

## **A Model Academic Integrated Information Center**

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**Based on the results of the information and technology requirements assessments, three configurations for the model IIC were developed—a basic model, an intermediate model, and an advanced model. These configurations of the model IIC represent increasing numbers and sophistication of support capabilities as well as increasing costs. They represent possible stages of implementation depending on the requirements of the academic unit and the resources at its disposal.**

### **Designing the Model IIC**

Based on the results of the information and technology requirements assessments, the research team developed a profile of the supports, both services and technologies, that could be provided by an IIC to assist faculty and staff in performing their information processing activities. Using a group decision support system, the research team then evaluated each of these

proposed supports in terms of how important its contribution would be to the performance of the information processing activities of the Institute. After three of these evaluation sessions, there emerged a rank ordering of supports from those that were deemed most essential now to those that could reasonably be deferred for future implementation (Branin, et. al. 1989). From this rank ordering the team designed three possible configurations of an IIC for the Humphrey Institute: a basic configuration, an intermediate configuration, and an advanced configuration representing increasing scope, sophistication, and cost of information services (Adams, et. al., 1989a).

A basic configuration would provide the most essential supports required by the faculty and staff; an intermediate configuration would build on the basic configuration by providing additional supports and by enhancing some of the basic supports; and an advanced configuration would in turn build on the intermediate configuration and would provide all of the supports that

were deemed necessary. These configurations could be viewed either as three independent models, any one of which could be implemented by an organization at any time depending on the requirements and resources of the organization, or as implementation stages for an IIC. An organization might adopt a phased implementation of an IIC as described in the three configurations for three reasons. First, the technologies might need to be phased in over time. Second, the end-users might need to be trained to use the technologies as they become available. Third, the capitalization costs of the IIC might need to be incremental. The Institute already has in place numerous components of the IIC as proposed, and at varying levels of resource commitment and technological sophistication. The value of the design configurations is that they allow the Institute to benchmark its progress toward an information-supportive environment and to consciously recognize that its choices of information technologies and services are more or less ambitious at a particular point in time.

The three configurations of the model IIC were presented to groups of faculty and staff in the Humphrey Institute for their assessments of the menus of services and technologies to be offered by each configuration. In general, given their preferences, faculty and staff would have moved all of the supports to be provided in the advanced configuration to the intermediate configuration and some of the supports in the intermediate configuration to the basic configuration, resulting in a two-configuration model. These assessments indicated that faculty and staff need or want a greater degree of support than we had anticipated. Given current financial, technological, and behavioral considerations, however, we believe that the three-configuration model provides a more flexible and realistic model.

### The Three Configurations of the Model IIC

The supports to be provided by the model IIC are grouped under the general areas of information acquisition, information storage, information manipulation, communication, and user education.

#### Basic IIC

##### Specific Information Technologies and Services.

The basic configuration assumes the current levels of computer technology available in the Humphrey Institute which include personal computers, many of which have hard disks, and modems for all faculty and senior administrative staff. The basic IIC supports location and acquisition of information, from various sources, in both print and electronic form. The basic IIC would also facilitate communications among faculty and staff, provide training in the use of various information technologies, and provide assistance in managing personal and Institute data resources. The basic IIC includes

staff and a physical center; it is also an electronic link to people and information sources throughout the world.

The technical environment of the basic IIC will have four main features: (1) all Institute members will have access to a PC-based workstation; (2) the IIC will have a PC-based workstation with communications and mass storage capabilities; (3) the communications between these workstations will be routed through Academic Computing Services and Systems; and (4) access to the University Libraries' LUMINA system is provided through Administrative Information Services.

More specifically, the basic IIC will provide the following services and technological capabilities.

**Information Acquisition.** The IIC will assist Institute members in locating and or retrieving information by providing the following:

- Current awareness—an information service that on a regular basis scans a predetermined set of information resources/journals, copies the tables of contents (physically or electronically), and distributes these to faculty.
- Reference service—professional assistance provided to faculty/staff in locating information resources or databases within and outside both the Humphrey Institute and the University.
- Database searching—software and professional services that assist faculty/staff in accessing proprietary and public databases for research purposes. The IIC will assist faculty who want to conduct their own searches and will also conduct searches for faculty/staff on demand.
- Downloading and conversion—software supported processes for transmitting and reformatting the search results from outside databases to personal databases.
- Document delivery service and interlibrary loan—services currently provided by University Libraries. The IIC will provide assistance to, or act as a clearinghouse for, faculty/staff using these delivery services.
- Retrieval of information from Institute information systems—assistance in identifying the location and retrieval of research or administrative information within the Institute. The administrative information systems include the budget and accounting system, the personnel records system, and the student records system.
- Access to selected University information systems and external networks—communication hardware and software to provide access to outside networks or information services (such as the University's administrative information systems, University Libraries, and proprietary databases). These technologies will be supported and maintained through the IIC.

**Information Storage.** The IIC will assist the Institute in managing the information resources specific to its current activities by providing the following:

- Collection of information resources—an organized and maintained collection of Humphrey-specific

documents (for example, a newspaper clipping file or research reports). These would be resources not ordinarily collected by University libraries.

- Security for Institute administrative and research databases—a base level set of access controls to protect hardware, software, and data.

**Communications.** The IIC will provide additional communication links to colleagues inside and outside the Institute. Internally, *electronic mail* will facilitate communication among Institute members, either singly or in groups. Externally, messages can also be sent via the *BITNET* network to colleagues throughout the world. In the basic configuration these communication links would be provided by the University's shared mini/mainframes.

**User Education.** The staff of the IIC will assist Institute members in using the various information technologies by providing the following:

- Assistance in designing personal databases—technical assistance to faculty/staff who want to design their own research databases.
- Training in software applications—training of faculty/staff for effective use of supported software applications.
- Technical consultation—assistance on the installation, operation, and maintenance of hardware and software.

**Cost Estimates.** The estimated staffing requirements and annual personnel costs for the basic configuration are as follows (Adams, et. al., 1989b):

	FTE	Cost
Professional	2.0	\$ 80,000
Clerical	.5	15,000
Technical	.3	15,000
Managerial	.3	20,000
Graduate Asst.	.75	17,000
Total	3.85	\$147,000.

The estimated annual cost for hardware (amortized over three years) and other commitments, such as subscriptions to online services, for the basic configuration include the following:

Computer Hardware	\$33,500
Communications Hardware/Software	1,650
Subscriptions	12,500
Computer Software	3,000
Miscellaneous Supplies/Furniture	7,350
Total	\$58,000.

Thus, the total estimated annual cost for the basic IIC design is \$205,000.

### Intermediate IIC

#### Specific Information Technologies and Services.

The intermediate configuration posits an enhancement of the technology available in the Institute, most notably a local area network. The technical environment of the

intermediate IIC will be based on a local area network linking all PCs in the Institute to a larger PC in the IIC. The IIC will provide a range of application software and will serve as the communications gateway to external information systems and services. All PCs will be upgraded to "hard disk" level to support the added volume of data collection and transmission.

The functions of the intermediate IIC configuration will be to: (1) continue and in some cases enhance support for the acquisition and importing of information external to Institute; and (2) provide services and technologies aimed at supporting the integration of information processing and communication both within the Institute and between the Institute and the outside world. More specifically, the IIC will support the integration of information processing and communication by providing the following services and technical capabilities:

**Information Acquisition.** The IIC will provide access to *University information systems* not currently available on the University's telecommunication network and assistance in downloading these data.

**Information Storage.** The IIC will assist the Institute in managing the information resources specific to its current activities by providing a network version of a *database management system* for faculty and staff use in designing compatible databases and by assuming responsibility for organizing and *managing the various collections of ephemeral materials* that are collected and currently maintained by individual faculty and staff and by some of the Institute's research centers and projects.

**Information Manipulation.** The IIC will assist Institute personnel in manipulating data by providing the following: *desktop publishing* and a *set of software applications* for the manipulation of textual, numeric, graphic, and image data. Examples of such software are WordPerfect, SAS or SPSS, CHART or FREELANCE, RBASE, and QUATTRO. These software applications would also include bulletin board and calendaring capabilities.

**Communications.** The IIC will provide enhanced communication links to colleagues inside and outside the Institute by providing the following: a *local area network* that will link all Humphrey faculty and staff for resource sharing and communications; a *network gateway* to the University's telecommunications backbone providing access to Academic Computer Systems and Services and Administrative Information Services data bases; and *facsimile transmission*.

**User Education.** The staff of the IIC will assist Institute members in using the various information technologies by providing the following:

- Assistance in designing, implementing, and managing the Institute's administrative information systems—technical assistance to the Dean's office in designing, implementing and managing the Institute's accounting, personnel, and student records

systems and other administrative information systems as are created.

- Troubleshooting for software applications—provision of in-house consultation to the faculty and staff of the Institute pertaining to the software applications supported by the IIC and to other software applications with which the IIC staff may be familiar.
- Referrals to University software consultants for those questions which cannot be answered in house.

**Cost estimates.** The estimated staffing requirements and annual personnel costs for this configuration are as follows:

	FTE	Cost
Professional	3.0	\$120,000
Clerical	.5	15,000
Technical	.7	36,100
Managerial	.3	20,000
Graduate Asst.	<u>2.0</u>	<u>42,000</u>
Total	6.5	\$233,100.

The estimated annual cost for hardware (amortized over three years) and other commitments, such as subscriptions to on-line services, for the intermediate configuration include the following:

Computer Hardware	\$ 38,300
Communications Hardware/Software	26,650
Subscriptions	14,500
Computer Software	5,000
Miscellaneous Supplies/Furniture	<u>17,450</u>
Total	\$101,900.

Thus, the total estimated annual cost for the intermediate IIC design is \$335,000.

### Advanced IIC

#### Specific Information Technologies and Services.

The advanced configuration posits an enhancement of the technology available in the Institute, most notably the hardware and software to support a group decision support system. The function of the advanced configuration will be: (1) to provide maximum support for the acquisition and importing of information external to the Institute; and (2) to provide enhanced services and technologies aimed at supporting the integration of information processing and communication both within the Institute and between the Institute and the outside world.

The advanced IIC is a further extension of the intermediate configuration with additional and more advanced facilities for electronic communication. The technical environment of the advanced IIC will be largely the same as that of the intermediate IIC, although the number of users connected to the PC network will increase to include all persons working within the confines of the Institute. In addition, a group decision support system facility will be added.

The additional capabilities offered by the advanced IIC will include the following technologies and services.

faculty and staff in acquiring information by automatically scanning selected databases and extracting and forwarding information falling within prescribed areas of interest to faculty by means of a *selective dissemination of information service*.

**Information Manipulation.** The IIC will assist faculty and staff in manipulating information by *reviewing and evaluating commercial and noncommercial software* for faculty/staff and by providing *group problem-solving hardware and software* for the cooperative modelling of problems such as a group decision support system.

**Communication.** The IIC will assist the Institute in managing its communications by providing voice mail for capturing and retrieving phone messages and *electronic conferencing* that would enable faculty/staff to establish and maintain ongoing conferences on topics of continuing interest to the HHHI among colleagues both inside and outside of the Institute.

**Cost estimates.** The estimated staffing requirements and annual personnel costs for this configuration are as follows:

	FTE	Cost
Professional	3.25	\$130,000
Clerical	.5	15,000
Technical	1.0	46,100
Managerial	.3	20,000
Graduate Asst.	<u>2.25</u>	<u>47,500</u>
Total	7.3	\$258,600.

The estimated annual cost for hardware (amortized over three years) and other commitments, such as subscriptions to online services, for the advanced configuration include the following:

Computer Hardware	\$ 49,600
Communications Hardware/Software	26,650
Subscriptions	18,500
Computer Software	5,000
Miscellaneous Supplies/Furniture	<u>51,650</u>
Total	\$151,400.

Thus, the total estimated annual cost for the advanced IIC design is \$410,000.

### References

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