

TELIDON INFORMATION MANAGEMENT  
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TELIDON INFORMATION MANAGEMENT SYSTEM  
UTILIZATION ASSESSMENT CRITERIA REPORT

" FINAL "

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Executive Summary

The objective of the TIMS project is to determine whether Telidon graphics can play a significant role in the office of the future. Phase I of the TIMS project --User Requirements/Functional Specifications --includes the development and documentation of an initial set of measures to monitor and evaluate the alpha and beta prototypes. This report presents the results of that activity: a set of utilization assessment criteria, intended as the foundation for the Evaluation Phase (Phase III) of the TIMS project.

Our analysis of user requirements identified four major graphics "tools":

1. A graphics template, enabling the user to quickly create effective, quality charts and diagrams using a library of standardized symbols.
2. A business graphics tool, allowing the automatic conversion of numeric data into quality graphical representations.
3. A media conversion and production centre, so that graphic displays created using Telidon (and perhaps other technologies) can be converted to other more traditional media for presentation and dissemination.
4. A communications package, allowing users to electronically communicate graphics to and from other sources, both within the test sites and externally, and to access alpha-numeric and Telidon database services.

For the TIMS project, the utilization assessment should address:

- . The extent to which the system is being used overall in relation to expectations;
- . the extent to which various features are being used and factors impacting on their use; and
- . the degree to which users report that the system enhances or has the potential to enhance their work.

Table 1, as found in Chapter 2, lists a number of research questions that expand on these issues. They can be summarized under the following categories;

- . System Utilization
- . Ease of Use and Responsiveness
- . System Reliability
- . System Adaptability
- . User Attitudes.

A variety of techniques can be drawn upon for measurement, including:

- . System monitoring.
- . Instruments to be completed by the users --e.g., questionnaires, attitude scales, diaries, complaint logs.
- . Instruments to be completed by the evaluators --e.g., questionnaires used in the context of in-person interviews.
- . Observation of users.
- . Secondary data --e.g., examples of graphic output with and without using the system.

More specific assessment criteria related to each tool are in the report.

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## 1. BACKGROUND

### 1.1 TIMS Project Objectives

It is unrealistic to expect that the office of the future will have only textual capabilities. Sophisticated office communications systems will offer a common visual workspace, allowing their users to process and communicate with hand-sketched pictures and diagrams as well as words. Office systems will be linked with external information and transaction services, many of which will employ graphics. Traditional financial, inventory, and other corporate information systems will integrate with the office communication system, and in many cases will report results graphically rather than merely through lists of numbers. In many corporations, the office systems will support sales and promotional activities with quality color graphic visual information.

The attributes of Telidon (standardization, efficiency, equipment independence, resolution, quality, ease of use) suggest a strong potential for its use to support these graphic applications. The Telidon Information Management System (TIMS) project explores that potential by assessing the degree to which specific management and communications functions in the automated office can benefit from the integration of Telidon (NAPLPS) graphic capabilities.

The objective of the TIMS project is to determine whether Telidon graphics technologies can play a significant role in the office of the future, and in the competitive marketing of office automation products in the international marketplace by Canadian companies.

Phippard and Associates has been contracted to analyze and document user needs and to prepare functional specifications for the prototype system. The project team includes participants from OCRA Communications, Inc., Touchstone Policy and Program Evaluation, Inc., and S & S Software Ltd., as subcontractors. These documents will provide the basis for subsequent project phases which will involve procurement and implementation of a prototype system, and evaluation of its usage.

### 1.2 Overall Methodology of the Requirements/ Functional Specifications Phase

The overall scope of this first phase includes:

- Familiarization with the target user group (ADMTI);
- Investigation and synthesis of the perceived graphics support needs of the target user group;
- Analysis of these perceived needs against known results of other studies in similar environments; and

- Functional specification of a prototype system to meet these needs.

Our approach to the study proceeds through a number of stages and activities. Specifically, these include:

<u>Task</u>	<u>Activities</u>	
1. Familiarization	A. Finalization of project plans with the Scientific Authority.	
	B. Familiarization of the project team with the mandate, structure, objectives, operational environment and relevant history of ADMTI, especially the target users for the project.	
2. Requirements Definition	C. Detailed planning of the interview and data-gathering process.	
	D. Individual interviews and focus groups to determine the nature and extent of graphic support needs as perceived by the target users.	
	E. Analysis, research and brainstorming activities to rationalize these perceived needs with the results of similar studies.	
	F. Additional, more application-specific data-gathering, using feedforward and brainstorming techniques as appropriate.	
	G. Synthesis and presentation of user requirements for Telidon graphics, in interim written report and oral presentation modes.	
	H. Preparation of a final report on user requirements, incorporating feedback on the oral presentation and interim report review, as well as subsequent data-gathering.	
	3. Functional Specifications	I. Development and documentation of a set of measures to monitor the operation of the alpha and beta prototypes, to support evaluation of actual versus anticipated usage.
		J. Preparation of a "systems overview" - level functional specification, to be reviewed informally with the Scientific Authority.
		K. Preparation of specifications for detailed system functionality, hardware and software component overviews, performance criteria, cost estimates and schedule for Phase 2, resulting in a systems specifications report.
L. Identification of any suggested revisions to the Phase 3 time table, scope,		



or project activities, if appropriate.

This report represents the results of activity I above. It presents our recommended approach to monitoring the prototype system, as well as specific suggested monitoring criteria.

Before describing these criteria, the following sections of this chapter summarize the major user requirements identified and discuss the rationale for establishing monitoring criteria.

### 1.3 Overview of Graphic Support Needs

Our analysis identified a need for a powerful yet simplified graphic creation capability which is specialized to the kinds of graphics required to support office documents, presentations and activities. This capability must function as a highly automated graphics template, enabling the user to quickly prepare effective, quality charts and diagrams using a library of standardized symbols. It must provide for manipulation and colouring of these symbols, plus the addition of lines and text in a selection of fonts and sizes.

Target users also pointed to a need for the automatic conversion of numeric results and data, whether provided by spreadsheets or other tools, or from manual form by the user, into quality graphical representations. These representations would include bar charts, pie charts and bi- or tri-axial graphs (two or three dimensions). This should be achievable without a burden of user instructions; the tool should be powerful and automatic. However, the users anticipate the need to experiment and interact with the tool for important graphic displays, varying scales, colours, orientations, and other attributes that would be assigned automatically by default by the tool.

As well, graphics capability should allow for a readily accessible, highly automated and simplified production facility where graphic displays created using Telidon (and potentially other electronic technologies) can be converted to other more traditional media for dissemination and presentation. This reflects the fact that Telidon is likely to be accepted and exploited first as a graphic creation medium. Initially, office workers will want to continue using the dissemination or presentation (display) media they are already comfortable with (35mm slides, overhead projector/vugraph, paper, etc.), but will readily accept the superior capabilities of Telidon in the creation of those displays. However, this facility would also support the assembly of independent graphic creations into integrated, thematic presentations, still in the Telidon format.

Finally, ADMTI user needs include the capability to electronically communicate graphics to and from other sources and

destinations, both within the alpha and beta sites and externally to the trial, and to access both Telidon-NAPLPS and regular ASCII alpha-numeric database services.

These four needs represent the chosen focus for the TIMS prototype systems, for the alpha and beta site experiments. There were additional needs identified, both for graphic and for non-graphic systems and capabilities, but these are not within the scope of the TIMS prototype.

Appendix A contains a tabular summary of the specific capabilities required for each of the four "tools" identified above.

#### 1.4 Utilization Assessment Criteria: Purpose of this Report

Evaluation constitutes a key element of the overall TIMS Project. Phase III of the project calls for a thorough assessment of the utilization of the graphics prototype system. Specifically, the Statement of Work for Phase III sets out the following tasks:

- . sketching out the learning curve in qualitative terms as people become familiar with the system in both the alpha and beta sites; and
- . comparing utilization after installation and use of the system with predictions of use made earlier.

Responses to these Terms of Reference presumably describe how each of the potential contractors would approach these tasks. The purpose of this report is not to duplicate those efforts, but rather to outline in general terms the types of issues that should be addressed in a future evaluation and the data sources to be tapped in order to:

- . ensure that the assessment methodology implemented covers the issues identified --i.e., the criteria on which decisions about the success of the system will be based; and
- . to ensure that the functional specifications for the prototype system allow for capturing those data best monitored automatically.

The following chapters provide first, a general framework for monitoring the prototype and second, more tool-specific assessment issues or criteria. In both instances the level of discussion reflects a general aggregation of all user requirements. Detailed monitoring of specific applications and their use by particular individuals or groups can only be developed in Phase III after the system specifications have been finalized and implemented. Similarly, responsibility for developing actual measurement techniques and instruments will rest with the contractor involved.

## 2. Framework for Monitoring the Prototype System

### 2.1 Research Questions

The overall objective in evaluating technology trials is to measure how the introduction and use of a new system affects the users in terms of their effectiveness, time use, quantity and quality of output, quality of worklife and communication. More specifically, in terms of the TIMS Project, the assessment should address:

- . the extent to which the system is being used overall in relation to expectations;
- . the extent to which various features are being used and factors impacting on their level of use; and
- . the degree to which users report that the system enhances or has the potential to enhance their work.

Expanding these general research questions, the assessment of utilization could proceed on the basis of measuring:

#### 1. System Performance

- . system utilization by feature
- . ease of use and responsiveness
- . system adaptability

#### 2. User Acceptance

- . user attitudes
- . functionality with respect to needs
- . support to integration with other activities
- . user identification of system enhancements

#### 3. Productivity

- . reduction of inefficiencies
- . enhancement of individual or group effectiveness in achieving objectives
- . costs in relation to benefits

### 2.2 General Approach

The approach to utilization assessment should be both formative and summative. Formative evaluation is an iterative process. That is, feedback generated by on-going monitoring suggests enhancements to the prototype system. Any resulting modifications should be fully documented in order to link features of the system with outcomes of the assessment. Establishing this type of causal relationship represents the summative aspect of the evaluation approach.

Summative evaluations assess whether the particular intervention or project has achieved the impact initially predicted. In contrast with formative evaluation where data are fed back immediately into project design, summative evaluation attempts to draw overall conclusions about the project's success. Consequently, concern over whether the data are valid is usually greater in the summative context.

Data should be collected before, during and after installation of the prototype in the alpha and beta sites. The pre-test and post-test variables should parallel each other, and throughout the project, system monitoring should record system utilization data.

The measurement techniques employed can be grouped into five categories:

1. System monitoring.
2. Instruments to be completed by the users --e.g., questionnaires, attitude scales, diaries, complaint logs.
3. Instruments to be completed by the evaluators --e.g., questionnaires used in the context of in-person interviews.
4. Observation of users.
5. Secondary data --e.g., examples of graphic output with and without using the system.

Table 1 lists a number of research questions that enlarge upon the issues mentioned above. Questions such as these will be addressed through the types of measurement tools above. Development of specifications for system monitoring should focus on the items in Table 1 marked with an asterisk(\*). User attitudes and work patterns can be measured through questionnaires and techniques such as time diaries and "comment" boxes.

The following chapter selects from and adds to these assessment criteria in relation to each of the general graphic support requirements identified.

Table 1. Utilization Assessment Criteria

A. System Utilization

- \* 1. How frequently and for how long do users access TIMS per day?
- \* 2. How many pages are created per day on average, both:
  - . automatically, using the business graphics tool;
  - and
  - . semi-automatically, using the graphics template tool?
- \* 3. How many pages of graphics are kept in personal storage per person on average? And how often are they accessed to be used again?
- \* 4. To what extent have master and common graphics libraries been developed and how often are they used?
- \* 5. How often do the users select default capabilities, especially for the business graphics tool, in order to decide on the details of the graphic to be produced?
- \* 6. What communication patterns can be identified --i.e., how many graphics are sent by whom to whom?
- \* 7. How often is the TIMS production centre used to produce vu-graph, 35mm slides, photographic prints and colour print-outs?
- 8. What trends emerge over time --i.e., how does system usage change as users gain experience?

B. Ease of Use and Responsiveness

- 1. How long on average does it take to complete system training? To become comfortable with the basic system functions?
- 2. Do users find the on-line help system sufficient or do they have to refer to written documentation? How frequently do they refer to either?
- 3. Are certain tools or functional commands within tools avoided because they are too complex to use? Are default and automatic options chosen for the same reason?
- \* 4. What types of errors do users tend to make and how frequently are they made? Does TIMS help them recover satisfactorily from the errors?

5. How satisfied are users with system response time? Does this vary between tools?
6. Are there peak usage periods during the day when response time is degraded? (Only relevant in a centralized implementation as opposed to personal computer-based)

C. System Reliability

1. How frequently has all or part of the system not been available due to down-time, malfunctions, etc.?
2. Has work been lost in such instances? If so, can the cost of such losses be estimated?
3. How reliable are the individual system components?
4. How effectively are system failures dealt with?

D. System Adaptability

1. Have TIMS capabilities met the graphics needs of users in their day-to-day work?
2. To what extent has tailoring and new software development been necessary?
3. Can users move quickly between tools or between major functions or features within a tool?
4. Can the system be easily modified to meet additional or changing user needs?
5. Can the tools be applied to other groups of the organization without substantial investment? Which tools are most likely to warrant broader organizational implementation?

E. User Attitudes

1. Does the user prefer to do his/her job with the system or without? Why? Specifically, how often and what kinds of graphics are created other than with TIMS and why?
2. What features do users like the most? The least?
3. How do users evaluate the user interface?

4. How do users evaluate each of the major tools and capabilities within tools in terms of importance to them?
5. How do users evaluate the ergonomics of the system (e.g., the keyboard, character colour and resolution)?
6. Do users feel that TIMS helps them to perform their job more quickly and/or with less effort?
7. Do users feel that TIMS helps them to achieve better results in their work? Are these benefits justified in terms of costs?
8. Does TIMS help users to do things they could not otherwise do?
- 9.a To what extent have the system's capabilities met the users' initial expectations?  
b To what extent have the project's outcomes met the user's initial expectations?
10. How would users enhance the system to better meet their needs?
11. What applications of an office automation nature (i.e., correspondence tracking, forms management, tracking mail, etc.) would benefit from TIMS capabilities (and which TIMS tool specifically) in the users' work environment?

3. Graphic Support Requirements: Utilization Assessment Criteria3.1 General Characteristics of Graphics Tools

Several features or characteristics were identified as mandatory for all graphics tools --indeed, for any office automation technology to be introduced to ADMTI. These are listed below, along with potential evaluation questions and data sources.

Assessment CriteriaData SourcesTraining Support

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>. Was formal, scheduled training geared to non-technical personnel made available for each tool?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Review of training material/courses</li> </ul> |
|--|---|

Documentation

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>. Did concise, yet thorough documentation accompany each tool?</li> <li>. Was it geared to non-technical personnel and free of jargon?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Review of documentation</li> </ul> |
|--|---|

On-line Help

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>. Is user-friendly explanation of options, errors and required user actions readily available to the user at the work-screen?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Observation</li> <li>. Review of on-line help system</li> <li>. Problem log</li> </ul> |
|---|---|

Ease of Use

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>. Do the tools require a minimum of effort, interaction and input from the user?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Observation</li> <li>. Hands-on testing of system</li> </ul> |
|--|---|

The Diskette Jungle

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>. Have the graphics tools been implemented and integrated in such a way as to minimize unnecessary proliferation and handling of diskettes?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> </ul> |
|---|--|



### 3.2 The Graphics Template

<u>Assessment Criteria</u>	<u>Data Sources</u>
. To what extent have users employed the graphics template to create graphs, charts and diagrams as part of preparing: . reports and papers? . presentations and briefings?	. Interviews . Diaries . System monitoring
. How frequently are the personal, master and organizational libraries accessed and for what purposes?	. Interviews . Questionnaires . System monitoring
. How often are the default or automatic options used? For what purposes and at what command level?	. Interviews . Questionnaires . System monitoring
. How often do users choose to create a new graphic as opposed to re-using one previously created? Why?	. Interviews
. To what extent has the graphics template been used directly by staff to prepare content for videotex databases?	. Interviews . Questionnaires . Diaries . System monitoring
. How often and for what specific purposes has it been used to create standard forms?	. Interviews . Questionnaires . Diaries
. Has it been used and how frequently to prepare diagrams to support electronic procedures manuals?	. Interviews . Questionnaires . Diaries
. Which target group members are using this tool and for what general applications?	. Interviews . Questionnaires . Diaries . Observation
. Are target group users using this tool for applications not originally anticipated?	. Interviews . Questionnaires . Diaries . Observation
. What are user reactions to the tool in terms of ease of learning and use? Quality of output? Time required to create a useable output?	. Interviews . Questionnaires . Observation
. What do users report to be the key benefits of the tool in relation to its cost?	. Interviews . Questionnaires

If this tool is not being used in cases where applications exist, why not?

Interviews  
Questionnaires

### 3.3 Business Graphics Package

#### Assessment Criteria

#### Data Sources

To what extent has the business graphics package been used to create charts, graphs, etc. from:  
 . Lotus 1-2-3?  
 . other spreadsheets?  
 . numeric data specifically keyed in?

Interviews  
Questionnaires  
Diaries  
System monitoring

To what extent have these graphs and charts been used in reports and presentations?

Interviews  
Questionnaires  
Diaries

To what extent has this tool been used to graphically portray project management, budgeting, accounting and other data?

Interviews  
Questionnaires  
Diaries

To what extent has it been used directly by staff to prepare content for videotex databases?

Interviews  
Questionnaires  
Diaries  
System monitoring

Is the business graphics tool being used to portray statistical performance data (e.g., from an automated correspondence system)?

Interviews  
Questionnaires  
Diaries

Which target group members are using this tool and for what general applications?

Interviews  
Questionnaires  
Diaries  
Observation

Are target group users using this tool for applications not originally anticipated?

Interviews  
Questionnaires  
Diaries  
Observation

How often are the automatic system default values (for parameters such as colour, size, etc.) used and found to be satisfactory?

Interviews  
Questionnaires  
System monitoring

What are user reactions to the tool in terms of ease of learning and use? Quality of output?

Interviews  
Questionnaires  
Observation

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>. What do users report to be the key benefits of the tool in relation to its cost?</li> <li>. If this tool is <u>not</u> being used in cases where applications exist, why not?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Interviews</li> <li>. Questionnaires</li> </ul> |
|---|--|

### 3.4 Media Conversion and Production Centre

- | <u>Assessment Criteria</u>  | <u>Data Sources</u>   |
|---|---|
| <ul style="list-style-type: none"> <li>. To what extent has the graphics facility allowed for and been used to produce hard-copy graphics (black-&amp;-white and colour) whether integrated with text or not?</li> </ul>  | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Secondary data</li> <li>. System monitoring</li> </ul> |
| <ul style="list-style-type: none"> <li>. To what extent has the graphics system been used to produce:               <ul style="list-style-type: none"> <li>. 35mm or vu-graph versions of presentations and briefings?</li> <li>. complete shows or presentations from component graphic screens?</li> <li>. complex components produced by the other tools?</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Secondary data</li> <li>. System monitoring</li> </ul> |
| <ul style="list-style-type: none"> <li>. Which target group members are using this tool and for what general applications?</li> </ul>   | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Diaries</li> <li>. Observation</li> </ul>              |
| <ul style="list-style-type: none"> <li>. Are target group users using this tool for applications not originally anticipated?</li> </ul>   | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Diaries</li> <li>. Observation</li> </ul>              |
| <ul style="list-style-type: none"> <li>. What are user reactions to the tool in terms of ease of learning and use? Quality of output? Responsiveness?</li> </ul>  | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Observation</li> </ul>                                 |
| <ul style="list-style-type: none"> <li>. What do users report to be the key benefits of the tool in relation to its cost?</li> </ul>  | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> </ul>  |
| <ul style="list-style-type: none"> <li>. If this tool is <u>not</u> being used in cases where applications exist, why not?</li> </ul>   | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> </ul>  |

3.5 Communications PackageAssessment CriteriaData Sources

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>. To what extent is the communications package being used to communicate with:               <ul style="list-style-type: none"> <li>. external Telidon-NAPLPS databases? And for what specific purposes?</li> <li>. other TIMS users?</li> <li>. client companies, contractors, other non-TIMS DOC staff, and non-DOC contacts?</li> <li>. research and information databases?</li> </ul> </li> <li>. Which target group members are using this tool and for what general applications?</li> <li>. Are target group users using this tool for applications not originally anticipated?</li> <li>. What are user reactions to the tool in terms of ease of learning and use? Quality of output?</li> <li>. What do users report to be the key benefits of the tool in relation to its cost?</li> <li>. If this tool is <u>not</u> being used in cases where applications exist, why not?</li> </ul> | <ul style="list-style-type: none"> <li>. Interviews</li> <li>. Questionnaires</li> <li>. System monitoring</li> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Diaries</li> <li>. Observation</li> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Diaries</li> <li>. Observation</li> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Observation</li> <li>. Interviews</li> <li>. Questionnaires</li> <li>. Interviews</li> <li>. Questionnaires</li> </ul> |
|---|--|

#### 4. Implications For Test Sites

Phase III of the TIMS project should identify specific criteria linked to the requirements of users and the system actually implemented.

The results of the utilization assessments of the alpha and beta sites can then be compared in order to determine the extent to which the prototype graphics system meets the respective sets of user needs. That is, what characteristics of the two groups (e.g., nature of work, qualifications and experience of staff) might account for differences in such areas as:

- . ease of learning and using number, frequency and types of applications;
- . satisfaction with use;
- . perceived benefits; and
- . integration with other office processes and systems.

Overall, we anticipate significant variance in the monitoring and assessment results for the two sites. This is due to substantial differences in the work environment, and the average user's experience with technology, microcomputers, and Telidon in particular, between the alpha and beta sites.

The levels of need identified for the tools, features, and options, varied between the alpha and beta user groups. This is reflected in the Requirements Report, and specifically in a table in the Appendices to that report, part of which is reproduced as Appendix A of this document. The table attempts to show the level of need for various tools and features, by organizational unit.

The overall TIMS project plan allows for changes to the prototype system capabilities, after the alpha and before the beta installation, based on initial alpha site user reaction. We advise caution in this area. The making of any pre-installation changes to the beta prototype TIMS system, based on preliminary alpha results, in areas where the Requirements Report shows significant differences in need between the two groups, could have a detrimental impact on the accuracy and validity of the assessment results, and/or the beta site user satisfaction with TIMS.

TELIDON INFORMATION MANAGEMENT SYSTEM:  
UTILIZATION ASSESSMENT CRITERIA REPORT

APPENDICES

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APPENDIX A

SUMMARY OF IDENTIFIED REQUIREMENTS:

GRAPHICS TOOLS AND POTENTIAL APPLICATIONS

## APPENDIX A

## SUMMARY OF IDENTIFIED REQUIREMENTS - ADMTI

## PART 1 - GRAPHICS TOOLS REQUIREMENTS

## LEGEND:

1. LEVEL OF NEED: N=no need, M=may use, W=would use, S=strong need  
 2. OUR RECOMMENDATION REGARDING INCLUSION IN PILOT: (column marked "REC")  
 ... Y=yes, N=no, ?=maybe, F=may not be feasible within the constraints  
 of the prototypes, I=may not be important in the prototype scenario

ITEM AND FEATURES:	LEVEL OF NEED PERCEIVED:							REC:
	TARGET USER GROUP			OTHER GROUPS				
	ALPHA	BETA	ADM	DGIE	DGGT	DCS	DMG	
1. Graphics Template tool								
basic (symbols, text)	S	S	M	S	S	M-W	W-S	Y
overlay ability	S	M-W	M-W	M-W	W-S	M	M	Y
automatic date stamp	M	S	M	M	M	M	M	Y
hard copy quality b/w	S	S	W-S	S	S	M	W	Y
hard copy color	S	S	W-S	S	S	M-W	M-W	Y
animation & timing	M	M	N-M	M	N-M	M	N-M	?(I)
windowing-page>screen	W	M-W	N-M	M	W	N-M	M	?(F)
high resolution option	W-S	M-W	N-M	M	W-S	S	M	?(F)
integrated w/WP in use	W-S	W-S	W	W-S	W-S	M-W	M	?(F)
2. Auto. Business Graphic								
basic (w/defaults,opt)	W-S	W	S	S	S	N-M	S	Y
annotation of result	S	W-S	W-S	W-S	W-S	M	M-W	Y
date stamp	M	S	M	M	M	M	M	Y
flexible input formats	S	S	W	S	W	M	S	?(F)
LOTUS 1-2-3 interface	S	W	W	W	W	N-M	S	?(F)
overlays and combines	W-S	W	W-S	W-S	W-S	M	S	?(F)
multiple graphs/page	M-W	M-W	M	M-W	M	N-M	M	?(I,F)
high resolution option	W-S	W	W-S	W-S	W	S	W	?(F)
integrated w/WP in use	W	W-S	W	W-S	W-S	M-W	M	?(F)

... CONTINUED



## PART 1 - GRAPHICS TOOLS REQUIREMENTS - continued:

## LEGEND:

1. LEVEL OF NEED: N=no need, M=may use, W=would use, S=strong need
2. OUR RECOMMENDATION REGARDING INCLUSION IN PILOT: (column marked "REC")  
... Y=yes, N=no, ?=maybe, F=may not be feasible within the constraints of the prototypes, I=may not be important in the prototype scenario

ITEM AND FEATURES:	LEVEL OF NEED PERCEIVED:							REC:
	TARGET USER GROUP			OTHER GROUPS				
	ALPHA	BETA	ADM	DGIE	DGGT	DCS	DMG	
3. Multi-media Conversion								
Telidon to 35 mm slide	S	S	S	S	S	W	W-S	Y
Telidon to vugraph	S	S	S	S	S	S	M	Y
Telidon to color plot	S	S	S	S	W-S	M-W	M	Y
Telidon to good b/w pl	S	S	S	S	S	M-W	M-W	Y
concatenate & compose	S	W-S	S	S	W	W-S	W	Y
timed show composition	W	M	M	W	M	M	M	?(I)
overlay	W	W	M	W	M-W	M	M	?(I)
hi/low res switchable	W-S	M	M	W	W-S	S	M	?(F)
smart color-> b/w conv	M-W	W-S	M	M-W	W-S	N-M	M	?(F)
window composition	W	M	M	M	W-S	M	M	?(I, F)
4. Graphic Communications								
internal within pilot	S	W	W	M	M	M	S	Y
internal teleconferenc	M-W	N-M	M	N-M	M	M	W	N
external network conn	W	W	M	M	M	M	M-S	Y
external teleconferenc	W	M	N-M	M	M	M	M-W	N
vtx-db access - NAPLPS	S	M	M	M	N-M	N	M	Y
vtx-db access - ASCII	S	S	M	S	M	M	W	Y

SUMMARY OF IDENTIFIED REQUIREMENTS - ADMTI

## PART 2 - OFFICE APPLICATIONS:

## LEGEND:

1. LEVEL OF NEED: N=no need, M=may use, W=would use, S=strong need
2. POSSIBLE GRAPHICS UTILIZATION: (POSS. GRAPH UTIL) reflects the potential for the integration or compatibility with graphic tools defined in Part A. 0=none, 1=should be able to pass graphics, 2=may be implemented as or with the help of a Telidon database, 3=may use graphic template tools for content creation/application set-up, 4=may interface with business graphics tools for display of results.

ITEM AND FEATURES:	LEVEL OF NEED PERCEIVED:							POSS. GRAPH UTIL:
	TARGET USER GROUP			OTHER GROUPS				
	ALPHA	BETA	ADM	DGIE	DGGT	DCS	DMG	
1. Generalized Correspondance, financial, & Periodicals Tracking System (with BF, sort, statistics & keyword retrieval)	S	S	S	M-S	M-S	M	M	2,3,4
2. Electronic Procedures Manuals	W-S	S	M	M-S	M-W	M	S	2,3
3. Bibliographic Periodicals Cataloguing, Filing & Tracking	W-S	W-S	N	M-S	M-W	M-W	N	2,3
4. Electronic Form Filling plus Forms Mgmt.	W-S	M-W	M	M-W	M-W	M-W	M-S	2,3

... CONTINUED

## PART 2 - OFFICE APPLICATIONS: - continued:

## LEGEND:

1. LEVEL OF NEED: N=no need, M=may use, W=would use, S=strong need
2. POSSIBLE GRAPHICS UTILIZATION: (POSS. GRAPH UTIL) reflects the potential for the integration or compatibility with graphic tools defined in Part A. 0=none, 1=should be able to pass graphics, 2=may be implemented as or with the help of a Telidon database, 3=may use graphic template tools for content creation/application set-up, 4=may interface with business graphics tools for display of results.

ITEM AND FEATURES:	LEVEL OF NEED PERCEIVED:							POSS. GRAPH UTIL:
	TARGET USER GROUP			OTHER GROUPS				
	ALPHA	BETA	ADM	DGIE	DGGT	DCS	DMG	
5. Telephone & Time Mgmt (as a replacement for features on Kontact units, if they are to be removed)	N-S	N-M	N-M	N-M	N-M	N-M	M	3
6. Common Visual Wkspce/ Teleconference (univer- sal ASCII only) (see also Sec. A # 4)	M-W	M	M	M	M	M	M	1?
7. Project Management Package (to replace current use of LOTUS 1-2-3 for this)	W	W	N-M	W	M	M	M	0-1
8. Automatic Spelling Checker for WP	M-S	M	M	M	M	M	M	0



