

THE ROLE OF INDUSTRIAL ENGINEERS IN
STATE AND LOCAL GOVERNMENT CUTBACK MANAGEMENT

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ABSTRACT

State and local government spending in the U.S.A. has peaked and turned downward. Yet, enough examples now exist to prove that centrally-directed productivity improvement programs with a strong industrial engineering component can accomplish results which mitigate the effects of budgetary constraint. As states, counties, and cities fight to cut costs and maintain service levels, IE-based programs with recognized records of achievement can easily continue, expand, and move into new activities like analyses of contracting out, co-production with citizens, and micro-processor applications. However, for a government jurisdiction that has been forced into widespread cutback activities without a productivity program already in place, there are several reasons why starting an effective program is difficult.

In the early part of the 1970's, when productivity improvement activities in U.S. state and local government began to be advocated widely for the first time since before World War I, the motivation frequently cited was the galloping growth of the non-federal part of the government sector. Between 1950 and 1975 state and local spending as a share of Gross National Product (GNP) grew from eight percent to fifteen percent. Observers saw productivity improvement as a way of keeping state and local government from eating up a larger and larger share of national resources.

GOVERNMENTS IN TROUBLE

Since the mid 1970's, however, the state and local government share of the U.S. economy has peaked and turned downward. Now its share of GNP is at thirteen percent and dropping. State and local employment in the first quarter of 1982 was down two percent from one year earlier. The reasons lie in the American political and economic climate--taxation and spending limits imposed on state and local jurisdictions, dramatic reductions in federal government support, and the recession. Management

initiatives to increase productivity have not been a driving force in the turnaround.

Capping government growth through productivity improvement was an optimistic theory for the 1970's. Now, the cap is on, but for other reasons. Productivity improvement happening because growth has turned into decline is the new reality.

The new era of retrenchment and cutback provides a much more compelling rationale than earlier for productivity improvement activities. The motivation for getting more results for each unit of resource input becomes stronger to the degree that input becomes less available. Given that more resources are not forthcoming, the preservation of long-maintained state and local service patterns is at stake. The political survival of elected leaders is no longer based on what new services can be financed out of the revenue base, but on how well existing services can be maintained.

By way of background, incidentally, evidence from opinion polling suggests that the general public is not against governments providing their traditional services; what citizens want is for governments to carry out their responsibilities with more efficiency and effectiveness. Without necessarily having a deep understanding of the specific action needed, the government's customers--all of us, that is--know that governments could improve their internal workings. Industrial engineers know the specifics as well.

Productivity Improvement Works

Although analytically-based improvements in the way governments' work is done can be carried out by industrial engineers from any organizational position in the bureaucracy, I believe that efforts which are organized in an office which serves agencies throughout the jurisdiction have the best chance for effectiveness. At this level, or at least the level of a

large agency in a particular state, county, or city, IE resources can be matched to a large enough portfolio of problems and opportunities to guarantee that analytic talent is applied where it is most cost-effective.

The most effective centralized productivity improvement programs carry out their work as a series of intensive projects in particular operations where the pre-estimated payoff in each project makes the effort worthwhile. This approach is in contrast to across-the-board management systems approaches which typically bite off more than can be chewed.

There are now numerous examples of states, counties, and cities--as well as departments within these jurisdictions--that have carried out IE-based productivity improvement projects and achieved significant results. Cities such as Phoenix, New York, Washington; counties such as Dade (Miami), Hennepin (Minneapolis), and San Diego; and states such as New Jersey, Pennsylvania, and Washington are examples of jurisdictions that have shown that IE-based productivity improvement efforts pay off. Public interest groups such as The Council of State Governments, International City Management Association, and National Association of Counties; research centers such as Public Technology, Inc. and the National Center for Public Productivity; plus many private consulting firms all have files loaded with case study examples of successful productivity programs and projects from throughout the U.S.A. Through technical assistance programs, consulting engagements, career mobility of professionals, and information exchange services such as Control Data Corporation's Local Government Information Network (LOGIN), good approaches are getting around. Some productivity programs are even surviving changes of political leadership, becoming institutionalized, and building new results on a foundation of experience accumulated over a period of years. In summary, many states and localities are both learning from their own experiences, and learning from each other.

No Quick Fix

In examining the evidence on what makes these productivity programs work, one finds a number of characteristics that do not make possible the employment of such programs as a quick fix for severe fiscal trauma.

First, productivity improvement programs typically require months and years of time to produce lasting, beneficial effects because of the internal learning curve. Individual projects take time to complete, and time is required to select and implement new projects. Achieving permanent

improvements usually means the time-consuming requirement of including the workforce in planning and implementing change.

Second, an up-front investment is required to get a new productivity program started, either for recruiting and orienting new staff, or for training existing staff. Also, investments are needed for funding new equipment or software that implement improvement recommendations. In times of fiscal stress investment dollars are hard to find, even when justified.

Finally, given that workforce involvement is important to success, experience has shown that participative approaches do not work well in environments where members of the participant group are in danger of soon losing their jobs.

Aside from these parameters of the productivity improving process in government jurisdictions, there are causes of the state and local government fiscal crisis that fall outside the scope of an IE-based productivity improvement program. Typically heavy government expenditures for pensions, for entitlement payments, for interest on debt, for "untouchable" or "uncontrollable" parts of the budget (e.g. independent school districts or politically powerful fiefdoms of certain appointees), and for construction projects already underway, are spending categories that would typically fall outside the scrutiny of a productivity improvement program staff. Also, many jurisdictions have in an earlier growth era built service and regulatory programs that even if operated efficiently would outstrip the revenue-raising capacity of the government. Productivity improvement projects can have only a limited effect on problems and issues just described.

STARTING VERSUS CONTINUING

Given all of these caveats about the limits on the opportunities for an IE-based productivity improvement staff to really make a difference, a generalization emerges: in jurisdictions facing fiscal stress, productivity programs are relatively easy to continue and even expand if they have been underway for some time and have established a record of achievement. On the other hand, effective IE-based productivity improvement programs are difficult to establish from scratch in an environment of budget cutback.

Continuing a Program

On-going programs can provide examples of improvements in the operations of the jurisdiction. Productivity improvements are for most politicians and citizens hard to understand if not downright

unbelievable in the absence of concrete examples, with names of real agencies, and before and after measurements of what the gain was. In general there is no citizen pressure for "productivity improvement programs." While there is demand for improvements of particular services such as police patrol, license processing, or street repair, the specifics of how to achieve these things are left to the elected leadership. As the budget crunch gets worse in a particular municipality or county or state, an already operating productivity program can provide examples of what a government needs more of--services surviving, perhaps even improving, despite the crunch. Or else documented cost savings. Justification for expanding such a productivity improvement program is then self-evident in its own track record.

Furthermore, established IE-based programs with experienced, long-tenured staffs, can as a byproduct of carrying out improvement projects infuse a wealth of knowledge into the top management hierarchy on where budget cuts could be sought, where they should be avoided, and where additional investments in people or equipment would yield returns. Existing, successful programs even have the potential for finding and developing some relatively quick results in cost-cutting or revenue-raising, either by line managers taking action based on inside knowledge of the productivity staff, or because some partially completed projects could be brought to fruition on a crash basis.

Starting is Harder

On the other hand, if an IE staff is not already in place when the crunch begins, it is not easy to get effective improvement work started as the fiscal climate deteriorates further. Starting a productivity program takes an initial investment that does not have the kind of quick payback so earnestly sought as money gets tighter. A productivity staff, whether brought in from the outside or trained from existing personnel, has a learning curve that is measured in months and years rather than days and weeks. Some patience is required. Even the usual advice to new productivity staffs to pick some quick payoff projects for the first round of effort is easier said than done. Furthermore, there are not many examples of IE-based operational improvements happening and sticking without the involvement, participation, and acceptance of the workforce. This process does not happen quickly in any event, and especially not when a new productivity staff comes on the scene in a period of impending budget cuts.

Another consideration for a jurisdiction in budget trouble that tries to get a program going is difficulty in recruiting if IE

professionals worry about the government organization providing career growth opportunities in the long run, and job satisfaction in the short run. A city, county, or state facing retrenchment is usually not an enjoyable place to work, much less a secure place, much less a place with a future.

All the above is not to say that the facts in a particular government may not run exactly counter to the line of reasoning presented here. A growing, healthy city government could see a change of fiscal climate which causes the elected leadership to change; the new leadership could wipe out a productivity staff as part of the mission to restore fiscal integrity, on the grounds that this staff is not providing "direct service delivery" and is mere "administrative overhead."

In contrast, a county dealing with severe fiscal issues could institute a productivity program as one response to the crisis, and then actually give the program the time and resources it needs to get underway successfully. But it would not be easy. Far more likely is establishment of a high-profile program sincerely motivated by fiscal pressure, but which has expectations, goals, and operating tactics which make effectiveness difficult or impossible.

Going Against the Trend

In general, an effective, analytically-based productivity program in a government with severe budget problems has to operate in a manner which is counter to the general climate. Such a group needs to be growing, mid- to long-term oriented, with high morale, enjoying the confidence of the management and workers where it has projects, able to implement investments in hardware or software in order to generate returns, and protected against political demands for fire-fighting diversions that would drain energy and diffuse focused concentration.

NEW ACTIVITIES

In the current stringent environment of resource scarcity, state and local government managers are paying increasing attention to all the options that are open to them in managing their resources. Productivity improvement in government as in industry means more now than methods improvement, work measurement, and standards development. Resource scarcity has prompted unusually innovative thinking in governments. Industrial engineers can make a contribution to many of these new ways of thinking.

Contracting for Services

One such focus is the contracting of government activities to the business and non-profit sectors of the community. Contracting is not new to governments, but the scope of possibilities is widening. There is virtually no activity of government that is not contracted out in at least a few jurisdictions. Scottsdale, Arizona contracts out its fire department. Boston contracts for street sweeping and collection of parking fines. Lafayette, California contracts out its entire public works function. And so on. Contracting out is no panacea. In the absence of competitive bidding or sound contract management processes, a private firm is not intrinsically less costly to the taxpayers than doing the same work through a government agency. Vigilant reporting by newspapers and television stations, plus periodic general elections can be quite adequate to the task of motivating public administrators to perform their functions efficiently. Furthermore, the increasing recognition of private alternatives to government performance of activities will serve to keep public managers and employees on their toes. Nevertheless, where contracting out is an option under consideration, IEs are well qualified to define service parameters and specifications in request-for-proposal documents, as well as to analyze competing proposals. In Phoenix, the productivity improvement staff quite regularly lets its present operating departments compete with private vendors for the responsibility of carrying out government functions. Sometimes the government option wins in the analysis, and sometimes it doesn't.

Co-production of Services

Another option is co-production, which refers to a more systematic consideration of involving the client in the performance of service delivery. For example, the more neighborhood residents participate in crime prevention activities, the more effective police can be. The more accurately welfare recipients fill out their forms, the more efficient case workers can be. The more that litter is placed in waste containers and the less on the sidewalk, the less expensive waste collection is. Service production systems can be engineered to cause these client behaviors. IE-based productivity improvement operations will increasingly extend the boundaries of their analyses to include the client, customer, and citizen in government activity.

Microprocessor Applications

The computer chip is affecting the lives of us all, and in the government sector the potential is as great as anywhere else. Point-of-sale terminals for managing cash collections of fees and charges, fuel

metering devices for additional controls on vehicle usage, computer-based scheduling algorithms for deploying work crews to meet requests for service from citizens, microprocessor-based coin counting for parking meter collections, hand-held data entry devices to speed up meter reading and utility billing, and personal computers for easier and quicker analysis of data have all found a foothold in state and local government. To the degree that IEs can use this technology in ways that increase productivity, these devices help governments meet the challenge of austerity head on. But, a front-end investment is usually needed. Hard times are not the best period to start confidently the experience of making high-technology investments which are supposed to recover their costs in the future. So it helps when there is already a successful history of analyzing which equipment investments yield savings downstream.

Means and Ends

In conclusion, there are two other important tasks of IE-based productivity improvement shops in state and local government that should not be overlooked. The first is the continuing job of clarifying the relationship between means and ends in government activity. More police officers do not necessarily mean less crime, more asphalt workers do not always mean fewer potholes, and more nurses in clinics do not inevitably mean better public health. In the minds of the general public, and hence in the actions of our elected leadership, the relationship between resources, activities, and results is known vaguely or naively. Education is needed. Especially now that resources for public purposes are scarcer, state and local governments cannot afford to pour money into expenditure categories that do not pay off.

Equity

Last, but not least, IEs in government have a responsibility to recognize and achieve the equity goals of government as well as the efficiency and effectiveness goals. When recession strikes, big city governments cannot move to the suburbs, and northern state governments cannot move to the sunbelt. State and local governments serve poor people, sick people, handicapped people, old people, and children. Employment policies of government usually include providing jobs for people who have less opportunity in private sector employment. These considerations mean that the service delivery systems of government cannot be optimized against pure efficiency or narrow effectiveness criteria. In a civilization where one's first impulse in a crisis is to call either the police or fire department,

the responsibility for holding society together falls heavily on state and local government. Populations that are harder to serve, more expensive to serve, which cannot take care of themselves are not part of the problem; they are part of the solution.

AUTHOR BIOGRAPHY

John S. Niles is an independent consultant on the management and technology of governmental operations. He is based in Seattle, Washington. He helps businesses to develop new products and services for state and local government managers. He also assists state and local governments to understand and use technology--particularly, computers--for improving productivity. One of his projects helped develop and launch LOGIN, a nationwide computer-based information retrieval and messaging service for local governments. Formerly, he was Productivity Program Manager for the District of Columbia Government, and earlier, a U.S. Naval Officer. John Niles earned his M.S. from the Graduate School of Industrial Administration at Carnegie-Mellon University, and his B.S. from the Massachusetts Institute of Technology.