

A SURVEY OF CURRENT INFORMATION CENTER PRACTICES
IN SOUTHERN CALIFORNIA

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ABSTRACT

Much has been said in both the academic and practitioner literature about what the role and structure of the Information Center (IC) should be. The purpose of our study was to compare current IC practices with what the literature says. This was accomplished by surveying several Southern California ICs using semi-structured questionnaires during on-site interviews. This paper reports preliminary findings based upon data from three of our sites. The results were mixed, showing both convergence and divergence with prescriptions in the literature.

advance, the information center was designed to provide many important functions for its constituency.

The concept of the IC was developed by IBM in 1974 with the express intent of decreasing MIS service backlogs. In its theoretical development, the information center was "... a portion of the Information System's development resource organized and dedicated to support the users of IS services in activities such as report generation and modification, data manipulation and analysis, spontaneous inquiries, etc. The fundamental premise underlying an IC is that if provided proper education, technical support, usable tools, data availability, and convenient access to the system, users may directly and rapidly... and willingly... satisfy a part of their business area requirements that depend on the IS environment [2]. In other words, the overall goal of the IC was to enable a user to obtain appropriate individual information, with the user contributing heavily to fulfilling their own IS needs.

1. Introduction

Much has been said in both the academic and practitioner literature about what the role and structure of the Information Center (IC) should be. The purpose of our study was to compare current IC practices with what the this literature. This was accomplished by both reviewing the literature and conducting a survey of several Southern California ICs. This paper reports preliminary findings based upon data from three sites.

End-user computing can be defined as the direct assumption of system development and data processing tasks by the user of the service for his/her own direct benefit [4]. EUC developed in response to several conditions: impatience of users waiting for MIS to fill requests, a better educated and more computer literate user community, the advent of user-friendly software, and ultimately; the development and

2. Research Approach

The responses reported here were obtained from on-site interviews conducted by two of the authors. In each company, an IC manager, an IC user, and the IS manager were interviewed. The survey instrument consisted of 114 questions, most of which were open ended, e.g., "What do you see as the major problems facing the IC?". The questionnaire was mailed to the respondents in advance of the interview. The participating firms were found by contacting the Information Center Management Association (ICMA), an organization active in the Los Angeles area. All firms were members of ICMA. One firm was in the air freight business, another was a large bank, and the third was an aerospace company.

Although the questionnaire dealt with a large number of issues, subsequent sections discuss are limited to the following IC issues: services

provided, history, degree of support, role vis-a-vis IS, user concerns, controls, relative success, and the future.

3. Information Center Services

Examination of the practitioner and academic literature has produced a general concurrence concerning the breadth of services that should be provided by an information center. These include: (1) education in the use of hardware and software applications; (2) timely assistance to user questions; (3) consultation to find solutions to work problems through information technology; (4) administrative support (e.g., database access authorization and passwords); (5) rapid access to reference manuals; (6) assistance in developing and debugging programs; and (7) product evaluation and planning (standardization issues, etc.).

The literature emphasizes assistance in the development of application programs (initiated by users) as an important task of IC personnel, however, the support has been designed to be mainly advisory in nature.

The services provided by the information centers surveyed differed more in their emphasis than the literature. Training and education has been the main activity (in terms of time and resources devoted) for IC personnel, with user support close behind. In every company interviewed, very little formal programs have been arranged for user-initiated application development. Perhaps there is a territory issue at work, wherein the MIS department views application development as their area of expertise. The ICs have also been charged with controlling standardization of end-user systems.

Standardization issues are addressed by the ICs, but soft controls are used as much as possible. For example, in all but the most critical functions (i.e., the engineering department in an aerospace company uses hard controls), the ICs have compiled a recommended list of the hardware and software they will support. This approach does not preclude a user from using something not on the recommended list, but the IC does not guarantee that it can provide support, nor will it spend time learning the system in question. Also, in those instances where software and hardware is purchased through the IC (two out of three), discounts associated with purchasing through a central source are lost by choosing something off the suggested list.

4. Organization's IC History

The impetus of implementing an information center varies depending on the firm in question, but it is typically for one or more of the following reasons: end-user computing creates a need for training, standards, assistance, etc. that can't be handled by traditional MIS, a company wishes to gain a strategic IS advantage by using its IS resources more effectively, a company is forced to react to meet the actions of a competitor that has installed an IC, and/or a company seeks to be at the technological forefront (often irrespective of the alignment between the company's needs and the technology). When the decision has been made to develop an information center, many considerations must be examined, but initially, the role of the IC must be established.

"The first step in organizing an information center is for corporate management to decide exactly what role the center is to play. Then, to define the function of the center, a mission statement is prepared... A detailed operating plan should be attached to the mission statement... containing information regarding the structure, environment, and activities of the center...". Included in this statement for the IC are: justification and strategic direction, placement in the organization, support and services, physical facilities, staffing, and financing [1]. In terms of the IC's role, the literature boils it down to supporting users in various IS activities so they can solve their own business problems.

The company interviews yielded some very interesting, albeit surprising results. The impetus for establishing an IC ran from end-user computing issues (productivity, standards, etc.) to attempts to alleviate the MIS backlog. However, when asked what the role of the IC was, the IC managers cited white collar productivity increases or the need for end-user support and organization. However, the clear impression was that not much had been formally written (this was confirmed by one such manager). Upon further inquiry, it was discovered that none had performed significant research on the formation of an IC, two out of the three did not have a written mission statement, and only one had followed the prescriptions of authors in the field in terms of constructing an operating plan. This lends credence to the allegation that sometimes companies adopt

technology with little contemplation of how well it solves their particular needs. "It is apparent that the IC was often started as a solution to a problem that could not be solved by time-honored DP methods and that the IC was created by edict as opposed to being studied and justified...to death." [2]

5. Support for the Information Center

The greatest predictor of success for a project is the degree of top management support. This is true not only in its inception, but throughout its existence. This hypothesis becomes even more significant when the project's bottom-line value is difficulty to quantify, as is the case with an information center.

"...Many IC veterans claim that the key to survival these days is being visible to senior corporate management. It's far from enough just to have the ear of data processing chiefs; the company's movers and shakers must also know what the information center is accomplished if it is to be seen as having long-range strategic importance to the firm." [9]

Thus it appears that marketing information center benefits to top management is an imperative to long-term viability. However, the user cannot be ignored.

Marketing an information center is a delicate task. The literature is replete with admonitions to start slow to ensure that the services advertised can be delivered. This can be questionable when staffing is limited and when the invisible demand is estimated to be 535% greater than the known backlog [2]! The IC should not risk discouraging its constituency from using IC resources by not being able to meet the demand. Conversely, however, if the user is unaware of the services available through the IC, it may be disbanded due to disuse. The IC therefore, must make users aware of its services and convince them to take advantage of them. This can be accomplished in the following ways: Publishing a newsletter, establishing user groups, promoting voluntary use of IC services, soliciting management support and involvement, and illustrating the benefits gained through user developed applications.

A newsletter is probably the most effective method of disseminating information about IC services and activities. Newsletters ought to contain: (1) a current list of the names, phone extensions, and software specialties of the IC staff, (2) a list of the hardware and software currently

supported by the IC, and (3) accounts of users who have successfully applied a software product to their individual problem. In addition, newsletter can publicize product evaluations, the availability of recent acquisitions, and the implementation of upgrades for existing software products [6].

IC sponsored user groups are an excellent way to create and increase user awareness. User groups may be held monthly or quarterly to illustrate new version releases, demonstrate time saving techniques, announce the impact of changing technology, and air problems and difficulties encountered. The purpose of these meetings would be to keep the user base informed of the latest technological developments.

Promoting voluntary use of IC resources has proven to be more effective than directives from functional managers. Personal attention during the initial introduction to various products can reinforce voluntary use.

As previously mentioned, management support and involvement is crucial to IC success. Managers must provide inspiration, be patient by furnishing time to allow their staff to take advantage of training opportunities, and the use IC themselves as an example.

Lastly, users must be shown the value of the systems that IC supports. This can be accomplished most effectively by solving a problem that the user is grappling with at that point in time. 4GLs and the like can be employed to demonstrate the ease with which the user can solve his/her problems with information systems and IC support.

Within the surveyed companies, there was widespread support for the formation of the IC, especially by upper management. After the IC had been in place for a time, the focus of support shifted to users and user management. The following chart depicts the ordinal responses of the IC manager when asked to rank support of the IC:

	COMPANY		
	1	2	3
Top Management	1	4	3
MIS Management	3	3	4
User Management	2	2	2
IC Users	4	1	1

One possible explanation why top management's support for IC is lower than expected involves the size of the companies interviewed. Top management is very far removed from the operation of the ICs, and probably view the center as a necessary expense of doing

business. The relatively low comparative support attributed to MIS managers is not surprising; in fact, one would expect it to be the lowest if it were not for the fact that the IC has the potential to reduce the service demands on MIS. As expected, user management and other users generally support the IC most ardently, because the IC increases their productivity and make their tasks easier.

6. Information Centers vis-a-vis MIS

The division of responsibility for providing information services is an important topic for both the IC and the MIS department. Not enough coordination produces unneeded overlap, whereas too much overlap could result in territorial disputes. However, it is generally agreed that more coordination is preferred to less. Many authors have suggested that some structural reporting relationships are superior to others. For instance, it is recommended that the DP manager and the IC manager report on the same level. [See Exhibit 1]. The following statement explains why:

"The manager of conventional development may feel attacked and in danger of losing his empire. His rival running the information center appears like a hero, and he does not. He may argue against the new methods. Great opposition is sometimes encountered to the setting up of, or expansion of, information center operation." [3]

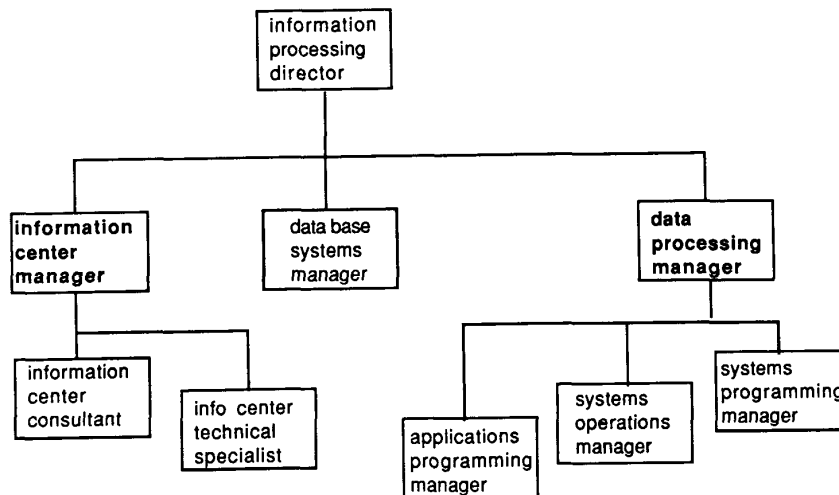
Although there are many gray areas, responsibility for information services at the surveyed companies were divided along similar lines. MIS has taken large projects (including application development), canned reports, and most mainframe activities, including indirect data access. The IC fields ad hoc user requests, indirect data access, and most PC related functions.

The structure of the ICs in the three companies ignores the recommendations made by the "experts". All of the ICs studies report to the DP manager, with only one reporting to both the DP manager and the IRM director. When asked why they had chosen this reporting relationship, the IC manager's comments were that I had just evolved that way or it made the most sense. None have reported any problem to date with this arrangement, which is puzzling given the scenario described above. Another item that is counter-intuitive is the fact that the structure, number of personnel, and backlog of MIS has remained basically unchanged since the creation of the ICs. One would expect MIS to be able to offload work on the IC that they traditionally handled, but this has been offset by greater user demand.

7. User Concerns

Supporting end users is a complicated task for the IC. The center has to contend with a broad continuum of computer literacy, as shown in Table 1

EXHIBIT 1.



adapted from [8]. They also need to publicize the resources available to the users, and specify who can use them. The IC needs to determine frequency and method of training users, degree to which 4GLs and other user programming languages will be supported, timeliness of service, and so on.

TABLE 1
CATEGORIES OF END-USERS

1. Non-programming End Users who only access to computer-stored data is through software provided by others.
2. Command Level Users who have a need for access to data on their own terms. They perform simple inquiries and calculations, and generate unique reports for their own purposes.
3. End-User Programmers who utilize both command and procedural languages directly for their own personal information needs.
4. Functional Support Personnel who are sophisticated programmers supporting other end users in their functional area.
5. End-User Computing Support Personnel who are most often located in a central support organization such as an IC.
6. DP Programmers who are similar to the traditional COBOL shop programmers except that they program in end-user languages.

The surveys produced the same general conclusions as the IC literature. User literacy spanned a large continuum, but the users were, on the whole, pleased with the service provided by the ICs. Nevertheless, one user mentioned that she was unaware of the totality of services provided by the IC, and she disliked the fact that only one individual in the IC was an expert on any one system. If that person were unavailable, the IC could not provide rapid assistance. She has developed a rapport with an individual in IRM (MIS), and now bypasses the IC.

All those interviewed stated that the IC is used by everyone, with the exception of one company that has eleven ICs, each dedicated to a specific functional area.

In terms of training, the IC managers were concerned that the training function was starting to overshadow the other functions of the IC. The belief was that if this trend continued, the probability of being disbanded and subsumed into MIS as "teachers" would be greatly magnified. Also, one user manager raised concern

over the degree to which the IC should devote special attention to those who cannot seem to grasp computing technology. In his company, some users have been monopolizing IC personnel and not really internalizing the knowledge. He proposed no remedy for this dilemma.

8. Information Center Controls

An IC should evaluate the effectiveness of its users and itself. However, in a study made by L. W. Hammond, 70% of the firms he examined did not quantify and record benefits in any way [6]. A convenient method to access IC functioning is an audit. An audit should assess the security, documentation, and maintainability of its user-developed retrievals and systems. It will also help determine whether users are properly applying the tools to the appropriate tasks.

"A formal evaluation can show the IC areas for improvement. Furthermore, the identification of specific successes and achievements can form the basis for the expansion of staff and services." [6]

Another important control category is the fee structure for the IC. Does the charge for the IC go into the overall budget? Is it billed to user departments? Is it counted as company overhead? These issues are very important because an inappropriate billing arrangement could discourage use or promote irresponsible use. For instance, if a department is charged for IC services, it may attempt to solve its problems elsewhere. Or, if it's free, a department might call upon IC for everything, no matter how trivial.

• A chargeback system can yield benefits to all concerned. Users can analyze the value of benefits received versus charges and construct a cost-benefit analysis. The IC can perform similar calculations to expose areas for improvement and to justify its existence to top management. Top management can use the figures to determine the effectiveness of the IC and whether it should be expanded, disbanded, or left unchanged.

The control characteristics of the companies under examination reveal that effectiveness measures are not utilized extensively. The most formal procedure discovered was one company's practice of auditing all computer applications for usage patterns. No formal IC effectiveness evaluations have been used, though. Chargeback systems are not heavily used either.

Charges for use of the IC are not plainly visible to users, and all three companies had different procedures. One

charges for very large tasks, but overall the IC expense is charged to overhead. Another charges for products but not for services. IC expenses are part of the overall SDD (DP) budget. The last company does not charge for any IC services. It seems that the companies are more concerned with not dissuading the use of IC than controlling costs. Perhaps this is a function of the relative newness of the ICs to each company.

9. Success of the Information Center

As previously mentioned, hard data on the effectiveness of information centers has rarely been collected. Nonetheless, the anecdotal success stories usually include measures such as the following: enhanced (more competent or literate) users, improved productivity, better information, and an improved MIS image. Other measures that might be considered are: percentage of user base trained, volume of under-written programs, user familiarity with the range of services provided by IC, quality of the data (current, consistent, accurate), etc.

When asked what they deem as a good measure of IC success, the interviewees did not express any easily quantifiable criteria. Some of their responses were: amount of assistance requested, the number of users, management's opinion of the IC, incremental advance in product quality attributable to IC efforts, and the IC's ability to affect the bottom line. One individual stated that if usage was any indication of success, the IC was fabulously successful. Everyone from vice presidents to secretaries have been using the IC. However, if success was judged by how many user-applications were developed, the ICs examined for this paper would fail miserably.

10. The Future of Information Centers

Information centers evolved out of a phenomenon known as end-user computing. As seen in Exhibit 2, it is predicted to continue growing at an astounding rate into the 1990's. This amazing growth would infer that information centers are here to stay. It is generally agreed that end-users will always need troubleshooting, training, and consultation in order to take full advantage of their computing resources. Also, there is a great deal written in the press about ICs, and even an IC magazine. But, perhaps the most persuasive reason for predicting the longevity of ICs are the potential benefits. For instance, the information

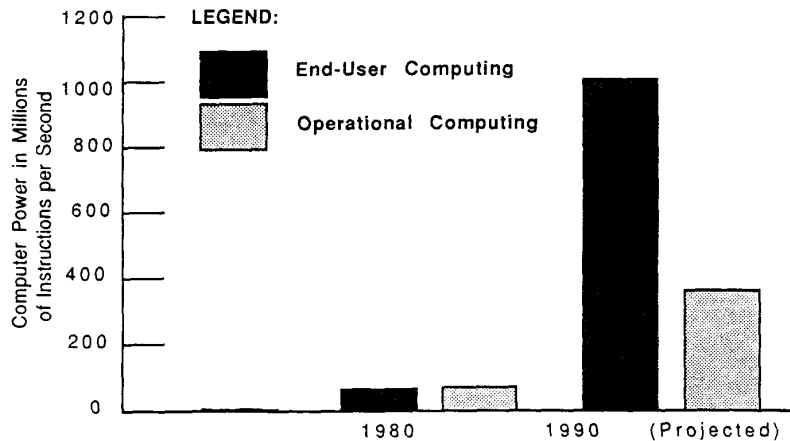
center can offer [3]: (1) a decrease in the cost to develop and maintain many application programs; (2) improved productivity of high-priced professionals; (3) extended management capabilities, especially in planning; (4) better relations between DP and its users; (5) reduction in development and maintenance costs of 30-50%; (6) better attitudes on the part of skilled programmers since they are relieved of mundane tasks; (7) less stress on DP head count figures; (8) better control of resources by DP than when circumvented by users; and (9) excellent estimated return on investment (IBM Canada quotes a \$2 return on every \$1 invested). While this is an impressive list of benefits, there are also signs that the IC is falling into disfavor in some circles.

Some researchers and industry observers feel that information centers are a transient phenomenon. There is some evidence to support this view. The individuals interviewed in this study recounted many instances of ICs in other companies being disbanded or subsumed under MIS. Further, they expressed concern about their own IC's long-term viability. It appears that although training and other forms of user support will always be needed, the demand will diminish as the user base becomes more literate. Also, local "experts" will begin to take business from the IC because they are right on the spot and know the users personally. Therefore, the IC needs to expand its activities into user programming support.

As previously mentioned, the ICs examined did very little with 4GLs or other programming tools. Participation in this activity would ensure that there would be an ongoing need for user support. All the interviewees mentioned that they would like to see their IC move into programming support to ensure its long run survival. An analysis of the trends in computing and software design would allow one to infer that user programming (via 4GLs) is the wave of the future. However, even if ICs began to take on programming support, its days might still be numbered without a bona fide effort to qualify the benefits it provides.

ICs provide a service that benefits users, and ultimately, the company. Because measures of success are largely intangible, it is difficult to qualify the marginal increase in productivity. Nevertheless, it should be attempted. The center could send out evaluations to users that ask the individual to estimate the IC's effect on his/her efficiency and effectiveness. Detailed

EXHIBIT 2
THE GROWTH OF OPERATIONAL & END-USER COMPUTING



tracking of requests by users and other utilization factors can be recorded. It is imperative that some evidence of usefulness be presented to top management on a regular basis, since high level management rarely interacts directly with the IC.

11. Conclusion

The primary goal of an information center is to develop end-user self sufficiency. The center offers technical assistance, consulting services, product support, and training. It focuses on short-term computer-related problems that can be immediately resolved and on the teaching of computer literacy.

Users benefit because they are taught skills they need to know to solve their own problems, and they are given timely advice when they need technical assistance. The DP department benefits because it can now concentrate on systems development and long-range projects. Backlogs are also reduced (technically) once users learn to use packages and ways to modify and maintain programs on their own. The corporate organization, as a whole, benefits because the center promotes efficient and effective use of the company's resources. If the information center can attain/retain top management support by justifying its existence, its future will be assured.

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