Wicked Problems and Their Temporary Solutions

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Introduction

Nancy closed her folder and smiled as the other members of the facilities committee left the meeting room. She was proud to be on this team, which finally solved a major problem at her small university – new housing for graduate students. The students were going to get modern apartments, the school would get more students, and the town would get more jobs. Everyone was going to be happy. Still smiling, Nancy got up and headed toward the cafeteria for a latte.

Then Nancy woke up. What a nightmare! The past two years had been spent putting out one fire after the other – and the problem they thought was resolved remained, and in some ways, had become even bigger.

How in the world did new apartments for graduate students become such an issue? Their small town didn't offer much in the way of attractive student housing. Truth be told, the university was becoming less competitive in several areas, so it was no surprise that the administration, student groups, and facilities committee were able to agree on a plan to build a new apartment complex for graduate students. There was even going to be an embedded librarian and a small library in the complex. Nancy was already planning her article for the journal of the state library society.

Then reality hit. When the complex opened, rents were higher than in the community. Student groups spoke out, protested in front of the administration building, and occupancy was low as students stayed in the affordable housing in town. New students who had been attracted to the school, expressed disappointment that housing would now take a bigger part of their budget. The issue spilled beyond the campus to the local media. There was enough frustration, confusion, and unhappiness for everyone involved.

At its last meeting, the committee thought it had resolved a pressing problem, but it had only created different problems. Now it wasn't just housing, but enrollment, retention, reputation, student morale, the local economy… It never seemed to end. Why hadn't the committee realized that these issues were all connected?

One reason the committee members didn't see how multiple issues were interconnected is that people tend to overlook that they function in a *system* - coordinated parts for accomplishing a set of goals. We can define the system and our organization's place within it. For example, we might say the new student housing is part of university's entire housing system, which can include food suppliers, kitchen staff, janitorial staff, student life workers, and security. Alternatively, for some analyses it may be more useful to include the new housing in a system made up of all housing at similarly sized institutions. We define the system and we can redefine it as different problems are addressed.

Systems and their wicked problems

Because complex problems are, well, complex, with multiple, interconnected parts, they have been called 'wicked.'[1] This is contrasted with tame problems.[2] With tame problems, the problem is one thing, the solution is another. The proposed solution can be tested and assigned a value that is true or false, or correct or incorrect. Finally, with tame problems, you know when you're done.

What does this look like in real life? An example of a tame problem might be my need for a pair of shoes. I have several solutions available, such as buying, borrowing, or even making them. I can determine which solution is the best for me and I'll know when I'm done because I'll have shoes. I can test the proposed solution – I have shoes or I don't. But a wicked problem is more complex. Every formulation of a wicked problem corresponds to a statement of the solution and vice versa. Solutions are not correct or false, but rather, are good or bad to varying degrees.

Consider public housing in Chicago. Redlining, deed restrictions, and discrimination resulted in blacks being unable to move into their choice of available housing and they were restricted to certain areas where the housing stock had deteriorated over time. Eventually, policy-makers sought to address this issue by building large apartment buildings. The

housing authority screened tenants, who were supposed to be there for only a few years. But over time, money and oversight dwindled and anyone could move in. Before long, criminal elements took over and 'the projects' became islands of crime and desolation. Families and the elderly were isolated. Those who wanted to save money to relocate were stymied by a welfare system that discouraged saving, so that families on welfare either couldn't save the necessary funds or did so knowing that they acted outside of the regulations. Instead of temporary housing meant for people working their way out of poverty, the projects became home to generations of those who could not escape or who used them for their own nefarious purposes.

Replacing run-down housing with modern apartments seems like a good idea. If you think about the problem (creating affordable, safe housing for the poor), it appears that the solution is new housing – and lots of it. What planners didn't consider was that new housing was only part of the problem. Reduced funding for the housing authority meant that instead of the more expensive midrise units, tall apartment blocks were built. Screening was discontinued. Maintenance was often deferred – a nightmare when elevators don't work in a 20+ story building. Social and behavioral problems attached to living in the isolated high rises. High rises can have negative effects on the individual and the community, since they separate people from each other and reduce the amount of physical activity that they get.[3] They can be a health risk - recent research has found that those living higher than the 25th floor were more likely to die from heart attacks because EMTs could not reach them in time to save them.[4] And in final proof of the problem's wickedness (in more ways than one), once policy-makers decided that it was time for the old projects to go, the homes of the poor and struggling were demolished and the area transitioned to mixed use housing in which very few of the former residents were allowed to live.[5] Were the high rises a bad solution in and of themselves? At first, they were an improvement for the tenants. But providing the building was only partially addressed the all the other interconnected problems that came with it.

When wicked problems are compartmentalized, unintended consequences are apt to occur. For example, the quick fix of housing, and especially the type of housing provided, resulted in: vertical ghettos; concentrated crime; and poor living conditions for everyone, but especially the most vulnerable - children and the elderly.

In our example of student housing, unintended consequences such as the student backlash against the very apartments meant to benefit them, can happen with any attempt at problem resolution, but they are most likely with wicked problems because of their complexity, the inability of decision-makers to see that complexity, stakeholders' varying views and allegiances, economic and social concerns, and the fact that there is no one correct solution – despite what decision-makers may think.

Consider another wicked problem, perhaps closer to home. How do we educate for the professions in information? One solution has been the Information schools with their focus on technology, human-computer interaction, and 'sexy' concentrations such as information economics, digital preservation, and challenges in social computing. None of these paths is correct or false for a school to take, but rather good or bad to varying degrees.

Remember that each attempt to solve a wicked problem is a one shot deal, meaning that once you intervene in the system to solve your wicked problem, you can't go back to the initial problem because the initial problem no longer exists. The situation has changed and new solutions will be necessary. So, if your library program becomes an 'information school,' it will be almost impossible to return to a traditional library program. As time passes, students and employers will have different expectations about what such a school should offer so that it would be impossible to return to the curriculum that existed before the transition to an information school.

Wicked problems cannot be avoided by adopting best practices. I used to warn my management classes about the dangers of whole cloth adoption of best practices from other organizations without considering the unique aspects of their own organization. Organizations differ in staff, resources, constraints, and networks, among other things. You never know if their solutions, their best practices, will work for your organization. Similarly, solutions can't be transferred from one wicked problem to another. So, solutions that worked for the programs at Syracuse, Michigan, or Texas won't work in their entirety for other library programs.

Finally, those who try to solve wicked problems are responsible for their actions. For example, if a library school's view of the future of information professions is wrong, graduates of the new, untried program may be unable to get jobs. The reputation of the

school may be tarnished. Staff and faculty may lose jobs. Problem solving has consequences and usually someone is held accountable. As a manager, it will probably be you.

Problem solving in a complex system

People who don't use the systems approach tend to divide and compartmentalize problems. They fail to see the inherent wickedness in the problems they attempt to solve and are surprised when the solutions don't work in the long term. A function of management is to determine *when* the system needs to be changed and *where* to intervene in the system. Returning to Nancy's example, one obvious place to intervene would be the rent structure and to set them at a competitive rate as soon as possible. This would make the students happy, but could make it difficult for the university to repay its bank loan. Reducing the rent may mean taking from funds for other, equally important, purposes. Competitive rents benefit students, but create additional problems that will need resolution.

Conclusion

Decision-makers often think the work is completed once they find a 'solution.' They move on, and over time the sands shift, markets change, peoples' needs and wants evolve, and technology changes. The solution that worked in Year One may no longer work in Year Six. Revisit wicked problems as changes and reactions in the system become manifest, and recognize that they may require new infusions of time, attention, and often, money.

It is not managerial failure to revisit a problem from the past. Rather, the failure is in not recognizing that in complex systems with wicked problems, 'solutions' usually come with unintended consequences and are rarely permanent.

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