

BIOGRAPHICAL INFORMATION

Karen Ball
Technical Manager
Intergraph Utilities & Communications

Specific Responsibilities

Karen Ball joined Intergraph Utilities & Communications in 1993. She is currently Technical Manager of the Utilities & Communications GIS Services Team, coordinating implementation staff for all G/Technology projects in North America.

Past Experience

Ms. Ball has over eleven years of professional level experience in software and system design, implementation, and end-user training; algorithm development; software interface development; automated testing; and technical marketing. For the past five years, she has been a part of the services organization. As a technical lead, she has led teams to design, implement, and validate customer-specific functionality for GIS systems and their interfaces to other enterprise systems. Her major project experience includes work with large utilities such as Portland General Electric, Sacramento Municipal Utility District, and MidAmerican Energy Company; it also includes work with smaller utilities such as Reading Municipal Light Department.

Education

M.S. – Computer Science – Mississippi State University
B.S. – Computer Science – Mississippi State University

Professional Memberships

GITA

WHOSE VOICE IS MISSING? –
COORDINATING MULTIPLE PERSPECTIVES IN GIS SOLUTIONS

Karen Ball
Intergraph Utilities & Communications
Mailstop: LR23B1
170 Graphics Drive
Madison, Alabama 35759

ABSTRACT

The implementation and deployment of any geospatial solution requires the consideration of multiple viewpoints. Even simplest solution, only used by one user or a small group of users, will be influenced by corporate standards that may impact version compatibility or output formats. The most complex geospatial solutions are integrated with other systems within the enterprise and involve many user communities, support personnel, and management.

The coordination of multiple perspectives that affect a geospatial solution can be compared to blending the voices of different instruments in a musical composition. Likewise, both musical performances and system rollouts require support from others. Extending this analogy, geospatial solutions will be compared to musical concepts to introduce topics and emphasize points.

This presentation will discuss the different groups of people that must be considered as geospatial solutions are implemented and deployed. The role of each group will differ depending on the integration level of the solution and the current project phase. Discussion will be based on experiences from real-life GIS implementations.

WHAT DOES MUSIC HAVE TO DO WITH GIS SYSTEMS?

The objective of this presentation is to discuss the importance of and challenges associated with the coordination of various groups when implementing a GIS solution. So why the musical references? Because a lot of the information seems common-sense but bears repeating and revisiting. However, repetition can be boring. Hopefully, the novelty of comparison to musical terms will entertain you and help you remember the importance of listening to all the voices during the daily activities of system implementation, deployment, maintenance, and support.

Why is an orchestral production an appropriate comparison to a geospatial system? The benefits of maintaining geospatial data are maximized when the data can be leveraged throughout a business. This is accomplished by integrating with other enterprise systems. As the level of integration increases, the diversity of individuals that come in contact with the data increases as well. So both symphony orchestras and geospatial solutions are complex by nature. Both involve numerous participants. These participants are not all alike but can be categorized into groups with similar characteristics or perspectives. The success of blending the various voices plays a major role in the ultimate success of either endeavor.

SECTIONS OF THE ORCHESTRA

There are numerous sections and types of instruments in an orchestra. Different instruments have different sound characteristics. They vary by range of pitch, the ability to change tones quickly, and the capacity to sustain a note. Their traditional uses within a composition vary as well.

- The strings section is the most versatile in an orchestra. The stringed instruments can play rapidly or slowly, and together they support a wide range of pitches.
- The woodwind instruments are individualists. The fact that they can only produce a single note at a time may limit their versatility but not their character. They often appear in melodic solos.
- The brass instruments add boldness to a performance. They can't be played rapidly and only provide a few pitches. But they can be counted on for heroic sequences and single tones to punctuate a composition.
- The percussion section includes instruments that don't produce tones at a specific pitch. But they are crucial to providing rhythm and cadence when large numbers of instruments are playing.

The many instruments in an orchestra complement each other to achieve a satisfying performance. But we can't forget the non-musical contributors. The performance wouldn't even be possible without financial supporters and an audience to play for.

There are also many participants involved with an integrated geospatial solution. Different groups have different characteristics. They vary by their expectations and requirements for the system. They vary by their ability and willingness to embrace technology changes also.

- GIS analysts and mapping staff focus on the geographic-based data that is central to any geospatial solution. They concentrate on maintaining and utilizing that data for the maximum benefit of the utility's overall business interests.
- Designers make use of the collective geospatial data to support their job of planning for modifications and additions to the network. They may be responsible for inputting facilities into the geospatial system to keep the network data current.
- Operations personnel rely on accurate geospatial and network data to support their objective of keeping the network functioning and the revenue stream from customer usage steady.
- Engineers plan for long-term efficiency and reliability by analyzing the network and planning for routine maintenance and future changes.
- A utility's financial department can use geospatial data to support many functions such as work management, customer billing, account management, and asset management.
- The IT department provides data warehousing, networking, administration, hardware, and programming support for all computer-based systems used by the utility, including geospatial systems.

Beyond those involved in the day-to-day activities, a geospatial solution won't reach its full potential without executive support, and it must ultimately benefit the customers.

A Central Theme

Geospatial location data is valuable to many processes within a utility. For some processes it is essential, such as construction prints for installation crews. Departments that serve these direct mapping consumers have been the traditional breeding grounds for geospatial systems. The depth of GIS knowledge within such a department provides the underpinning as the geospatial system is expanded, much like the strings section keeps a symphony's basic theme moving throughout the performance.

As the use of geospatial data reaches other departments through system integration, more requirements are placed on the geospatial system. These new areas of functionality must be achieved while still maintaining the original capability of managing the volume of facility and landbase data.

Keeping the Beat

The IT department is like the percussion section. There aren't many drum solos. You don't need a drum section to maintain a rhythm for a piano solo or a chamber piece. But in a full orchestral production, the drums provide a cadence for the rest of the sections, grounding the melodic theme and accompaniment.

GIS point solutions may not require a lot of IT support. But as a GIS system impacts larger numbers of users and the complexity of interfaces with other systems increases, there is a greater need for committed IT support. Database administrators optimize system performance and perform backups for recovering data you hope you never lose. Hardware and network support personnel maintain the equipment that makes the system possible. Programmers and application administrators keep the system running day-to-day.

Cameo Appearances

Specialized applications such as annual reports are like solos within a symphony. The xylophone cameo in a composition may be the most memorable thing to some audience members, but that cameo wouldn't be possible without the rest of the orchestra. Just as you don't see many pieces written for the xylophone alone, you can't develop some special applications without the support of many different areas. Mandated annual reports of total length of cable or pipe within political boundaries might only get high profile attention once a year, but it will require the sustained maintenance of data throughout the year to be able to provide quality information.

TUNING UP

In an orchestra, musicians have to make sure their instruments are tuned to the same key. They use the oboe as a reference point because its pitch is the most difficult to adjust. Each musician sounds his own instrument and listens to that sound relative to tones from others. Then he modifies his instrument or manner of playing until his sound is in tune with the group. Without this tuning up, the result is dissonant noise rather than harmonious music.

GIS project teams have to get in tune with each other as well. People don't modify their instruments to produce sounds of different pitches. But they should rely on good communication skills to stay in tune with other team members. Each person should strive to state their perspectives clearly and to listen carefully to others. Decisions reached from a basis of common understanding are more likely to lead to good results.

Consider trying to define the requirements for a system change to map labels that is initiated by the design department. As the details are discussed, a dependency on work management interfaces is uncovered. Then the team realizes that the handling of as-built redlines will be impacted as well. The requirements can be satisfied by more than one implementation approach. There will be limiting factors. Some representatives may seem inflexible in their positions on

points of contention, perhaps because of conflicting requirements in related processes. During the course of dialog through e-mails and conference calls, individual personality conflicts may flare and must be worked through. If communication breaks down anywhere along the way, the ultimate solution will be lacking.

BALANCE

Just like sections of an orchestra support each other to interpret the overall concept in a musical work, different departments within a utility must balance their unique perspectives, needs, and capabilities to take full advantage of the benefits a geospatial solution provides. It is helpful to have the various groups represented during all phases of a project – from startup through implementation and deployment into ongoing maintenance.

To transform these many voices from clamor to order requires a strong unifying force. In an orchestra, this is embodied by the conductor. His presence and direction hold the performers together and lead them to translate a piece into a meaningful whole. He uses rehearsals to work through problems and to try out different possibilities of interpreting the score. During the actual performance, the other musicians know what is expected and can play their best to support each other and stir the audience.

A geospatial solution also needs a unifying force – a project champion. This person should hold a position of some authority and be respected within the utility. Beyond simply managing resources, he holds the vision for the solution. When collaboration among peers doesn't bring about a consensual resolution to a problem, he makes decisions to further that overall vision. He facilitates testing and deployment of software and processes to minimize problems with the production system. He focuses on the vision and maintains a momentum toward accomplishing interim goals on the path to realizing that vision.

SUMMARY

Geospatial solutions that involve integration with other enterprise systems are complex by nature. Throughout system implementation and ongoing maintenance, the needs of many individual functional areas must be considered. The team must work constantly at balancing these different ideas of what the solution should address and how. Balance can be achieved through commitment to a common goal and strong leadership.

REFERENCES

Kamien, R. 1988. *Music, An Appreciation*. pp. 16-30 & 82-84.