Neighborhood Indicators:

TAKING ADVANTAGE OF THE NEW POTENTIAL

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National Neighborhood Indicators Partnership

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Planners have long understood how valuable it would be to have a set of recurrently updated indicators on changing neighborhood conditions in their cities. The idea goes back at least to the 1960s, when social indicators had more broadly achieved the status of a fad. Interest waned for a variety of reasons—mostly because the work of actually constructing such systems back then proved to be so costly. In the 1990s, however, advancing technology has for the first time allowed this dream to move closer to reality, at least in a few places, and that is fanning the flames of interest in the topic again.

This paper is an early assessment of the state of the art. It first notes the technical and institutional advances over the past few years that have made computer-based neighborhood indicators systems feasible. Second, it reviews the range of potential uses of such systems, illustrated by a few examples. Finally, it presents ten lessons the author draws from recent experience with neighborhood indicators systems—lessons offered as guides to planners and other local leaders in new cities that want to get into the game.

Most of what is presented here is based on the author's work with the local partners in the National Neighborhood Indicators Partnership (NNIP)—institutions in six different cities that have actually built computer-based neighborhood indicators systems and operated them successfully, in most cases, since the late 1980s.[2] All of them see developing such systems and getting them used in local planning and policy development as central to their missions. The partners' particular emphasis is ensuring that the data are made accessible to and used by community-building initiatives in poor inner-city neighborhoods.

The ten lessons presented here are largely based on the partners' experience.[3] These lessons go beyond just talking about data. They suggest an approach to addressing urban issues, and an institutional context for doing so, that moves starkly beyond traditional practice along several dimensions. The lessons are:

1. Design indicator systems for the explicit purpose of changing things—not just to monitor trends.
2. Develop a single integrated system that can support one-stop shopping.
3. Develop indicators at the neighborhood level—not just for the city as a whole.
4. Build a "data warehouse"—not just a set of files on indicators.
5. Serve multiple users but emphasize using information to build capacity in poor communities.
6. Democratize information—help stakeholders use information directly themselves.
7. Help stakeholders use data to tackle individual issues, but do so in a way that leads toward more comprehensive strategies.
8. Use information as a bridge to promote local collaboration.

9. Use available indicators but recognize their inadequacies—particularly the lack of sufficient data on community assets.
10. Assure integrity in the data and the institution that provides them.

ADVANCES THAT HAVE MADE NEIGHBORHOOD INDICATORS SYSTEMS FEASIBLE

Bauer (1966) defines social indicators as " . . . statistics, statistical series, and all other forms of evidence . . . that enable us to assess where we stand and are going with respect to our values and goals, and to evaluate specific programs and determine their impact." As noted, the idea of developing systems of such indicators was very much in vogue in the 1960s.

At the national level, the idea was being sold by noting the success of the system of national income and product accounts. If national monitoring of economic conditions was working, why not keep track of social conditions in the same way? Recurring monitoring via a system of social accounts should present a sounder basis for setting program priorities, help in establishing clearer social goals and policies, and much simplify the task of program evaluation.[4]

These ideas stimulated considerable interest at the local level as well. Planning texts encouraged more use of data in neighborhood analysis and, in some cities, substantial data collection efforts were mounted to support metropolitanwide land-use forecasting models in transportation planning. It was hoped by some that this sort of data collection would be the leading edge for ongoing social indicator systems in cities.

By the mid-1970s, however, such indicator development was no longer being very actively pursued at the national or local levels. A 1978 review of "urban indicators" concluded that the topic had become "of low priority in most cities" (Flax, 1978). Several factors no doubt influenced this loss of interest, but one of the most important was certainly that costs of data collection and manipulation remained substantial at that time—recurrently running the analytic models and keeping them up to date were simply unaffordable.[5] But circumstances have changed markedly since then. Four factors probably have been most important: (1) advances in computer hardware; (2) address-matching and advances in Geographic Information Systems (GIS) software; (3) advances in the availability of automated administrative data; and (4) advances in local institutional development.

***Advances in Computer Hardware*.** One of the most important trends enabling renewed interest in indicator systems, of course, has been the remarkable improvement in computer capacities coupled with dramatic reductions in their costs. The costs of storing and manipulating large data sets are now a tiny fraction of what they were, even in the 1970s. Computers that would have been regarded as extremely powerful then, even by systems professionals, can now be purchased for well under $2,000. The types of land-use and transportation forecasting models that

proved impossibly expensive to work with on the mainframe computers of old can now be handled easily on desktop computers, and adaptations of them are now coming back into regular use (Klosterman, 1994; Tayman, 1996).

Address-Matching and Advances in GIS Software. Address-matching may well have been the most critical ingredient in the new mix. It became possible with the advent of the U.S. Bureau of the Census' *TIGER* (Topologically Integrated Geographic Encoding and Referencing) system during the 1980s—the output of the joint efforts of the Bureau and the U.S. Geological Survey to digitize patterns of streets and other geographic features nationwide (U.S. Bureau of the Census, 1985). If you have a copy of the relevant *TIGER* files (or more recent updates) and appropriate hardware, you can print an accurate map of any city, showing the street pattern, the boundaries of census block groups and tracts, and other physical features. If you enter the address of a particular building, the computer can immediately locate it on the map. If you enter a larger data file with all addresses where some type of event occurred over the past year (for example, births or burglaries), the computer can quickly locate them and print out totals and rates by census tract, on the map or in tabular form.

Several different GIS software packages are now available that have address-matching capacities built in. All GIS packages can print maps. One of the most user-friendly, and least costly, of these packages is being made available by the U.S. Department of Housing and Urban Development (HUD) for a price of only $249.[6] It offers a simple menu-driven approach that allows novices to produce professional-quality city and neighborhood maps with comparatively little training.

Advances in the Availability of Automated Administrative Data. At the same time, over the past decade or so, most local public agencies automated their administrative records. Before then, neighborhood analysis required adding up totals by census tract from handwritten logs, and that was a remarkably arduous clerical task—so expensive in terms of staff time that it was seldom performed. Today, an agency's data tape with an entire year's record of events can be address-matched and tabulated by computer for any defined set of geographic subareas of a city in a matter of minutes. In most cities, administrative data are available on topics such as jobs, births, deaths, crimes, incidences of illness, student school performance, opening and closing of public assistance cases, housing-code violations, building construction and demolition, changes in property values and taxes, toxic emissions, and many others.[7] Table 1 shows the administrative data files maintained by the NNIP partners as of late 1997.

Table 1

ADMINISTRATIVE DATA MAINTAINED BY NNIP PARTNERS

SOURCE	ATL	BOS	CLE	DEN	OAK	PROV
VITAL STATISTICS AGENCIES						
Births	●	●	●	○	○	●
Deaths	●	–	●	○	○	●
POLICE DEPARTMENTS						
Crimes	●	●	●	○	○	●
Child Abuse/Neglect	–	–	●	●	–	●
Police Calls	–	●	●	–	○	●
PUBLIC ASSISTANCE AGENCIES						
AFDC	●	–	●	●	●	●
Food Stamps	●	–	●	●	●	●
General Assistance	–	○	●	–	●	●
Medicaid	–	–	●	●	●	●
WIC	–	–	–	–	●	●
Subsidized Child Care	–	–	●	●	●	●
SCHOOL SYSTEM						
Student Enrollment/Performance	●	●	●	○	●	●
Special Education	–	●	–	○	–	●
HOSPITALS, HEALTH AGENCIES						
Hospital Admissions	–	●	–	–	–	–
Immunization	●	–	–	–	–	–
TAX ASSESSOR/AUDITOR						
Parcel Characteristics	●	●	●	–	●	●
Tax Delinq. Parcels	●	–	●	–	–	●
Vacant Parcels	●	●	●	○	●	●
BUILDING/PLANNING DEPARTMENTS						
Code Violations	●	–	–	–	–	–
Building Permits	–	–	●	○	–	–
Demolitions	–	–	–	○	–	–
PUBLIC HOUSING AUTHORITIES						
Public Housing Units	●	–	●	○	●	●
DEVELOPMENT/BUDGET DEPT.						
CDBG Expenditures	–	●	●	–	–	●
BUSINESS DIRECTORIES						
Employment/Economic Activity	●	●	●	●	–	–

●=Address-based, ○=Tabular

Note: AFDC=Aid to Families with Dependent Children; CDBG=Community Development Block Grant Program; WIC = Women, Infants, and Children

Advances in Local Institutional Development. Finally, in some cities, new institutions have been created to establish and operate neighborhood indicator data systems and make the data available broadly to local groups that want to use them. These institutions include the partners in NNIP, but similar entities have emerged in at least two other cities and important institutions in many others are considering the idea.[8]

In some form, such "data intermediaries" are probably essential to the neighborhood indicators concept. Substantial economies of scale are implicit in this work. The job is far from trivial. It includes negotiating agreements with administrative data providers (police departments, assessors, social service agencies, registrars of vital statistics, etc.), frequently collecting automated records from those providers, cleaning and properly integrating and storing the files, and providing the data to users in an efficient manner. Potential users who would benefit greatly from having the data (for example, neighborhood associations and nonprofit service providers) could never afford to build such systems for themselves for their own purposes alone. It would be extremely wasteful if they tried. Instead, the only workable approach would be for a city to assign the system building/operating job to one entity or partnership that can learn to do the job well as its primary mission and then operate a "one-stop shop" to serve all interested users at a much reduced cost. (More will be said about this below.)

THE USES OF NEIGHBORHOOD INDICATOR SYSTEMS

Monitoring Trends in Outcomes. Most advocates of social indicators since the 1960s have seen the primary use of indicator systems in monitoring trends in societal outcomes: A broad group of stakeholders jointly review their goals and select a set of clearly defined outcome indicators that reflects those goals. The data are then collected and examined and, after the initial cut, recurrently updated, probably on an annual basis. The indicators tell you in what areas, and to what extent, things are getting better or worse, and that presumably tips you off as to where policy changes and new action programs may be needed. The process also inherently supports accountability; the indicators often have a great deal to say about how well public agencies and officials are performing their jobs.

Spread of the Movement in the 1990s. Monitoring trends in outcomes is the basic idea behind most of the substantially increased interest in indicators in this decade. While there is still no official system of social accounts to parallel that for the economy, the 1990s have seen some impressive efforts to improve social indicators at the national level, particularly those related to outcomes for families and children (Federal Interagency Forum on Child and Family Statistics, 1997). And, although emerging from somewhat different (although overlapping) concerns, the indicators movement has also been given a boost at the national level by the push for more effective monitoring of environmental conditions (President's Council on Sustainable Development, 1996) and

the Government Performance and Results Act of 1993 (GPRA), which mandates substantially expanded performance measurement and reporting by federal agencies.

The indicators idea is making progress and gaining adherents at other levels as well. Probably the most prominent model among states is Oregon's benchmarking effort (Oregon Progress Board, 1992), although the consistent state- and county-level monitoring across the country by the *Kids Count* system may well be having more impact in spreading the word (Annie E. Casey Foundation, 1996). At the city level, a noteworthy example is the involvement of many urban areas in the *Healthy Cities* movement promoted by the National Civic League.[9]

Monitoring Trends at the Neighborhood Level. And finally, though in fewer places so far, there is monitoring of changing neighborhood conditions within cities, predominantly by the partners in NNIP. The NNIP Partners' first work for this purpose was completed in the early 1990s, well before many other indicator initiatives that still maintain data only at the city level were even established—see in particular Coulton, Chow, and Pandey (1990) and Bailey (1991). As noted earlier, institutions in a number of other cities are now at various stages of developing similar capacities.

"What is your recommended list of neighborhood indicators?" This is a question participants in NNIP are asked frequently. The response is normally that there is no one "correct" list. Stakeholders in each city ought to get together and devise a list based on their own local goals and the issues that are critical to them at the time. They should also expect that the list of indicators to be monitored should change over time, with shifts in observed conditions and policy priorities.

Table 2 offers an illustrative list. It was prepared by neighborhood groups participating in the Cleveland Community Building Initiative in a process facilitated by NNIP's Cleveland partner (Milligan, Nario-Redmond, and Coulton, 1997). This list highlights an important issue in this field at this point. It identifies 110 individual indicators the group would like to monitor, but only about half of them can be derived from existing data sources (census and local administrative files). If the rest are to be monitored, they will require special surveys—always expensive. Clearly, even with the advances noted earlier, many of the possible indicators that are likely to interest local stakeholders cannot as yet be incorporated at low cost.[10]

Using Neighborhood Indicators to Change Things. Although monitoring trends in outcomes is the application most discussed in the literature on indicators, that is not the most important use of the systems of NNIP partners or others who have developed them. Instead, the partners have focused much more on getting their data used directly in policy change and action program initiatives, particularly in poor neighborhoods.

Table 2
LONG-TERM OUTCOME INDICATORS
CLEVELAND COMMUNITY BUILDING INITIATIVE

Benchmarks	Measures	Data Sources
ECONOMIC OPPORTUNITY		
Household income	Families below poverty line	Census Poverty estimates
	Median household income	Census
	Total neighborhood income	Census
	Public assistance households	DHS data
	Total public assistance payments	DHS data
Household assets	Homeownership	Census
	Median housing values	County auditor
	Automobile registration	State license bureau
Resident employment	Unemployment rate	Census
	Labor force participation rate	Census
	Residents with full-time year-round employment	Census
	Youth employment	Census
Job accessibility	Number of jobs within average commute times by skill level and quality	ES-202 RTA routes
	Residents' perceptions of job accessibility and quality	Resident survey
	Employer perceptions of residents	Business survey
	Availability of information about jobs in region	Institutional survey
	Availability of transportation to jobs throughout region	Resident survey Institutional survey
Neighborhood business activity	Jobs in neighborhood by industry	ES-202 Business survey
	Births and deaths of firms	ES-202 Business survey
	Perception of business vitality	Resident survey Business survey
Access to capital	Types of amounts of mortgage lending	HMDA data
	Sources of capital and credit for local businesses	Business survey
	Availability of banking services	Resident survey Institutional survey
Supports for human capital	Numbers and types of job training programs	Resident survey Institutional survey
	Number of training slots per unemployed and out-of-labor force residents	Institutional survey Census
	Numbers of residents in publicly supported training	Training program data
	Education attainment of adults	Census
	Education attainment of youth	Census
	High school graduation rates	Public schools database
	Residents' perceptions of employment and education programs	Resident survey

Table 2 (continued)
LONG-TERM OUTCOME INDICATORS
CLEVELAND COMMUNITY BUILDING INITIATIVE

Benchmarks	Measures	Data Sources
INSTITUTIONS AND SERVICES		
Quality of services and institutions	Accessibility of: health care child care employment training recreation transportation counseling/family support education police fire city services libraries/museums other	Resident survey Institutional survey
	Perceived quality of above services	Resident survey
	Perceived quality of facilities	Resident survey Observation
Influence over service agencies and local institutions	Resident participation on governance and advisory bodies	Resident survey Institutional survey
	Perceived responsiveness of service providers to neighborhood needs	Resident survey
Support for local services and institutions	Volunteer involvement in local institutions and service agencies	Resident survey Institutional survey
	Attendance at public meeting and agency/institution events	Resident survey Institutional survey
FAMILY, CHILD, AND YOUTH DEVELOPMENT		
Mobility of families with children	Turnover in schools	Board of Education
	Evictions	Resident survey Key informant interviews
	Residents' neighborhood tenure	Census Resident survey
Participation in cultural and recreational resources	Residents' perceptions of quality and convenience	Resident survey
	Number of slots in recreations programs by age	Institutional survey
	Proportion of youth involved in sports or other recreational activities	Resident survey
	Youth involvement in church and service activities	Resident survey Institutional survey
Need for child welfare intervention	Substantiated child maltreatment reports per 1,000 children	Cuyahoga County Department of Family and Children's Services
	Children in foster care	Cuyahoga County Department of Family and Children's Services
Maternal and child health	Low birth-weight births per 1,000 births	Ohio Department of Health
	Percent of births with adequate prenatal care	Ohio Department of Health

Table 2 (continued)
LONG-TERM OUTCOME INDICATORS
CLEVELAND COMMUNITY BUILDING INITIATIVE

Benchmarks	Measures	Data Sources
FAMILY, CHILD, AND YOUTH DEVELOPMENT *(continued)*		
Youth achievement	High school graduation rate	Cleveland Public Schools
	Post-high school education	Cleveland Public Schools Key informant interviews
School performance	Percent of children entering kindergarten who are school ready	Cleveland Public Schools
	Percent of children who are in the age-appropriate grade	Cleveland Public Schools
	School attendance	Cleveland Public Schools
Adult-child involvement	Parent involvement in monitoring their children's behavior	Resident survey
	Parental involvement in children's school work	Resident survey
	Adult monitoring of neighborhood children	Resident survey
	Parent involvement with school activities	Resident survey Cleveland Public Schools
	Adult volunteerism with children and youth	Resident survey Key informant interviews
SAFETY AND SECURITY		
Violent crime	Rate of violent incidents reported to police per 1,000 population	Cleveland police, VIN
	Number of incidents in which residents (children, adults, elderly) are victims of violent crime	Cleveland police, VIN
	Number of incidents in which residents are perpetrators of violent crime	Cleveland police, VIN
	Number of incidents in which outsiders are victims of violent crime	Cleveland police, VIN
	Number of incidents in which outsiders are perpetrators of violent crime	Cleveland police, VIN
	Residents' fear of neighborhood violence	Resident survey
	Business fear of neighborhood violence	Business survey
Domestic violence	Number of calls for domestic disputes	911 calls, VIN
	Child maltreatment reports per 1,000 children	Cuyahoga County Department of Family and Children's Services, VIN
Property crime	Rate of incidents of property crimes per 1,000 residents	Cleveland police, VIN
	Number of incidents of crimes against residential property	Cleveland police, VIN
	Number of incidents of crimes against commercial property	Cleveland police, VIN
Juvenile crime	Rate of delinquency filings per 1,000 population ages 10-18	Cuyahoga County Juvenile Court, VIN
	Number of delinquency filings for violent acts	Cuyahoga County Juvenile Court, VIN
Gang activity	Residents' perceptions of gang activity	Resident survey
	Incidence of gang activity in schools	Cleveland Public Schools, Security Department
	Symbols of gangs	Observation

Table 2 (continued)
LONG-TERM OUTCOME INDICATORS
CLEVELAND COMMUNITY BUILDING INITIATIVE

Benchmarks	Measures	Data Sources
SAFETY AND SECURITY *(continued)*		
Safe space	Parks, school yards, and other public spaces that are crime free	Cleveland police
	Housing complexes that are secure	Housing Authority
	Residents' perceptions of safety of public spaces	Resident survey
Community security programs/ activities	Proportion of streets with active block watch or clubs	Resident survey
	Community-police relations	Resident survey
NEIGHBORHOOD IDENTITY AND PRIDE		
Name and boundary identity	Signs and demarcations	Observation
	Boundary consensus	Resident survey
	External recognition	Key information interviews
	Community information availability	Resident survey Observation
Physical appearance	Physical condition of housing	Resident survey Observation Housing department
	Physical condition of public spaces	Resident survey Observation
	Physical condition of businesses	Resident survey Observation
	Physical condition of streets	Resident survey Observation
Civic involvement	Residents' participation in neighborhood affairs	Resident survey Meeting attendance
	Residents' political participation	Resident survey Board of Election
	Membership or activity in local organizations	Resident survey Institutional survey
	Support for local institutions	Resident survey Institutional survey
Neighborhood networks	Density of neighborhood acquaintanceships	Resident survey
	Perceived helpfulness of neighbors	Resident survey
Capacity for collective action	Perception of neighborhood ability to achieve its goals	Resident survey
	Perceived effectiveness of neighborhood leadership	Resident survey
	Resident involvement on citywide boards, commissions, etc.	Resident survey CCBI records Key informant interviews
	Ability to marshal support from diverse groups	Resident survey Key informant interviews
Strong community traditions	Participation in regular and special neighborhood events	Resident survey Key informant interviews

Note: RTA = Regional Transportation Authority; CCBI=Cleveland Community Building Initiative; VIN=Violence Information Network; HMDA=Home Mortgage Disclosure Act.

In doing this, two features of their approach have been noteworthy. First, even though many of the partners are trained researchers or planners, they have generally avoided using the data in writing research reports or developing plans themselves. Alternatively, they have focused on helping relevant community and citizen groups use (and think with) the data directly. Rather than functioning as "policy analysts," they function as "facilitators" of policy analysis by local stakeholders. This is what underlies their term, "democratizing information," especially as they work with residents in distressed communities.

Second, the NNIP partners have found a balanced way to deal with the tensions in planning between the desire for rapid results and the desire for comprehensiveness. Most planners have been trained to value comprehensiveness, and today's community building is giving that theme new currency with its increased recognition of interrelatedness of the many problems of poor neighborhoods. Yet, comprehensive analysis/planning processes often leave the participants exhausted. Instead, many have advocated starting smaller, working on only one or two issues at a time, and achieving real results rapidly so they can motivate stronger participation in the future. Some of the most successful practical uses of neighborhood indicator systems have worked in the latter mode but with an important addition: They have worked on each issue explicitly in a manner that links it to other issues and leads toward more comprehensive accomplishment over time. The examples below illustrate this approach.[11]

The link between vacant structures and crime in Camden, NJ. Many of the more important cases start with the preparation of one or a few simple maps. In one case, a community-based church organization in Camden, NJ, believed that the growing number of dilapidated and vacant housing units in its neighborhood was conducive to crime. The organization started by preparing a map with dots indicating recent crime locations overlaid on shades indicating the housing vacancy rate in each block, and then presenting the map at a public meeting. The map showed that the group's perceptions were correct: High vacancy rates did imply substantially more crime. But it also helped motivate a constructive response. Schmitt (1997) notes:

> " . . . the map provided a compelling focus for the residents' experiences. Everyone knew about problems on their block or in their neighborhood, but before that night no one could say with authority that vacant units were linked to higher crime rates. The effect that these maps had on the crowd was powerful. A local newspaper published the maps and related news coverage on their implications. This both informed the region of an issue which the local community group had determined to be significant, and reinforced community participation in the organizing project because it showed residents that their concerns could be brought to the fore."

The church group went on to develop and analyze additional (more detailed) data on this issue. This analysis was used in the group's joint work with city agencies and others in designing and implementing a program to deal with the issue.

A more comprehensive approach to neighborhood physical renovation in Atlanta. A second example is an effort by the Atlanta Project over the past few years. Project staff used their information system to facilitate work by several neighborhood groups. For each area, the staff prepared maps and tables showing parcel-level data on tax delinquency, code-enforcement violations, and other property conditions. Just by looking over the maps, community residents saw opportunities for action they had not seen before.

The analyses became the basis for several initiatives: targeting assistance to elderly homeowners in jeopardy of losing their homes because of outstanding tax liens; selective community reinvestment in key properties found to be ripe for redevelopment; working with city agencies to shift code-enforcement strategies to crack down more effectively on absentee property owners with decaying and abandoned properties; motivating the state legislature to pass new laws expediting foreclosure processes when communities are prepared to redevelop sites with nonprofit housing.

Cleveland's planning for welfare-to-work and related requirements. A third application was directed toward policy at the metropolitan level. NNIP's partner in Cleveland began by working with automated data on welfare cases, examining the characteristics of different cohorts of county recipients of Aid to Families with Dependent Children (AFDC) and sorting out those who would be imminently vulnerable to losing benefits under welfare-reform time limits. The analysts estimated and mapped the numbers of AFDC recipients by census tract and then used geographic data on employment to analyze and map spatial patterns of recent entry-level job openings in the area.

Analyses indicated that the residential locations of vulnerable AFDC recipients were tightly concentrated in space, mostly in a few inner-Cleveland neighborhoods. In contrast, the entry-level employment opportunities likely to be relevant for these prospective job-seekers were largely in metropolitan fringe areas. The analysts then estimated tract-level income losses likely to occur under welfare reform and calculated commute times that would be required for AFDC recipients to access various shares of new entry-level jobs.

The basic findings were not surprising, but the contrasts were striking and the fact that the analysts had been able to quantify and map this "spatial mismatch" made a critical difference. The maps, with associated hard numbers by neighborhood, cast powerfully memorable images. They captured the attention of the local media and, then, of policy makers. In response, the state has since allocated substantial funding for transportation assistance in Cleveland's welfare-to-work efforts, and local transportation planners have worked with the analysis team to test alternative strategies for getting vulnerable recipients to jobs more rapidly.

The team has since begun assembling related neighborhood data; for example, on the locations and capacities of day-care centers and job-linkage services, and the pattern of rental housing affordability. Again, preliminary indications are that the production of solid data that can serve as a basis for sensible response strategies may well prove to be a critical step in motivating local actors to actually develop such strategies.

TEN LESSONS

Evidence on the recent emergence of neighborhood indicator systems and their uses remains patchy at best. Certainly, none of the evidence has been subjected to careful evaluation. Nonetheless, it would seem on the surface that the developments discussed here hold considerable potential. The ten early "lessons" below are offered in the spirit of stimulating dialogue about how cities might best proceed to take advantage of this potential.

***1. Design indicator systems for the explicit purpose of changing things—not just to monitor trends*.** We have noted that monitoring trends in outcomes is the most commonly understood purpose of indicator systems. The NNIP partners, however, do not see that as an end in itself, but only as an instrument to contribute to their true objective: improving social outcomes, that is, changing things. For the partners, the focus has been on addressing urban poverty, particularly concentrated poverty in inner-city neighborhoods, although they are clearly interested in other outcomes (for example, improving environmental conditions) as well.

More than anything else, this means that you need to plan ahead so that, as you finish the initial (monitoring) part of the process (stakeholders reviewing new indicator values to see what is getting better and worse), you will directly link into follow-on steps that will select priorities for action and design new policy and programmatic responses to what you have learned. If the steps are to be productive, they are likely to rely further on the indicators system, probably using more detailed data about selected issues to explore the issues further and test out ideas about alternative ways to address them.

This may seem obvious to some or nit-picking to others, but surprisingly little of the growing literature on indicators acknowledges this point. Why is it important? Among other things, indicator systems cost money, and it seems unlikely that local funders will support them over the long term unless the indicators prove themselves useful. The monitoring of indicators must move beyond being an interesting "exercise" and show that it can contribute to better solutions to real problems. There are already a number of examples of importantly successful local initiatives that would never have been discovered or designed without indicators. Future work in other cities ought to follow those examples.

***2. Develop a single integrated system that can support one-stop shopping*.** What happens now in most cities is extremely inefficient. Most community groups and service providers now recognize the need for data to prepare winning grant applications or to prepare competent plans. Some city representatives we have interviewed describe the scene as one of a large number of local players constantly "falling all over each other," all spending a great deal of time and effort trying to assemble the woefully inadequate data that are presently available, but with none of them able to take on the task of building an adequate system on their own.

Assigning that task to one intermediary (individual institution or partnership) and getting an adequate system built will, of course, entail some cost, but it is almost sure to represent a net savings in relation to the current resources so many local groups are now spending on data with such unsatisfying results. And this is to say nothing of the substantial benefit that should be realized with all users having access to much richer and higher quality data than are available now.

***3. Develop indicators at the neighborhood level—not just for the city as a whole*.** Closely related to the first recommendation above is the conclusion that citywide indicators, while they can be valuable for some purposes, turn out not to be very useful in designing solutions to many of today's urban problems. Suppose, for example, we find that the value of an indicator for the city as a whole, say the teen pregnancy rate, went down by 0.5 percent over the past year. What would you do about that finding? Sit back and relax? Hardly! It is well known that there is tremendous variation in teen pregnancy rates across neighborhoods in almost all American cities. It is possible that the problem got much worse in some communities and much better in others. That could imply that the average change for the city did not represent what happened in any actual place.

To know whether and how to take action to address the issue, you need to be able to assess how rates for all of the city's *neighborhoods* increased or decreased, and by how much. The issue of teen pregnancy (like so many others) is not one you deal with by sitting in an office at city hall or by spreading resources equally across neighborhoods. You need to know *where* to deploy your resources and in what proportions, and for this, neighborhood-level data are essential.

This observation would not be very helpful, of course, if assembling automated neighborhood-level data was still many times more costly than collecting the same indicators for the city as a whole, as was the case not too many years ago. But with the dramatic technological advantages noted earlier, neighborhood data no longer cost that much more. Today, if you are serious about using local indicators, it is hard to see any justification for not doing so at the neighborhood level.

***4. Build a data "warehouse"—not just a set of files on indicators*.** The list of possible outcome indicators that might be of interest in any city or neighborhood is long. Indicator gurus normally advise that to operate the periodic monitoring function successfully, you have to cut the

presentation list down to a manageable number or you will risk overloading review panels and the public. What is seldom mentioned, however, is the difference between the contents of the system you ought to maintain and the list of indicators you want to present to the stakeholders in their recurrent reviews. The former ought to be much more expansive than the latter. If it is not, given today's technology, the system is not likely to be cost-effective.

An example should help clarify why this is the case. Automated vital statistics files (records of births and deaths) are at the core of the systems maintained by all NNIP partners. The files can be used to calculate many indicators that have proven valuable for a variety of uses; for example, births to teen mothers, infant mortality rates, and teen deaths due to violent causes. And the files can provide such data by race as well as location.

At any point in time, your streamlined list of indicators for trend monitoring might contain only one or two derived from the vital statistics files. But it is very likely you will want to use more of the data from those files for more detailed policy analysis later as new issues emerge. It is also likely that policy makers will revise their short list of indicators for recurrent monitoring as their priorities change, and you might need to use other data from those files to meet their new requests. You have to go to some expense to regularly obtain, clean, and integrate the whole file in order to update those one or two indicators you are now monitoring, and the costs of storing the whole file are negligible. In these circumstances, it would be extremely wasteful to throw the rest of the file away. It makes sense to keep the whole file at the ready so you can respond quickly as new data needs are expressed.

This is the concept of a "data warehouse." All of the NNIP partners actually operate "data warehouses from which indicator reports can be derived," rather than just "indicator systems." The partners have a sizeable collection of large data files, all parts of which they can access quickly and efficiently when they need to. Only a small share of the data in the warehouse is likely to be in use at any time—the rest is just sitting there. But since the costs of "warehousing" are now so low, and the benefits of rapid responsiveness in bringing good data to bear on new issues so high, it clearly pays to operate in this manner.

5. Serve multiple users but emphasize using information to build capacity in poor communities. The NNIP experience suggests that once an integrated system of neighborhood-level data exists in a city, there will not be a problem in finding users. For the users, the efficiency associated with being able to obtain a wide variety of neighborhood indicators in one place (all carefully checked and in a consistent format) is substantial. All NNIP partners provide data to a number of types of users: government agencies, nonprofits, and private firms. Users that can afford it are sometimes charged fees for data assembly and analysis; this helps cover basic operating costs. All the partners have recognized, however, that their data systems are an important device by which they can promote equity. One of the ways in which poor inner-city neighborhoods have

been disadvantaged in the past is in their lack of access to information. Accordingly, all NNIP partners give the highest priority to using their data to support community building in these neighborhoods.

6. Democratize information—help stakeholders use information directly themselves. As noted earlier, all NNIP partners see their role primarily as facilitating the direct use of data by the stakeholders in the issue at hand, rather than themselves serving as the primary actors in policy analysis and plan making. This contrasts sharply with the traditional model in which researchers and planners prepare the report for the users to read and review after the fact. In fact, a recognition of the high share of such reports that are ignored was one of the strongest motivations for democratizing information.

The stakeholders concerned with an analysis may not be as strongly motivated to follow up on it unless they have helped create it—step by step—themselves. They need to feel they "own" the findings and conclusions. And they may well come up with different, and better, answers than the professionals who might do a study for them. They understand the nuances of the situation and are able to see options that the professionals might not recognize. They can benefit from professional facilitation as they do the work (e.g., advice on how to handle and interpret data correctly, policy and program ideas that have worked well in similar situations elsewhere), but they need to be the ones who make the decisions they—not the professionals—are going to have to live with.

7. Help stakeholders use data to tackle individual issues, but do so in a way that leads toward more comprehensive strategies. There is now a broad consensus that, given its multifaceted nature, the problem of concentrated inner-city poverty is not likely to be addressed effectively by single-purpose social programs. A holistic—comprehensive—approach will ultimately be required (Kingsley et al., 1997a). But, as suggested by the earlier discussion and examples, that does not mean that starting with a comprehensive strategy is always essential or even desirable. In many cases, it may make sense to start by using indicators to help design and implement solutions to one or two pressing issues. Hopefully, this will yield early results that will build confidence, encouraging a more ambitious agenda in the next stage. Indicator analysis can be particularly helpful in showing how current issues, and the means of addressing them, can link to others down the line.

Alternatively, the circumstances may suggest that the stakeholders are up for more comprehensive strategy making at the outset. If so, an integrated data system can, of course, provide strong support for accomplishing that effectively. But if this approach is selected, it will be risky to postpone for too long at least some of the actions that will begin to change things for the better.

The most important conclusion here may be that planning and implementation should no longer be viewed as separate stages, but rather as interrelated concurrent processes that influence and alter each other as they move along.

***8. Use information as a bridge to promote local collaboration*.** Another opportunity the NNIP partners regularly take advantage of is using indicator systems to establish and further collaboration between urban groups and actors that have often been at odds in the past. Collaboration is tough. If players from different groups come to the table holding tightly to their old beliefs and policy prescriptions, collaboration may not work. Something is needed at the outset to shake up the old ways of looking at things. On a number of occasions, NNIP partners have been able to use fresh presentations of data on local conditions and trends to accomplish that (see National Neighborhood Indicators Partnership, 1996, Chapter 4). People can, of course, really disagree. Yet it is surprising how often urban policy disagreements exist only because of faulty perceptions (maybe by both parties) of what is really going on, and those misperceptions can be fixed by facts.

9. Use available indicators but recognize their inadequacies—particularly the lack of sufficient data on community assets. Initiatives to improve conditions in poor neighborhoods need to mobilize residents around a positive agenda, making them recognize that they do have assets and can use those assets to change things (McKnight and Kretzman, 1993). Accordingly, indicator systems that support such initiatives ought to emphasize measures of assets. Yet the bulk of the indicators that can be derived from administrative records deal with negative events (crime, infant mortality, etc.). Most of the asset-oriented indicators of interest to the Cleveland Community Building Initiative (Table 2) can only be obtained via special surveys—those that are available now (mostly from administrative data) are largely in the negative category.

How should planners and community-building practitioners respond this issue? First and foremost, they should use all the data that are presently available to track things but keep reminding residents of the assets that are not yet incorporated in the system. In other words, use the negative measures in the system but do not let them move residents off an asset-oriented agenda. Certainly you do not want to suppress those measures—we all have to face reality—but you just need to keep them in perspective. This is, of course, easier to do now that crime rates, teen pregnancy rates, and several other negative indicators are dropping in many urban communities, but NNIP partners were able to accomplish this even back around 1990 when trends were not so benign. Second, planners and others engaged in local public policy should be raising funds to support the surveys needed to expand asset measures in their local indicator systems.

***10. Assure integrity in the data and the institution that provides them*.** In the 1960s, if anyone had asked who should be responsible for building an information system with neighborhood-level data, the most common answer probably would have been the city planning department or

some other unit in city government. It is interesting in this light that none of the NNIP partners are city agencies. One is a center affiliated with a university, and the rest are community foundations or other nonprofit intermediaries whose missions center on a broad view of furthering the public interest in their cities. This type of institution offers advantages for operating local information systems serving multiple users. Most importantly, such institutions are not seen as beholden to any short-term political interests that might have incentives to either withhold or misrepresent the facts. Also, a good local system needs to obtain data from county and state agencies, and possibly some suburban jurisdictions, as well as city departments. A nonprofit might be able to bridge across all of those sources more effectively than the city can.

Ultimately, however, whether the central institution is public, private, or nonprofit is not as important as how it behaves and the reputation it develops. The institution (or partnership) that operates the system must maintain the trust of both data providers and a wide array of users over the long term. The NNIP partners are very careful about data cleaning, maintaining confidentiality, and guiding responsible use of their data. While they advocate using data in policy debates that are often controversial, they avoid taking sides in those debates.

ENDNOTES

1. The author is a senior research manager in housing, economic development, and urban policy at the Urban Institute where he also serves as director of the National Neighborhood Indicators Partnership.

2. NNIP is a collaborative effort by the Urban Institute and its partners to further the development and use of neighborhood information systems in local policy making and community building. The six original partners (and their managers) are the Atlanta Project (David S. Sawicki), the Boston Foundation's Boston Persistent Poverty Project (Charlotte Kahn), the Center on Urban Poverty and Social Change at Case Western Reserve University in Cleveland (Claudia J. Coulton), the Piton Foundation in Denver (Terri J. Bailey), the Urban Strategies Council in Oakland (Cheryl Taylor), and the Providence Plan (Patrick J. McGuigan). A seventh, which has recently joined NNIP and is developing similar capacities, is the DC Agenda Project in Washington, DC (Rob Richardson).

   NNIP's current agenda includes (1) developing concepts and practical tools to advance the use of information in community capacity building; (2) extending and applying the partners' data to support better local policy making, for example, in designing local strategies to respond to welfare reform; (3) building a National Neighborhood Data System and using it to gain understanding of how inner-city neighborhoods are changing nationally in the 1990s; and (4) broadly disseminating project outputs and helping institutions in other cities develop similar systems and capacities. The project's primary funders are the Annie E. Casey and the Rockefeller Foundations. Its initial work was documented in *Democratizing Information: First Year Report of the National Neighborhood Indicators Project* (Washington, DC: The Urban Institute, 1996).

3. Nonetheless, these are conclusions of the author, who remains responsible for any errors in fact or interpretation. NNIP partners may or may not agree with them.

4. Several works were published to promote the concept and explore its potential: see, for example, Bauer (1966), Cohen (1968), Bell (1969), and U.S. Department of Health, Education, and Welfare (1969). For a more recent assessment, see Miringoff and Miringoff (1997).

5. At least one researcher proclaimed that the era of large-scale urban models had ended (Lee, 1973).

6. This is the *Community 2020*™ software package developed by the HUD's Office of Community Planning and Development. See Kingsley et al. (1997b).

7. A listing and description of 42 different types of automated administrative data files typically available in most cities were prepared by Claudia J. Coulton and published in Kingsley et al. (1997b).

8. In addition to the NNIP partners cited earlier, neighborhood data systems are already being operated by The Nonprofit Center of Milwaukee (Michael Barndt, manager) and the United Way/Community Service Council, working jointly with the Polis Center at Indianapolis University-Purdue University, in Indianapolis—the latter is the Social Assets and Vulnerabilities Indicators (SAVI) system (manager of development was Robert Hoek). The Delaware Valley Grantmakers Associations (Philadelphia) and the Association of Baltimore Area Grantmakers are now in the midst of processes to design and fund similar institutional capacities for their cities. A survey of 33 cities during the first year of NNIP found that key institutions in most of them were aware of concept and interested in exploring it further (National Neighborhood Indicators Partnership, 1996).

9. The National Civic League's *Healthy Communities Handbook* (1993) describes an approach to the development of local indicators and notes cities that have implemented the approach. One that is highlighted is the work of the Jacksonville Community Council (1994). See also Andrews (1996).

10. For further discussion of these issues, see Coulton 1995 and 1997.

11. These examples are highlighted in Kingsley et al. (1997b). Chapter 3 of that report provides brief case studies of a total of 17 experiences in using automated information systems to address neighborhood and citywide policy issues. Other cases are presented in Mitchell (1997).

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