

# XEROX

Information Technology Group  
Systems Development Division  
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Subject: Common Software Preliminary Work Plan for 2Q77 - 2Q79  
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## Introduction

This memo constitutes a preliminary work plan for Common Software development for 2Q77 through 2Q79. Common Software is application software that is utilized by several application areas and is centralized to ensure consistency and efficient coupling with Pilot and to reduce redundancy.

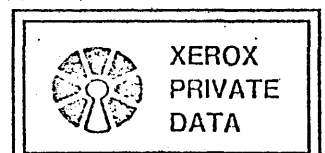
This activity area is concerned principally with user interface facilities, data management facilities, and other utility packages.

## Summary of Projects

This work plan covers the following projects:

- Specification of the user interface for the Diamond prototype system. This may at times include assistance in implementing the specified user interface.
- Assist in the specification of the user interface for Janus/OIS.
- Specification and development of user interface software facilities for the Janus/OIS Workstation.
- Specification and development of data management software facilities for Janus/OIS, including the implementation of some standard data types.
- Specification and development of other commonly used software packages, such as storage allocators, as the need arises.
- Specification and development of user training materials and techniques for all tests sponsored by SDD for Janus/OIS. This includes any software needed to support on-line help aids.

These projects are discussed in more depth in the following sections.



## User Interface

One of the most important aspects of Janus/OIS is its user interface. It is vital to the success of Janus/OIS that the user perceive it as a coherent system. This means that the user must be able to apply learning experiences in one application environment to others. He must be able to predict system behavior based on past experience. To this end, a centralized set of user interface facilities will be constructed. The work that is to be done in this area consists of the following:

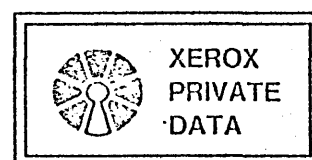
- Collaborate with the application designers and others with expertise in user interface design to help specify user interfaces for the applications, ensuring consistency among them. A principal goal is to achieve system coherence.
- Specify user interfaces for the Diamond prototype system. This includes specification of the Early Bird user interface, in collaboration with the Applications Software Group.
- Design and implement a set of software facilities to be used by the applications in implementing the specified user interfaces. Included is a software interface to the display and user input devices.
- Monitor feedback on the user interface software facilities and improve and maintain them as needed.
- Implement a *help* facility for users, supplying the data base on which it is based. This may be subsequently modified by OSD training personnel.
- Train the users during all tests sponsored by SDD (see test schedule below).
- Work with the Functional Test Group and the OSD Human Factors group to define user tests to determine user's ability to grasp concepts and presentations. In some cases, write the code to support these tests. In some cases, it may be necessary to conduct our own tests if some critical decision depends on the test results.

## Data Management

The data management facilities allow separately developed applications to share data objects within the Janus/OIS file system. Given the expected longevity of the OIS, it is vital that this area be given much attention -- data objects must be handled in a general enough framework to allow for inevitable changes during the lifetime of Janus/OIS. It must allow for different implementations of objects, based on their size, storage medium, and so forth. It must allow applications that are built by separate people at different points in time to share objects in such a way that the object implementation could change in some ways without causing source changes in the using applications.

The software facilities to be provided offer interfaces and implementations for *directories* (map user actions into Pilot file identifiers), *documents*, printable forms of documents, *streams* (a sequential access mechanism), and so forth.

The interested reader is referred to section 4.4 of the *Pilot; OIS Control Program: Concepts and Facilities* document.



### Other Software packages

The Common Software activity will also produce other common application packages as desired. Examples include general storage allocation packages and perhaps common error handling procedures. These packages will be negotiated with applications groups as needed.

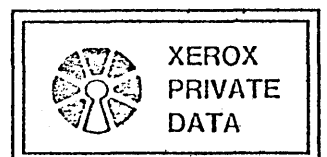
### Strategy Summary

The user interface and data management activities will have as an ultimate focus Janus executing on D0. Much of the software will be developed and tested within the Diamond Alto context during 1977, however. Diamond provides an existing framework that is a prototype of the Janus system (a version of Diamond will be used for Early Bird) and allows an early implementation of the facilities. In the course of this Alto implementation, internal specifications will be produced. Toward the end of 1977 the Janus-1 functional specification will have been produced and the ideas that were implemented and used within Diamond will have been shaken down to the extent that accurate user interface and data management software functional specifications can be produced and a D0 implementation can be derived from the running Alto software.

It is assumed that the first quarter of 1978 will be used for recoding some of the software developed within Diamond and integrating Diamond with an initial release of Pilot on D0. Pieces of Pilot will be developed during 1977 within the Mesa runtime context and on stand-alone D0's/D1's. Pilot Functional Specs are assumed to be firm by 9/77. After this integration has been accomplished, the resulting system will serve as the basis for Janus-1 and the prototype for Janus-2.

In addition to developing user interface software, a major portion of the user interface activity is focused on collaborating with the Applications Software Group and the Prototype Software Group to produce the specifications of the Janus and Diamond user interfaces, respectively. As part of this activity, a number of user tests will be devised and conducted in conjunction with Functional Test and OSD Human Factors. In the course of these tests, it will be necessary to construct certain software games and mock-ups to be used by the subjects.

A training package will be produced for the Early Bird test and will be subsequently improved for the later Blue Ribbon, Operator Acceptance Test, Alpha, and Beta test. This will be done for both Janus-1 and Janus-2. An on-line *help* facility will be part of both products to allow for self training after initial training.



## Major Milestones

### Legend:

A => Ayers, B => Burr, I => Irby, K => Kimball, M => McJones,  
 N => Newlin, P => Peter Bishop, R => Richard Moore, S => Smith,  
 PSG => Prototype Software Group, ASG => Applications Software Group,  
 Prototype-2 => Prototype for Janus-2 on D0, S/W => Software.

### JANUS-1

Diamond (for Early Bird) User Interface Specified	4/77	ISKNB
Janus-1 Directories and Streams Specified (prelim. Rel.)	4/77	IAM
Diamond UI Software Facilities Specified	6/77	IARN
Janus-1 User Interface Specified {with ASG} (prelim. Rel.)	6/77	ISKB
Diamond (for Early Bird) S/W Designed {with PSG, ASG}	6/77	IARNS
Diamond Data Mgmt. S/W, Std. Objs. Specified	7/77	IAMPR
Janus-1 UI Software Facilities Specified (prelim. Rel.)	9/77	IARN
Janus-1 Data Mgmt. S/W, Std. Objs. Specified (prelim. Rel.)	9/77	IAMPR
Diamond Implemented for Early Bird {with PSG, ASG}	10/77	IARN
Janus-1 UI Software Facilities Specified (prog. Rel.)	12/77	IARN
Janus-1 Data Mgmt. S/W, Std. Objs. Specified (prog. Rel.)	12/77	IAMPR
Janus-1 UI Software Facilities Released on D0	3/78	IARN
Janus-1 Data Mgmt. S/W, Std. Objs. Released on D0	3/78	IMPR

### JANUS-2

Prototype-2 User Interface Specified	5/78	ISKNB
Prototype-2 UI Software Facilities Update	6/78	IARN
Janus-2 User Interface Specified {with ASG} (prelim. Rel.)	7/78	ISKB
Prototype-2 Software Designed {with PSG, ASG}	7/78	IARNS
Prototype-2 Data Mgmt. S/W, Std. Objs. Update	7/78	IAMPR
Janus-2 UI Software Facilities Update (prelim. Rel.)	9/77	IARN
Janus-2 Data Mgmt. S/W, Std. Objs. Update (prelim. Rel.)	9/77	IAMPR
Prototype for Janus-2 Implemented {with PSG, ASG}	10/78	IARN
Janus-2 UI Software Facilities Update (prog. Rel.)	1/79	IARN
Janus-2 Data Mgmt. S/W, Std. Objs. Update (prog. Rel.)	1/79	IAMPR
Janus-2 User Interface S/W Released on D0	4/79	IARN
Janus-2 Data Mgmt. S/W, Std. Objs. Released on D0	4/79	IMPR



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DATA

## Janus Test Schedule

Janus-1 Early Bird:	10/77 (Palo Alto), 12/77 (Dallas) {Duration: one year}
Janus-1 Blue Ribbon Panel Test:	9/78 {Duration: a few months}
Janus-2 Early Bird:	10/78 (Palo Alto), 12/78 (Dallas) {Duration: one year}
Janus-1 Alpha Test:	1/79 {Duration: 3 months}
Janus-1 Operator Acceptance Test:	3/79 {Duration: Merges with Field Test until 10/79?}
Janus-1 Beta Test:	4/79 {Duration: 6 months}
Janus-2 Blue Ribbon Panel Test:	9/79 {Duration: a few months}
Janus-3 Early Bird:	10/79 (Palo Alto), 12/79 (Dallas) {Duration: one year}
Janus-2 Alpha Test:	1/80 {Duration: 3 months}
Janus-2 Operator Acceptance Test:	3/80 {Duration: Merges with Field Test until 10/80?}
Janus-2 Beta Test:	4/80 {Duration: 6 months}
Janus-3 Blue Ribbon Panel Test:	9/80 {Duration: a few months}
Janus-3 Alpha Test:	1/81 {Duration: 3 months}
Janus-3 Operator Acceptance Test:	3/81 {Duration: Merges with Field Test until 10/81?}
Janus-3 Beta Test:	4/81 {Duration: 6 months}

## Schedules

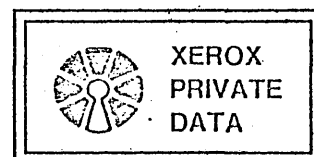
### Legend:

I = Internal Spec for Prototype  
 P = Functional Spec -- Preliminary Release  
 F = Functional Spec -- Programming Release  
 R = Initial Release  
 U = Updated Release  
 D = Design  
 d = D1/0 processor required (subsequent releases are on these processors)

	<u>1977</u>					<u>1978</u>				<u>1979</u>					
	A	M	J	J	A	S	O	N	D	1Q	2Q	3Q	4Q	1Q	2Q
UI S/W (IARN)				I		P			Fd	R	I		P	F	R
Janus UI Spec (ISKB)				R			U				R		U		
Prototype (IARNSKBMP)	F			D			R	U	d	F	DR	U			
Data Mgmt. (IAMPR)					I	P		Fd	R		I			F	R
Training Package-1							R	U			U			U	U
Training Package-1													R	U	
User Testing (ISKB)									On Going						

### Critical Milestones

Timely completion of user interface specifications for Diamond (for Early Bird) and Janus is necessary for subsequent product development. A release of Pilot on D0 no later than 3/78 is assumed. User tests are needed to test hypotheses about user concepts.



Manpower (people)

	<u>1977</u>			<u>1978</u>				<u>1979</u>	
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
Prototype User Interface (ISKBN)	2			2	2	1	1	1	1
Janus User Interface (ISKBN)	3	2	1	2	1	1	1	1	1
User Interface Facilities (IRASN) <sup>1</sup>	1	2	2	1	1	1	1	1	1
Data Management Facilities (IMP) <sup>2</sup>	1	2	2	1	2	2	2	2	2
Standard Data objects imp. (IARN)	1	1	2	1	1	2	2	2	2
User Testing (IKSB)		1	1	1	1	1	1	1	1
Training for SDD Tests (B)	1	2	2	2	3	3	3	3	3
Other packages and Support	*	*	*	*	*	*	*	*	*
<b>TOTALS</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>

## Notes:

\* =&gt; As needed.

1: Current size estimate for UI S/W is 8K words of Object code => 2K source lines => 1 person at 2K/MY. Extra help needed during critical early period.

2: Current size estimate for Data and Storage Management S/W is 16K words of object code => 4K source lines => 2 people at 2K/MY.

	<u>1977</u>			<u>1978</u>				<u>1979</u>	
	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q
Irby	F	F	F	F	F	F	F	F	F
Smith	F	F	F	F	F	F	F	F	F
Kimball	F	F	F	F	F	F	F	F	F
Ayers	H	F	F	F	F	F	F	F	F
Newlin	F	F	F	F	F	F	F	F	F
Burr	F	F	F	F	F	F	F	F	F
McJones	F	F	F	F	F	F	F	F	F
Moore	H	H	F	F	F	F	F	F	F
Bishop		F	F	F	F	F	F	F	F
Trainer1		F	F	F	F	F	F	F	F
Trainer2				F	F	F	F	F	F

**Interdependencies with other departments**

The above described activities depend upon Pilot facilities (especially data management), workstation applications specifications and design, and the nature of the display/keyboard/pointing device/function keys. The Common Software Group will be working closely with the Pilot Group, the Applications Software Group, and the Prototype Software Group.

**Issues and Risks**

Workstation applications not specified soon enough.  
 Unable to specify a user interface conceptual framework that spans the set of applications.  
 Untimely introduction of new user requirements or user devices may cause drastic changes in user interface and thus schedule slippage.

