Capturing Community and Program Information to Induce and Support Grassroots Entrepreneurship

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Abstract

The authors’ report on the development and testing of an interactive software aimed at enhancing the quality of decisions made by nonprofit community-based organizations (CBOs). Preliminary findings shed some light on the extent to which computer-assisted management and communication technologies may contribute to the accomplishments of CBOs, the effectiveness of their programs, their ability to inform policy, and their chances of obtaining financial support. Also, the early findings suggest that it is possible to bring about positive change in communities by empowering grassroots entrepreneurs and the organizations they lead with the appropriate technologies.

1. Introduction

“It appears that well-developed capabilities to learn -- the abilities to put knowledge to work -- are responsible for rapid catch-up... The basic elements [to develop these learning abilities] appear to be skilled people, knowledge institutions, knowledge networks, and information and communications infrastructure [also the basic ingredients for successful entrepreneurship].” (The World Bank, 1997)

The growing evidence that sustaining national wealth and prosperity depends on the existence of a grassroots entrepreneurial base in regions, communities, and neighborhoods has increased the interest of social scientists and policy makers in understanding, discovering, and supporting grassroots entrepreneurs. Grassroots entrepreneurship exists not only in budding small businesses of high-tech sectors, it can also be found in underserved, emerging communities and in community based organizations (CBOs). It is expressed in practical risk taking and in creative solutions -- with limited resources against many odds -- tailored to community needs and development.

Experience has shown that to support improvement in the quality of life of a community, culturally based and socially active programs need to be strategically related to economic development. The success of organizations in today’s marketplace often depends on the effective utilization of computer and information technologies (IT). These have been and are being used extensively to enhance the productivity and competitiveness of entities that are well funded, culturally conditioned, educationally prepared, and technically trained. Recently, the reduced cost and increased user-friendliness of computer and communication devices have made it possible for organizations traditionally “under funded” and, sometimes, technically unprepared, to consider technological innovations. While the knowledge revolution is resulting in many positive outcomes, there is the emerging concern of its fostering polarized societies and regions worldwide. On the one hand, scientific and technical advances have increased the economic welfare, health, education, and general living standards of a relatively small fraction of humankind to unmatched economic levels. On the other hand, the unevenness of such development among and within regions, as well as neighborhoods, has increased.

The authors state that it is possible to bring about positive change in communities by empowering grassroots entrepreneurs and the organizations they lead with appropriate communication and data management technologies and know-how. Also, they state that the very process of transferring the technologies produces favorable and permanent changes in the quality of management decisions for these organizations.
2. Technology as Agent of Change

Using technology as an agent of change has not been sufficiently studied and needs to be better understood. The project described here is a large-scale initiative that may shed some light on the extent to which computer-assisted management and communication technologies can enhance the accomplishments of nonprofit community-based organizations. It is hypothesized that advanced data collection and analysis, complemented by communication and evaluation techniques made possible by the transfer of appropriate computer technologies, enhance the quality of decisions made by CBOs, the effectiveness of their programs, their ability to inform policy, and their chances of obtaining financial support.

This project began in the summer of 1995, at the Center for Health Economics and Policy of the UT Health Science Center at San Antonio, with funding from the W. K. Kellogg Foundation. Presently, with the collaboration of a national team of investigators, the initiative is supporting the development and testing of the Strategic Management And Resource Tool (SMART). SMART is interactive software that facilitates strategic planning, program monitoring, evaluation and reporting tasks for Community Based Organizations.

3. Community Based Organizations (CBOs)

CBOs are different from other service-oriented enterprises in that they are mostly not-for-profit, located within the community they serve, and run by managers and boards with ties to the community. Their origins are usually modest in size and often rooted in some entrepreneurial effort to address a pressing community need. The majority of CBOs participating in this study deliver health related services. While some CBOs are large and technologically sophisticated enterprises, most are not. Few, if any, commercial IT products have been designed specifically for their unique needs. In turn, this shortage of appropriate IT has delayed the diffusion of advanced technologies that could be adopted, especially by small and mid-sized CBOs. The SMART system was designed in response to those needs and shortages.

Community Based Organizations in the health field need to be especially efficient, accountable, and competitive in order to receive and effectively utilize limited funds for delivering comprehensive assistance to underserved communities. CBOs -- by necessity, funding restrictions, or choice --- commit most resources to community services, while being overly frugal in such overhead investments as technological infrastructure. This is often the case even when such IT might well increase efficiencies or simply better document the cost effectiveness of difficult work. Despite such conditions that often reduce CBOs competitiveness and survival, they deliver good quality primary care and create value in direct and indirect benefits to their communities at favorable, long-term total community costs.

A key market disadvantage rests in poor information management. Specifically, it has to do with the manner in which operational data is captured, analyzed, reported, and disseminated to inform and improve (1) strategic decisions by CBO managers, (2) funding decisions by supporting agencies and organizations, and (3) public policy decisions affecting CBOs' constituencies. The evidence accumulated while developing the SMART program suggests that most of these disadvantages can be partially or totally overcome through the transfer of appropriate technologies.

4. Knowledge and Technology Accumulation and Transfer

Knowledge may be embodied in machines -- called physical capital or hardware -- and in their "nervous system" -- referred to as software. But, and more importantly, it resides in the skills of individual human beings -- human capital, also called "know-how".

There are important differences and complementary characteristics between software and "know-how". In software, knowledge exists in a form that can be codified and stored outside the human body. "Know-how" is stored in the human brain and cannot be dissociated from individuals. One can be codified and articulated in words, symbols, or other means of expression. The other includes convictions, feelings, abilities, and talent that cannot be easily formalized and codified, are qualitative in nature, and are expressed in individual and collective living styles. Software is technologically bound to physical capital and always dependent on human creativity and input. "Know-how" is physically bound to human beings and conditions their ability of utilizing and improving technologies. Both interact in technology transfer and are interdependent in the learning processes. These differences and interactions have important implications in the way in which knowledge is produced, diffused, and used. In designing and testing the SMART software, the research team paid special attention to these "software" and "know-how" domains in order to increase the appeal, speed, and effectiveness of the technology transfer. For instance, SMART allows for the collection of both quantitative and qualitative information and connects the two in real time through user's notes linked to data input screens, key words, and topics. Users' perceptions of worthiness -- i.e. ideas that are simple to understand, meet users' needs and values, and can be re-invented or modified by users -- have been
addressed through the active involvement of CEOs, managers, and technical personnel from Community Based Organizations in the design and the testing of the software. Their involvement in this type of project is uncommon but has strengthened the notion that there are benefits to be derived from harvesting grassroots creativity and problem solving ability.

5. The Strategic Management And Resource Tool (SMART)

Originally, the SMART software was designed to address the needs of grassroots organizations in the health field, but it has been found useful to similar organizations in other fields besides health services. Presently a Beta version of the software is being tested by CBOs engaged in health, education, economic development, and other social services.

SMART assists and supports the following organizational functions:

- Creating strategic plans
- Assessing community needs, resources, policies, and funding streams
- Setting and monitoring projects and objectives
- Writing grant proposals
- Making management decisions
- Creating progress reports
- Disseminating key data and results of projects

The SMART software is comprised of six modules: Each module supports the essential functions described above. Given the nature of these functions, there is no fixed order in which these modules may be used, nor a preferred set way they must fit together. The modules are:

5.1. Plans and Objectives

This module assists users in defining projects and project objectives. This includes deciding what measures may be used to indicate how an objective is being met, how to track these measures, and how to document barriers and solutions. Objectives may be linked to specific Community or Project Indicators. The linkage between objectives and indicators provides a wealth of data for reporting and strategic planning. Also, Plans and Objectives can be viewed as an effective training tool for new staff and managers wanting to capture systematically the many aspects and functions of the organization.

5.2. Community Indicators

This module prompts users to define the geographic boundaries of their “community” and to gather and enter data describing three main aspects of that community.

- The Health and Well-being of the Population: this cluster of indicators consists of frequently used measures of physical health, income, employment, unemployment, housing status, and educational status. Users can identify and describe only those characteristics important to them.
- Community Capacities: indicators in this group describe organizational resources existing in the community and relevant to users’ projects.
- Key Policies and Funding Streams: this category of indicators includes those public and private sector policies, policy makers, and funding streams that are significant to the development of the organization and its projects.

Community Indicators are likely to be used in three main ways:

- Assessing the community for project design and planning
- Describing the community to gain better understanding of possible impediments and facilitators of project success
- Tracking change over time for purposes of evaluation

5.3. Project Indicators

The purpose of this module is to prompt users to systematically describe project activities and resulting outcomes. This provides an easy method for monitoring the success of multiple projects. Organizations that are dedicated to improving community health carry out their work in many ways. Measuring success is rarely simple or one-dimensional. Therefore, this module is divided into four domains that capture the various aspects and levels of change CBOs seek to create. These domains are:

- Project Participants: users describe and track what they do, how they do it, and the results they achieve among the individuals and families they serve. The indicators in this domain are useful primarily to organizations or projects that deliver direct services. Users are asked to define the categories of services provided. Then for each general category, they are prompted to define the target population, the units of service provided, the characteristics of individuals served, and the resources expended. Once these items are identified, the user is prompted to select indicators that track the results of project activities.
These are divided into employment and career advancement, housing status, literacy, social support, and more.

- **Organizational Development:** users are asked a series of questions that relate to the essential building blocks of an effective project. Some of these indicators include: involving community residents in project development, hiring and developing staff members, and building collaborations. In each of these areas, users are able to document what they do (activity) and the results they achieve (outcomes).

- **Community Development and Social Change:** here users can document activities and results they achieve at the community level. Often this area of activity involves community coalitions and collaborations. Users are prompted to answer questions about what they do to promote change and development in their communities and what results were obtained. Categories of activities include building relationships of trust, community self-diagnosis, leadership development, coalition building, creating community, organizing, and advocacy. Sometimes achievements in these types of activities are lost in the “bare” figures used to quantify project outcomes. These achievements may be difficult to measure, but they are no less important. In this section, users are encouraged to capture and document concrete events that occur as a result of these activities, such as published editorials, coalitions created, emerging leaders, and more.

- **Policy Influence:** Users are prompted to document activities intended to influence policy at the local, state, and national level, in both the private and public sector.

- **Project Indicators** can be very useful to managers seeking to document the value of their programs in multi-dimensional ways. Also, they provide evaluators with a tool for organizing and summarizing data that capture the essence of project results.

**5.4. Lessons Learned**

This module consists entirely of text, rather than quantifiable data. It organizes notes created within other SMART modules and linked in real time to the screens that users are viewing. Users are able to select and print notes grouped by key words. For example, notes flagged by the key word, “Lesson Learned,” become available to users for editing or printing as a separate document or parts of other reports. In this way, the software becomes a tool for organizing important thoughts that otherwise might be lost in the everyday shuffle.

**5.5. Reporting**

This module has the capability of producing reports from pre-formatted templates or of exporting user-selected indicators into a word processing document.

**5.6. Strategic Planning**

The purpose of this module is to assist users in bringing together organization, project, and community information for the purpose of formulating plans and implementing strategies. The user is prompted to access specially designed worksheets and complete all the major steps of strategic planning: from determining the readiness of the organization in implementing the planning process, to writing appropriate mission and vision statements; from formulating strategies to assessing strengths, weaknesses, opportunities, and threats; from matching projects with strategies, to monitoring the attainment of specific objectives.

**6. Characteristics of the Software**

Presently, the system requirements are:

- **Computer:** IBM-compatible, Pentium
- **Operating system:** Windows 95, Windows NT
- **Memory:** 32 mbytes or higher
- **Disk storage:** 300 mbytes free
- **Application-based:** yes, multiple applications
- **Original code:** yes, to customize/integrate application
- **User interface application:** Visual Basic (32-bit)
- **Data management and analysis application:** Visual Basic/Access
- **Communication and file transfer application:** Visual Basic/Access
- **Report generation application:** Crystal Reporting

The user interface is maintained as consistent as possible throughout all the modules. For example, each module uses a tree-view control--to facilitate navigating the records of that module--accompanied by a summary display of the data contained within the record selected in the tree. It allows easy access to any record in the module, it shows the hierarchical relationships that exist within modules in an intuitive manner, and it is compatible to other windows applications (including...
Windows 95, 98, and NT). Whenever possible, titles of a data item already entered into the system (such as names of projects, strategies, service areas, etc.) are provided as a list of choices to select from to avoid repetitive typing. On-line help and tutorials are being designed under the guidance of the organizations presently testing the software.

To simplify the use and maintenance of just the indicators relevant to the organization, only the selected ones -- from a pool of over 500 possible entry screens -- may appear on the tree-view control at the discretion of the user. To add flexibility to the database, new numeric indicators can be created using old ones as models (that is, by cloning existing screens and changing their title and captions). Searches by key words are provided in most modules.

Presently, SMART is designed for a work group (10 or fewer users) environment with the database file located in a shared volume on a server and the SMART executables and client files located on each work station. More robust networking capability is planned for future versions of the software. An export/import application and linkages to the Internet from appropriate screens in each module are being perfected and will be included in the first public release.

7. Who Uses SMART?

- **Community-based organizations**: SMART is intended for community-based organizations that deliver direct services to families and communities. Additionally, it can be used by those CBOs not delivering direct services who are working toward overall community development and social change.

- **Community-based coalitions, collaborative initiatives**: SMART can be used effectively by groups of organizations working together to achieve better health in the community.

- **Within community organizations and collaborating entities**: specific users are likely to include project directors, research and evaluation specialists, as well as data gathering and data entry personnel.

- **Funders**: As community organizations adapt the software to their needs, they will be able to address the information needs of their funding organizations. Widespread use of SMART among grantees will allow funding agencies to acknowledge the activities and the impact of funded projects.

- **Within funding agencies**: likely users are the project officers and other program-specific administrators. However, the information captured by SMART will be valuable to all levels of administrators and decision-makers, including Boards of Directors.

8. Testing the Software

Twenty-six CBOs, selected to represent different sizes, geographic locations and type of services, were asked to join a formal network – the Associate Organizations Network (AON) – and partner with the W. K. Kellogg Foundation and the Center for Health Economics and Policy in testing and further refining the software (Figure 1). One site, the Morris Heights Health Center in the Bronx, N.Y., was used for pre-testing and early developmental work. The AON was created in December, 1997, with 15 members. Subsequently, two members dropped out. Thirteen more joined in April, 1998, through the efforts of the National Association of Community Health Centers, one of the original AON members. Some of the Associate Organizations have been operating since 1960. Others were created as recently as 1995. Half of them operate from a single location. One oversees as many as 26 sites. As a group, the AON members employ more than 1,000 individuals. The range is from just five employees to 271. Operating budgets are distributed almost evenly between the “less than $2 million” and the “$5 to $10 million” groups. All sites have computers, but many of them are not compatible with current software technology. The level of computer literacy varies greatly between and within organizations. Sufficient funding was made available to each member for purchasing adequate hardware and complementary software.

Interaction with AON members is summarized below:

- **Feedback questionnaires**: base line and periodic progress reports – were distributed, completed, and collected.

- **Bi-weekly small-group conference calls and a monthly newsletter**: the AON News – were used to maintain frequency of communication and increase cohesion within the group.

- **Frequent conference calls**: were made to discuss individual applications of the software.

- **To further facilitate the dissemination of information and the interaction among AON members**: a Web page accessible only to the members has been placed on the World Wide Web. Half of the members have experience with using the Internet. The others perceive the SMART Web page as a welcome inducement for acquiring World Wide Web literacy.

- **The research team adopted the approach of being non-prescriptive about feedback assignments to allow spontaneity and reliability of responses. The approach produced valuable feedback that triggered many useful improvements to the software**. Yet the team judged the scope of the responses too narrow for the time available for testing. Consequently, a
new strategy was adopted. It included very frequent individual consultation – on the SMART structure and uses, SMART content, data sources access and utilization, data entry chores, computer skills, and hardware issues -- with key individuals in each organization, consensus on clearly defined tasks, and agreement on a firm completion schedule.

- A monograph documenting the process and evaluating the significance of developing and testing SMART will be published in the summer of 1999.

The collaborative effort will be concluded in January, 1999, and the software introduced to a national audience in the spring of 1999.

9. Preliminary Findings

The research team found that most CEOs of community-based organizations use computers in a very limited way. Information, data management, and computer resource decisions are made in consultation with a designated person on the staff and depend on the degree of confidence the CEO has in that staff person. There are signs that CEOs are becoming interested in developing greater familiarity and involvement with the use of information and computer technologies. The tasks related to the testing of SMART appear to be inducing or accelerating this change. Data being used the most are those related to clinical encounters, client characteristics, service descriptions, and cost. Community indicators are used mainly to assess community needs when funding sources requires such assessments. Rarely data are used to influence policy. The motivation for creating and maintaining databases is generated mostly by the need for writing proposals and progress reports, evaluating programs, and monitoring costs. Obstacles to maintaining databases are the time and skills needed for finding and entering data. However, the need for thinking and making decisions strategically is strongly felt due to market pressures and greater cost accountability imposed by funding sources.

In soliciting comments from the members of the AON about their experiences in using SMART, the research team has sought three types of feedback:

1. Technical/programming-related feedback needed to perfect and complete SMART (i.e. feedback on screens, users’ preferences on features and programming logic, choices of indicators, their definitions and formulas, and hardware and network problems).

2. Feedback about SMART’s potential for being integrated into the management and reporting modes of community-based organizations.

3. Feedback about the effectiveness of SMART as a change agent in CBOs’ culture.

Type One feedback has been excellent but somewhat limited. Whenever it was given, it was useful, productive, and positive. Reasons for the limited feedback are (a) a late start due to hardware, system, or network inadequacies, (b) inadequate internal communication between CEOs and AON representatives, (c) a lack of and shortage of skilled personnel for populating the database, (d) the entering of data using the predetermined formats available in SMART rather than being capable of customizing a format more convenient to users, (e) the necessity of doing work on SMART that may partially duplicate similar work done in the organization, and reluctance to undertake the cross-over tasks while the software is still being tested, (f) uncertainties about the use of the data once it is entered into the system. The fact that SMART would bring more flexibility, larger scope and greater richness in using information was appreciated but was not always sufficient to induce the in-depth involvement with the software the research team was seeking. There was a need for closer and more frequent contacts by the research team with AON representatives.

Feedback Types Two and Three suggest that the software is contributing to information management and decision-making changes within organizations. The feedback comes mostly from the periodic conference calls and personal exchanges with AON representatives and CEOs. Frequent comments include: “this work is pushing us to (a) move on and abandon the old Windows 3.1 for the newer Windows system, (b) to define our goals more clearly, (c) review the validity of the data we are collecting, and (d) develop a better information base not only for us but for other CBOs in our county”. One CBO is activating five computer stations connected to a server carrying the SMART software. It is important to emphasize that cultural change and the diffusion of innovations are typically slow processes. They require the convergence of many factors, some of them only indirectly related to the innovating technology.

10. Conclusions

The preconditions for greater use of reliable and effective information by Community Based Organizations appear to exist but have not yet induced widespread utilization of computer and information technologies. The potential for broad applications of the approach used by the SMART software is promising. The use of SMART to transfer appropriate management technologies to support grassroots entrepreneurship and community development appears feasible, but further research, documentation, and testing are needed.
The approach and the findings of the research have important implications for policy in the public and private sectors.

**Figure 1: SMART Testing Sites**

1. Alaska Primary Care Association  
Anchorage, AK
2. Family Health Systems  
Twin Falls, ID
3. Community Health Center  
Salt Lake City, UT
4. La Clinica de Familia, Inc.  
Las Cruces, NM
5. First Choice Community Health Care  
Albuquerque, NM
6. Centro de Salud Familiar La Fe.  
El Paso, TX
7. Ella Austin Health Center  
San Antonio, TX
8. Sixteenth Street CHC  
Milwaukee, WI
9. Alivio Medical Center  
Chicago, IL
10. Mainline Health Systems  
Portland, AR
11. Delta Community Partners in Care  
Clarksdale, MS
12. Indiana Health Centers  
Indianapolis, IN
13. Southern Ohio Health Services Network  
Cincinnati, OH
14. CHIP of Virginia  
Roanoke, VA
15. Center for Black Women’s Wellness  
Atlanta, GA
16. National Association of Community Health Centers  
Washington, DC
17. Family Place, Inc.  
Washington, DC
18. Morris Heights Health Center  
Bronx, NY
19. CCHERS  
Boston, MA
20. We Have a Dream Healthy Boston Coalition  
Roxbury, MA
21. Whittier Street Health Center  
Roxbury MA
22. Sea Island Comprehensive Health Care Corporation  
John’s Island, SC
23. Beaufort-Jasper Comprehensive Health Services  
Ridgeland, SC
24. Collier Health Services  
Immokalee, FL
25. Health Choice Network  
Miami, FL
Miami, FL
* CHEP UTHSCSA SMART Development Center  
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**References**


