

**University of Dayton**  
**MIS 365, Information Systems in Organizations**  
**Systems Case Discussion**

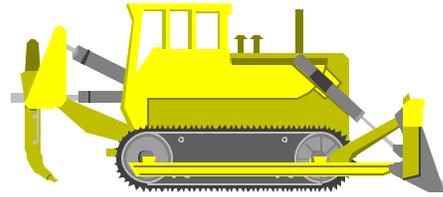
**In-class discussion questions**

1. What are the problems at Wilco?
2. What do you believe to be the most pressing problem facing Wilco? Why?
3. What do you think should be the scope of the current project? Why?
4. What do you think should be the priorities for implementing the system and its applications? What makes you think so?
5. What other kinds of applications might be built into the system in the future?

---

**Wilco Construction Company**

“State Qualified Contractors”



---

**Cast of characters**

Jack Wilson, Partner

Bob Wilson, Partner

Frank Borman, Job Site Supervisor

Mary Wilson, Office Manager

Sue Wilson (Jack and Mary’s daughter), Commerce Undergrad (MIS Major) at Massive State University

**Background**

Wilco Construction Company is a State Qualified Highway Contractor in Ohio. The company got its start about 20 years ago when Jack and Bob Wilson decided to go into business together rather than work for other companies. Both Jack and Bob were veterans in the highway construction business, having worked for larger firms for several years prior to setting out on their own. Wilco will take on any road construction job within their capacity, however, they specialize in small bridge projects. They will also do related construction jobs for local governments or private concerns, such as setting beams, pouring concrete foundations, or large-scale landscaping.

In its early days, the firm benefited from two major advantages: Jack and Bob’s experience in the field, and extremely low overhead. In fact, the brothers did much of the work on the early projects themselves, with the assistance of Bob’s friend Frank Borman (who he met while in military service), and a few hired laborers. Many of the laborers who worked on those early projects (and/or their children) are still with the firm today. Jack’s wife Mary served as bookkeeper in the early days, and took over the office management duties a few years ago.

While there are others, Wilco’s major client is the State of Ohio, Highway Division, which accounts for approximately 90% of Wilco’s business (the rest is divided between private work and city, township and county government work). Projects are allocated by the state using a competitive bidding process: Wilco and other companies bid on various projects let by the state. The company with the low bid receives the project. They are then paid by the state at the completion of various stages of the project, such as foundation, structure, deck,

roadway, drainage, and final completion. State construction inspectors who are assigned to every state highway job assess the completion.

In a good year, the company will win about 4-5 road building projects, worth roughly 1 million dollars each. The company can expect between 3.5 and 5 million dollars in gross revenue in a given year. Net revenue, after salaries, other expenses, and taxes, can be expected to be between 5-10 percent of gross revenue.

While the core business hasn't changed much since Jack and Bob bought their first backhoe 20 years ago, the legal and regulatory environment has changed significantly, leading to a marked increase in the amount of paperwork. Mary has noticed that she spends a lot more time in the office than she used to, just to keep up. In particular payroll, which Mary has traditionally done by hand, has become an extremely complex undertaking. The company would like to expand its operations, but the sheer complexity of complying with various State and Federal wage scales and regulations (see the work and the environment, below) makes this quite difficult given the present system of information management. At present Wilco employs about 50 workers.

### **Organization**

Wilco has a fairly organic structure, in that there are very few official titles, and the titles do not really mean anything. While Jack and Bob make the strategic decisions and manage the job sites (along with Frank), Mary handles the day-to-day operation of the office. She is the sole employee in the office, and nearly all of the information in the firm at one point or another will pass through Mary's hands. Mary handles anything not directly related to administration of a specific job site. Consequently, she is charged with a great deal of responsibility in the company.

### **The work and the environment**

Most projects proceed in the following manner. Every month, the State publishes "the book", which highlights the projects to be let that month. The company requests plans for jobs for which they may bid. Jack, Bob and Frank review the plans and at least one of them makes a site visit. The bids are then completed and submitted to the state. During the bid writing process, suppliers for various line items (concrete, steel, paving material, paint, etc.) are contacted for their prices. Since the suppliers are qualified by the state as well, this is a simple matter of calling up and asking for the unit price for the material. In fact, since the suppliers are privy to the same information as the contractors (as well as who has requested plans), they will often call up Wilco, with the total cost (unit cost and amount already calculated) for a line item on a particular job.

If Wilco is "low-bid" on a project, they assign a supervisor, who is responsible for the site administration. The supervisor (Jack, Bob, or Frank) takes a crew to a job site, and accomplishes the various tasks needed to complete the job over the few months that the project will run. The job site supervisor is the final authority on the administration of his particular job. The client will also assign an inspector (usually an administrator and/or an engineer) to the job site as well. Equipment and trucks are owned by the company, which can be moved to the various job sites by tractor and trailer. In some cases, the job site supervisor needs a piece of equipment that is too specialized for the company to need on every job, hence equipment is sometimes rented.

Wilco Construction is an open shop, that is, employees may or may not belong to a craft or trade union. Jack and Bob believe that the decision to join a union should be up to the employee. The bulk of Wilco's employees are not union, however, simply because there usually is not enough specialized work within one trade to keep any worker busy all of the time. The State mandates that all workers be paid a union scale per hour rate based on the skill classification for the job that they are doing at any given time. Consequently, there is no financial advantage to joining a union. The varying pay scales make for a complex payroll calculation. For instance, if a worker spends 2 hours as general labor (\$11 per hour), 3 hours as a carpenter (\$12 per hour), 1 hour in masonry work (\$13 per hour), and 2 hours as a heavy equipment operator (\$15 per hour) in a given day at a given job site, then their wage would be calculated by taking the amount they earned in each classification and summing those totals. In this instance the worker would gross \$101 dollars for that day. Additionally, the wage scales can change from job to job (based on distance from the nearest union hall). For example, on a job 10 miles from a union hall, the union scale for an iron worker would be \$14 per hour, while for a job 50 miles away from a union hall, the scale for an

iron worker would be \$15 per hour. The scale for each job is supplied by the state with the construction plans. Employees working on non-state projects (or at the shop) receive \$10 per hour, regardless of job classification.

Wilco's workers are extremely flexible, and move from skill to skill and job site to job site on a daily, even hourly basis. The only constant at a given job is the job site supervisor. For example, last week when Frank's crew was getting ready for a big bridge deck pour, Jack spared a few of his workers to help out, as his project was temporarily delayed (heavy rain had flooded a footer hole, which had to be pumped out before work could proceed). Consequently, a worker may have worked at multiple sites, in up to 5 skill classifications (general labor, carpentry, masonry, ironwork, and equipment operation), in any given week. All of this has to be taken into account to generate a payroll statement. The job site supervisor is responsible for keeping track of most of the movement of employees from job to job and site to site, however, trusted employees who have been with Wilco for several years keep their own time cards. At any rate, all information relevant to payroll eventually gets turned into Mary.

Recently, employment equity legislation has also become an issue in the construction industry. Currently, legislation dictates that employers use certain percentages of visible minorities and women for each job skill classification on each job. A report stating how many hours (on each job, in each skill classification) were worked by women and visible minorities has to be sent to the Ohio Equal Employment Opportunity Commission (EEOC) every two weeks to demonstrate compliance. Currently, 10 per cent of all hours in each skill classification at each job (although the wages are not consistent across jobs, the skill classifications are) has to be worked by a woman or visible minority to be in compliance with the regulation. Failure to comply could mean that Wilco would be stripped of its qualification, making it ineligible to bid on state contracts. In addition, as governments change, the legislation changes, and hence the reporting requirements change as well.

### **The planning meeting**

Once a week, on Saturday morning, Jack, Bob, Frank and Mary have a planning meeting to discuss issues related to completing the various jobs, and to lay out general strategy. Mary mentioned the payroll and the EEOC compliance issues. The payroll issue was a knotty one, however, the EEOC compliance issue really got Bob and Jack's attention. While Wilco has been putting both women and minorities to work, they had no convenient means of generating the compliance reports to prove it.

Frank brought up another issue, related to payroll. Some of the workers were asking questions about their paychecks, suggesting that they were perhaps being shorted hours. All four principals at Wilco knew this is nonsense (as did many of the workers). The problem was that the complexity of the calculations used to derive the checks made it difficult to see a direct correlation between hours and pay, what with taxes and all. A complete run-down of hours, jobs and sites to attach to each worker's check each week would solve the problem, but it would fall to Mary to complete such a form for each worker each week, and she is already too busy.

Mary thought that part of the solution was to hire a new assistant to help with the office work. Obviously, some changes would be required in work hours reporting to prepare the biweekly EEOC compliance reports. She decided to ask her daughter, Sue Wilson, an Commerce undergrad at Massive State University majoring in MIS, to look over the situation and make some suggestions. Jack, Bob and Frank agreed that this would be a good idea.

Once action on the payroll and EEOC compliance was decided, the discussion moved on to equipment, vehicles, tools and inventory. Wilco (like many contractors) has a significant amount of material, small tools, heavy equipment, and vehicles. Jack, who handles the administration of Wilco's maintenance shop and grounds, has mentioned that simply keeping track of the maintenance of all of the vehicles and equipment is getting to be a difficulty. This can lead to a neglect of maintenance, with potentially disastrous consequences. Recently, one of Wilco's cranes was labeled a "menace to society" during a surprise visit by an Occupational Safety and Health Administration (OSHA) inspector, who suspected structural weakness in the boom. This resulted in a \$2,000 dollar fine. In addition, small tools, parts, and other items thought to be missing appear (and then disappear) from time to time. Frank suspects that the items are simply moving from truck to truck (as needed on one job versus another), but clearly a means to track tools, equipment and inventory would be quite useful.

Next the discussion turned to perhaps moving one of the employees up to supervisory status. Jack, Bob and Frank had identified several employees that they thought had the requisite technical and social skills to push a job to completion. This would also allow the company to increase the volume of work, and earn more income. It was agreed that this should be tabled until such time that the company could handle its current business, however.

### **Mary's chat with Sue**

When Mary put the idea of helping her parent's firm to Sue, she agreed to help, then went to see her academic advisor at Massive State University. She advised Sue to make it a summer project, so that it would have a definite stopping point. Further, Sue and her advisor agreed that the system would have to be simple and readily expandable, as the processing needs changed. In addition, any future expansion may have to be done by non-technical people.

When Sue came home for the weekend, Mary discussed the problems that had been discussed at the meeting. Adding an assistant would cost about \$25,000 per year plus benefits, and the office would have to be expanded to accommodate the extra worker. Jack and Bob weren't happy about the extra expense, but had come to regard it as a "cost of doing business".

Having worked some for Wilco while she was in high school, Sue had a pretty good grasp on the issues her mother faced in the office. Sue knew that payroll had been a time consuming task when she did it, and now the work was going to be increased even more. The irony was that most of the work appeared to be merely processing and formatting of the same basic kinds of information.

Sue suggested that she could do the work, which would be a good experience for her. Mary was quite enthusiastic, but Sue cautioned her that things would have to be taken slowly, and that there would be a pretty steep learning curve. Further, some analysis would have to be done before a decision could be reached on what kind of information system would indeed handle Wilco's problems. Sue agreed to take on the project, and promised to get back to her mother with some ideas after she finished her systems midterm, which was coming up shortly.