This is a hazard, it's a liability, and it needs to be fixed immediately.

04:51 Guy walks out his front door, picks up the newspaper, and takes a picture with his GPS phone.

04:58 Who has the most accurate information on that manhole?

05:03 So as GIS professionals, we need to think about aggregating all types of data together...

05:08 ...and we need to think about our workflows to increase to our daily work the accuracy of our data.

05:16 It's not authoritative data versus volunteered geographic information...

05:20 ...it's authoritative data and volunteered geographic information.
