

Behavioral Systems Analysis: Fundamental concepts and cutting edge applications

Part VI Illustrative Applications

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Part I of this series of articles:

- describes behavioral systems analysis as an approach that draws from two disciplines, behavior analysis and general systems theory
- asserts that knowledge from both disciplines is important for practical work because
 - behavioral knowledge about how each person will act within a specific environment and
 - general systems knowledge about how organizations and other living systems functionis essential in today's complex world
- describes $B = f(O, E)$ as the fundamental concept of the biological, social, and physical sciences, psychology, and general systems theory.

Part II provides a way to analyze any activity into 3 essential components, using the 3 term contingency. The 3 term contingency is the smallest meaningful unit for analyzing individual performance. Part II then describes three different service models used by successful consulting firms. Each firm, in a different way, helps managers apply the 3 term contingency and associated principles within business environments.

Part III describes the smallest meaningful unit for managing organizational performance, the adaptive system. The adaptive system concept is the basis of the total performance system diagram that shows the 7 essential components of an adaptive system. If any one of the 7 components is weak or missing, intelligent performance is very difficult or impossible.

Part IV describes the Value Set, a concept from general systems theory that helps keep the most important organizational variables in focus. It then introduces 3 additional general systems concepts, the concepts of homeostasis, interconnectedness, and living system. These 4 concepts plus 3 described in Parts I, II, and III, support the notion that long term success for any organization in a changing world requires managing it as a whole, not as a collection of separate parts.

Part V describes three cutting edge applications, two in the public sector (a reading clinic and a graduate program) and one in the private sector (a high tech company). The applications are cutting edge in that they explicitly apply behavioral systems analysis to manage a total organization.

Part VI describes two additional cutting edge applications, one in county government and one in a small business.

Introduction

The next applications are in local (county) government, a small (4 employee) business. The local government application is included to illustrate some of the real constraints involved in doing behavioral systems work; local governments are pushed this way and that by special interests, believe they are under-funded, and live the bureaucratic reasons behind the saying: “You can’t fight city hall!”

The very small business is the story of a transformation from a failing to a successful business. I should also confess that the people leading the work all studied behavioral systems analysis with me at Western Michigan University

Application #4—An Application in County Government

The prosecuting attorney in Kalamazoo County faced a problem that many businesses would like to have: he had too many customers. Several local police departments were doing a good job of arresting people suspected of having broken the law. The Office of the Prosecuting Attorney was charged with presenting the case so that the courts could determine whether or not the suspicions were correct. The caseload had been increasing steadily for several years; however, the budget of the Office was not keeping pace. It was not possible to hire enough additional attorneys to handle the load; opinion polls and news editorials indicated that the public did not wish to have the police to apprehend a smaller portion of the lawbreakers, nor did they approve of a trend toward resolving cases by plea bargaining, nor did they approve of the County Commissioners putting more tax dollars into the Office’s budget.

The prosecuting attorney wanted to maintain or improve the quality of the Office’s work while improving the number of cases handled, and without requiring the attorneys to work even longer hours. He and the attorneys believed that most attorneys could easily get higher paying jobs and would if they had to work harder for the lower pay they received. The prosecuting attorney familiarized himself with the quality management literature and talked to several vendors who were willing to help him with the problem. None of the vendors were able to convince him that they could solve the problem.

The prosecuting attorney, therefore, funded an internship that enabled a doctoral student, well versed in behavioral systems analysis, to work on the problem for two years. The general approach was to document and improve some of the internal processes, help people measure effectiveness, and have people work in teams to solve specific problems as well as to get more work done through processes revised to support teamwork. Prosecutors tend to bring their adversarial skills to the office which makes it a bit difficult to establish teamwork. In addition, the prosecuting attorney, who unabashedly used a command and control management style, had to change to a participative management style. Not because he wanted to or even because management experts advocate doing so but because it was the only way to implement some of the changes that he agreed were necessary. It was especially difficult to learn to reward bringing problems and issues to the surface rather than inadvertently rewarding hiding problems and blaming others.

The intern, Tim Nolan, used process mapping and project management technology and used his knowledge of behavioral systems concepts to facilitate efforts to specify and measure quality of work performed within specialized service areas. His major role, it turned out, was as a behavioral coach, providing social reinforcement and suggestions to individuals and teams.

Tim learned to work within the constraints of the heavy workloads, limiting his initiatives to bare essentials, setting priorities among necessities, and celebrating small successes. A team of volunteers was formed to celebrate successes, partly to provide greater recognition of successes and partly to build positive recognition into the culture. Another significant small success occurred when two of the teams began seeking and obtaining “customer feedback” through use of simple forms filled out by clients. Both internal (processing system) and external (receiving system) data were adequate to support hard work but inadequate to support improvement. (That is the situation in a great many workplaces.)

The overall success of the project was both extraordinary and limited. Anecdotal evidence was very positive but objective data were limited. For example, representatives of a consulting firm who had done a study before the internship and another during the second year of the internship reported that they had never seen as much positive change in a prosecutor office in such a short period of time. The prosecuting attorney’s new participative style is obvious, not only to him but also to everyone in the office. People report significantly improved working relationships among attorneys, among support staff, and between support staff and attorneys.

The anecdotal evidence is strong enough to support the notion that the project was highly successful. I heard some of the anecdotal reports first hand in conversations with attorneys and staff. I consider them encouraging but not convincing without better data. Even if the rumors of success are accurate, the success probably cannot be sustained for more than another couple of years unless better processing system feedback and better receiving system feedback mechanisms are established. If the voters elect a different prosecuting attorney who puts his or her own preferred management style—or management superstitions—to work, the successful practices and procedures developed by the current staff will be eroded.

On the other hand, two actions by the prosecuting attorney make the success more visible and more likely to be sustained. He sent an unsolicited and extremely positive letter of recommendation about Tim Nolan’s work. He recommended to a new county administrator that the administrator recruit another intern “like Tim” to support a total quality initiative in the county. There was no one just like Tim (who is now a consultant with CLG, one of the firms mentioned in Part II). Peter Dams, though “not Tim,” served ably as that intern, once again taking a total system/behavioral systems analysis approach to the task.

Peter completed his dissertation at the county during the internship. The topic of the dissertation was the validation of a new internship model. The typical internship has the intern working under the close supervision of a mentor at the internship site. Dams' model is for an internship, like the ones Tim and Peter had, in which the intern serves as a technical expert who receives technical mentoring only from the university and not from the site. The literature on internships mentions that one of the benefits to the site is that interns often bring in new ideas (or cutting edge technology.) That benefit is likely to increase in value as the pace of innovation increases, which is one of the reasons faculty members approved the dissertation topic.

The dissertation reports projects Peter supported, all of which have satisfaction data from the internal clients and a few of which have reasonably good objective data. The dissertation also includes a listing and examples of specific behavioral systems technology that he used during the internship. These include my Total Performance System/Adaptive System diagram and a one-page job aid for generating measurable mission statements, Geary Rummler's Super-System diagram and Cross-Functional Process Map (Rummler, G. & Brache, A. 1995), and Tom Gilbert's Behavior Engineering Model (Gilbert, T. 1996). Specific tools were introduced into the organizations and used by persons other than the interns. For example, the county's new organization chart closely resembles Rummler's Super-System diagram.

I describe the work in the prosecutor office and the county as cutting edge application, not because the data about success are convincing but to present the work in a realistic perspective. Systemic change is typically messier than it might appear from glowing case study reports in the popular press. The great strength of behavioral systems analysis is that we have the tools to deal with the very human and messy beginnings and a theory and technology that is powerful enough to guide us through a sustained effort. The next case involves clear results that have been sustained for several years in a small business.

Application #6--An Application in a Small Business

Solid Flue sells and supports chimney relining materials and services. Solid Flue's relining process involves inserting an inflatable tube into a chimney, pouring a special cement-like relining material into the chimney, and deflating and removing the tube once the material has hardened. Solid Flue earns most of its money by selling the special relining material. Solid Flue's customers are, typically, contractors who remodel homes or repair fire-damaged homes. The relining business is a profit center within the contractor's business.

A critical business issue brought the owner of Solid Flue, Doug LaFleur, to behavioral systems analysis. The business, originally owned by Doug's father, had been losing money for some time. Doug, his brother, and 3 others were the employees. For a variety of reasons, detailed in his book *The Transformation*, Doug had decided to purchase the company from his father. His business problem was clear. He had to find a way to make the business profitable again, profitable enough to pay his father enough money to sustain his father in retirement, feed Doug's growing family, and meet the payroll. Doug was well-prepared for challenges: he had been the starting quarterback of his college football

team, had several years of experience in outside sales work for a large company, had just earned his Masters in Business Administration, knew the Solid Flue business, and knew most of Solid Flue's customers personally. All that preparation enabled Doug to accept the challenge but it did not tell him how to meet it. It was clear what had to be done. He had to improve customer relations—customers were leaving—improve cash flow, and turn a profit it, and do all that in a hurry. But it was not clear how to do that.

He learned how by taking courses in behavioral systems analysis. As he worked through each course, he took a bit of technology from it and applied it to his business. The turnaround began during the first weeks of his first course when he learned a strategy for returning to profitability. In each course that followed, he acquired additional technology for applying the strategy. The technology, unbeknownst to Doug at that time, had been designed so that each piece fit with each other piece and supported it. The results were related to value set variables and the effects were cumulative.

Doug's strategy was simplicity itself: he had to assure that his clients' profit centers were profitable and successful in increasing their business. The more success they had, the more product they could buy. More of them would continue to be customers and the cost of recruiting new customers would go down. Please notice that his strategy changes the nature of his business: Doug had to become a business consultant rather than "a chimney guy." Rather than merely sell to them and service the account, he had to help them sell to their customers more effectively. After that, he had to help them deliver what they sold more efficiently and effectively.

His clients know much of what Doug had learned while earning the MBA. Like most owners of small businesses that I have known, each fiercely believes that he knows more than Doug does about the nuts and bolts of running his business in his community. Nevertheless, Doug's business became profitable within the first year because more and more of their businesses became more and more profitable. Doug then set about developing and refining the delivery system he used to provide the business consulting services. More details about what he did and how he did it are included in his book. (It is his book, though he acknowledged my role in sharing behavioral systems analysis principles by including me as an author.)

His approach followed closely the lessons I had learned from B.F. Skinner: Know the O, know the E, manipulate E variables to improve O's behavior (B). In this case, the O was Solid Flue and Doug knew it well at the beginning. The E, was his customers and the business environment they operated in. He then had to learn how they could operate their organizations (O) successfully in their environments (E), viewing each of their businesses as adaptive systems.

He worked with his customers to get agreement on the value set variables they had to manage. He designed his delivery system around those variables and what he knew about the feedback, coaching, and social support they would require to manage those variables. There were two key parts to the delivery system, client group meetings and weekly performance feedback. The weekly feedback operated like this: they faxed him

the data, he sent them back two items, one with graphs that showed trends in all the key variables and one that offered congratulations, comments, and suggestions.

The quarterly client group meetings were structured very carefully to provide very specific support and guidance. A client hosted the meeting each quarter. The host shared data, goals, and plans with the group. The group asked questions, made suggestions, etc. and provided significant peer pressure to present data clearly and honestly and to follow through with plans. Doug sometimes presented new ideas or concepts directly related to the host's business issues. Group members looked at the business records and interviewed the host's employees to get their input. Part of the meeting was spent going over each person's business data but the major focus was on the host; the group made very specific and detailed recommendations.

The group meetings plus the weekly feedback graphs provided each business owner with guidance and support for implementing plans and making business decisions. Without telling them directly, Doug was helping them manage their businesses as systems and in accord with principles of behavioral systems analysis.

The title of the book, *The Transformation*, was prophetic. It described the transformation of a dying business into a thriving business. It also marked a transformation from selling and servicing products into a consulting business. What Doug did not expect was that he would also transform his consulting business into one that operates in a very different industry. Doug, the chimney man, is now building a business in the health care industry, specializing in doing for cardiology practices what he has done for his chimney reliners.

There is a strategic reason for the shift. There are a finite and declining number of chimneys requiring repair. On the other hand, there is a much larger and rapidly growing number of hearts that require repairs or other treatments. Could behavioral systems technology be applied to cardiology practices? Putting in a shunt, doing a by-pass, transplanting a heart, or providing less dramatic treatments is much more complex than relining a chimney. The health care industry is very different than the construction industry. Doing your work in a hospital is very different than making a house call to repair a chimney.

But when all is said and done, cardiologists provide services and sell services. Demand for their services is so high that their sales costs are next to nothing. Cardiology patients, like customers everywhere, want services that are better, faster, and cheaper. Better, faster, and cheaper cardiology services would benefit patients, employers, and society at large. That is not over-simplification, it is obvious fact. Cardiologists have a noble mission and it would be nice if behavioral systems technology were up to the challenge of helping them. Doug LaFleur and his colleague, Karolyn Smalley, have accepted the challenge. It is clearly a cutting edge application because it must deal with a large number of difficult system issues that have proven to be quite intractable in recent years.

Conclusion—an invitation to think

1. If you would like to gain insight while practicing, make an adaptive systems/total performance system diagram (like those in Part III) for Doug's chimney business and for a cardiology practice. Compare them. You have almost enough information to do so. Doug had almost, but not quite, enough information to do it when he first began a behavioral systems analysis of his business and when he began with his first cardiology practice.
2. If you wish, make a total performance system diagram for the prosecutor's office and for a county government. You will notice, if you think it through, that the county government has many little adaptive systems in it—or little subsystems locked in a homeostatic balance with what benefited the citizens in days long past.
3. Imagine some of the difficulties you would encounter if you tried to persuade the owner of a business or the head of a county government department such the department that manages the airport, the parks, or the sanitation services that he or she would really benefit by getting regular and systematic feedback from customers.
4. Think about how Doug or Peter or Tim would go about deciding which projects to take on—there are a zillion little problems that people can tell you about. How would they go about deciding which ones to put major effort into? (You might want to think about value set variables, time constraints, and what the clients would and would not expect.)

Part VII describes behavioral systems analysis work in the International Association for Behavior Analysis. The work is ongoing and performed by the Executive Director and her staff. The organization has approximately 3000 members and relies on volunteers to do much of its work. Part VII includes examples of a few of the actual tools that are used in these behavioral systems analysis applications. The tools were the subject of a symposium presented in 2001 at ABA's annual conference. Part VII concludes by mentioning the work of a loosely knit collection of individuals working to simplify and clarify the language used in practice by behavioral systems analysts.

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