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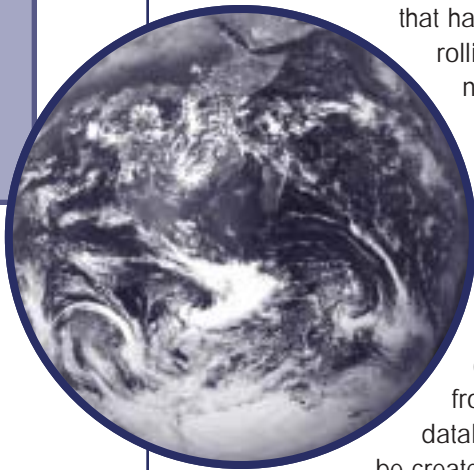
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Is Migration for the Birds? A Tale of Two Datasets

By Kathleen Weessies, Michigan State University

The "Paperless Office," a concept introduced by Xerox PARC scientists in the early 1970s, was a laugh; a myth that has received much eye rolling. But you may now notice that a shrinking percentage of information in your workplace results in a paper product. An organization may extract only periodic reports, maps, and concise summaries from a vast computer database. Even that may be created as PDF files and only touch paper within the cubicle of some eccentric who still wants to read off-screen.

As we step further and further into an electronic work environment, we have to face up to responsibilities that have largely been sidelined up until now. These responsibilities relate to information archiving, compatibility, migration and durability.

You see, in the old paper days, these functions largely took care of themselves. The archive was a physical entity that was unmistakable by its size and packaging, usually banker's boxes or filing cabinets

labeled as such. Often the files were handed off to another place and other staff, such as a basement or off-site warehouse, where they were largely forgotten until needed. Compatibility was only a problem in the most extreme circumstances because the English language changes so slowly over time. We can read documents produced several hundred years ago, only needing to squint through handwritten script such as found in county government vital records. An original copy of the book *Robinson Crusoe*, first published almost 300 years ago, can be picked up, opened and read easily, certainly more so than a 20-year old document saved on a 5.25" disk in Write Stuff for the Commodore 64. Paper migration occurs once in a while in re-copying diazotype blueprints or saving documents printed on low-quality yellowed paper. But for the most part, a well-stored piece of modern photocopy or laser printer paper will last 100-500 years. Computer magnetic storage media and compact disks experience a considerably shorter life. [see table on page 3]

Computers put powerful information decisions into the hands of people who aren't accustomed to such responsibility and may not see the long-term ramifications of small, everyday decisions. Several decades into the computer revolution, backlogs of

Who's Doing What in GIS and Spatial Technology?

By **Dan Swallow**, Environmental Director, Charter Township of Van Buren



The Charter Township of Van Buren in western Wayne County is completing the first of five phases in their GIS implementation plan. With Van Buren Township's rapidly expanding population, Township managers determined that information technology tools would assist staff in generating increased efficiencies and cost savings. Last spring Van Buren Township hired Wade-Trim to design a GIS Needs Assessment and Implementation Plan to integrate GIS into the Township's daily processes. The goal of the first phase of the plan is to make the Township's existing GIS data accessible to all Township staff.

NEEDS ASSESSMENT

During the last few years, Van Buren Township has made significant progress and investment towards the creation and implementation of a Township GIS. In doing so, the Township has cleared several milestones: capturing utilities data for the Township; signing a data sharing agreement with Wayne County (and thereby acquiring accurate parcel, street, and orthophotography layers); purchasing GIS software; and upgrading the Township's hardware. The Township has many of the components necessary to use GIS

applications. However, a plan was still needed to integrate GIS into their daily processes. The Township's GIS Needs Assessment provided a comprehensive description of potential GIS uses based on the individual daily tasks that each Department performs. These needs were organized into information products that for a given task will: 1) define how GIS will be used, 2) describe the data needed to generate results, and 3) assess the benefits of using GIS. Using the information products, the study then recommended several hardware, software, data conversion, and training solutions that met the Township's needs.

PHASE I: MAKE GIS ACCESSIBLE TO ALL TOWNSHIP STAFF

Getting GIS into the hands of Township staff required easy-to-learn software and training. Of the three software solutions recommended in the Needs Assessment, ArcIMS best fit the Township's needs. ArcIMS was purchased and customized for each department based on the data needs for specific tasks. Then training courses were conducted on how to use the software as well as how to apply the software to their daily tasks.

In addition to software purchasing and training, each of the Township's datasets were evaluated and documented into a data dictionary and GIS user's manual. New data submission standards and update procedures were also developed.

FUTURE PHASES

The Township's Implementation Plan described a five phase approach towards integrating GIS into its operations. After the completion of Phase I, making GIS accessible to the Township staff, the following phases remain:

- Phase 2:** Improve existing data accuracy and completeness – corrections and updates are needed in the existing datasets.
- Phase 3:** Add new datasets – additional datasets that the Township identified to be helpful in performing their daily tasks.

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Life Expectancies of Various Information Storage Media

Compact Disk	5-100 years
Newspaper	10-20 years
Data-grade VHS video	10-30 years
Digital linear tape	10-300 years
Other magnetic tape	10-30 years
Microfilm	10-500 years
Photographic slides	100 years
Archival-grade acid-free paper	100-500 years
Egyptian Stone Tablet	2,200 years

*Factors that affect longevity within each date range can be viewed at http://www.oit.umass.edu/publications/at_oit/Archive/fall98/media.html

Source: University of Massachusetts, Amherst Campus, Office of Information Technologies.

expensive electronic information are in jeopardy or may already be past practical help. Efforts are hampered by early proprietary formats. Further, early computer paper wasn't designed to last and neither was the magnetic storage media. Like cryogenics, we all assumed that the future would solve our problems. The surprise is that we are in the future right now.

What follows is a tale of two geographically-referenced computer datasets, both created about twenty years ago. They experienced very different fates from which we can learn.

The first is 1980 U.S. Bureau of Census data, organized by school district, purchased by Michigan State University on magnetic tape. The campus Computer Center stored the tapes and ran them for interested departments as needed. When the time came in the early 1990s to abandon tape format, the Computer Center had one year to transfer existing data tapes onto a hard drive with back-ups on compact disk. This was not enough time to migrate everything in the Computer Center inventory. Computer Center staff had to set priorities and seldom-used files were discarded, including the school district census tapes. These data are still available from the Inter-University Consortium for Political and Social Research (ICPSR), so the information was not lost to the world. But what was once a campus asset is now maintained off site. The decision criteria were primarily determined by non-users of the data.

The second dataset is MIRIS, the Michigan Resource Information System, born by the Michigan Resource Inventory Act, 1979 PA 204. MIRIS was an effort to create a vector-based computer file of Michigan land features from USGS topographic maps. The Michigan Department of Natural Resources began this digitization project on an Intergraph system housed on a mainframe computer at the Michigan Department of Transportation. In an interesting series of events that can't be fully related here (but hopefully will be in a later issue of this newsletter), MIRIS evolved into the statewide framework we have today (see <http://www.state.mi.us/webapp/cgi/mgdl/>). MIRIS merged successfully with the Michigan Information Center's AtlasGIS database and the Department of Transportation's Caliper system to create an enormous and seamless dataset centrally updated by the State's Center for Geographic Information and used by a myriad of organizations. Here, over twenty years later, a true economy of scale has been achieved due to the foresight, sweat, and financial investment of several far-sighted groups.

Both cases outlined above represent a significant investment of government resources. Why was one dataset abandoned while the other was maintained and expanded? In the case of the MSU census data:

1. Purchasers and users of the information were separated from those who made migration and conversion decisions. Since the Computer Center measured a file's value by its frequency of use, the file dropped to the bottom of priorities for conversion.
2. Demand for this dataset was not continuous or high-volume. Demand for specialized census data depend on individual projects, and is likely to run in ten-year cycles (When new census data are released, old numbers may be wanted for comparison and computing trends over time.) The data were only 'noticed' when requested, and in that time frame the media had become obsolete.

Why the MIRIS program continued:

1. Vision and planning toward a long-term goal: Project planners saw the importance of the database structure while the world was still working with mainframes.
2. A large number of champions: Considerable buy-in was acquired from several state agencies including the Department of Transportation, the Michigan Information Center, the Department of Natural Resources (and later the Department of Environmental Quality), and the Secretary of State.

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3. Continuity of administration: Selling the idea of a coordinated geographic framework only had to be made once in the last twelve years.
4. Willingness to commit to an expensive multi-year project that initially had much less payoff than we see today.

LESSONS LEARNED

What this all boils down to is the question of whether your files will be usable in even the near future. Government agents immersed in doing their jobs of administering local government policies may not notice if Catchword's RealPage or ESRI PMF format takes over Adobe's PDF format as the document format of choice. A hypothetical industry transition to the HTML extension SVG may go unnoticed before data conversion becomes difficult and expensive. Salespeople servicing your product upgrades will not be quick to tell you if their product is the one losing ground in the market.

The economics and labor of data migration and conversion are reversed from that in a paper-based environment. In the past, if we did nothing the information would be saved; weeding out unwanted files took effort. Today if we do nothing, all will be lost; we have to make an effort to save anything. What will be needed in the future, however, isn't always apparent today. The files most likely to be lost are those not in constant demand and not under the control of migration-minded people. Every file allowed to fall into oblivion represents a lost investment. The decision of what is lost should be a deliberate decision and not an accident of circumstance.

WHAT YOU CAN DO

1. Embrace the lasting value of your organization's work.
2. Seek a qualified and relatively impartial party to advise on data backup, conversion, and migration.
3. Make data "archive-ability" an important criterion of software and hardware selection.
4. Include all organization information in your archiving plan including correspondence and occasional reports.

WHAT YOU SHOULD NOT DO

1. Use an oddball software or platform different from the rest of your organization without a compelling reason. When you leave, your files are less likely to be folded into the organization.
2. Wait so long that converting the data becomes too expensive for perceived benefits. The longer you wait the worse it will be.

3. Try to accomplish proper data archiving and migration on a shoestring. The entire organization has to budget time and money to the process.
4. Assume that the future will bring a technology to rescue the situation.

The oldest written documents on the planet are local tax and business records etched on clay tablets. We know of these ancient civilizations and their activities because of the records they left behind. Will our times some day be known as the Dark Age of local government? Will our exciting work in local government GIS be abandoned or will it form the base of future work?

FURTHER READING

Bryan Bergeron. *Dark Ages II: When the digital data die*. Upper Saddle River, N.J.: Prentice Hall, 2002.

Betts, Mitch. "Businesses Worry About Long-Term Data Losses." *Computerworld*, September 20, 1999, 22.

Pannhausen, George. "Data Media Conversions in the Data Center." *Computer Technology Review*, November 2001, 38-40.

Kathleen Weessies can be reached at weessie2@msu.edu.

WHO'S DOING WHAT continued from page 2

Phase 4: Develop tools for efficiencies – specific routines that could be automated for future efficiencies.

Phase 5: Future development – long range projects and less critical datasets.

Van Buren Township has found that careful planning has been critical for the successful implementation of their GIS. The Township has developed and begun implementing a plan to integrate the use of GIS into its daily operations to increase efficiencies and realize cost savings. These efficiencies will become increasingly important as the Township population grows and the staff struggles to meet its growing needs.

For more information, please contact John Maylie, GIS Coordinator with Wade-Trim at jmaylie@wadetrim.com or (734) 947-9700 or Dan Swallow, Environmental Director with the Charter Township of Van Buren at dswallow@vanburen-mi.org or (734) 699-8958.

Conference/Events

The **7th Annual Integrating GIS & CAMA Conference** will take place March 30 through April 1, 2003 at the Hyatt Regency in Columbus, Ohio.

This conference is jointly produced by URISA (www.urisa.org) and the International Association of Assessing Officers (IAAO, www.iaao.org).

For more information about this event, contact URISA at (847) 824-6300 or IAAO at (312) 819-6100.

The latest and possibly final version of the **GIS Code of Ethics** is available on the URISA website for review and comment. This version will be available on the web until November 15th but this will be the last chance to comment on this important document. Please visit http://www.urisa.org/ethics/code_of_ethics.htm for more details.

Projects

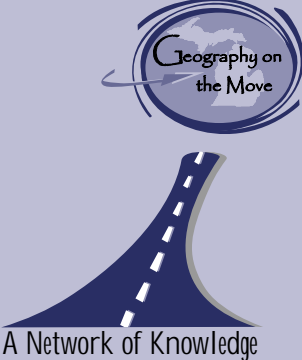
R. A. Smith and Associates, Inc. – civil engineering, surveying, and technical services consultants – Brookfield Wisconsin, GIS project manager **Eric Fowler** took second place in the **“Best MapObjects Application”** and third place in the **“Best ArcGIS VBA Application”** competitions at the recent 2002 ESRI International User Conference. Fowler’s second place entry for “Best MapObjects Application” was a computer-based market share analyzer that he developed as an interactive mapping tool to analyze where a corporation’s sales were occurring and where resources needed to be placed. Fowler’s third place entry for “Best ArcGIS VBA Application” was a transit application he developed for the Milwaukee County Transit System. The purpose of the overall project was to help the transit system better manage bus routing and scheduling.

Member News

InfoGeographics – a Traverse City-based GIS services company – is pleased to announce the addition of **Mary Jo Hills**. Many IMAGIN members are already familiar with Mary Jo through her previous GIS work with Grand Rapids, REGIS, the City of Holland, and the Forest Service among others. As a seasoned GIS/IT professional, Mary Jo will be supporting InfoGeographics’ clients throughout Michigan by providing a full range of GIS and related services.

New contact information for Mary Jo is:

Mary Jo Hills, InfoGeographics, Inc.
6420 Rock Meadows Ct, Rockford MI 49341
Phone: (616) 863-0585 Fax: (616) 863-1105
Email: mjhills@infogeographics.com
Web: <http://www.infogeographics.com>




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for further information!



Message from Past and Current Presidents

September, 2002

In this issue you get two for the price of one! Yes, this is a message both from the recent President, Jim Bennett of InfoGeographics, Inc. and the incoming (as of October) President, Sharon Vanderbout of Kent County. There have been many changes in IMAGIN over the past year, and more are planned for the coming year. We wanted to pass this information on to you, the membership.

At the Annual IMAGIN Board Meeting on October 4th, we will be welcoming new Board members and voting on new officers for IMAGIN. As this is being written a bit in advance of the September elections, we don't have all the newly elected Board members, but the Board was gratified to see so many nominees this year and interest in serving IMAGIN in this needed capacity. We wish to express our thanks to those that are not elected (as well as those that are), hoping they will continue to be involved in IMAGIN through committee work, and try again next year. Each year, about half of the Board of Directors comes up for election so the opportunities are always there to participate.

We also have Board members who are riding off into the sunset. These Board members are Past President Bill Enslin, Past Treasurer Brian Berdanier, Past Secretary Dave Frey, and Vince Bevins. On behalf of IMAGIN, we wish to thank them for their contributions, energy, volunteerism, and knowledge over their terms; in Bill and Dave's case, this goes back to the beginning of IMAGIN.

The officers of IMAGIN, or the Executive Committee, are also changing in October. As we said before, Sharon will be assuming the President's duties. Also, Steve Aichele from USGS will serve as Vice President, Scott Ambs from Region 2 Planning will be the Treasurer, and Ann VanSlembrouck from SEMCOG will serve as the Secretary. Congratulations, and we wish you an exciting and fulfilling term as the "front end" for the membership and the Board of Directors. Also, thanks to outgoing Treasurer Brian Berdanier and Secretary Dave Frey for a lot of effort this past year.

The Board of Directors, with some of the Board nominees, held a Strategic Planning retreat in August to confirm the mission of IMAGIN, look at restructuring issues, and plan for the administrative and logistic support of the organization. These were very productive meetings, and we all gained greater understanding and focus on issues that really matter to serving the membership and GIS in Michigan in more effective ways.

IMAGIN's mission statement was reviewed and modified to the following:

IMAGIN's mission is to maintain a network of involved professionals dedicated to advancing the quality and use of GIS in Michigan.

A significant amount of work was accomplished, mainly by looking at the committee structure to consolidate operations and enhance communications. The upshot of it was to revise our committee structure into four operational membership committees of *Events; Information Resources & Website* (merging the Information Resources Committee and the Website Development Task Force); *Quality & Education* (merging the Quality Committee and the Education Committee); and *Outreach*. We also will retain the two Board committees of Nominating/Governance and Executive. In addition, we will phase out committee liaisons by inviting the Committee Chairs or their representatives to Board meetings.

Finally, the Board addressed continuing administrative and logistical support for IMAGIN as there are many duties that need to be performed to keep our various efforts running. After much discussion and review of options, the Board has decided to contract these required functions to an outside entity, in this case, the Urban and Regional Information Systems Association (URISA) to provide organizational and administrative support. We have been in contact with them for a couple of years regarding joint opportunities for our two organizations, and this is a great chance for synergy with a GIS organization on a larger, international scale. IMAGIN will retain its autonomy as the premier GIS professional society for Michigan, and we are looking forward to this productive relationship.

Well, that was a lot of news, but we intend to keep the membership apprised of IMAGIN's evolution. Please feel free to contact any of us on the Board of Directors or the Committee Chairs if you have any comments, or desire to contribute and serve to keep up the high quality of GIS in Michigan. It is definitely the communication and network of involved professionals that drive this quality. Go to the IMAGIN website at www.imagin.org for contacts and a wealth of other information. Have a great Fall and Holiday Season!

Past president, Jim Bennett, can be reached at jbennett@infogeographics.com and current president, Sharon Vanderbout, can be reached at sharon.vanderbout@kentcounty.org.




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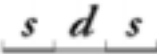
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Sharon Vanderbout, IMAGIN President

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IMAGIN
29508 Southfield Rd. #203
Southfield, MI 48076
(248) 395-3163
(248) 395-3164 fax
www.imagin.org

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Frank Sobie, Board Liaison/Information Resources Committee
Brooks E. Kelley, Chair/Information Resources Committee

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