SYSTEMS PROBLEMS IN THE CITY

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April 1972

P-4821

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It is early in the morning, and "Systems Problems in the City" seems a formidable topic, so let me begin by telling you two brief stories. I'll try afterwards to elicit some lessons from them.

Several years ago, in a large city on another coast, a group of analysts --engineers, mathematicians, economists and others, many of them members of the organizations meeting here--set out to assist the city government to better understand a number of its problems and to help resolve them. They launched thirty or forty separate studies. I'll tell you about two of them.

One had to do with the police. It started from the question: does the current deployment of policemen make sense? The more the analysts learned, the clearer the answer became. Allocation over space was poor; areas of the city were not covered in proportion to their needs for police service. And allocation over time was worse. Two-thirds of the force was on duty during the hours when half of the crime occurred; the remaining one-third of the force dealt with the other half of the crimes, which occurred during the evening hours.

This imbalance appeared to be required by an old state law which divided the force into three platoons, each to be treated equally. The analysts promptly proposed a procedure for observing the letter of the law, maintaining equality

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*This paper was prepared for presentation at the Joint National Conference on Major Systems held at Anaheim, California, October 25-29, 1971. The Conference was sponsored jointly by the Operations Research Society of America, and the Man and Cybernetics Group of the Institute of Electrical and Electronic Engineers.

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between the three platoons, and still almost doubling the number of men on duty during the high-crime hours. But it was clear that the Policemen's Union, which was militant and powerful, would oppose such a change. And the city's attorneys believed that if the matter were taken to court, the union might well win; the existing procedures had applied for so long that they might be accorded the force of law.

So the administration decided to mount a major public and legislative effort to repeal the old law. That effort would probably have failed -- that, at least, was the guess of most observers -- when the leading newspaper of the city began publishing a series of articles detailing how police actually spent their time, especially at night. One article was accompanied by a photograph showing three or four patrol cars parked together, with all occupants fast asleep. The new law passed.

That was in the Spring of the year, and the Mayor was up for re-election in the Fall. Crime in the streets was one of the principal issues. (Indeed, taken in all its symbolic richness, it was the only issue.) So the Mayor promised speedy implementation of the new law.

But the Police Department moved slowly. In deference to continuing union opposition, only volunteers were to be used to man the new evening tours. It turned out that no patrol cars were available for many of the men to be redeployed. And, after some delay, the Commissioner adopted the position that, in order to make the new system work, several thousand additional patrolmen would have to be hired. That seemed unnecessary to the Mayor's men, but they were now in mid-campaign and preoccupied with other matters. The analysts might have addressed the question, but by then they were viewed by the police as agents of the Mayor, by the Mayor as useful only for providing theoretical solutions, and by themselves as skaters on thin ice, with the day warming rapidly.

So the assertion that many more men were required was accepted by the Mayor's office -- as insurmountable if not true. But there were not funds for

additional men, or for new cars. So the innovation was attempted only partially: mainly in the form of foot patrolmen and only in selected areas of the city. The areas selected were not those whose evening crime problems were most severe; the areas seemed instead to be those in which the Mayor's political problems were most acute. The Mayor was narrowly re-elected that Fall, and by the standards I suppose most of us would apply, he was the preferable candidate.

But what became of the new police deployment pattern, and what were the effects on crime? It's hard to tell. Much of the information one would like is not readily accessible. But the appearance is that two years later, re-allocated men are neither effectively supervised nor well-equipped nor optimally located, and that the effect on crime rates, though favorable, is quite small.

Let me resist for a moment the temptation to generalize from these facts, and tell instead the second story.

The second group of analysts was concerned about the housing problem in that city. There was general agreement among the city officials as to what that problem was: it took far too much time, capital, and administrative energy to produce new publicly-assisted housing units. The period between site acquisition and the moving-in of a first tenant was approaching a decade, costs were bumping up against federal assistance ceilings, construction targets were not being met, and clamor for additional housing was increasing rapidly. Couldn't new technologies be applied, and new production-management techniques? And shouldn't the analysts help identify them?

Interestingly, the analysts thought not. Let me quote at some length from the account of one of them.

> As we learned our way around the agency and the City's housing establishment, we were particularly impressed by two things. First, public discussion of the City's performance with respect to housing problems revolved almost entirely around one issue: how many units of City-assisted new construction were completed each year? Second, in programming

housing improvement, the City operated on the implicit theory that fixing up selected neighborhoods would improve housing conditions in the City as a whole.

As our studies progressed, we became increasingly convinced that the traditional emphasis of City housing policy on new construction was unserviceable in the emerging crisis of the City's housing markets, and that the one-neighborhood-at-a-time approach to housing improvement overlooked important interconnections between local and city-wide housing problems. We came to believe that the attention of City officials should be focused on saving the existing stock from the growing threat of deterioration and abandonment, and that solutions must be sought on a City-wide scale. While the specific problems and fears associated with ethnic turnover were critical factors in the decay of some neighborhoods, the more pervasive problem was that most owners of the controlled housing* were not getting enough revenue to maintain their buildings properly and still earn a reasonable return on capital. The issue that was least clear was the extent to which these revenue shortages were directly due to rent control, as distinguished from the poverty of tenants.

We launched or provided technical assistance in a number of studies designed to probe and test these views. By early the following year, we were sure we had a case, and began to formulate a strategy for City response to the rental housing crisis. In March, we began to brief City officials.... on the nature of the problem as we saw it and on our proposals for City policy.

We recommended raising ceiling rents to cover standard full costs, much in the pattern of public utility rate-setting; a program of direct rent assistance to low-income families to offset the rent increases; improved code enforcement as a check on landlord delinquency; and a special program addressed to persistently substandard buildings, involving systematic diagnosis of the reasons for delinquency and the use of a wide range of treatment options. We provided estimates of program impacts and program costs.

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* The city we are talking about still maintained a system of rent control first adopted during World War II, and it covered the homes of about half the tenants in the city.

It was a long, hard selling job.... Every critical comment by someone whose opinion carried weight in administration circles sent us back to the drawing board. Some disagreed with our diagnosis, or at least questioned whether our evidence was robust. Others were satisfied with the diagnosis but doubted the adequacy of our remedies. Others accepted their adequacy but questioned their administrative or fiscal or political feasibility. In particular, our proposals to tamper with the system of rent control so as to raise rents to cover supply costs were regarded by most as politically impossible.

That our proposals concerning rent control were eventually accepted by the Housing Administration, the Bureau of the Budget, and finally by the Mayor's office is due to a combination of four factors.

1) Our arguments were forcefully presented in a steady flow of briefings and documents.

2) Our principal liaison with the agency was heavily committed to the enterprise and worked with tremendous energy and skill to advance the cause within the agency.

....

4) The visible symptoms of trouble in the housing market increased and intensified throughout this period, so that the issues raised by our work contined to command official attention.

The existing rent control statute was due to expire at the end of March 1970, unless renewed by the City Council. As the winter wore on, the counter-polemics of landlord and tenant organizations became even more extravagant than usual. The City Council, the press, and the public began to demand that the Administration reveal its plans. A newspaper acquired a bundle of draft material that had been circulated within the housing agency, including portions of our work from which it quoted selectively in a series of news stories. The City Council demanded access to this mysterious document; one group of Councilmen sued.... for its release.

With the issue thus forced, in February the Housing Administration sent the City Council a report containing our diagnosis of the rental housing crisis, our prognosis, and our recommendations for remedial action. It was covered by

> what is best described as a neutral letter of transmission -- certainly not a ringing endorsement. The trial balloon was up. About the same time, the Mayor asked the Council for three more months in which to prepare his program; it was grudgingly granted.
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> Finally, in May, the Mayor sent his proposal for rent control reform to the City Council. We were pleased to have it described in the press as "close to our ideas." But it is only fair to say that the basic principle of the reform had been advocated by others, and instead of the rent assistance program we advocated, the Mayor proposed to exempt low-income families from all but the initial rent increases. His reasons were budgetary: even though a good many Administration officials favored the rent-assistance approach, the necessary funds could not be found.
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> The City Council enacted the reforms on 26 June, having (in my opinion) improved on the rent-increase exemption provisions.
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> The prognosis for the other parts of our program package is reasonably hopeful. A great deal of planning has been done for code enforcement reform and for problem building treatment. The major constraint in implementation of these proposals is the capacity of the agency to absorb change: it needs time to digest each new program. Rent assistance is a different problem. While the idea is very much alive, and the housing agency is encouraging further analysis of program costs and delivery methods, a source of funds has yet to be found. It will be interesting to see how far the momentum built up in 1968-70 will carry the City toward a rational policy of housing inventory management.*

I should note, however, that the issue which shortly thereafter began to preoccupy many of the analysts was not how far the city would go toward a rational housing policy, but how long the analytic group would survive, having recommended one. Three months after approving the rent control reform, the City Council began an investigation of the Mayor's use of consultants. Its report, generally quite critical, recommended utilizing the analytic resources of a local university rather than the organization of which the housing analysts were part.

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* I.S. Lowry, Reforming Rent Control in New York City: The Role of Research in Policy-Making, The Rand Corporation, P-4570, November 1970.

These two stories, I think, are representative of many. Then what is it they represent? What do they suggest about the difficulties encountered by researchers addressing urban issues, and about systems problems in the City?

One point it seems to me they suggest is the tendency of our society to look first for problems of efficiency, for economy of means, and the dangers of that tendency. We want more output for a given cost, or the same output at lower cost. We think we know how to get it. And where new technology or new techniques promise those efficiency-gains, the game looks all the more attractive. So we play it -- in business, in government, in warfare. And too frequently -- in government, and in warfare -- we lose. We lose not because efficiency gains are illusory, or unattainable, or unimportant. We lose for two other reasons. The first is that actually achieving those gains requires levels of managerial skill and of persistence which are rarely present in city governments. And the second is that, too often, even when such gains can be squeezed out, they succeed only in strengthening policies which miss the point. They distract us from the dominant -- and harder -- problems, and allow them to go unexamined. The most useful act of the housing analysts, you recall, was their first: their refusal to accept the housing production problem as the right one, and their insistence instead that incremental increases in the production of new housing would be far less important than radical reductions in the premature decay of existing housing. The problem was not to turn the faucet on harder; it was to plug the drain.

The underlying proposition here, I suppose, is that governments are better at recognizing problems than at identifying their causes. And the larger or more complex the system in which the problem appears, the less likely is the first attribution of cause to be right. The analyst who wishes to be useful must be prepared, then, to insist on exploring for himself the conundrum of cause.

The second principle exemplified by the stories, it seems to me, is that even where the right problem (or one of the right problems) is being addressed, the engineer, the operations researcher, the statistician, the economist are very likely to want to address it only in terms of their professional skills, and then to stop. The researcher performs his regressions, or builds his simulation; he identifies an apparent solution. He represents it as lucidly and persuasively as he can to his client. And at that point he believes his job is done. His training tells him he has reached the limits of his professional competence. His stomach tells him the rest is politics, which is dangerous; or management, which is dull. He wants no further responsibility, and he may be offered none. In a sense, this too is a variant of the efficiency-curse. The analyst wants to function simply as an analyst; that is the only function in which he imagines he has a comparative advantage.

But is it? If he has examined even casually the system which must receive recommendations, understands them, explains them, dampens fears about them, pays for them, modifies them, tries them, and lives with their consequences, good and ill, then he must notice that this system is poorly developed in cities; weak, immature, and vulnerable. And it is weakest where the problem is not "Where should we be going?", but "How do we get there -- or somewhere near there -- from here?"

Ends and means interact. And to the degree they are separable, means pose the harder challenge. For both reasons, those who propose ends, and who care about outcomes, must care about means.

The third principle I propose to abstract from those stories is simply that urban problems, like social problems generally, are harder than the military and industrial issues most engineers and operations researchers are

familiar with. They are harder both to understand and to affect.

I do not mean that, analytically, they are tougher than the fundamental issues of business responsibility or of national security policy -- which remain unsolved; I do not believe they are. But they are harder than the problems of cost control, physical systems design, inventory policy, and requirements forecasting with which the quantitative analytic professions are familiar.

Some urban problems which appear tractable enough, like improving fire-fighting, turn out to be virgin territory analytically, in need of pioneering, methodological as well as substantive. The major issues in other problem areas, like housing and welfare, and even police work decline to provide analysts even the entrance point of an accepted set of objectives. In some cases, objectives are disputed; in others, they are ignored. In either event, the analyst lacks any authoritative statement of what it is that must be maximized or minimized, and under what constraints.

And his efforts to obtain such a statement are likely to end in frustration. Urban governments -- unlike industrial clients -- persist in avoiding any close identification of objectives. They must. The purposes of some programs are cynical; the objectives of many more are multiple, and maintaining disparate sources of support for them requires ambiguity. Moreover, men who run for office know far more poignantly than researchers do the odds against getting change actually accomplished. They know, therefore, that large promises made with specificity are invitations to proof of failure two or four years later. Yet large promises must be made. Hence vagueness.

The housing analysis was a case in point. The city in which that work was done spent $800 million annually on housing, but the analysts searched in vain for any description of what that vast sum was intended to purchase. Their response was enterprising and ingenious. Their published report described three alternative objectives for the city's housing policy, and then --

given the unwillingness of the political process explicitly to choose any one of them -- explicitly chose one themselves. Despite all the uproar that report precipitated, no one, so far as I can recall, took issue with the choice of objectives. Indeed, no one appeared to notice that it had been the analysts who had made the choice. But inventing governmental objectives is an uncomfortable function for researchers, and properly so. It is likely to remain a rare and last resort.

And even where the intellectual difficulties are manageable, the actual accomplishment of proposed innovation is typically harder than in the industrial or defense contexts. It is harder because the client's influence on its environment is far more tightly constrained. Obviously, neither military nor industrial organizations operate autonomously. But a city government attempting to change simple work procedures must frequently gain not only the agreement of a powerful union, but affirmative action by a state legislature. (And in the urban case, the union members are also stockholders: they vote.) A city agency's new policy initiatives will typically require the generation of public support, the approval of a city council, funding from both state and federal agencies, and at least the passive concurrence of ethnic or neighborhood or occupational groups with the power to prevent their execution.

In short, then, quantitatively-oriented analysts first encountering urban problems encounter a number of difficulties. They find major issues -- of cause, purpose, effect -- analytically formidable, and minor ones -- of efficiency -- tractible and attractive. They believe that analysts advise, and officials decide and enforce; they learn only slowly that both decision-making and implementation are processes, not acts, and that both require their own protracted participation. And they are appalled, even so, at the ability of bureaucracies, and of the large society, to resist changes which

seem to them so self-evidently rational.

Should they then forget the cities, shifting perhaps to issues even more fashionable, and probably easier -- like those of the physical environment? Clearly not. But if we are serious, if we want to treat urban problems not principally as a source of employment for engineers and operations researchers, but as a challenge to these professions to help improve the conditions in which we live, then I think we must recognize that the challenge is one for which we are not well-equipped, and that meeting it will require changes in the way researchers typically operate.

What are these changes?

First, we need to assemble a far greater breadth of interacting skills. We will all of us continue, like the drunk, to hunt for our lost wallet under the lamp post, not because we're sure it's there, but because the light is good. The corrective is that others see by other light -- and looking under their lamp posts, they may find what we seek, or better: they may help us learn to seek something else. We need, in short, groups in which systems engineers and operations researchers are joined not only by statisticians and economists (and a public relations man), but by sociologists, decision theorists, retired union leaders, students of bureaucratic behavior, lawyers, former State senators, and urban historians. The point here is not merely to get a leg up on the problem of implementation. It is to substantially improve the power, insight, and utility of the recommendations themselves. And to do so by enormously enriching the researchers' own understanding of the nature and sources of the circumstances they see as problems -- by making clear to them, for example, how a policy or procedure clearly ineffective in terms of its stated goals, may nonetheless serve powerful and legitimate but unspoken purposes.

Second, we need new kinds of institutions. Existing organizations can obviously do much of value. R&D firms, commercial management consultants,

university-based urban studies groups, client-funded think tanks, consulting engineering firms -- all have a legitimate and useful role to play. But what I have been arguing, I think, is that if urban services are to be made more effective and urban policies more rational to a more than trivial degree, then two conditions must be met: (1) analysts must provide advice which springs from a much richer body of theory and of experience; and (2) analysts and researchers must be placed in a novel kind of relationship with officials. The analysts must be independent enough to be critical of city policies; they must be insulated enough from daily operational concerns to work persistently on underlying problems, but close enough in their working relations with city agencies to produce recommendations that are timely, realistic, and usable. That combination of conditions is not well met within traditional organizational forms.

The necessary closeness and sense of involvement will depend on the incentives analysts have to measure their success not in numbers of paper produced, or students trained, or new products sold, but in improvements actually accomplished in the government of cities. Providing those incentives and that measure of success will be one task of the new organizational form. The intellectual independence of the analysts will derive partly from accepted standards of the analytic professions. But to survive over time, it must almost certainly be buttressed by funding from sources other than the client. Cities should pay some substantial fraction of the cost. Some sacrifice of a city's resources in order to obtain the work helps insure the necessary interest of officials in its progress and their attention to its outcome. But funding must not be tied too nicely to finding. And given the current budgetary situation of all major American cities, it is clear that no substantial program of policy research or analysis can long be funded solo by any of them. It must therefore be a second function of institutions seeking to work steadily and critically on major urban issues that they

generate -- and qualify for -- additional sources of support. State governments may be induced to do something; foundations something more. But clearly, the bulk of such non-city funding must be derived, in one form or another from the Federal Government.

Let me conclude by noting that a major advantage of the kind of intellectual and financial independence just imagined is that it may make more common a relationship currently almost unknown, but essential, I believe, to any substantial growth in effective governmental use of analytic work. It is the relationship between analysts and legislatures.

When they are drawn to governmental work at all, analytic organizations are drawn to work for the executive branch. Their common clients are the agencies, departments and administrations of that branch. That should not be surprising: those are the entities which actually operate governmental programs, which increasingly are obliged to evaluate them, and which -- if anyone does -- have the funds to commission studies. But information is a constituent of power. When analysts serve only one branch of a government, and the product of their work is accessible only to that branch, prior power relationships are altered. When analyses address problems of minor importance, the effect on relative power will be correspondingly small. But the more significant the analysis, the larger the effect, and the more likely the other branches -- especially the legislature -- will be to observe that effect and to respond. The response will take one of three forms. The legislature may seek to pry loose the withheld reports; or to provide itself with corresponding analytic capacity; or to deny the executive the future use of such a resource. The first course will often be inappropriate and unsuccessful; executive agencies should have the power to assure to analysts and to themselves the confidentiality which makes candor possible. The second is cumbersome, expensive, time-consuming, and unfamiliar to most legislatures. The third is therefore likely to be the reflexive one: deny the executive the use of such consultants. Recall the

position of the City Council faced with the housing study.

But the virtue of having analytic competence in the service of legislatures is not merely that it will blunt attacks on other analysts; it should also improve the quality and utility of analyses performed for both branches. The spur of competition, the anticipation of competent and critical review, the expanded availability of data, all should work toward a quality of policy analysis rarely achieved today.

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So our work is cut out for us. We must begin to understand the city as a system -- as a social system driven by economic and ideological forces. We must learn to interact with city officials on their terms -- as members of a political system which has limited freedom, and small capacity to manage innovation. And we must develop for ourselves new institutional bases for conducting this work.

That is a large task, and it will be a long one. But it is a challenge to which the members of these two societies have much to give.