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Case Study

Development of an implementation plan for a geographic information system: case of Lincoln County

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Abstract

Many small to mid-size public agencies are facing a problem of how to develop and implement Geographic Information System (GIS) technologies in their operations. Since most of the information in government agencies has a spatial context, GIS has significant capabilities to integrate data from disparate databases and display information in new and unique ways for decision-making.

GIS technologies can have applications and benefits across the enterprise; however, this enterprise-wide nature often hinders implementation. Local government agencies face significant organizational issues including serving a diversity of interests for data quality and database integration, oversight by publicly elected officials, and a lack of resources and technical expertise.

This fictional and normative case describes a typical situation in a mid-size county. The case portrays an organizational environment that provides the basis for students to put themselves in the role of a County Administrator to develop a GIS implementation plan. This plan requires an analysis of the formal and informal organization. Major investigation areas include insight into the organizational issues of personnel relationships, GIS project identification and resource prioiritization. Above all, the goal is to plan development of a functional GIS that will be integrated into ongoing Lincoln County operations to improve organizational efficiencies and to increase services to various stakeholder groups.
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1. Case summary

This case describes the situation of a mid-size county pursuing implementation of Geographic Information System (GIS) capabilities. Nancy Hays, the County Administrator, wants to integrate GIS into multiple county operations. She interviews the organizational areas most interested in GIS and identifies a list of the major potential GIS projects within the County. Her

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next step is to develop an implementation plan that will create a vision for GIS deployment that addresses the organizational and stakeholder issues.

2. Introduction

"That's not how they do it in Wilson County." Nancy Hays, the County Administrator for Lincoln County was in a quandary. She was talking in her office with Ralph Fox, the Chair of the Lincoln County Board, about GIS. Ralph was discussing some of the county GIS applications that he had seen in nearby Wilson County, a smaller county with less resources. "They can view zoning maps. They check the assessments of their neighbors' properties. They can look up an aerial photograph of their house on the web."

Even though Nancy was somewhat irritated by these almost weekly discussions with Mr. Fox on GIS, she also knew the issue was not going away. Her discussions with staff and other county officials had also highlighted the need for county GIS capabilities. In fact, there was an increasing perception that Lincoln County was falling behind. Intuitively, she knew that GIS had many potential applications and benefits, but she also knew that implementation would be difficult due to the complex nature of the technology.

Nancy had been in her position as Lincoln County Administrator for 10 months. She had heard about Lincoln County's previous failed GIS implementation efforts, especially one five years previous with considerable expense for software and hardware acquisition. Nancy also knew of horror stories of failed GIS efforts in other counties. For example, McGuire County had spent considerable sums to hire a GIS consultant and acquire software and hardware in anticipation of major GIS products. Three years later with no usable GIS products, there was considerable blaming ultimately resulting in the County Administrator losing his position.

Nancy recognized that considerable turf and organizational issues were involved. She believed the county should not act on GIS implementation until a detailed plan was endorsed and approved by the County Board.

The Lincoln County administrative structure was complex. Not only did Nancy interact with various county officials, some elected and some appointed, but she was also the primary liaison with the 27 member County Board and various County Board committees. Nancy thought at times that it was similar to working for 27 individual bosses while relying on county staff support, most of whom did not report to her. Nancy believed she was fortunate to have a County Board Chair that not only had an interest in implementing GIS but also had promised to work to find the necessary resources.

Joshua Pippen served as Nancy's Administrative Assistant. Joshua had been an employee of Lincoln County for over 12 years and had served in various offices including the Zoning and Health Departments. He had provided a wealth of insight of the functioning of Lincoln County's organization and operational history.

3. Geographic Information Systems in local government

Geographic Information Systems (GIS) are a powerful technology for displaying spatially related information for many disparate uses. Huxhold and Levinsohn (1995) defined GIS as "a

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