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THE HISTORY AND NATURE OF THE BALTIMORE APPLICATIONS PROJECT

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ABSTRACT

The Baltimore Applications Project (BAP), an experiment jointly conducted by the City of Baltimore and the National Aeronautics and Space Administration (NASA), was begun in May 1974 in response to a request by the City. The main purpose of the BAP is the identification of technology for beneficial application to the City operations. An independent evaluation, performed after three years of operation, indicates very good project results and confirms the choices of the experiment's basic features:

- Reliance on client "pull."
- High-Selectivity process for transfer agent selection.
- Problem-solving orientation.
- Maintenance of "low profile" of activities.
- Independence of transfer agent.
- Strong backup support by agent's employer.

The Federal family includes several agencies with technology transfer missions, usually in defined areas (e.g. transportation, environment, energy). But there is no Federal agency assigned to specifically address transfer to the public sector. The BAP demonstrates one way to achieve successful intergovernmental transfer of Federal technology.

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INTRODUCTION

Organizations set up to serve public needs are, in many instances, experiencing diminishing relevance of function. The dynamic contemporary environment--societal demands, national needs, group pressures, economic stresses--calls for change and action. Some public institutions are thus faced with dual challenges: role modification, and operational mode revision. With these challenges come opportunities. The purpose here is to illuminate one such opportunity.

BACKGROUND

The Federal Government annually invests billions of dollars in research and development (R&D). Numerous studies and experiments have been conducted to explore ways to increase the national benefit derivable from the federal R&D investment. In recent years, particular interest has been shown in how to transfer federally funded technology to states, counties, and cities; i.e. intergovernmental transfer. National Science Foundation (NSF) alone has, since 1971, sponsored five different programs which are experiments in technology for towns and cities. The nationwide Federal Laboratory Consortium offers the technical assistance of five agencies to local governments (and, incidentally, to private industry as well). Fifteen or more departments and agencies each have a group charged with technology transfer or utilization. These and other attempts to achieve effective intergovernmental technology transfer have either failed or been less than fully successful. Apparently there remains a lot to learn about how Federal technology can beneficially be transferred to state and local settings.

Institutions of higher learning, particularly those with strong science and engineering programs, would appear to be likely sources of technological know-how useful to state and local government operations. Not surprisingly, then, technology transfer experiments have been conducted in which a university provided the backup support for one or more transfer agents.

Most large, important segments of private industry are based on the technology of one or more scientific disciplines. Attempts have been made to use the technical prowess of private corporations, particularly

in the aerospace industry, to provide the needed support for a transfer agent or adviser for a city.

A variety of donated-services groups have been formed to provide scientific and technological advice to mayors and governors (and even to state legislatures). Advisory councils have been formed with volunteers from government, industry, and academe; such groups often include impressive arrays of talent, knowledge, and experience.

Several cities, on their own initiative, have established full-time positions for a technology agent or coordinator whose assignment is to couple operating departments with external sources of applicable technology. The actual role of the agent varies in these city-initiated experiments; in some instances the agent performs the innovator role, in others he acts as a broker to link user to innovator. City agents usually report to the office of the mayor or city manager. A variety of salary arrangements is used including city payroll, federal agency payroll, and shared-salary arrangement under the Intergovernmental Personnel Act of 1970. Another variation is provided by the twenty-seven local jurisdictions participating in the National Science Foundation experiment called Urban Technology System. Here the salary sharing is on a sliding basis.

To the growing list of intergovernmental technology transfer experiments another may now be added. The Baltimore Applications Project (BAP) was officially begun in April 1974 as a joint experiment by the City of Baltimore, Maryland and NASA's Goddard Space Flight Center, Greenbelt, MD. That the BAP is essentially unique can be seen by examination of its history and nature.

BAP CHRONOLOGY

Events leading to the BAP were triggered by an article in the New York Times of October 13, 1973 (1). Three days later, Robert C. Embry, Jr., then Baltimore's Commissioner of the Department of Housing and Community Development, wrote to the NASA Administrator:

"We read with great interest of NASA's relationship to New York City as explained in the Times of October 13, 1973. Baltimore would very much like to participate in such a program by having a similar person assigned to work with us. Would you please indicate who we might speak with to work out the details of such a program."

Embry's letter was routed to NASA's Office of Industry Affairs and Technology Utilization for reply by Edward Gray, then Assistant Administrator. Meanwhile, Paul S. Sarbanes, at the time Congressman from Baltimore, wrote to the Administrator supporting Embry's request and urging a prompt response. On November 21, in response to Embry's request, Gray wrote to suggest that

Embry contact the Technology Utilization Office director, Jeffrey T. Hamilton, to explore possible arrangements. Hamilton then called Donald P. Hearth, Deputy Director of Goddard Space Flight Center (GSFC). After describing the Baltimore request, Hamilton found that Hearth was willing to work with him and City personnel to discuss possible arrangements, including those in which GSFC would be a direct participant.

On December 11, 1973, almost two months after Embry's request, a meeting of Baltimore and NASA representatives was held at GSFC. NASA activities in technology transfer were discussed along with possible arrangements for a NASA-Baltimore joint effort. The major consideration turned out to be how to work out an agreement satisfactory to both parties. There was considerable enthusiasm about potential benefits, so all agreed to investigate possible approaches and to meet again.

It was not until January 21, 1974 that the next meeting took place-- but the meeting was a key one. By the time it took place, the GSFC was committed to performing the NASA role. The meeting was held in Baltimore and was attended by Mayor William Donald Schaefer and eight other City officials. There was discussion of technologically susceptible problems and of possible arrangements for a NASA-Baltimore experimental project. The meeting produced two action items for NASA/GSFC: (1) draft a memorandum of understanding (MOU); (2) select one or more NASA candidates for assignment to the City. It was agreed that the NASA representative would serve in the Mayor's Office where he would be provided necessary office space and support services. On the date of this meeting, Mayor Schaefer wrote to the GSFC to express his appreciation of "...a very productive and interesting session..." and to pledge his continuing cooperation.

During the month of January 1974 the GSFC implemented a rather sweeping reorganization. A new Engineering Directorate was established and in it there was set up an Office of National Needs. It was to this office that Deputy Director Hearth, very late in January, decided to assign the Baltimore project. During the months of February and March, under the direction of the National Needs Office, the Baltimore Applications Project was formulated, transfer agent selection was made (2), MOU drafts were prepared, and arrangements were made for project start-up. Thus on April 12 the final MOU was sent to Baltimore--two weeks later, Mayor Schaefer and Dr. John F. Clark (then Director, GSFC) participated in a signing ceremony and press conference in the mayor's office.

On May 6, 1974, Thomas Golden began his assignment as Director, Baltimore Applications Project. His experiences and observations are fully reported elsewhere (3). Suffice it to say here that, typically, over 40 tasks have been simultaneously tackled in a variety of discipline areas; energy, health, housing, management, pollution, safety, solid waste, water supply, etc. (4).

After 2½ years of operation, the BAP was evaluated by a panel of the National Academy of Public Administration (5). The panel was asked to (a) evaluate the BAP achievements, (b) determine the degree of accomplishment of objectives, and (c) assess the applicability of the BAP modus operandi for continuation in Baltimore and for extension elsewhere.

The BAP is now completing its fourth year of operation. In the last year a significant variation has been introduced: the NASA representative has participated in the implementation phase of a project. This is contrary to the first years of the experiment in which assistance was provided up to the decision-making point only.

NATURE OF THE PROJECT

The BAP experiment is a revealing case study in the technology transfer process. First, there was enlightened interest by the City of Baltimore officials. This led to a client-originated request for assistance. The request and subsequent events bespeak a willingness to change. Prerequisite to change, of course, is open, honest revelation of situations offering opportunities for improvement. This requires a client-adviser relationship based on mutual trust and regard.

On NASA's part, there was positive response to a non-mission oriented request. Without inappropriate delay, the opportunity to act was offered to, and accepted by, agency officials who were interested in intergovernmental assistance and who were willing to commit to devising and conducting an experimental arrangement. The geographical and political ties between GSFC and Baltimore represent additional favorable circumstances. It is also noteworthy that GSFC maintains a strong professional staff with capabilities in many technical disciplines.

Although GSFC had no previous experience in experiments similar to the BAP, analysis led to the following choices of basic features.

--Reliance on client "pull." Consistent with the client-originated request for assistance, work is done with the client to help develop his inventory of problems and opportunities.

--High-selectivity process for transfer agent selection. It is patently inconsistent to thrust any but the highest capability people into the unaccustomed, difficult arena of intergovernmental technology transfer.

--Problem-solving orientation. Consistent with client pull, the name of the game is problems looking for solutions, not vice versa.

--Maintenance of "low profile" of activities. High visibility can nullify the opportunity to complete a meaningful experiment.

--Independence of transfer agent. The agent whose salary is not shared by the client enjoys a detachment that contributes to high performance.

--Strong backup support by agent's employer. In addition to ready access to technical talents and facilities, technology transfer activities should have clear managerial endorsement.

Basically, the BAP is an experiment to see if a senior technologist, appropriately selected and supported by a Federal agency employer, could assist city officials in the beneficial adoption of technology by performing the role(s) of a technology transfer agent responding to client "pull." There is good agreement among the participants and the evaluators that the BAP is "...a successful demonstration of the 'user-pull' strategy for technology transfer. It definitely is a contribution to a better understanding of the process of technology transfer and utilization." (5)

Whatever remarkable or unique set of circumstances the experiment may exhibit, the BAP appears to have been successful. Invariably there arises the question of repeatability. Whether or not the project is repeatable, the experience does seem to provide some sound choices of technology transfer principles.

"We have the technology and the means of advancing that technology. We have the intellectual talent and the institutions to develop it and liberate it. We have, or we can build, the systems and organizations, public and private, through which our common goals can be pursued." (6)

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