

By Gary Kent, LS

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Geographic Information Synergy

Editor's Note: For those who were not able to attend the "Bridging the Gap" Survey Summit that was held in conjunction with ESRI's 25th Annual User Conference in San Diego this past July, we are pleased to share with you the adapted text of columnist Gary Kent's thought-provoking keynote address.

I would like to delve into what it means to be a leader in this exciting time in the evolution of GIS.

Ken Blanchard, author of *The One Minute Manager* refers to leadership "an influence process."

John Gardner, author of *No Easy Victories*, writes that leaders "can conceive and articulate goals that lift people out of their petty preoccupations, carry them above the conflicts that tear a society apart, and unite them in pursuit of objectives worthy of their best efforts."

Max De Pree in his book *Leadership is an Art* writes, "The first responsibility of a leader is to define reality. The last is to say thank you. In between the leader is a servant."

James Hunter, in his new book *The World's Most Powerful Leadership Principle*, says that being a leader does not necessarily mean you are "in charge" of anyone, or even in a position of power. He says that people are leaders not because of "what they do," but because of "who they are," and he does not mean because of who they are in an egotistical sense. In fact, quite the opposite.

Leaders are committed, they are enthusiastic, and they want to be the best they can be. These traits are passed on, often subliminally, to those who follow leaders not because they have to, but because they want to.

There is a cartoon from *New Yorker* magazine that shows a flock of geese flying south for the winter. All of the geese following the leader are honking away, as geese do. The lead goose is turning around and saying "Either chill out or go around me!"

Okay, so are you leaders? I think so. And as such you bear a much greater burden than you might think. That's because those who occupy the seats of leadership, in any context, have a number of vital responsibilities. I would like to explore those in the context of our collective work in GIS, because we need leaders to step up and help fulfill the promise.

"data is what we do, but leadership is who we are."

So, what are these responsibilities? The most important is probably that leaders have to actively participate in Creating the Future. This is a challenge for those of us involved in GIS because the future—the potential—of GIS is ever-changing and expanding in a mind-boggling array of directions, many of which are often, on their face, unexpected.

The challenge posed by that constant sea of change notwithstanding, what does it mean to "create the future?" Specifically, it means that leaders need to do three things:

Identify

First, leaders must *identify the vision*. This takes a variety of talents, among

them having "foresight." It will also take imagination and creativity. Author Margaret Wheatley in her recent book *Finding our Way—Leadership for an Uncertain Time* writes, "Leaders begin with a strong intention, not a set of action plans." Leaders have to exercise foresight. They cannot be overly focused on or caught up in the technical elements of GIS. To be certain, it is absolutely and relentlessly critical that we all, including the leaders, have to be deeply concerned about the accuracy of singular data points, the development of complex data models, the documentation of metadata, and so forth. To ignore those finer points is to defeat the promise of GIS

at its onset. And from that standpoint, as Mike Weir said: it is "all about the data." But, those activities do not capture the need, they do not fill the shoes, of foresight.

James Hunter says that "management" is *what we do*, while "leadership" is *who we are*. The corollary in GIS, I suppose, is that the "data is what we do, but leadership is who we are." Leadership is what we should bring to the table.

I want to call attention to GIS stakeholders (or beneficiaries). The stakeholders in GIS, who are expanding across the world every day, deserve the best we can give. The very nature and promise of GIS—which is rapidly and directly impacting the entire developed

world today, and which will eventually encompass and benefit the entire globe (hence my use of the term “beneficiary”)—requires an undivided attention to a grander theme.

Robert K. Greenleaf, the founder of a model of leadership that he termed “Servant-Leadership,” stated that leaders who demonstrate a lack of foresight, to the detriment of those they are supposedly leading, commit a moral failure. In this sense, if we collectively fail to deliver on the incredible promise of GIS, we have committed an injustice to that huge number of potential beneficiaries.

The most effective way—perhaps the only way—to acquire the vision in GIS will be by a collaboration of all of the stakeholders—software and hardware developers, researchers, data gatherers, system managers, analysts, community leaders, and every other contributor, potential contributor, user and potential user.

Meg Wheatley says that to do this we have to work in ways that support interconnectiveness rather than separateness. We have to take time to actually *think* and to *listen* closely to those we disagree with. Listening moves us close—it helps us become more whole, less disconnected—critical issues in the interactions we explore as we attempt to create the vision of GIS.

Wheatley says we must create opportunities to “bump up” against others in the system—making unplanned connections that spawn new ventures or better-integrated solutions. This is *synergizing*—creating synergy—with other interested and affected parties.

She advocates a shared sense of purpose—exchanging and creating information, constantly learning, paying attention to the results of our efforts, co-adapting, co-evolving, developing wisdom as we learn, staying clear about our purpose, *being alert to changes from all directions*.

We must ask questions. Questions like: What’s possible now that we’ve agreed to try this together? How does the purpose of *this* effort connect to the purposes of the larger system? Why are we doing this?

Much of the idea of collaboration needs to be aimed at merely understanding the interrelationships. This is critical in our complex world. Wheatley suggests that there are some means by which we can better see systems and their webs of connections.

“*Start something and see who notices.*” Often we do not see the connecting threads until we initiate some action. Only then do we find someone who suddenly appears—either out of curiosity or outrage. And until that moment, we did not realize there was a connection between us. But now that we know them, we can develop a relationship, and collaborate and complement each other’s efforts.

“*Whatever you initiate, expect unintended consequences.*” Because we often do not see the interrelationships until we change something, there will almost always be unintended consequences.

“*Seek out different interpretations.*” The more possibilities we can discover, the better chance we have of understanding what is going on.

“*Look for insights to emerge out of messiness.*” As leaders we have to resist the temptation to merely create policies and procedures rather than actually engaging our stakeholders’ desire to contribute to a worthy purpose.

Finally, we cannot think about GIS without inherently thinking about *information*. Stafford Beer said that “Information is that which changes us.” Meg Wheatley says that when a system assigns meaning to data—when it “informs data”—only then does that data become information.

Here’s an interesting thought as we think about information, especially as

those external forces are what is shaping and changing the world! I don’t know about you, but that seems a bit disconcerting, if not discouraging to me. It also poses a challenge to our paradigms.

We don’t want to end up in a future that someone predicted would be a factory run by a man and a dog. The man’s job will be to feed the dog and the dog’s job will be to prevent the man from touching the machinery.

Cultivate

The second thing that leaders have to do is cultivate, nurture and shepherd the evolution of their vision. This will require great patience and what I would call “intellectual flexibility,” which is probably akin to imagination and creativity.

We should be reminded of parents who go to great extent to live vicariously through their children. They incessantly promote their long-lost or unfulfilled dreams in their children’s minds, then proceed to pursue those dreams through their children. And to what effect?

Except for a few well-publicized examples, this does not work and, in fact, ultimately ensures not only a *second* failure of the dream (for the parent), but more disturbingly, the perception of failure on the part of the child (hence the fistfights between parents at pee-wee soccer games and the

“No problem can be solved from the same level of thinking that created it.”

—Albert Einstein

related to the vision, imagination and creativity necessary to create vision:

Two biologists, Humberto Maturana and Francisco Varela noted that 80% of the information we use to create visual perceptions of the world comes from information already inside our brains. Only 20% of the information comes from external sources.

Thinking about that in another sense might mean that 80% of what we dream up comes from our pre-existing paradigms, not from external input, yet

assaults by children upon other children at Little League games).

Our child is the promise of GIS. As its parents—as leaders in the various related disciplines and professions—we must not limit its potential based on our preconceived viewpoints. Rather, we have to recognize the practically infinite potential to improve life for the inhabitants of the earth, both human and otherwise. We must constantly and patiently seek to identify ways to improve our lot by being on a perpet-

ual quest for new benefits that can be derived from GIS and better solutions to the world's problems through GIS.

How do we do these things? We can start by again constantly asking the right questions of ourselves and of our stakeholders, abstract questions that provoke thought and new ideas.

Paraphrased from Meg Wheatley, questions like: How does change happen? How do we solve complex problems? How do we create healthy communities for those stakeholders? How do we lead when change is practically out of control?

In all of this, we need to very vividly remember the words of Albert Einstein who noted: "No problem can be solved from the same level of thinking that created it." The same synergy required to identify the vision will be needed to cultivate, nurture and shepherd it.

Articulate

Finally, and most important, before any of this can happen to the degree that moves us beyond conceptualizing, leaders have to be able to Articulate the Vision to those who cannot see it, or who cannot see it yet.

This is not to simply "talk about" the vision. Leaders must be able to listen,

ment and then support the necessary expenditures?

We have to be certain that these people understand and subscribe to the promise of GIS. In order to do that, we have to listen to and understand their concerns and apprehensions. Norman Lear once said that the great "societal disease of our time" is short-term thinking. The general public and media seem to demand quick solutions that are usually merely Band-Aids that address symptoms, not root causes. The resulting pressures can force government and even public companies to become notoriously short-sighted.

Lear also said "a citizen can matter in this country." So, who among us can enunciate a vision that causes all of these stakeholders to see the wisdom of and demand long-term solutions? I have a quote on my desk that says, "The true meaning of life is to plant trees under whose shade you do not expect to sit." I don't know about the meaning of life, but that certainly sounds like Vision to me.

This is all particularly difficult today when the economy appears to be about as good as it is going to get, at least in the midterm, and yet many states and cities are on the verge of insolvency. I

dinary ability to communicate, persuade and promote.

Synergy is what the future of GIS is all about. We can sit around and envision solutions to all kinds of problems all day long. We can write software and create datasets until the cows come home. But we are not really stretching the bounds—we are not acquiring a true vision—unless we listen to, understand, and collaborate—create a synergy—with our fellow stakeholders. Otherwise we are destined to solve either the wrong problems or problems that don't even exist. And remember what Wheatley said about expecting unintended consequences.

One example of such a synergy is the partnership of Hamilton Southeastern Utilities, SAMCO, and The Schneider Corporation. Together we are envisioning and developing solutions that simply would not occur without that collaboration.

Our team is formed by engineers, surveyors, IT experts, and GIS technicians and professionals who listen to each other, who learn from listening, and who work in collaboration to develop meaningful solutions. We are working to address typical, even mundane, workflow issues that do not stand out as "problems," but hold great promise as "time and money-savers" and long term problem-preventers.

What are we working on?

- Integration of sewer flow modeling into the HSE GIS
- Integration of self-check routines in the GIS so consulting engineers can verify their project's integrity prior to submitting plans. This could include state plane coordinates of tie-in points, top of casting and invert elevations, pipe sizes and types, and easements that would automatically be checked against the design submitted.
- Integration of plan review with and in the GIS
- Automated preparation of easement descriptions (a note to surveyors: watch out for the paradigms!)
- Asset management—Utility Regulatory Commission report automation; preparation of property tax reports (HSE is a private utility that pays tax on its real and personal property); preparation of documents to support future rate cases; amortization; maintenance/cost tracking, and so forth.

"The true meaning of life is to plant trees under whose shade you do not expect to sit."

—Nelson Henderson

demonstrate an understanding, and speak and write in a way that will paint a picture of GIS that motivates and excites the stakeholders.

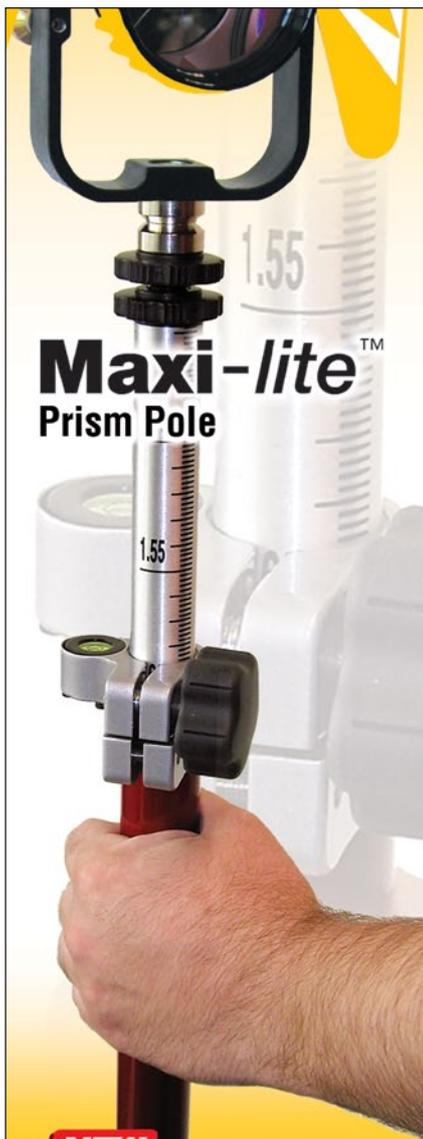
This is important for a number of reasons. First of all, that group includes many who do not see themselves as beneficiaries, much less stakeholders. We have taxpayers, office holders and government employees who have to be part of the team promoting the vision. In many cases, this will take no small amount of courage. There are front-end costs and risks that must be borne and faced if the potential is to be realized. How will that expense be paid for? Who among them will be willing and able to step out in front and outline a plan and a vision that justifies the invest-

often wonder what will happen when the economy falters, as it will surely do in the next several years. It does not bode well.

Yet, in all of this, does GIS itself hold some answers to even *those* problems?

I would hope that the answer to that question is a resounding "Yes!" We already see those money and time saving solutions in many ways. We have to remember, though, that what we see and know today will tend to form our paradigms, and then we have limited ourselves practically before we get started.

There are many potential stakeholders who simply will not or, more likely cannot, see the potential benefits. They have to be led to the trough and enticed to drink by those who have an extraor-



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I can tell you that without the synergy created by the collaboration of HSE, SAMCO and Schneider, it would not have been possible to explore these GIS applications. We have to look for partnership opportunities, create synergy, and collaborate.

Lead Passionately

What other responsibilities do we as leaders have? Well, the biggest is *to not fail!* Noted author on leadership, Warren Bennis, has said that the biggest predictor of success or dysfunction in an organization is leadership, or the lack thereof.

Our role as leaders cannot be to simply impart our knowledge on an audience that we don't care for. We have to have a passion and take the responsibility on ourselves to care about what we are doing and to care about the stakeholders. Who and where? Everyone. Globally.

There are major challenges in all of this. Perhaps the largest of these is overcoming our paradigms. While paradigms are probably not an inherent problem at least among many within

Where these paradigms exist, they have the potential to cause us to miss potential synergies and even miss the vision. So, we have to avoid limiting paradigms and, instead, have, and encourage intellectual flexibility. We have to challenge even the most basic assumptions—like the concept of using GIS to find solutions to problems.

I don't think that the most beneficial aspects of GIS will be found in traditional problem-solving, but in wildly broadening our concept and definition of what a "problem" is. Stakeholders must redefine the role of GIS not as a simple problem-solver, but as an inherent part of our existence that serves to make that world a better place.

Another wild-card in all of this, ironically, lies in the one of the promises of GIS—and that is the global-wide availability of information and ease of communicating that information.

We know all too well how this promise has and will be used in insidious ways against the visionaries, actually against us all, even the perpetrators of atrocities themselves. The unfortunate irony is that

“...the biggest predictor of success or dysfunction in an organization is leadership, or the lack thereof.”

the GIS community because of the very nature of the cutting-edge technologies and the visionary people involved, they do exist, especially around the edges.

As an example, there are surveyors who dismiss a GIS because the power poles are not shown to the nearest hundredth of a foot. To which I say, “Get over it. If you don't understand the client's need, then you shouldn't even be talking about it.”

On the other side of the aisle, we have the County's GIS technician who, in a situation I was involved with, told an attorney that his parcel map was better than the results of a registered land surveyor's field boundary survey because his GIS map was “based on information from a satellite.” To which I say, “If you don't understand what you have, then you shouldn't be allowed to use it.”

the perpetrators are the only ones who don't care.

Yet, even in many of the challenges, if we look, we will most certainly find answers in GIS. For example, how could we be using GIS to better educate, to better convey knowledge, so individual people can have a sense of self-determination. Therein lies the answer to many of the world's problems.

In summary, I hope I've caused you to think just a bit about leadership and being a leader. Identify, acquire, develop the vision; cultivate, nurture and shepherd the vision; articulate the vision.

We cannot afford to be like another *New Yorker* cartoon that shows a school of fish with its leader taking them out of the water and up toward the sky. One fish is saying to another, “I knew he was lost the moment we left the water.”

We cannot get lost on this journey. 