

# **INFORMATION TECHNOLOGY STRATEGIC IMPLEMENTATION PLAN**

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## MESSAGE FROM THE DIRECTOR GENERAL

In order for WIPO to respond fully and successfully to the challenges ahead, it will need to shepherd a transformation of working methods and procedures within the International Bureau (IB) and use decision-making processes that are results-oriented. This implies a fundamental change in the time-honored way of doing things. This information technology strategic implementation plan is one of the management techniques I will use to ensure that our transition to the next generation of business processes is transparent, predictable and measurable.

Internal procedures will need to be both simplified and kept in line with advances in information technology. Time and resources will need to be devoted to the identification of appropriate computer-based tools, their integration into administrative procedures, and the appropriate training of staff.

The management structure within the International Bureau will need to be rendered more horizontal in order to capitalize on the talents and creativity of all staff. Some of the tools that have already been implemented include strategic planning and results-oriented budgeting, a new system of internal evaluation and oversight of quantifiable activities and their results, and the modernization of administrative procedures.

The enhancement of capability of the International Bureau of WIPO, through the introduction of simplified procedures and a modern management structure, will allow better communications with Member States. This will be done through various meetings, including the Standing Committee on Information Technology (SCIT). The International Bureau will also utilize information technologies effectively to drive a number of important business projects, which will need the continued full support and participation of Member States and WIPO's other constituencies.

One example of WIPO's Information Technology Strategic Implementation Plan is WIPONET. This state of the art project will be a vehicle for strengthening the relationship among WIPO's constituencies through the creation of a global information network that unites operationally the world's intellectual property offices. It will promote international cooperation by providing fast, low-cost communications. It will facilitate access to intellectual property data, and could be used to foster the protection and improve collective management systems of copyright, and enforce intellectual property rights in the digital environment. Moreover, it will establish the architectural foundation to promote further streamlining and automation of the basic business functions of intellectual property offices worldwide.

The challenges we face are complex and will take many years to complete, but WIPO is committed to the success of its strategically important information systems. We intend to assess our progress continuously to ensure that our information technology resources remain balanced with and support fully the achievement of our most important priorities. We also recognize that the cooperation of all Member States is critical to the transparent implementation of our new strategies. Your ideas for improving the management of WIPO's information technology resources are most welcome. I look forward to your continuous support as we proceed with the implementation of these critically important information technology projects over the next five years.

Kamil Idris  
Director General  
WIPO

## EXECUTIVE SUMMARY

As the new millennium begins, WIPO and its Member States must be prepared to communicate and transact business functions in a rapidly evolving environment that will be driven in considerable measure by information technology. The advent of electronic commerce, combined with a never-ending need to streamline and automate work processes for maximum gains in efficiency and effectiveness, present two fundamental information technology challenges: the mitigation of risk and the opportunity for improvement. WIPO's responses to these challenges are embodied in this Information Technology Strategic Implementation Plan.

This plan builds upon the foundation of information technology that has enabled WIPO to meet the challenges of the past two decades, and it establishes new strategic directions for transforming WIPO's core business processes. The major information technology strategies that will be employed include:

- integrated project planning methods that leverage capital investments,
- coordinated system development approaches based on life cycle management concepts,
- reliance upon open systems and industry standards-based hardware, software and data repositories,
- security policies and procedures that protect information, and
- information dissemination policies that promote the exchange of data and encourage worldwide access to intellectual property information at the lowest possible cost.

The long-term success of the information technology program will be influenced significantly by teamwork among many key players: WIPO's leaders, the Standing Committee on Information Technologies, WIPO's program managers and information technology project managers, the technical staff of the Information Technology Division, and the vendor community that will provide the products and services that will create the next-generation information technology architecture. The roles of these individuals and bodies, and the close interaction they must have, are set forth in this plan. Additionally, we describe some of the organizational changes that have been made to enhance the delivery of services to the internal and external clients of WIPO's IT Division.

WIPO has established a five-year planning horizon for the period 1999 – 2003. As indicated in the following timetable, the planned implementation schedule is an aggressive one:

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Project	1999	2000	2001	2002	2003
Project 1 (Automated IPOs)	Begin collection of requirements and complete business case analysis.	IB will propose to SCIT, list of items to be required under the Minimum Modernization Standards	IB – Review & adjust automation plan under Nationally Focused Action Plan.		
Project 2 (Changeover Assistance)	GlobalPat CD Rom distribution. Develop strategy and draft list of participants for the IP optical disk collections.	Begin provision of CD-ROM data collections and complete assessment.			
Project 3 (PCT Impact)	Complete assessment. Select systems developer and begin reengineering of PCT processes.	Complete Basic system. Stage 1:- Communication on request. Stage 2 – Electronic Image Dossier.	Stage 3 – Replacement of CASPIA. Stage 4 Replacement of CASPRO. Begin PCT RO Project.	Begin PCT Electronic Document Exchange Project.	Deploy Pilot Systems.
Project 4 (Finaut 2000 ERP)	Assessment (Business Case).	Select ERP solution and complete prototype design of core system.	Design and prototyping of replacement system.	Build & Test.	Production System Support.
Project 5 (Other Administrative Support Systems)	Task Force established in May '99. Begin Preparation of Business Case.	Establish simplified & streamlined approval processes, internal communications & routine procedures.	Establish modern records management system. Establish computerized operations system. Establish pilot systems for artificial intelligence in Languages Department.		
Project 6 (MAPS/DMAPS 2002)		Prepare Business Case. Analysis of Platform Options.	Decide whether to migrate MAPS/DMAPS to the WIPO Standard Architecture.		
Project 7 (Copyright Support System)		Conduct Business Case analysis and feasibility study.			
Project 8 (WIPONET)	Complete WIPONET Technical Development Strategy.	Select vendor. Establish management framework and begin implementing Internet connectivity.	Continue the installation of IPO equipment and software security infrastructure and end user training.	.	

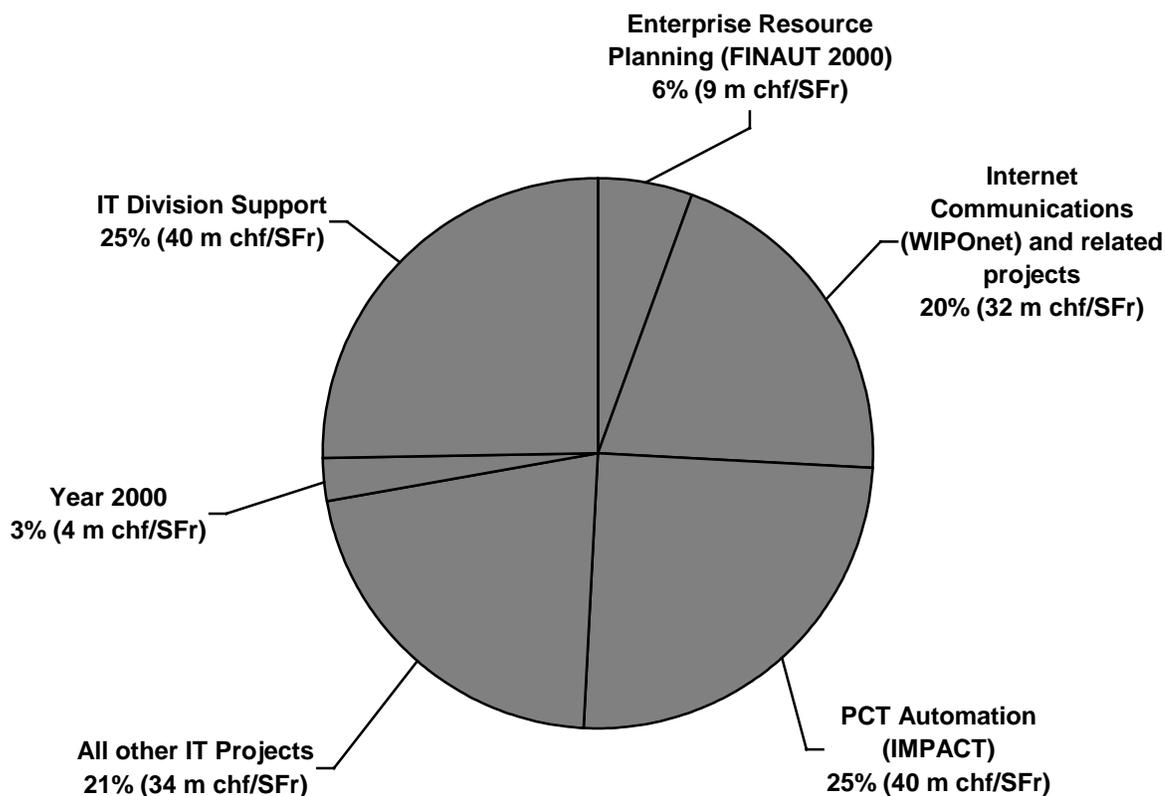
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Project	1999	2000	2001	2002	2003
Project 9 (IPDL – Intellectual Property Digital Libraries)	Agree on clear strategic program/organizational structure at SCIT plenary meeting.	Develop office-specific assistance plans and begin performance measurements.	SCIT assesses program progress/next steps.		
Project 10 (Web Site Development Support)		Establish Team – to assume a continuous responsibility for Management and Administration of the WEB Program.	Create overall design.		
Project 11 (Y2K)	Complete tests of mission-critical mainframe, network and small systems. Conduct independent verification and validation/(IV & V).	Monitor actual performance, activate contingency plans, as required, for the PCT, Madrid and Hague operational systems.			
Project 12 (CLAIMS (Classification Automated Information System))	Establish project team to develop a business case analysis and project plans.	Identify work plan, criteria, management plan, strategy, software frameworks, requirements, specifications, and acquire IT components and services.	Develop classification databases and user operational processes. Conduct pilot projects to test. Develop system maintenance operations.	Complete acceptance testing, transitional activities and Initiate operational phase.	
Project 13 (WIPO Academy Distance Learning Program)	Establish project team.	Develop Business Plan.			
Project 14 (IT Infrastructure Improvement)	Information to be inserted.				

**Figure 1**

Finally, this strategic plan is consistent with the approved budget for the current biennium and the budget that will be presented to the General Assembly for the next biennium. The following graph depicts the projected allocation of funds according to major investment categories:

**Aggregated Information Technology Investment Level  
for 1998 - 2001  
(Total Investment of 159 million chf/SFr)**



**Figure 2**

# STRATEGIC INFORMATION TECHNOLOGY PLAN OVERVIEW

The Standing Committee on Information Technologies (SCIT) was formed in March, 1998 to establish a forum for discussing issues and to provide guidance for and facilitate coordination in the implementation of the WIPO global information network and the provision of intellectual property information services on the network. At its third plenary session in Geneva on June 14 and 15, 1999 SCIT adopted the strategic information technology plan, incorporated below, and agreed to request the International Bureau (IB) to elaborate a comprehensive and detailed implementation plan covering all major projects resulting from the plan. The remainder of this document, the WIPO Information Technology Strategic Implementation Plan, is the IB's response to that request.

## INTRODUCTION

As WIPO approaches the new millennium, the Organization will enter a new era of intellectual property characterized by rapid expansion of demand for new forms of intellectual property protection, greater global coverage and unprecedented growth in the exploitation and use of intellectual property rights.

Intellectual property will no longer be perceived as a distinct or self-contained domain, but rather as an important and effective policy instrument that would be relevant to a wide range of socio-economic, technological and political concerns.

In particular, WIPO and its Member States will face the challenge of adapting to and benefiting from rapid and wide-ranging technological change, particularly in the field of information technology. The latter is the mission of the Standing Committee on Information Technologies (SCIT).

Towards the fulfillment of this mission, the SCIT was established for coordinating and ensuring the delivery of an information technology infrastructure and the policies to facilitate information services for the intellectual property community. SCIT's coordinating role covers activities of intellectual property offices relevant to office automation and to contacts with their applicants or other clients. The ensuring role is to be understood in the context of exchange of intellectual property information among intellectual property offices.

## SCIT'S VISION

SCIT's vision is to achieve a global information technology architecture linking intellectual property offices in WIPO Member States, regional intellectual property offices and the International Bureau for the purpose of generating, communicating and distributing information about intellectual property rights and serving intellectual property rights protection for the global economy of the twenty-first century, while aiming at global worksharing.

## SCIT'S OBJECTIVES

In implementing this vision the SCIT has set out the following main objectives:

- a) Narrow the information access gap that exists between developed countries and developing countries;
- b) Improve the flow of information concerning intellectual property rights among WIPO Member States, regional intellectual property offices and the International Bureau;
- c) Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles;<sup>1</sup>
- d) Improve intellectual property information dissemination;
- e) Consider the information needs and filing requirements of applicants and develop electronic services keeping in mind the need to provide benefits to applicants and intellectual property offices, and to other interested circles;
- f) Help guide the International Bureau to leverage information technologies;
- g) Improve the retrieval of intellectual property information through further development of international classifications of patents, trademarks and industrial designs as efficient search tools.

## INFORMATION TECHNOLOGY STRATEGIES

To enhance the effectiveness of information technology management, the SCIT will follow several governing strategies based on certain fundamental principles and philosophies for achieving specific goals.

### General Strategy

The strategic plan will address several inter-related projects—each can be managed separately, but will be closely coordinated to ensure that inter-dependencies are identified and common information technology and data standards are deployed. Existing technical standards will be adopted wherever practical. The information technology infrastructure is to be managed separately from the application software and the data, recognizing that each component—application software, data, infrastructure—has a distinct life cycle. The International Bureau, with advice from the SCIT, will integrate the management of these components in the planning process.

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<sup>1</sup> See “Statement of Principles Concerning the Changeover to Electronic Data Carriers for the Exchange of Patent Documents” as published in Part 8.4 of the *WIPO Handbook on Industrial Property Information and Documentation*.

## **Information Technology Project Management Strategies**

Information technology projects will follow an established project management methodology governing the life cycle of the projects.

Information technology projects will be managed as investments. Projects will focus on identifying and producing measurable benefits to the intellectual property community, and will apply risk management principles to mitigate risks.

Evolutionary development and incremental delivery of complete products with measurable results to operations will be emphasized.

Plan costs, schedule performance and quality assurance of each project will be baselined in a management control system to ensure adequate visibility for actual progress, accurate tracking of project costs against target dates and costs, and implementation of high quality systems.

## **Information Infrastructure Strategies**

A robust architecture-information technology infrastructure will be implemented. The International Bureau, with advice from the SCIT, will implement an information technology infrastructure based on open system and de facto industry standards wherever practical.

A secure network will be implemented to interconnect intellectual property offices. At the beginning, a virtual private network and Internet technology will be used.

## **Information Infrastructure Security Strategies**

Appropriate guidelines and policies will be enforced to enable secure maintenance and exchange of information, which will keep in view the significant difference in the present level of utilization of information technology among WIPO Member States.

Security policy will address in particular the issues relating to access, authenticity, confidentiality, integrity, non-repudiation, control, reliability and disaster recovery requirements so that advantages of initiatives such as electronic filing, become available to all WIPO Member States.

## **Information Technology Application Software Strategies**

Production-based open standards will be required to support emerging and evolving information technology.

Software re-use and use of Commercial-Off-The-Shelf software (COTS) will be emphasized on all SCIT projects.

Prototyping will be encouraged to help define and refine functional requirements.

Implementation of products should move rapidly from the prototype to the operational stage whenever feasible.

## **Data Management Strategies**

The SCIT will foster and facilitate increased data sharing by pursuing electronic data interchange agreements among WIPO Member States and other international organizations and bodies.

The SCIT will promote the use of standard data models and all elements from a data repository system that facilitates data sharing and data re-use among WIPO Member States and other interested circles.

## **Migration Strategies**

The SCIT recognizes the fact that implementation of global information projects is likely to have significant impact on the intellectual property offices many of which are paper based and do not have adequate search facilities and tools. Significant changes in the existing work practices of intellectual property offices will be essential, if the full potential of such projects is to be exploited. Therefore, SCIT will facilitate the process of evolving guidelines and training for migration from the existing systems to automated systems, so that migration as far as possible is smooth and painless.

## **INFORMATION DISSEMINATION STRATEGIES**

With a view to achieving the widest possible reach of dissemination of intellectual property information, the SCIT will pursue the use of the latest proven technologies. In this context, information dissemination strategies will be guided and reviewed in the light of the application of the most modern information technology developments while ensuring that the needs of the whole intellectual property community (from the general public to intellectual property offices) continue to be served.

Each intellectual property office will have the responsibility, within the above-defined context, for establishing its own public dissemination policy.

An adjustment of WIPO recommendations and national legal regulations concerning the exchange and usage of industrial property data will need to be considered. Basic rules will need to be elaborated on and regularly reviewed for the international exchange of data in electronic form taking into consideration the “Statement of Principles...”<sup>2</sup>

With a view to the use of data collections exchanged among intellectual property offices, appropriate conditions will need to be agreed upon within the SCIT.

## **ORGANIZATIONAL RESPONSIBILITIES**

In order to take maximum advantage of information technology projects, all entities within the context of the SCIT will need to refocus some of their program activities.

### **Standing Committee on Information Technologies**

The Standing Committee on Information Technologies should prioritize initiatives to be accomplished and invite the International Bureau to establish project plans. The SCIT should review the progress of projects to help ensure that projects deliver quality products on schedule and within cost estimates. The SCIT has the responsibility of identifying areas of new information technology projects for which extra funding is required.

### **International Bureau of WIPO**

The successful development, deployment and operation of information technologies requires close coordination and partnership between the International Bureau and the WIPO Member States.

The International Bureau will promote the introduction or development of automated processes into such global protection systems as the Patent Cooperation Treaty (PCT), the Madrid Agreement and the protocol relating to that Agreement. For such promotion, coordination will be of prime importance in respect of the core project initiatives, namely PCT automation, WIPONET, IPDL, IPC Reform, Electronic Filing, etc. Such projects will serve to enhance and facilitate modernization and automation of similar systems in developing countries.

The International Bureau will be responsible for drawing up project proposals and plans for recommended SCIT initiatives. In doing so, it will ensure that account is taken when researching such projects of the special needs of developing countries in particular the availability of the necessary information technology infrastructure, training of staff to use and

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2 See footnote 1.

maintain the systems, provision of necessary training or reference manuals, and allowance for operational use (ongoing maintenance, consumables, etc.).

In the fulfillment of these plans, the International Bureau will ensure the availability of the committed WIPO resources to implement and maintain the SCIT project initiatives within the approved allocation of the budget.

The International Bureau will also be responsible for ensuring coordination between the activities of the SCIT and other WIPO forums (e.g., the IPC Committee of Experts).

## **WIPO Member States and Regional Intellectual Property Organizations**

Intellectual property offices of Member States and regional intellectual property offices should commit resources to implement previously approved SCIT initiatives. Member States should seek to reduce the current duplication of effort by intellectual property offices through sharing of localized collections of global intellectual property information.

Regional intellectual property offices may act as coordinators for their members to support the objectives set out in this strategic plan.

## **Other Relevant Organizations**

Cooperation with other governmental and non-governmental organizations should be used for acquiring information and receiving advice on relevant SCIT topics.

## **ASSUMPTIONS AND CONSTRAINTS**

The information technology planning decisions are influenced by the SCIT's strategic vision and objectives, as well as by various financial, demographic, and technology assumptions and constraints. Several key assumptions and constraints are as follows.

## **Dimensioning Requirements, Integration Requirements and Performance Expectations**

For the successful implementation of vital programs, it will be the SCIT's endeavor to clearly define any dimensioning and integration requirements along with well-defined performance expectations in the context of WIPO and its Member States. Integration aspects will address the existing applications of WIPO and its Member States with that of the programs under consideration. Performance expectation will have continued upward revisions based on the

needs and aspirations of the intellectual property community and the technological developments.

## **Financial**

Many intellectual property offices will have little or no funding to implement and sustain an information technology program. Developing countries will be provided with assistance through WIPO's Special Reserve Fund (SRF) for funding deployment and ongoing costs of SCIT projects.

## **Human Resources**

Limits on staffing for the development of these initiatives exist at the WIPO Member States and regional organizations in developing countries and at the International Bureau. Required information technology personnel skills, knowledge, and abilities increase as the transition to more complex systems continues. Intellectual property offices and the International Bureau will need to assess the feasibility of increasing the skills of existing staff or adding new staff. The SCIT will address, through properly resourced programs, the shortage of human resources and the lack of expertise and endeavor to ensure that experience will be shared among WIPO Member States to increase the knowledge base of all these countries.

## **Economic and Geographical Considerations**

The SCIT will endeavor to develop programs that assist and provide guidance to countries in order to mitigate limitations imposed by economic and geographic circumstances.

## **Language Considerations**

The need to provide intellectual property information in multiple languages will continue. This need will affect all users of global systems and will be considered in the development, deployment and support of production systems.

## **International Cooperation**

The International Bureau, Member States of WIPO, and regional offices will need to continue international cooperation efforts including, e.g., data exchange, the development of information technology and data standards, common search tools, and cost sharing arrangements in order to maximize benefits of SCIT initiatives. Experience in the above-mentioned areas gained by the intellectual property offices of WIPO Member States, regional intellectual property offices and user groups should be given emphasis.

## **Technology Environment**

There is a wide divergence in the level of technological development of participating intellectual property offices. Therefore, the needs of many of the offices around the world vary considerably.

The SCIT shall endeavor to deploy technology solutions, which take into consideration local needs and preparedness.

## **DEVELOPING COUNTRIES: SPECIAL ISSUES**

### **Modernization of Infrastructure**

The SCIT, as part of its strategic information technologies activities, will define and recommend minimum modernization standards (MMS) to be put in place at the intellectual property office level. These MMS should address a wide range of areas including information technology infrastructure, human resources, training and support, process modernization, etc. The SCIT will complement, to the greatest extent possible, intellectual property offices' efforts to reach the MMS level.

### **Creation of Knowledge Databases Including Traditional Knowledge**

The SCIT recognizes the concern by WIPO Member States regarding the granting of intellectual property rights due to a lack of traditional knowledge being documented in the public domain. The SCIT will take the initiative by including activities in its work program to support WIPO Member States, in particular developing countries in their creation of databases in the area of traditional knowledge available in the public domain so that prior art gets established.

### **Sustainability**

All intellectual property offices will have to dedicate resources to continue operating and maintaining SCIT initiatives after their deployment. This may require ongoing assistance from WIPO in many of the developing countries.

\* \* \*

A project management plan, including a methodology and a time frame (three to five years) for each of the SCIT information technology projects, will have to be established and regularly reviewed by the Committee or a body within the Committee.

# STRATEGIC INFORMATION TECHNOLOGY INITIATIVES

## INTRODUCTION

To meet the needs of the global economy in the twenty-first century, WIPO must undertake an integrated, fully coordinated portfolio of global strategic initiatives to meet both Member State and customer needs and expectations. Many of these are derived from deficiencies in current operational automated support systems, in the underlying information technology infrastructures that are currently in place and in the management framework of WIPO's information technology program. The current information technology environment is described in Appendix A. Appendix B summarizes the information technology needs in the current situation. Both represent many of the drivers of WIPO's Information Technology Strategic Implementation Plan.

The information flow is not intended to be a one-way flow, but an interactive continuous flow with a progressive enhancement of the value of information. The end user of IP information in this value chain may become a producer of another form of IP information with added value, as new innovative activities will be inspired by using "knowledge information" that will be continuously disseminated throughout this cycle. The needs of the users in the market will be reflected more effectively than ever before, as the way the information is originally generated will have a direct impact on those business functions using WIPONET. In other words, the information flow via WIPONET will lead to integration and consolidation of all relevant constituencies.

The strategic initiatives summarized in this section represent the nucleus of what is required to meet WIPO's needs over the next five years. Each of the initiatives is then further described in terms of specific projects that either have been or will be initiated within the time horizon of the plan. Each project plan addresses the business or functional problems of concern, the approach to be taken in developing technical solutions and an implementation plan. Some project plans are in the early conceptual stage whereas others are quite advanced and well documented. This fact accounts for differences in the presentation style and thoroughness of the various project plans.

The strategies that will govern the management of WIPO's IT program in the realization of this set of initiatives are summarized in the Section entitled "Governing Strategies for Managing Information Technology."

These 14 initiatives reflect WIPO's vision of its future operating mode in a global information network: one that links IP offices in Member States, regional IP offices, the IB, and other IP partner organizations to serve a wide spectrum of intellectual property needs. The global information network concept is aimed at enabling easy, efficient access to current, accurate IP information and promoting the interests of innovation and IP rights protection. All business and support processes will be optimized, using process reengineering and state-of-the-art technology and project management methodologies, to establish an effective foundation for WIPO's future performance. Key IT-based capabilities will be developed for Member State IPOs. IT-based tools will be developed to offer users complete, authoritative IP information that can be accessed in a user-friendly manner. These integrated tools will also provide timely,

accurate information regarding business transactions with IPOs and the IB in convenient formats.

Figures 3 and 4, (pages 16 and 17) illustrate the broad functionality that is envisioned to be phased in over the next five years. The top and bottom blocks of the concept shown in Figure 3 represent the external producers and users of IP Information. The center block represents the global WIPO IP network, implemented through WIPONET on an Internet foundation, and it also identifies the major components of the network. These components, which are further illustrated in Figure 4, show the business initiatives, administrative support initiatives, the global services initiatives and IT Infrastructure project initiatives which are planned.

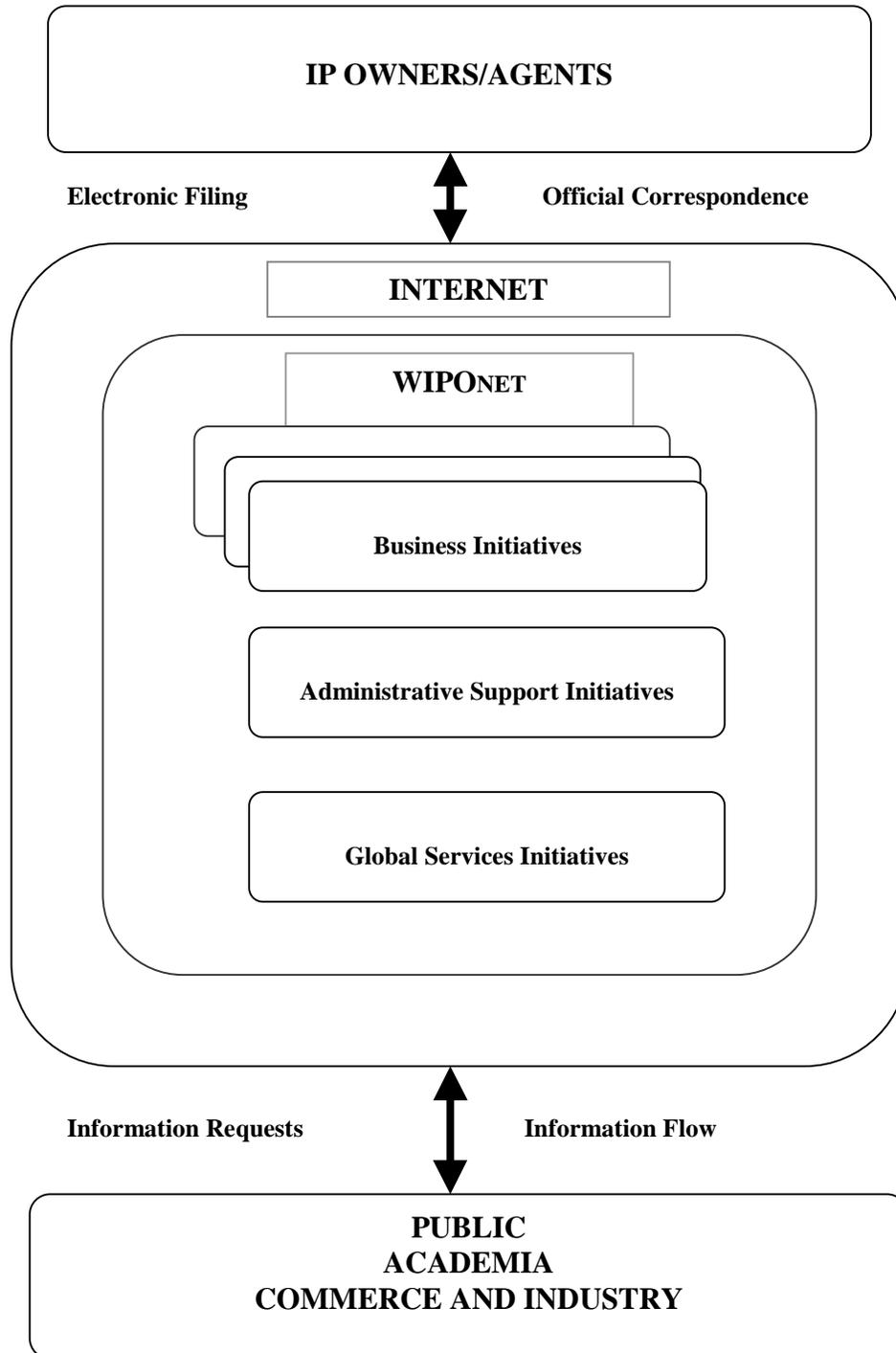
There are three fundamental operational concepts of this strategic plan. First, IP owners and representatives will interface with the network to submit electronic applications and official inquiries, and receive official electronic correspondence. Second, all public users will be able to search and retrieve IP information in WIPO, IPO Web Sites, and Intellectual Property Digital Libraries at the IB and other IPO locations. Finally, IP information will be provided to meet projected customer needs and to serve the interests of stimulating innovation and invention and of protecting and enforcing IP rights.

At the technical level, operational interfaces between IP Offices and the IB will be through the WIPONET infrastructure, built on the Internet framework. This infrastructure will enable connectivity between external users, Regional and Member State IP Offices, and the IB. The services provided by IPO and IB business systems will be accessible on an interactive basis. Web-based applications are envisioned to include extensions of current WIPO Web sites, providing strategic public relations as well as legal, process, and status information to both internal and external users. Both the IB and IPOs will establish IP Digital Libraries within the WIPONET framework to serve the interests of the public. The WIPO Academy Distance Learning Program will develop distance learning programs and other intra-office communications programs, delivered through WIPONET, to support IPO staff development and to assist users in making effective use of the global IP systems. In addition to the secure virtual private network established through WIPONET, the IB will establish direct, secure data exchange channels with other partner IP organizations, such as the Trilateral Offices.

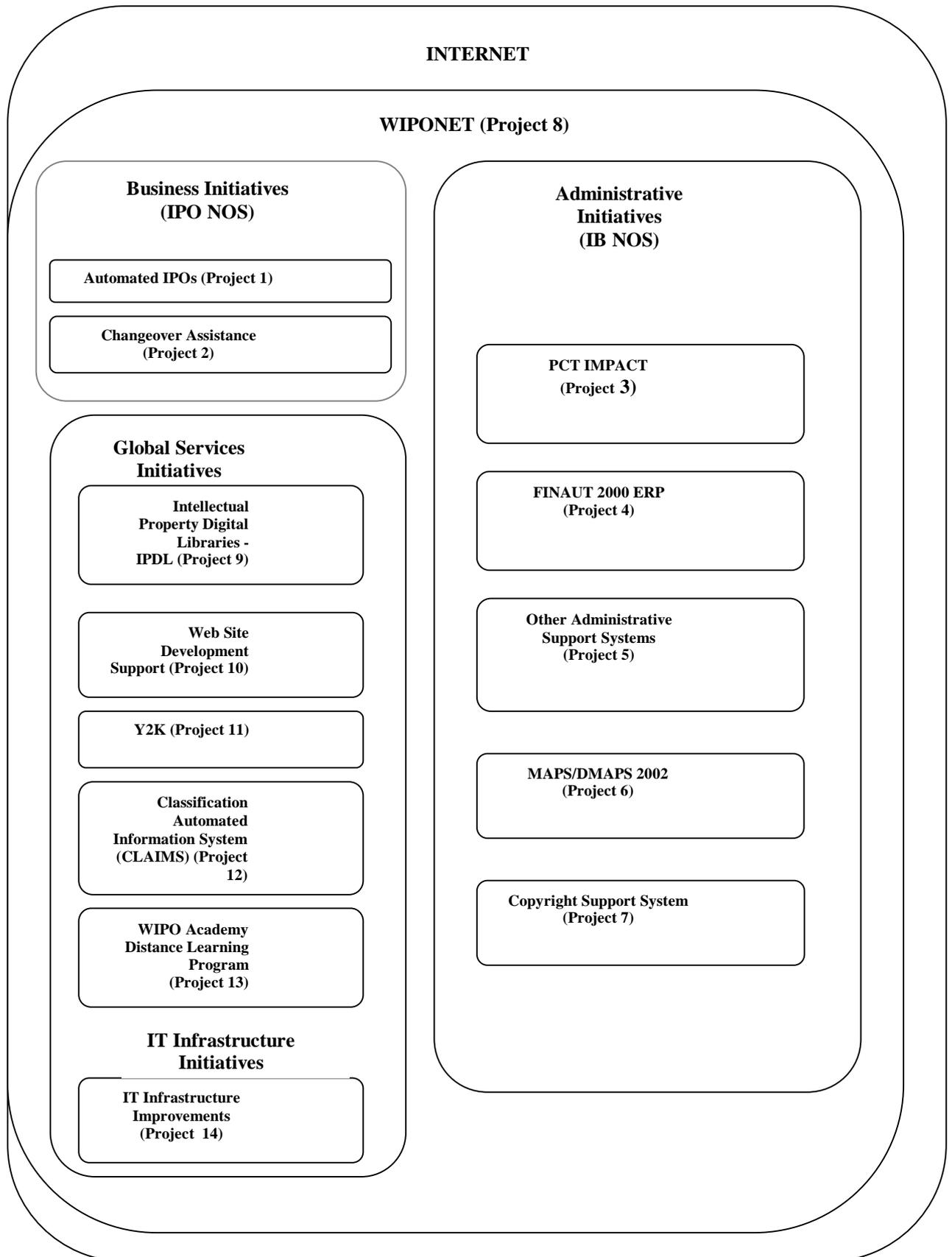
The IB will provide assistance to IPOs in establishing the infrastructure to provide connectivity to the global IP system, including equipment, software and training. It will also provide assistance and software to automate IPO business functions, where needed.

Within the IB, business process and other support systems are integral to each other and to WIPONET through the basic infrastructure of the Network Office System. IBNOS provides a suite of common tools to system users within the IB, which, in turn, serve as interfaces to the automated support systems. A set of these tools will be installed in all IP Offices by means of IPO local area networks, as part of the basic IPO infrastructure.

Two of the major business process and administrative systems will be replaced by new systems (Information Management for the Patent Cooperation Treaty (IMPACT) and FINAUT 2000 ERP) to meet user needs in processes that have been reengineered. Others will be expanded and converted to operate within a standardized IB IT infrastructure. In addition, new specific function systems will be developed in those areas currently under-served by IT and which are not served by the major automated support systems.



**Figure 3. IP Global Network Concept.**



**Figure 4. Global Network Concept - IB and IPO Functions and Relationships.**

## SUMMARY OF INITIATIVES

The conceptual overview shown in Figure 4 identifies the areas in which initiatives have been taken or will be required to realize the vision of leveraging information technology.

These initiatives can be grouped into one of the following categories:

### **Business Initiatives**

### **Administrative Support Initiatives**

### **Global Services Initiatives**

### **IT Infrastructure Initiatives**

An overview of each initiative, grouped into projects that will be undertaken to implement the initiatives, appears below. These projects are described in more detail in the sub-sections that follow.

## **Business Initiatives**

Automated IPO Receiving Office Functions

Automated IPO Business Functions including:

- Development of Minimum Modernization Standards for hardware and software and
- IP Electronic Information Publication.

These initiatives are addressed in **Project 1**, beginning on page 22.

Data carrier changeover assistance for IPOs.

The changeover from paper-based documents and procedures to electronic data carriers needs internationally coordinated, phased implementation by Member States and through WIPO's assistance to small IPOs during the transitional period. The provision of CD-ROM collections of patents and trademark documents to IPOs with insufficient access to the Internet is one example of WIPO's assistance. This will be addressed in **Project 2**, beginning on page 26.

## **Administrative Project Initiatives**

PCT IMPACT. This initiative is addressed in **Project 3**, beginning on page 32.

FINAUT 2000 ERP– This initiative is addressed in **Project 4**, beginning on page 44.

Smaller, single function support systems are addressed in **Project 5**, beginning on page 63.

MAPS/DMAPS 2002 – An analysis of whether to retain the current mainframe-based MAPS/DMAPS architecture or whether it should migrate to a new platform, converted to operate with any necessary enhancements, is to be done in the year 2000. Accordingly, this is not a project to be immediately undertaken, but may be addressed in the future as **Project 6**, beginning on page 74.

Copyright Support System - This is a new project to be defined and initiated after a preliminary business case analysis has been performed, and will be addressed in **Project 7**, beginning on page 74.

## **Global Services Initiatives**

WIPONET – This initiative is addressed in **Project 8**, beginning on page 75.

Intellectual Property Digital Library Systems - including IB and IPO systems and support for:

- enhanced natural language search systems for official UN languages, and
- Local Collections of Intellectual Property Data.

This initiative is addressed in **Project 9**, beginning on page 90.

IB and Member State Web Site Development

This initiative is addressed in **Project 10**, beginning on page 103.

Y2K – This initiative is addressed in **Project 11**, beginning on page 106.

Classification Automated Information System - This initiative is addressed in **Project 12**, beginning on page 115.

WIPO Academy Distance Learning Program including

- Multimedia Course Development System,
- Virtual Classroom Facility, and
- Instruction Delivery and Management Systems;

These initiatives are addressed in **Project 13**, beginning on page 120.

## **Information Technology Infrastructure Project Initiatives**

- IT Infrastructure Improvements – This initiative is required to support the global IP system and is addressed in **Project 14**, beginning on page 125.

## CORRELATION OF SCIT OBJECTIVES WITH PROJECT INITIATIVES

	Project	SCIT Objective						
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	Automated IPOs	✓	✓	✓			✓	
2	Changeover Assistance	✓			✓		✓	
3	PCT IMPACT		✓	✓		✓	✓	
4	FINAUT 2000 ERP			✓			✓	
5	Other Administrative Support Services			✓			✓	
6	MAPS/DMAPS 2002		✓	✓			✓	
7	Copyright Support System			✓		✓	✓	
8	WIPONET	✓	✓	✓	✓	✓	✓	
9	IPDL(Intellectual Property Digital Libraries) Systems	✓	✓	✓	✓		✓	✓
10	Web Site Development Support	✓	✓	✓	✓		✓	
11	Y2K			✓			✓	
12	CLAIMS (Classification Automated Information System)						✓	
13	WIPO Academy Distance Learning Program	✓	✓	✓			✓	
14	IT Infrastructure Improvements			✓	✓		✓	

Figure 5

- (a) Narrow the information access gap that exists between developed countries and developing countries;
- (b) Improve the flow of information concerning intellectual property rights among WIPO Member States, regional intellectual property offices and the International Bureau;
- (c) Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles;<sup>3</sup>
- (d) Improve intellectual property information dissemination;
- (e) Consider the information needs and filing requirements of applicants and develop electronic services keeping in mind the need to provide benefits to applicants and intellectual property offices, and to other interested circles;
- (f) Help guide the International Bureau to leverage information technologies; **[NOTE: This item affects all other projects, but does not represent a project as such]**
- (g) Improve the retrieval of intellectual property information through further development of international classification of patents, trademarks and industrial designs as efficient search tools

3 See "Statement of Principles Concerning the Changeover to Electronic Data Carriers for the Exchange of Patent Documents" as published in Part 8.4 of the *WIPO Handbook on Industrial Property Information and Documentation*.

# MEMBER STATE IPO CORE BUSINESS PROJECT INITIATIVES

## PROJECT 1 – AUTOMATED IPOS

### Introduction

At its third Plenary session on June 15, 1999 the SCIT approved an IT Plan Draft directing the International Bureau (IB) to “ensure that account is taken when resourcing such projects of the special needs of developing countries in particular the availability of the necessary information technology infrastructure”. To address this point in more specific terms, Section 8.1 Modernization of Infrastructure, contained the statement: “the SCIT, as part of its strategic information technologies activities, will define and recommend minimum modernization standards (MMS) to be put in place at the intellectual property office (IPO) level. These MMS should address a wide range of areas including information technology infrastructure, human resources, training and support, process modernization, etc. The SCIT will complement, to the greatest extent possible, IPOs’ efforts to reach the MMS level”.

The MMS should facilitate the efforts of national authorities in: modernizing, streamlining of administrative procedures, automation of procedures for the registration of intellectual property rights, development and dissemination of patent information services and other relevant areas. The MMS should also contribute to the development and modernization of copyright offices in providing adequate access to, and deriving benefits from, a digital information network. The MMS needs to be established on the basis of experience gained by SCIT Member States and the IB of WIPO. That experience will be applied in a process where the IB drafts the MMS in a joint effort with the SCIT standards working group and presents them to the SCIT Plenary for approval. The MMS should address a wide range of areas including IT infrastructure, human resources, training and support process modernization, and modern information dissemination to the public.

The deployment of WIPONET will provide the IB the opportunity to modernize IPOs in developing countries by providing a minimum WIPONET complement of workstation hardware and software. Beyond any initial WIPONET workstations, there are other projects and areas to be considered to establish the MMS. Three particular projects for consideration are:

- Automation of the Receiving Office,
- Automation of Member IP Office business functions, and
- Capture of the office’s local IP data collection for IPDL publication.

In developing the draft MMS to be presented for SCIT consideration, the IB will consider the automation hardware and software suite required by developing country offices to implement services in all pertinent areas. Additionally, within the IB, there will be a need for closer coordination between project managers of various IT projects, and regional bureaus in charge of cooperation for development to developing countries and Least Developed Countries

(LDCs), as well as a section responsible for assistance to countries in transition to the market economy.

The WIPONET, its Support Program (WIPONET SP) and IB's experience gained through the PCT and Madrid Automation (IMPACT and MAPS) will be strategically used to elaborate and determine the MMS. WIPO's assistance, within the framework of WIPONET and WIPONET SP, will complement the efforts undertaken under the WIPO's Nationally Focused Action Plan. Initially, WIPO's assistance to meet MMS will be provided to IPOs which are not equipped with any automated system at all. Accordingly, WIPO will, in the first place, focus on assistance to provide IPOs with hardware and software to use WIPONET and its basic applications (e-mail, search on the Internet, access to IP Offices Web sites, etc). Although a business case analysis and project plan will be developed beginning in late 1999, a general plan of action has been designed, which is described in the following paragraphs.

## **General Strategy**

The following general action plan, and associated key schedule milestones, will be taken in coordination with the other on-going automation projects at national offices and regional IPOs:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
Establish the project team	4Q of 1999		
Collect requirements from developing country Member Offices	2Q of 2000		
Collection requirements from other WIPO IP office automation projects	2Q of 2000		
Submit draft MMS for SCIT working group consideration	3Q of 2000		
Prepare final draft MMS for review by SCIT Plenary	4Q of 2000		
SCIT Plenary approval of MMS	4Q of 2000		

The IB, in coordination with the relevant national and regional authorities, will review and adjust, where necessary, the current automation plan under the Nationally Focused Action Plan for reorienting their automation programs towards the best use of WIPONET.

The IB will propose to the SCIT the WIPONET SP activities by which WIPO will develop a software package which could fulfil the minimum requirements under the MMS for those offices identified by the SCIT as priority IPOs to receive WIPO's technical assistance. The planned software package would allow for the minimum database management of administrative procedures concerning the registration of industrial property rights, dissemination of intellectual property information in electronic form including Web

publication and electronic data exchange between the office and the International Bureau of WIPO.

Upon agreement by the SCIT, the IB will out-source the development of the software package through the selection of a successful bidder of an international tender. The COTS products compatible with the hardware provided under WIPONET program will be used for the development of such software on the basis of the finding by the IB with regard to the minimum administrative functions. Primary targets are small IP offices particularly in developing countries.

In taking the above-mentioned steps to implement WIPO's assistance in accordance with MMS, it is imperative for the IB of WIPO to analyze properly the needs of IPOs of the Member States and understand particular constraints existing in those offices. This will require close coordination within the IB between staff members in charge of the respective region for cooperation for development, project managers of relevant IT projects including WIPONET, IMPACT, IPDL, and staff members of the IT Division capable of providing particular expertise and pertinent advice to those IP offices. The IB will explore the possibility of establishing a position of IT assistance coordinator who will liaise regional bureaus, the IT Division and other IT projects teams with a view to reinforcing a closer coordination and efficient collaboration to ensure the successful implementation of WIPO programs for assistance. The IT assistance coordinators will work in each region and at WIPO Headquarters in Geneva under the supervision of the IT Division Director.

Their responsibilities will include in particular the following:

- (a) to provide appropriate expertise and advice to IP offices for successful implementation of automation plans
- (b) to provide on site assistance at IP offices in the deployment of hardware and software provided by WIPO for assistance and WIPONET deployment
- (c) to facilitate communications between local authorities, IP offices and the International Bureau of WIPO
- (d) to assist IP offices in the oversight of automation plans and provide any useful feedback to the IB for further action and assistance
- (e) to provide hands-on information and valuable experience of automation project implementation with a view to developing local human resources and IT expertise at IP offices.

## **Benefits**

The Define Minimum Modernization Standards (MMS) Project supports the SCIT strategic objectives to: "Narrow the information access gap that exists between developed countries and developing countries", "Improve the flow of information concerning intellectual property among WIPO Member States, regional intellectual property offices, and the International

Bureau,” and “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles.”

Benefits from defining the Minimum Modernization Standards are:

- Establish an equitable basis for deploying IT assets to developing countries – by defining an effective MMS suite WIPO will be able to provide fairly for the needs of developing countries.
- Define the baseline IT suite for planning purposes – the developing countries will be able to use the MMS definition for planning their own office modernization programs.
- Target training for the MMS – the MMS definition will allow the WIPO Academy Distance Learning Program to develop training packages for a standard set of equipment and improve the training as the program matures based on feedback from the initial training.

## **PROJECT 2 –CHANGEOVER ASSISTANCE**

### **Introduction**

In 1995, the Permanent Committee on Industrial Property Information (PCIPI), the predecessor body of the SCIT discussed and adopted the “Statement of Principles Concerning the Changeover to Electronic Data Carriers for the Exchange of Patent Documents.” The adoption was timely in response to a gradual and non-reversible worldwide shift from paper to electronic means, such as CD-ROM, for the purpose of exchanging patent documents. The statement urged all intellectual property offices (IPOs) to make continued efforts for the reduction of the number of sets of paper documents in order to achieve a goal that all offices should in principle be prepared, at the latest by year 2000, to accept the changeover to electronic data carriers. Having noted concern expressed by many IPOs particularly in developing countries, the Member States agreed to undertake the changeover according to a carefully prepared and well-coordinated implementation plan.

Now approaching the deadline, the electronic data carrier that was widely used at the time of the adoption of the statement, CD-ROM, appears to be rapidly being replaced by Internet-based publication and online exchange of data with the advent of the Internet and WIPONET. Many offices find it difficult to catch up with this unexpectedly rapid changeover of data carriers and need technical assistance from WIPO for the successful transition. While waiting for the deployment of WIPONET and the provision of Internet access in all countries and all IP offices so as to disseminate and share intellectual property information online, it is essential to continue to provide IP information on portable data carriers, such as CD-ROM and DVD, for those offices which lack a sufficient network infrastructure. Portable data carriers are also valuable as archives and back-up databases.

These developments also create an opportunity to evaluate potential opportunities for expanding the worldwide collection of computer searchable textual and image data for shared use of IPO’s. For example, WIPO intends to explore the feasibility of creating databases of “traditional knowledge” which is defined as knowledge that is passed down by word of mouth, from generation to generation. This traditional knowledge is, for the most part, undocumented. There has been concern expressed by some WIPO Member States regarding the improper granting of intellectual property rights due to a lack of accessibility to this form of prior art. WIPO has agreed to work with developing countries to help document Traditional Knowledge as a type of prior art and classify the documented Traditional Knowledge.

Assuming it is feasible to establish such databases, the information will be made available to Intellectual Property Offices, and, where applicable, to the public through the IPDL project. These disclosures will be text and image searchable and each document will have an International Patent Classification(s) (IPC) associated with it to facilitate classified searching of the technology. Establishing databases of Traditional Knowledge prior art will help improve the quality of issued patents and lead to increased awareness of and access to a new valuable form of intellectual property information.

WIPO plans to complete a feasibility study on this important issue by the end of 2000.

## **General Strategy**

WIPO intends to provide changeover assistance via the following sub-projects:

### **GlobalPat CD-ROM Sub-Project**

Until a time in the future when the cost of providing substantial WIPONET bandwidth to remote offices becomes marginal, it will be necessary to supply IP data collections to such offices on optical disk media. These collections will make it possible for the small offices to perform electronic searches in a timely fashion without the delays that would be experienced via Intellectual Property Digital Library (IPDL) services over low speed Internet access connections. At the present time it is envisioned that the optical disk media technology will include DVD and CD-ROM. WIPO will function either as a coordinator to forward optical disk data that is produced by other member offices or as a publisher of optical disk media for data supplied by other small offices without their own production capability. Of course, WIPO will furnish material that WIPO itself publishes on optical disks to the subscribing offices. Proposals for hosting optical disk media collections will be solicited from interested IPOs and reviewed by WIPO to determine the amount of supplemental assistance such offices may require. Offices that can justify their need for retrieval systems, training, installation and operations assistance will be supported by WIPO.

WIPO's traditional role of a standards publishing body will apply to this project in the area of requiring the disk media produced by member offices to be in formats that can be played on standard commercial equipment. WIPO will also establish standards for the data storage formats and search tool user interfaces so that the data can be searched using a standard tool. This will eliminate the need for the users to have to learn a different tool to retrieve the data from each source.

While the exchange of IP data between IP offices continues to be based on bilateral agreements of goodwill among those offices concerned, WIPO will facilitate the dissemination of data and the use of compatible systems for viewing such data to small IPOs. Through WIPO standards and services the small IPOs will be ensured of having up-to-date reference information in electronic form and the tools to render and reproduce this data. WIPO will act as a hub for the physical distribution of the optical disk data. WIPO will also act as a central point to provide assistance to the small offices for keeping their systems up to date and for resolving technical issues that arise related to operation of the equipment.

WIPO purchased the subscription of GlobalPat, which is one of the best patent information sources produced within the framework of the Trilateral Cooperation for first screening of patent documents. GlobalPat CD-ROM contains the first page data in English of all major patent documents issued by the European Patent Office (EPO), the United States Patent and Trademark Office (USPTO) and other European national offices. The backfiles series of the GlobalPat CD-ROM, sorted out according to 69 technological fields, were distributed to some 50 Member States within WIPO's budgeted assistance program during the present biennium.

WIPO plans to support and expand this program in the next biennium for IPOs that need GlobalPat CD-ROM collections as data archives due to insufficient network infrastructure and

difficult circumstances of local telecommunications. WIPO will contribute to the production of GlobalPat (with EPO and USPTO, if USPTO continues to be a producer in 2000) in the interest of providing greater access by those countries to this technologically important information. In coordination with EPO, WIPO will liaise with major users and small IPOs to discuss and implement the production plan of GlobalPat, including consideration of the publication of technologically sorted out collection on DVD ROM. To take advantage of this valuable data collection, WIPO will also investigate the possibility of producing a hybrid version based on DVD technology, which will interact with the WIPO IPDL site.

## WIPO CD-ROM Collections Publication Sub-Project.

Since the creation of a WIPO Web site, intellectual property information and other reference materials have been progressively included in the WIPO Web site and WIPO IPDL. However, the International Bureau plans to continue the publication of the existing series of WIPO CD-ROM collections, that is, International Patent Classification Database (IP-CLASS-CD-ROM), Nice, Vienna and Locarno Classifications (NIVILO-CD-ROM), WIPO Industrial Property Information Documentation Handbook CD-ROM, WIPO Industrial Property Statistics CD-ROM. These CD-ROMs are still useful to general public and staff of IPOs particularly in those countries suffering from the lack of high-speed connection to the Internet. The cost of production and data preparation is estimated at around 1 million Swiss francs for the next four years. However, a significant portion of this investment will be recovered by the sale of these CD-ROMs.

Key schedule milestones are:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
WIPO reviews the result of the first year of the program for free distribution of GlobalPat CD-ROM and also discuss proposals from member states to establish local IP optical disk collections and develops a list of participants.	1999	1Q of 2000	1Q of 2000
Set up plans with small offices that complete reasonable documentation on optical disk.	1999	1Q of 2000	1Q of 2000
Begin provision of data collections on CD-ROM or DVD in addition to continued supply of GlobalPat collections.	mid-2000	mid-2000	mid-2000
Begin monitoring and collecting performance measure data on the benefits of local optical disk databases	3Q of 2000	3Q of 2000	3Q of 2000
First report to SCIT on results achieved, lessons learned and next steps	End 2000	End 2000	End 2000

The cost will depend on a cost-sharing arrangement with the producing office (EPO). On the basis of the award price of the present manufacturer, it is reasonable to estimate WIPO's contribution in the proximity of 500,000 SFr. for the production during the next four years.

## **Benefits**

The GlobalPat CD-ROM and CD-ROM Collections Publications sub-projects support the SCIT strategic objectives to “Narrow the information gap that exists between developed countries and developing countries” and “Improve intellectual property information dissemination”. Multiple benefits will be derived from WIPO performing in this role:

- More efficient distribution network: By acting as a hub for distribution of this information WIPO will be able to represent the interests of the small offices to the major offices that produce the data. From a logistical standpoint, WIPO will be able to reduce the number of relationships and distribution paths between small offices and data suppliers to a more manageable number by a factor of N, where N is the number of offices that produce the data.
- Publication of previously unpublished data: Through publishing data for offices lacking the resources to publish themselves, the cause of improving the distribution of intellectual property information worldwide will be furthered.
- Expansion of access to electronic collections: This program will make data in electronic form available to small offices that would otherwise lack the means to acquire it. Training and operational assistance supplied through WIPO will help to ensure that the systems are used effectively following their deployment.
- Improved protection in small countries: The interests of the worldwide intellectual property community as a whole will be better served through the availability of these data collections and the quality of patents issued in these countries should improve.

## **Supplementary Data**

### **Collection of Laws for Electronic Access**

Additionally, the Collection of Laws Section, manages, with the assistance of the Information Technology Division, an Internet-based application, Collection of Laws for Electronic Access (CLEA).

The CLEA application contains:

- National legislative texts in the field of intellectual property;
- Texts of treaties administered by WIPO;
- Bibliographic data entries concerning each legislative text and treaty.

The legislative texts contained in CLEA:

- Have been transmitted to WIPO by the competent authorities of the countries concerned, respectively, under Article 15(2) of the Paris Convention for the Protection of Industrial Property (Act of 1967) and Article 24(2) of the Berne Convention for the Protection of Literary and Artistic Works (Act of 1971) and/or
- Have been notified by the country concerned, under Article 63(2) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (“The TRIPS Agreement”) to the Council for Trade-Related Aspects of Intellectual Property Rights (“the Council for TRIPS”) of the World Trade Organization (WTO), and the relevant notifications have been communicated by WTO to WIPO under Article 2(4) of the Agreement between WIPO and WTO of December 22, 1995.

A fully documented development process, methodology and supporting Management Information System (MIS) to enable the Collection of Laws Section to publish CLEA on the Internet has been developed for operational deployment.

The continuing assistance of the IT Division will be needed to ensure the CLEA Internet-based application continues to publish, (on time) the legislative texts. In view of the substantive legal inputs required to be made by the Collection of Laws Section, this Internet-based application should continue to be managed by the Collection of Laws Section.

The IT Division’s role will be to provide the most cost-effective method of electronic publication, sustain and manage the MIS - the nucleus of CLEA – and the management of the Internet servers. It is envisaged that the CLEA Internet-based application will expand from texts published in English, French and Spanish to all the WIPO official languages. The conversion, into electronic format, of texts in the paper collection of laws will continue.

Extra capacities in terms of manpower and equipment should be provided in the light of the number of countries, which will notify their IP legislation under the TRIPS Agreement in the year 2000-2001. A business plan, including costing, will be developed in consultation with the IT Division.

WIPO will continue to produce IPLEX CD-ROM, which is a full-text database containing the texts, in English and French, of national and regional laws and multilateral and bilateral treaties in the field of intellectual property. It is updated once every quarter.

This product was revised and has a similar interface to the CLEA Internet-based application or cross product continuity.

WIPO has a commitment to resume publication of the IPLEX CD-ROM on a quarterly basis. The envisaged technology related costs per quarter are 15.000 SFr, which result in a total cost of 120.000 SFr for the years 2000 – 2001.

The Collection of Laws Section also currently publishes monthly on paper, in English and French. The said periodical, which contains (a) notifications under the treaties administered by WIPO, the list of the member states of those treaties and of other treaties in the intellectual property field not administered by WIPO, and advertisements; and (b) two legislative inserts, Industrial Property Laws and Treaties and Copyright and Neighboring Rights Laws and

Treaties, containing texts of laws and treaties. It is planned to publish IPLT also on the Internet with the same methodology as for CLEA and IPLEX (without bibliographic data or hyperlinks).

# WIPO CORE BUSINESS AND ADMINISTRATION PROJECT INITIATIVES

## PROJECT 3 - PCT IMPACT

### Introduction

In March 1998, the Assemblies of Member States of WIPO authorized the financing of a PCT automation project by the Special Reserve Fund (SRF) for Additional Premises and Computerization. The project to develop the IMPACT (Information Management for the Patent Cooperation Treaty) System aims to modernize all processing and storage of international applications at the International Bureau (IB) and provide for electronic communications to applicants and Offices.

The functioning of the PCT system is, at present, predominantly based on paper. The increasing number of international applications would, if the system remained based on paper, require a corresponding proportional increase in staff for the handling of the growth in filings of international applications. Measures to optimize the handling of international applications at the IB under the present environment cannot be developed much further.

If the current mode of operations were maintained, the PCT would become increasingly more difficult to manage and this may have an impact on the quality of the work to be carried out. Moreover, the current mode of operations may not be able to respond adequately to the needs of the applicants and Offices introducing their own automation.

With the increasing number of international applications being filed, it has become imperative to re-engineer the filing and processing of international applications and to use information technology to support these re-engineered processes, with due regard to the improvements to the PCT system that are being made through the ongoing amendments to the Regulations under the PCT. The aim of the IMPACT project is to automate the PCT operations of the IB with the introduction of an electronic document management system for supporting re-engineered processes capable of handling the increasing number of international applications, whether they are received in electronic or in paper form. International applications received on paper would be converted to electronic form and would then be stored and processed using the said electronic document management system.

The automation of the PCT system would permit the IB to communicate to national and regional Offices all kinds of documents, such as copies of international applications, priority documents, international search and preliminary examination reports, as well as all notifications provided for under the PCT and its Regulations, in electronic as well as paper form. It would also permit communication upon request, ("COR"), allowing the designated and elected Offices to receive, for the national phase, only the information they need when it is needed. To cope with the new PCT system, the national and regional Offices will need to upgrade their existing IT infrastructure to maximize the benefits of automation.

The main goals of this project, which is expected to take three to four years, are the following:

- to streamline work procedures and to establish a more efficient and cost effective operation for the administration of the PCT through the implementation of an automated information and document management system for the Office of the PCT, thereby reducing the future need for growth of staff and program resources;
- to create and make available to receiving Offices and PCT applicants electronic filing software;
- to improve services for national and regional Offices acting as receiving Offices, designated/elected Offices, International Searching Authorities and/or International Preliminary Examining Authorities under the PCT (hereinafter referred to as “national and regional Offices”) and to establish generalized solutions for electronic data exchange between the Office of the PCT and those Offices, including electronic publishing and the dissemination of PCT information;
- to offer further improved services to PCT applicants; and
- to prepare the ground for a future lowering of fees through the reduction of operating costs of the PCT system.

## **General Strategy**

WIPO intends to modernize PCT functions via the following IMPACT-related projects, which will be implemented in close coordination with IMPACT implementation, as IMPACT and these related projects are interdependent.

## **PCT Electronic Filing**

To allow for the flow of data into the IMPACT Project, the PCT-EASY (Electronic Application System) software was released by the IB in January 1999. This software currently permits applicants to author the PCT request form in any of the seven PCT publication languages (Chinese, English, French, German, Japanese, Russian and Spanish). The development of PCT-EASY for the Internet-based filing requires further work and international coordination, in particular, to allow applicants to include the whole text and drawings (images) of the application, to file it on-line in a secured manner, to obtain an immediate acknowledgement of receipt after the required authentication and digital certification and to pay electronically filing fees. These transactions between applicants and the PCT receiving Offices will pave a road to the global paperless environment of PCT which will be supported by IMPACT within the IB, and other similar automated systems at national and regional Offices. The expansion of functions and coverage of PCT-EASY will provide IMPACT with essential legal and technical infrastructure on which the electronic data exchange will be conducted to file and receive international applications. This work includes

the agreement on international standards for the data submission for filing and digital certificate.

The Second SCIT Plenary Session, February 1999, noted a proposal by the IB that explained the urgent need to have available for PCT purposes, a technical standard for electronic filing, processing and storage of patent applications. The SCIT Plenary agreed to the creation of a task within the SCIT Work Program to be handled with high priority (Task No. 37 “Prepare a draft technical standard for electronic filing, processing and storage of patent applications”). The SCIT Plenary welcomed the offer by the Trilateral Offices that they would provide, as soon as possible, a first draft of the standard for review and finalization by the task force. There was agreement that the timeliness for completion of the draft standard should be closely coordinated with the timelines relevant for the PLT. The final draft would be presented to the SCIT Plenary for approval.

At the May 1999 Trilateral Technical Meeting an agreement was reached on the following aspects of the draft PCT Electronic Filing Standards:

- The new standard will cover the requirements for 1) exchange of information between applicants and Offices, the IB and PCT Authorities and 2) the communication between Offices, Authorities and the IB. Version 1 will cover technical requirements for On-line Filing. Further versions will include Document Type Definition (DTD) for other parts of the procedure.
- All Offices, Authorities and the IB that accept electronic communications must support the technical standards. An Office, Authority or the IB may also accept other forms of electronic communications, but must convert these into the standard format before passing on the data to any other Office, Authority of the IB.
- Any conversion into the standard format must follow sound electronic records management practices that assure the conversion accurately reproduces the original content. The conversion to the standard format will become the Record Copy. A legal proposal to support this will be made to the IB.

The Trilateral Offices further agreed in principle on using:

- A Public Key Infrastructure (PKI)
- Digital certificates for the PKI
- The need to specify a standard for “electronic” signatures
- Using PKCS#7 enveloped data types to contain compound document packages
- The use of XML and TIFF within the documents.

Finally, the Trilateral Offices agreed that this standard would also form the basis of their National or Regional On-line Filing mechanisms, subject to resolution of the document format and wrapper issues.

The Trilateral Offices will deliver the draft On-line filing standard to the SCIT for further action. Concurrent with development of the Standard, there is activity to draft a new version of the PCT Administrative Instructions to document the procedures for electronic filing with the On-line standard. Following these accomplishments, the SCIT will provide guidance to the IB to proceed with a project to implement PCT On-line Filing. Since the Trilateral

Offices have agreed that the PCT On-line Filing Standard will form the basis of their respective National or Regional On-line Filing mechanisms, it is expected that there will be multiple sources for On-line filing standard compliant software.

When WIPO begins the On-line Filing Program the biggest challenges should be in the areas of integrating On-line Filing with the IMPACT System and establishing the new electronic procedures between the Receiving Offices and the IB. WIPO will need to develop a plan to transition from paper based filing to On-line both within each RO-applicant relationship and the IB-RO relationship for each RO. It is anticipated that this will be a major effort in terms of the number of relationships and the number of staff and the applicant community needing to adjust to the new method of doing business. The On-line filing system itself will require effort to adapt what will have been developed for, or by, the Trilateral Offices to the somewhat different DTDs and procedures of the IB.

The PCT Electronic Filing sub-project supports the SCIT strategic objectives to: “Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles” and “Consider the information needs and filing requirements of applicants and develop electronic services keeping in mind the need to provide benefits to applicants and intellectual property offices (IPOs), and to other interested circles.”

To improve service for international filers, PCT On-line filing will provide benefits through:

- **Efficient Processing:** With PCT On-line filing, application files will be prepared and submitted in an electronic form. Applications and other papers entering the PCT process in electronic form will not have to be converted, they can be routed to the electronic processing stream directly. More efficient and timely processing which result will provide the means to reduce operational costs.
- **Greater Accountability:** International applicant queries relating to application receipt will be eliminated, applicants will have immediate confirmation of receipt by WIPO.
- **Higher Quality Filings:** On-line filing will also aid applicants in eliminating many of the more common filing problems while creating their document. Applicants will not be able to submit filings containing many commonly occurring errors.

The success of the On-line filing effort will be assessed using a survey to determine the customer satisfaction of the system. WIPO will develop further quantification of the performance improvements realized by comparing electronic filings to those received in a paper form.

Key sub-project milestones are:

Tasks/Projects	Completion Dates		
	Initial Projection	Current Projection	Actual
SCIT Task Force completed work on adapting standard developed by Trilateral Offices	TBD		
Approve On-line filing system requirements encompassing filing software, RO processing and IB processing of incoming applications	TBD		
Develop and test prototype systems for the applicant submission, RO and IB	TBD		
Test pilot electronic filing for PCT applications	TBD		
Access feedback from pilot efforts and adjust requirements and design for production system	TBD		
Begin operational On-line filing of PCT applications	TBD		

## PCT Electronic Document Exchange

Subsequent to the electronic filing of PCT applications, IMPACT will allow national and regional Offices to replace paper-based PCT procedures. As an example, a certified copy of a prior application (referred to as the “priority document”) is an important document to substantiate a priority date claim in an international application. It is currently mailed (in paper form) to the International Bureau either by the applicant or by the national Office which issues the priority document; the International Bureau then prepares and communicates copies (in paper form) to those designated/elected Offices which have requested to receive such copies. Another example is the international preliminary examination report which is currently mailed (in paper form) to the International Bureau by the competent International Preliminary Examination Authority; the International Bureau then prepares and communicates copies of that report (in paper form) to the elected Offices.

In contrast with the electronic filing project, which is an electronic data transmission from applicants to PCT receiving offices, the exchange of priority documents and other documents (such as international search reports and international preliminary examination reports) could be relatively easily arranged and tested between the International Bureau and the national and regional Offices, as the exchange partners are pre-determined. WIPO is interested in streamlining the process and exchanging electronic documents as soon as possible. Currently, paper documents are exchanged on an office-to-office basis. Similarly, the Member States IPOs receive certified paper copies of prior national applications from other offices via applicants to substantiate applicant claims for benefit of an earlier-filed application date. The

Trilateral Offices have projects under way to deliver priority documents electronically to each other, reducing the burden on applicants and reducing processing costs.

The International Bureau of WIPO will further step up efforts to coordinate and support this initiative and reflect the result of a pilot project into the IMPACT Project and international standardization efforts. WIPO will build on the work of the Trilateral Offices and deploy the Intellectual Property Document Exchange (“IPDE”) system in phases. The first phase will focus on member states that have an information technology infrastructure that can support an automated environment and WIPONET connectivity. WIPONET will provide the network facility to electronically deliver the priority documents.

## **International Priority Document Exchange (IPDE)**

As a Patent Cooperation Treaty (PCT) Receiving Office, the Member State IPOs process international application documents. Priority date claims in international applications must be substantiated by a certified copy of prior application(s) (referred to as “priority document(s)”). Applicants may request that the Receiving Office supply such priority documents to the International Bureau of the World Intellectual Property Office (WIPO). In addition, under Article 20 of the PCT, the International Bureau also provides Designated Offices with the international application, the international search report, claims with any amendments (Article 19), and translations of the abstract, the title of the invention and the international search report. Other documents received and processed include references from the Trilateral Offices that are associated with application processing.

WIPO is interested in streamlining the process and exchanging electronic documents that will meet the parties’ needs. Currently, paper documents are exchanged on an office-to-office basis. Electronic exchange would ease processing burdens and reduce operating costs. Similarly, the Member State IPOs receive certified paper copies of prior national applications from other offices via applicants to substantiate applicant claims for benefit of an earlier-filed application date. The Trilateral Offices deliver priority documents electronically to each other, reducing the burden on applicants and reducing processing costs. WIPO will build on the work of the Trilateral Offices and deploy the IPDE system in phases. The first phase will focus on member states that have an information technology infrastructure that can support an automated environment and WIPONET connectivity. WIPONET will provide the network facility to electronically deliver the priority documents.

The PCT EDE/IPDE sub-project supports the SCIT strategic objectives to: “Improve the flow of information concerning intellectual property among WIPO Member States, regional intellectual property offices, and the International Bureau,” “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles,” and “Consider the information needs and filing requirements of applicants and develop electronic services keeping in mind the need to provide benefits to applicants and IPOs and to other interested circles.”

IPDE will provide many benefits to the WIPO, Member State IPOs, and IP customers, the most significant of which are:

- **Efficient Processing:** With the introduction of IPDE, priority documents will be received and delivered in electronic form. More efficient processing and higher quality products, due to elimination of paper document processing, provides the means to a reduction in operational costs.
- **Customer Satisfaction:** Applicants will receive better service as the IPOs will deliver priority documents electronically to each other, reducing the burden on applicants and potentially reducing applicant fees.

Key sub-project milestones are:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
Begin project	1Q of 2002		
Approve scope & objectives and formalize project	1Q of 2002		
Approval of Concept of Operations	2Q of 2002		
Develop Detailed Requirements	End 2002		
Deploy Pilot System to Selected Member States	1Q of 2003		
Deploy Production System	TBD		

## **Automate Patent Cooperation Treaty (PCT) Receiving Office Operations**

IPOs serve as a Receiving Office for international applications. PCT applications have been increasing. There are inefficiencies and redundancies in current paper-based processes. The introduction of automation will improve the quality of service to applicants and eliminate the inherent inefficiencies associated with manual paper processing.

Imaging technology, paper documents rendered into electronic images and electronic filing, are the first steps to minimizing the volume of paper. Using workflow, document management, and electronic forms software, nearly all of the processing of the PCT application can be accomplished without the movement of paper through the processing stream. Electronic case files will provide information in a media that facilitates exchange with the World Intellectual Property Organization (WIPO), and WIPO Member State IPOs.

The PCT Receiving Office Operations sub-project will build on the foundation software developed under the PCT Information Management for the Patent Cooperation Treaty (IMPACT) project. The development and deployment will be accomplished in phases. The first phase will focus on member states that have an information technology infrastructure that can support an automated environment.

## **Benefits**

The PCT Receiving Office Operations sub-project supports the SCIT strategic objectives to: “Improve the flow of information concerning intellectual property among WIPO Member States, regional intellectual property offices, and the International Bureau,” and “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles.” One of the initiatives necessary to realize these SCIT objectives is the automation of the PCT receiving office functions in WIPO Member States.

In addition to meeting these SCIT objectives, automating receiving office functions will provide benefits to customers and staff alike through:

- **Efficient Processing:** With the introduction of automated PCT receiving office processing, application files will be rendered into an electronic form that will be routed through the processing stream that is in compliance with the governing rules and regulations. Editing and error checking will be built into the process reducing the incidence of error and increasing the quality of the work produced. The electronic processing of applications will shorten the time taken for the applications to reach key stages in the process cycle. More efficient processing and higher quality product provides the means to a reduction in operational costs.
- **Greater Accountability:** Tracking of the status of a given application will be improved with the advent of workflow automation. The system will collect tracking and status information providing managers the information necessary to most effectively direct staff effort where it is most needed. Applicant queries on application status and other case specific queries will be answered more quickly.
- **Increased Compatibility within WIPO Community:** The system will allow the WIPO Member States to send to and receive from other PCT offices applications and other related documents in an electronic form. This medium will result in both cost and time savings.

Key sub-project milestones are:

<b>Tasks/Products</b>	<b>Completion Dates</b>		
	<b>Initial Projection</b>	<b>Current Projection</b>	<b>Actual</b>
Begin Project	01/2001		
Approve scope & objectives and formalize project	1Q of 2001		
Approval of Concept of Operations	2Q of 2001		
Develop Detailed Requirements	End 2001		
Deploy Pilot System to Selected Member States	1Q of 2002		
Deploy Product System	TBD		

## PCT Pamphlets OCR Project

While waiting for the completion of the electronic documentation management system of IMPACT, the International Bureau took an interim measure to generate electronic data of PCT pamphlets (published international applications and related international search reports) by launching a PCT pamphlet OCR project in 1999. To set up a plant for PCT-OCR, a contractor was selected and some 2 million CHF have been committed to the operation during the next biennium (under IPDL project). The frontfile PCT pamphlets in paper form will be scanned by OCR to create a well-structured character-coded database of PCT pamphlets (containing the full text and images) which will be included in WIPO IPDL and ESPACE WORD CD-ROM. Currently the initial phase of the PCT pamphlet OCR project has been undertaken within the framework of the IPDL project using its financial and human resources, as the scanned data will become information sources of WIPO IPDL. In the next biennium, this arrangement will continue until the OCR will be progressively replaced by the direct capture of such data from electronic filings and the electronic document exchange under the IMPACT system.

Resources required for the PCT-OCR project are one staff member/consultant to manage the project. The contract cost of the PCT-OCR project will be charged to the IPDL project budget.

## Supplementary Data

The Patent Cooperation Treaty is remarkably successful. The growth in international applications since the PCT started operations in 1978, and the growth in Chapter II Demands since 1985, have shown year on year growth of about 16% and 42% per annum respectively (these are **median** figures - average figures for last six years are 15% and 25% per annum respectively).

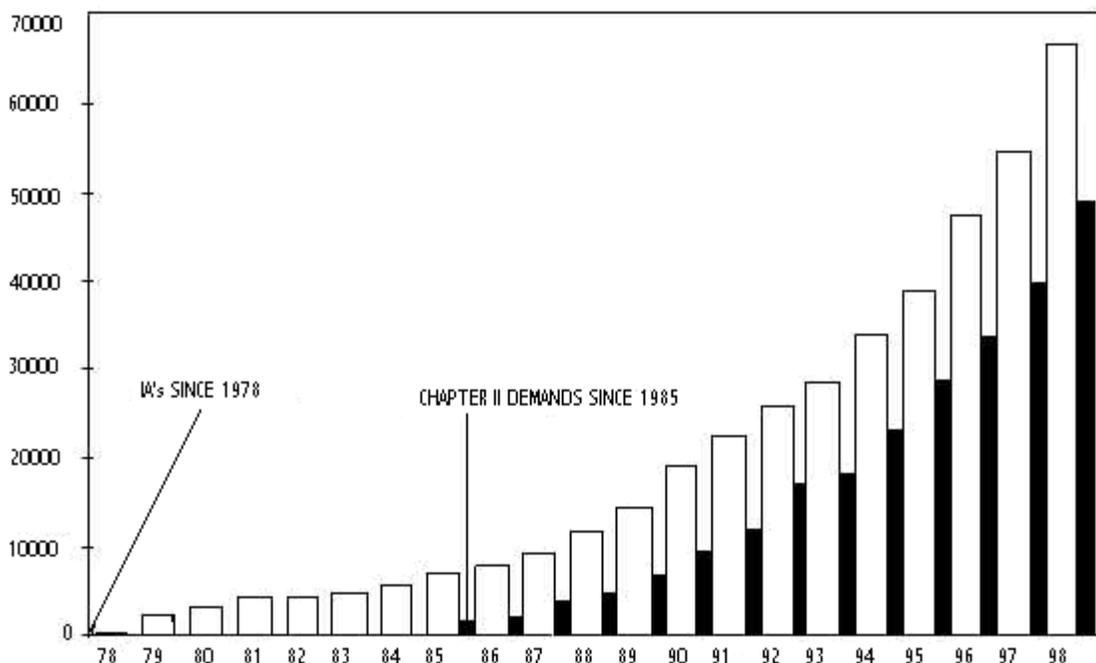


Figure 6

Clearly, the Patent Cooperation Treaty has attracted growing support and this shows no signs of “flattening out”. The Office of the PCT has successfully serviced this need. In financial terms, the Patent Cooperation Treaty has been no less successful.

## Benefits of Investment

It is the document management services components (including library services, formality examination, publishing and others) that together deliver the main benefits. The other IT components are required to provide an infrastructure on which the document management system can be developed.

What is needed is:

- a robust network and high-end storage components for high-volume imaging;
- client-servers to “control” all aspects of the information system to enable the longer term support costs and the integration of documents and data to be achieved; and
- an enterprise document management system based upon this architecture.

Assigning a unit of benefit from a unit of cost can therefore be problematic. The network in itself delivers no benefit until data and documents are transmitted across it, yet without it, this transmission (and the document management system that lies at the core) cannot occur. We must, therefore, look at net costs and net benefits. Where benefits can be augmented with the addition of projects that exploit the underlying infrastructure, then these can be justified as discrete projects.

The general benefits of document/information management appear in three forms:

- **Material Benefits** - reduced paper costs; photocopying; mailing; storage; records management; physical transmission. These benefits can be quantified to a great extent and this is done later.
- **Productivity/Process Benefits** - these benefits are listed below, and can be quantified to an extent, through detailed process analysis of the following issues:
  - *Right information* through version control of documents and enterprise architecture - available to right people at right time;
  - *Information Context* through attributes, links and “location” within processes - makes it easier to interpret and use;
  - *Re-use of information* through better organization and compound documents - flexible assembly of components; and
  - *Reproducible and improveable quality* through better traceability of documents passing through processes.

- Enterprise Transformation Benefits – An example is
  - Customer Service (as a corporate-wide culture change, where everyone can get hold of the information they require to service the needs of their contacts, in client organizations or as individuals); and

The benefits translated to the processes of the Office of the PCT are:

- Material Benefits - reduced paper costs; photocopying; mailing; storage; records management; physical transmission are all pertinent to the PCT and lead to high levels of quantifiable benefit (see later).
- Productivity/Process Benefits - the mechanisms for achieving productivity/ process benefits have been highlighted in the design of new processes covered in the Functional Subsystems Specification. Here we articulate the benefits that arise from these new processes.
- Right information through version control of documents and enterprise architecture - available to right people at right time, for example:
  - ability of a number of different roles to access a dossier at the same time (e.g. an examiner handling some correspondence at the same time as a translator is creating a language variant of an abstract).
  - ability to compare the “as filed” and “as published” versions of, say, the claims, to clarify to an applicant what was received and subsequently processed.
  - to have the right access controls that ensure that the appropriate roles carry out tasks when needed, whereas others who should not, do not, and to audit all changes and accesses so that the history of the documents is clear.
- Information Context through attributes, links and “location” within processes - makes it easier to interpret and use, for example:
  - that a user accessing an international application will be able to navigate efficiently around all the information related to an applicant (documentary and data links need to be present to facilitate this).
  - the “state” of a document (e.g. an abstract-: “awaiting translation”) and the state of an object associated with such a document (e.g. the international preliminary examination report-: “ready for translation, pending translation”).
  - through the attributes assigned to documents and the links to the control database, users will be able to search on and find all related information, its history and outstanding actions, through a combination of documents and data.
- Re-use of information through better organization and compound documents - flexible assembly of components, for example:
  - the ability to flexibly assemble different “products” (Pamphlet, Gazette and others) from a common controlled repository of document components.
  - the ability to support a range of “Communication on Request” (COR) requirements (such as for Priority Documents, IPERs, Pamphlets and others).

- there will be little “re-use” in terms of internally sourced documents that relate directly to PCT operations, but in due course, the infrastructure could facilitate a move towards such re-use.
- Reproducible and improveable quality through better traceability of documents passing through processes, for example:
  - by having common sets of processes that are (as far as possible) supported through a combination of automation and on-line help within the system, the procedures of PCT operations will become more “self documented” and training costs will be reduced.
  - commonality of procedures will be better assured, and new ideas and best practice “captured” through the evolutionary development of “workflows”, other automation mechanism and on-line procedural documentation.
  - management ability to measure more accurately the efficiency of various elements of the business processes and to measure the effect of on-going changes to these processes.

There are a number of benefits in terms of materials, services and staff numbers:

- as more information is received in tagged form (e.g. PCT/EASY) the cost of data capture is reduced because it is both available in character coded form and pre-validated;
- as more documents are received as images or scanned at WIPO, savings in the storage and dissemination (e.g. COR) of documents are made;
- paperless processes are facilitated (allowing, for example, parallel working on dossiers);
- when the body of dossiers becomes imaged prior to publication, the manual application of WO number headers and other handling tasks becomes partially automated; and
- when fully electronic applications are available eventually, flexible, automated publication becomes possible.

These benefits are augmented by the general ability to improve the efficiency of the PCT processes using the capabilities of the document/ information management system.

# **PROJECT 4 - FINAUT 2000 ERP**

## **Introduction**

### **Process Reengineering Drives the Need for New Support Systems**

WIPO is in a transition where many roles, tasks, processes and procedures are undergoing change. Change is being driven by major factors:

- vision on transparency and delegation established by the Director General,
- program budget changes, and
- expansion of Cooperation for Development (CFD) Program Activities.

These factors have given impetus to new financial and administrative procedures and processes and, as a consequence, establish the need for an up-to-date IT infrastructure to support the changed processes.

In finance and administration, satisfaction of these needs has led to the need to replace the old IT system, FINAUT, with a new one capable of adequately supporting the new financial and administrative tasks. FINAUT, in fact, was developed according to the needs expressed many years ago by the processes and procedures then in effect and based on a now obsolete mainframe technology. Although it has been constantly improved to allow it to respond to new needs, the obsolete technology itself will not allow the newly envisioned processes to be implemented.

The new Budget Program needs a system capable of monitoring expenditures and revenues based on Cost Centers and, therefore, needs integration with and the capability to extract and elaborate information from the financial system. A fully-fledged Financial Management Information system will be necessary in order to disseminate the data needed by Program Managers to coordinate and monitor the projects and activities under their responsibility.

The growth in the CFD program has given rise to the need for a full project management and monitoring system, which must be integrated with finance and budget systems. Integration needs are clear and include the needs for project budgeting and costing, project cost monitoring, and tools that support project management.

### **New Support Systems Need to Overcome the Technology Gap**

Modern IT technology has only recently been introduced into WIPO. End users at all levels have started to develop awareness of the untapped potential for improvement that state of the art information technology can provide. Beyond the basic improvements offered by graphic user interfaces, for instance, users realize that many of their routine tasks can be automated and that they can concentrate on their real work challenges. Today, the user has to learn the function of every key before being able to find their way around such an interface.

## **Dynamic reporting capability is needed.**

The inflexible reporting feature of the legacy system increasingly frustrates users. As far as FINAUT is concerned, most reports can only be obtained from nightly batch production. Dynamic querying is only possible with a Budget Expenditure Tracking System (BETS), which only provides expenditure information. Users should not have to cope with delays when attempting to extract information from their systems. Response should be immediate, so that the normal course of work can proceed without disruption.

## **Alternatives to printed paper reports are needed.**

Some financial reports span several hundred pages. They should be presented in an electronic, searchable, navigable format either on line or on CD-ROM media.

Maintaining extensive sets of standard reports becomes equally unacceptable. Users now require a tool that enables them to design and produce their own queries. IT specialists should become involved only for complex queries requiring specific skills or caution when large volumes of information are to be processed.

## **Integration of support systems with office automation tools is needed.**

During the past eight years, the use of modern text processors, spreadsheets and end user database tools has become widespread within WIPO. Users often manually record data that is held in mainframe systems and then process it with these tools. This redundant data capture is simply a waste of resources. Users must be given the means to identify and retrieve the data required for their documents, without IT specialist intervention.

Mainframe systems are difficult to interface with applications implemented on other platforms. Even though a successful attempt has been made with the on-line FINAUT/BETS interface, the technology used is expensive, cumbersome and requires some imaginative design, as well as a wide set of skills to achieve a workable solution. Unfortunately this achievement did not prevent BETS from inheriting all the shortcomings of the FINAUT data model.

## **New Systems must link with external systems such as IP offices, Banks, and Travel Agent**

The scope of system integration is now expected to span the boundaries of WIPO's systems, its banks, partner organizations such as Member State IP Offices, Trilateral IP Offices, and support agents such as the WIPO's banks and travel agent. These all provide or require information from WIPO. In the past, most exchanges were based on paper medium. The deployment of modern systems will enable alternate electronic means of data and authority transfer. For example, switching from paper to an electronic medium will trigger the need for an electronic form of approvals. Tight access/action security enforcement through the support system would probably be sufficient for internal purposes, with electronic signatures perhaps being needed for external use.

## **Summary Of Current Problems And System Functional Requirements**

The Finance Division's legacy system (FINAUT) has been, for several years, one of WIPO's three main computerized systems, with the Madrid and PCT systems. The system remained unchanged for several years, since its implementation in the mid-late ninety eighties. However, in 1994, changes in the PCT and Madrid sectors triggered off an extensive re-development of FINAUT's Accounts Receivables (AR) Module. The central accounting core (General ledger - GL) and the Accounts Payables (AP) modules have however undergone only piecemeal improvements.

The assessment of the FINAUT system, in a report by a consulting firm, as bankrupt, can be seen as fair for the GL and AP components, although it ignores the extensive improvements carried out in the AR area. The automation of most accounting transactions in this area has resulted in an effective reduction of staff even though processing volumes have increased significantly over the same period. The improvements were purely system improvements and did not focus on improving Business Processes.

The main IT-related problems in the Finance Division are listed below. The analysis concentrates only on key issues that will help outline the broad system functional requirements. The following problems were identified:

- Redundant recording and filing of Commitments

Finance staff dedicate an undue amount of effort to recording and filing redundantly provisions and commitments owned by other units. Effort is wasted not only with data entry but also, if not more, with the manual filing, necessary to prepare the subsequent processing of invoices, travel-claims, payments, etc.

- Manual recording of accounting transactions

The bulk of accounting transactions consist of simple repetitive entries, such as invoices from suppliers and outgoing payments, which should be easily automated to remove this tedious workload.

- Limited scope and performance of the automatic payment facility

Users are constantly anxious to complete their payment cycle. They must rely on external operators and the forwarding of a bulky magnetic tape to Zurich. Payments in currencies other than Swiss Francs or to payees outside of Switzerland must be processed manually.

- FINAUT commitments "roll over" problem

The lack of unambiguous criteria to decide which commitments must be closed and which commitments must be cancelled, results in a lengthy decision making process involving the owners of the commitments. Once the selection has been made then cancellation or closure operation is manual.

- Late availability within Finance of certain commitments

Important events often imply stressful conditions for the Finance Staff in charge of the related payment and accounting procedures. Under normal circumstances there are peaks and troughs in the workload; but this team is often forced to cope with peaks at extremely short notice, resulting in work to be performed under undue stress.

- Undue complexity of the incoming cheque process

Complex to operate under normal circumstances, with only a few staff having the level of expertise needed when exceptional actions such as the cancellation of a remitted cheque are to be taken.

- High proportion of over and under-payments received by the International Registry

The regulation of the Madrid Agreement and Protocol require that payments be made to the International Registry prior to the filing of a Request for Service. Before the completion of the examination process, the International Registry checks with Finance the availability of adequate payment. Any underpayment triggers the sending of an anomaly letter to the applicant and the subsequent processing of the additional payment. Overpayments trigger the processing of a refund to the applicant.

- Overly complex interface between Finance and the IB/RO

This system relies on data provided by the IB/RO, the data on correlation of payments with fees returned by IB/RO is often unreliable when modifications are made either to the fees due or to the incoming payments. These modifications trigger the generation of an uncontrollable number of accounting lines, which turn the reconciliation of such cases into a challenge.

- Manual steps in processing incoming payments

Even though payment information is retrieved electronically from the FIDES-ARS database, every payment must be analyzed and booked manually in the FINAUT accounts.

- Use of inadequate technology for the interface between Finance and the Information Products Section

The composite technology used (ACCESS / ENTIRE CONNECTION/ NATURAL ADABAS/ Mainframe/LAN) has not allowed the necessary level of integration. Furthermore, when faced with a problem the user is unable to identify the faulty component, hence the person, from which to seek help.

- Monitoring of over the counter sales,

Finance personnel dedicate substantial time and effort in auditing stocks and verifying the manual bookkeeping.

- Recurrent problems experience with the end of month and end of biennium processes.

End of month processes have to be re-run frequently creating additional delays for subsequent processes in the Receipts area as well as the Office of Internal Oversight and Productivity, who rely on up to date figures in BETS to perform their monitoring. At the end of a biennium, omitted steps trigger the need of assistance from IT, to reverse changes made to the database.

- Lack of adequate, modern reporting facilities of the existing systems.

FINAUT reports have been developed using the NATURAL language. IT skills are therefore required whenever new reports or modifications to existing reports are needed. There is a 24 hours cycle time between the submission of a report and the delivery of the printed output.

To address these problems the following solutions are needed:

## **Core System Requirements**

### ***Streamlined Business Processes as the basis for final system requirements***

There exists significant opportunity to realize productivity gains through review and redefinition of the business processes and practices within Finance, prior to the implementation of a new system.

### ***Financial and Budgetary control system***

This accounting and budgeting package should comply with the current structure and accounting/budgeting practices of WIPO and support best practices that enable the planned restructuring of the financial processes.

A comprehensive set of standard financial reports will be provided, along with a facility which allows end users to develop custom reports

### ***A standard data analysis tool***

As the system will provide an open data model, it will allow the deployment of the Organization's standard data analysis tool.

## **Accounts Payable**

### ***Integration with the travel authorization processing system***

Duly approved requests for travel will be automatically converted into commitments, removing the need for a redundant data capture by Finance. The system will support the unique identification of Travel Authorizations (TAs) independent of commitments.

### ***Integration with the procurement system***

Requests for goods and services will be converted into Purchase Orders. Again, the corresponding commitment(s) will be generated automatically in the Finance system.

### ***Integration with the project planning and monitoring facility***

This facility will support the monitoring of both Provisions for activities, such as CFD organized events, and Commitments related to individual transactions. Provisions and Commitments will be entities shared by the project planning and the Finance systems, allowing more realistic and accurate expenditure monitoring than the current system (BETS) permits.

### ***Integration with short term assistance request processing system***

Requests for short-term assistance will be recorded and circulated electronically to Finance via the Office of Internal Oversight and Productivity and the Human Resources Management Division. They will be converted automatically into commitments, one for each short-term assignment.

### ***A facility for the processing of outgoing payments***

This facility will centralize all outgoing payments (invoices, payroll, subsistence allowances, reimbursements, etc.). Payment orders will be transferred to the Banks, via EDI or any other modern medium, once or twice a day.

### ***A facility for the recording and tracking of suppliers invoices***

Incoming invoices will be scanned and indexed for future retrieval and linking to the corresponding Purchase Order(s).

### ***An electronic document management and work flow system***

The processing of incoming invoices will require the availability of such a facility. This deployment may already be planned under a different project.

## **Accounts Receivable**

### ***An improved process and supporting system for incoming payments***

The processing of incoming payment offers significant opportunity to limit the need for operator intervention and interpretation. A more efficient process will probably require dedicated bank accounts (collection accounts). Debtors will need clear instructions regarding the forwarding of payments to these accounts. EDI (or equivalent) link with the banks will enable automated accounting updates.

### ***A review of the process and systems regarding the collection of payments for Madrid Services***

A review should be conducted to determine whether it would be beneficial to modify the regulations to remove the requirement for advance payments for services, introduce an "invoicing" concept and simplify the current Madrid receivable process.

### ***A review of the process and systems regarding the collection of payments for the IB/RO***

A simpler implementation of Rule 16bis will lead to a more robust solution. Also, the flexibility given to applicants regarding the use of multiple currencies in relation to one International Application could be re-examined.

### ***Industry standard support system for the sales of Information Products***

The existing Processes regarding the sales and invoicing of Information Products should be thoroughly re-examined based on industry best practices. A state of the art IT solution will be identified, deployed and integrated with the new Finance system.

## **Expansion Of The Scope Of The Finance Automation Project**

The requirements outlined in the preceding paragraph illustrate that optimal automation of the finance processes requires not only a new system to be implemented but also the need for automation of several other functional units, which have been lacking IT support. Limiting the scope of the Finance Automation project to systems that are strictly owned by Finance would in fact greatly limit the benefits derived from this project.

It becomes therefore necessary to expand the scope of the problem definition to include the following areas:

- Financial Management Information system, integrated with project planning and monitoring,
- Internal Oversight,
- Cooperation For Development,
- Travel,
- Procurement and Contracts,
- Information Products, and
- Human Resources.

Current IT needs in these areas have been analyzed to demonstrate that their needs converge with those of Finance.

# Financial Management Information System

## *Problem Overview*

WIPO has never benefited from a modern Management Information System. State of the art MIS systems are based on a corporate data model implemented on a network of relational databases. Data analysis (data mining) tool such as Business Objects, which WIPO has implemented with the BETS and CODIS projects, allow an efficient user friendly retrieval, processing and presentation of the information held in these databases. Data analysis tools come in various degrees of sophistication and complexity ranging from the simple queries to the complex OLAP (Online Analytical Processing) multi-dimensional query capability.

Financial information is necessary in most decision making and is therefore an essential component of the global Management Information System. Currently FINAUT is the only repository of financial data, but unfortunately the mainframe technology, on which this system is based, is not well suited for the implementation of modern data analysis tools, WIPO has therefore implemented the BETS system which is an Oracle database of expenditure data transferred from FINAUT.

The main drawback of BETS is that it inherits all the gaps and ambiguities of the FINAUT data-model. Expenditure monitoring by activity, project or fund remains impossible. The true level of commitments is often inaccurate.

## *System Requirements*

To address the current Financial Management Information Requirements issues the following is required:

- New financial and budget control systems based on a comprehensive data model, where entities such as: funds, projects, activities, provisions, commitments, actual expenditure, etc. would be duly recorded.
- This comprehensive data model will be implemented on an Oracle data base, which is the currently proposed standard for WIPO.
- The data held in this Oracle tool would be made available through standard reports and/or a data analysis tool, probably Business Objects, which is to become an other WIPO standard. This system will be deployed as stated in Project 5.

## **Internal Oversight**

### ***Problem Overview***

WIPO's Office of Internal Oversight and Productivity (OIOP) suffers from inadequate IT facilities. For many years the only tools at the disposal of OIOP were spreadsheets, a Paradox application to perform Manning Table simulations, and the FINAUT printed reports.

BETS was a milestone as it was the first development undertaken on behalf of OIOP, it has been followed by the development of the Budget Preparation System (BPS).

The budget structure used by OIOP dictates largely the structure of Expenditure and Income data in the accounting system. As OIOP may review its budget control structure from time to time, the Finance system must be able to cope with such revisions. The need for a flexible Finance system can be therefore also related to OIOP's requirements.

### ***System Requirements***

OIO requirements fall into two main categories, namely the preparation of the budget and the monitoring of the budget.

System requirements are outlined below:

- A financial and budgetary control system which is fully integrated with the financial accounting system;
- Suitable IT solutions in the areas such as CFD, procurement, which are fully integrated with the financial accounting systems;
- Suitable work-flow and document management systems along with the application systems to enable on-line verification and approval;
- An IT system which directly supports the development of the budget in the non-staff areas of expenditure;
- Redefinition of approval and control processes based on a clear budget delegation strategy; and
- A comprehensive strategy for the use of IT in the financial and general administration areas within WIPO.

## **Cooperation for Development (CFD)**

### ***Problem Overview***

IT related problems experienced within Cooperation for Development include the following:

- Difficulties in monitoring of Nationally Focussed Action Plan (NFAP) projects,
- BETS does not provide information by country,
- FIT (Fund In Trust) monitoring statements are made manually, based on listings from FINAUT,
- Cycle times for approvals are very long,
- Costing of activities is done manually and based on actual expenditures,
- Accurate status of commitments and actual expenses is not known,
- Substantial duplication and manual effort to monitor work plans and provide information comparing planned to actual expense, and
- Commitments for FIT activities not available in FINAUT.

### ***System Requirements***

Analysis demonstrates that following solutions are required:

- A project planning and monitoring system;
- Integration between the project planning and monitoring system and the financial accounting system;
- A work flow application to support electronic approvals so that paper flow and paper handling is minimized;
- Support for electronic data Interchange which would enable CFD to improve the quality of its interfaces with external entities in the future; and
- Streamlining of approval procedures.

## **Procurement and Contracts Service**

### ***Problem Overview***

Analysis of this area provided an overview of the key problems that will define the most important requirements needed to accomplish the Service's goals in the eventual implementation of an IT system supporting the area.

The following problems emerged:

- There's no common identification of vendors between the functional units involved in procurement.
- Standing Agreements and Global Orders should be recorded in FINAUT as provisions and not as commitments.
- Purchase Orders are prepared manually without common standards in the forms used by the various purchasing services.
- There is no Material Request status tracking facility.
- Standard coding of materials, services, and Vendors is absent.

## ***System Requirements***

To solve these problems the following solutions are needed:

- An integrated procurement system
- Integration of the procurement system with the finance system
- A centralized procurement system

## **Travel**

### ***Problem Overview***

WIPO has a large number of personnel at different levels, who undertake missions to different parts of the world. The number of Travel Missions arranged internally or through other channels currently stand at approximately 5000 per annum. The current approval/ authorization procedures and the processing of Travel Authorizations (TAs) have a very high manual and paper content.

The following are the key problems in the travel area:

- The preparation and verification of a TA is manual,
- The Approval cycle time is too long (up to 3 weeks), and
- It is difficult to monitor the status of a TA.

### ***System Requirements***

The system requirements of the Travel Unit are summarized as follows:

- System for processing travel authorizations.
- System for the electronic movement and approval of travel authorizations.
- Online access to the travels agent's system to assist staff members in preparation of itineraries.
- Redefinition of the approval steps and verifications based on the new systems environment.
- Integration of the travel authorization system with the project planning and monitoring system and the Accounts Payable system.

This will be developed in conjunction with Project 5.

## **Human Resources**

### ***Problem Overview***

The Human Resources Management Division is planning to replace its IT systems by the end of 1999 SIGAGIP/CS will replace the mainframe-based entitlements system and HR/Access will supersede the current GSI recruitment system. It is anticipated that the scope of HR/Access will be extended into areas such as career development. The following are the key problems in the Human Resources area:

- Even though SIGAGIP/CS and HR Access originate from the same vendor the two systems will require some effort to achieve a good integration,
- The integration between SIGAGIP/CS and the budget preparation facilities is and will remain unsatisfactory,
- The approval process of short term staff is manual and cumbersome, and

### ***System Requirements***

The system requirements of the Human Resources Management Division are summarized as follows:

- Migrate SIGAGIP/CS to HR/Access to provide HR with properly integrated systems.
- Enhance both the recruitment and entitlements systems to integrate the short term staff approval process as well as the monitoring of related expenditure.
- Review a medium to long term strategy for HR IT leading towards a solid hardware/software consistency with other general administration systems.

## **Information Products**

### ***Problem Overview***

The following problems emerged in this area:

- The system is not fully developed and there is no dedicated person for maintenance; failures are frequent,
- Gaps in reporting facilities,
- Y2K non-compliant system,
- System not flexible in the treatment of prices for publicity for different clients; it allows only one tariff for all clients, therefore whenever an exception rises, it must be treated manually,

- No physical warehousing tool, and
- Stock management and control not updated on line.

### ***System Requirements***

To solve these problems the following solutions are needed:

- A modern IT system for Order Entry.
- A tool for processing Invoices.
- A capability for Stock Management and Control.
- A facility for the E-commerce.

## **General Strategy - FINAUT 2000 ERP**

Alternative approaches were examined for addressing the problems and functional requirements for the finance and administrative areas addressed above. The recommended solution is the development of an Enterprise Resource Planning system (ERP). ERPs are integrated, proven software packages that enable organizations and businesses to plan and manage their key resources in an efficient manner. This solution is based on the following conclusions:

- ERP capabilities match WIPO requirements.
- ERP offers fully integrated solutions.
- "Best Business Practices" are built into ERP.
- Continuous enhancements are provided by the vendor.
- ERPs include industry specific solutions.
- ERPs establish a platform for adoption of "state-of-the-art" technologies.
- ERP implementations offer organizations a vehicle that can drive change.

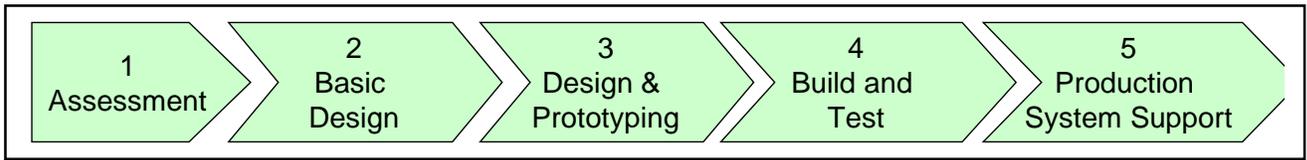
The FINAUT 2000 ERP project supports the SCIT Strategic Objectives to "Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles".

At present it is envisioned that this project will be staffed from the following sources:

- WIPO staff,
- WIPO consultants,
- Consultants from the ERP vendor, and
- Consultants from third party consulting firms.

The final mix will only be established when the final development and implementation strategy has been formulated according to the Life Cycle Management standard.

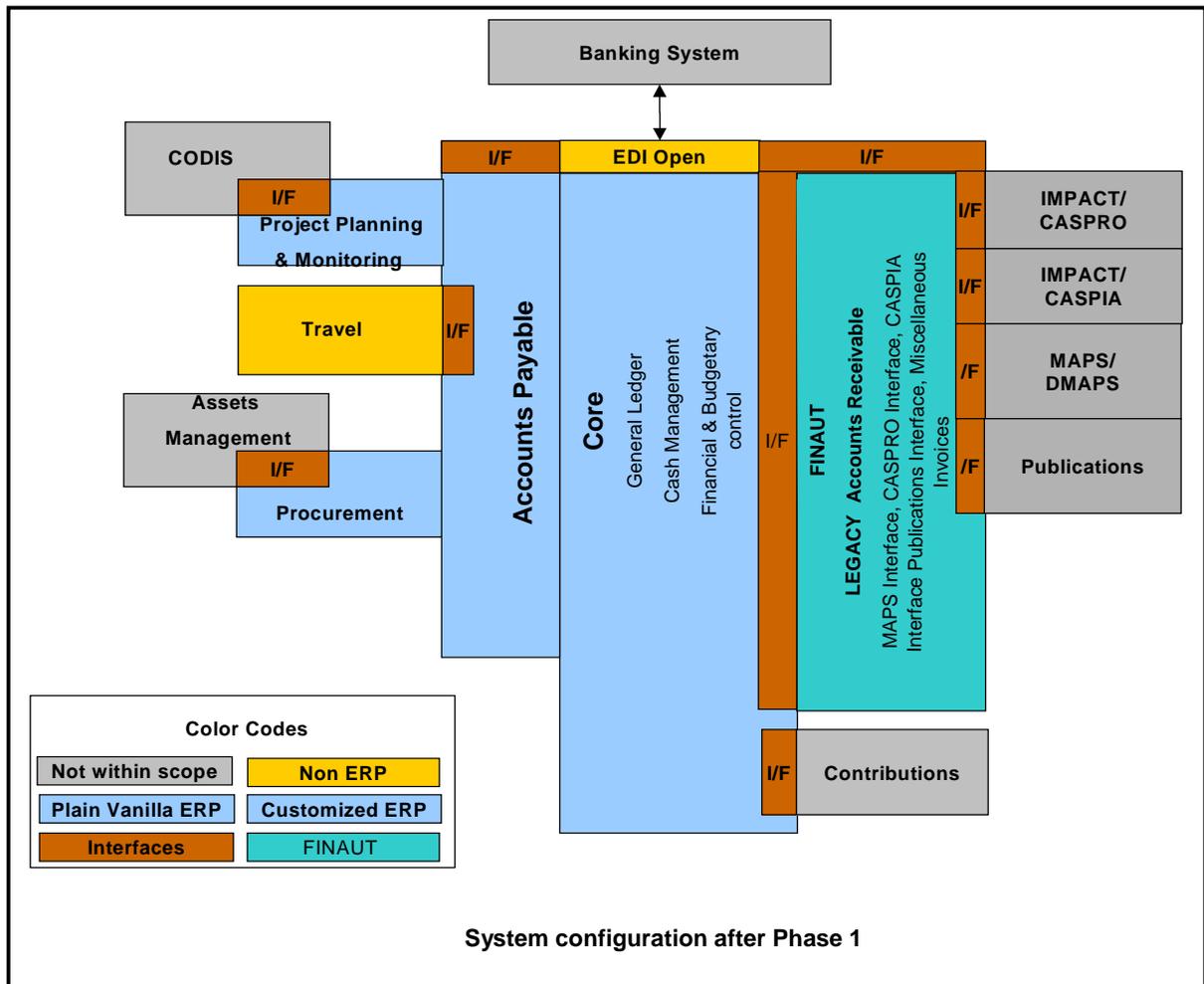
The methodology proposed for the implementation consists of the following 5 steps, which will be undertaken for each of the implementation and deployment phases.



Following the planning and assessment stage the first three steps above will be completed to deliver a basic capability, designated as Phase 1. Steps 2 through 4 above will be repeated for the remaining two implementation phases, while Step 5 will span all three implementation phases following their completion.

## Phase 1

The target of Phase 1 will be to implement the central financial and budgetary control core along with providing integrated solutions for most of the expenditure related processes: Financial Management Information, Internal Oversight, Cooperation For Development, Travel, Procurement and Contracts. This will address both the needs for a rapid replacement of existing finance systems, provide support to areas where the lack of IT facilities is becoming problematic and, most importantly will allow the implementation of new budgetary control practices.



**Figure 7**

## Phase 2

The target of Phase 2 will be twofold:

- Provide an integrated modern solution for Information Products,
- For Human Resources Management subsequently to the conversion of SIGAGIP/CS to HR/Access, to develop a solution for the processing of short-term assistance requests integrated with both HR/Access and the Finance system.

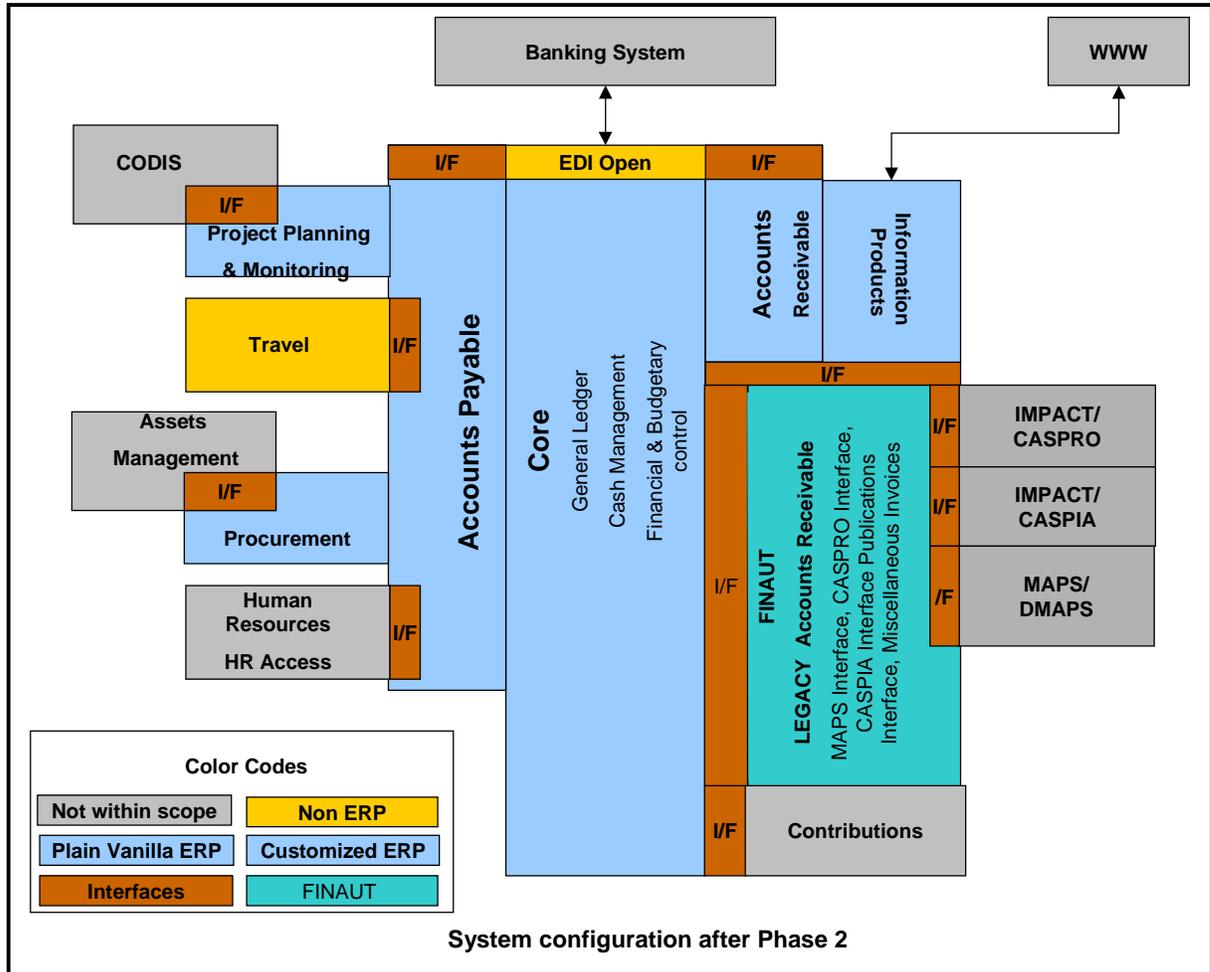


Figure 8

### Phase 3

Phase 3 will address and complete the replacement of Finances' legacy interfaces with the PCT and Madrid systems. The following processes will be automated during this phase:

- Madrid & Hague payments,
- Madrid & Hague distributions,
- PCT/RO payments,
- PCT/International fees payments.

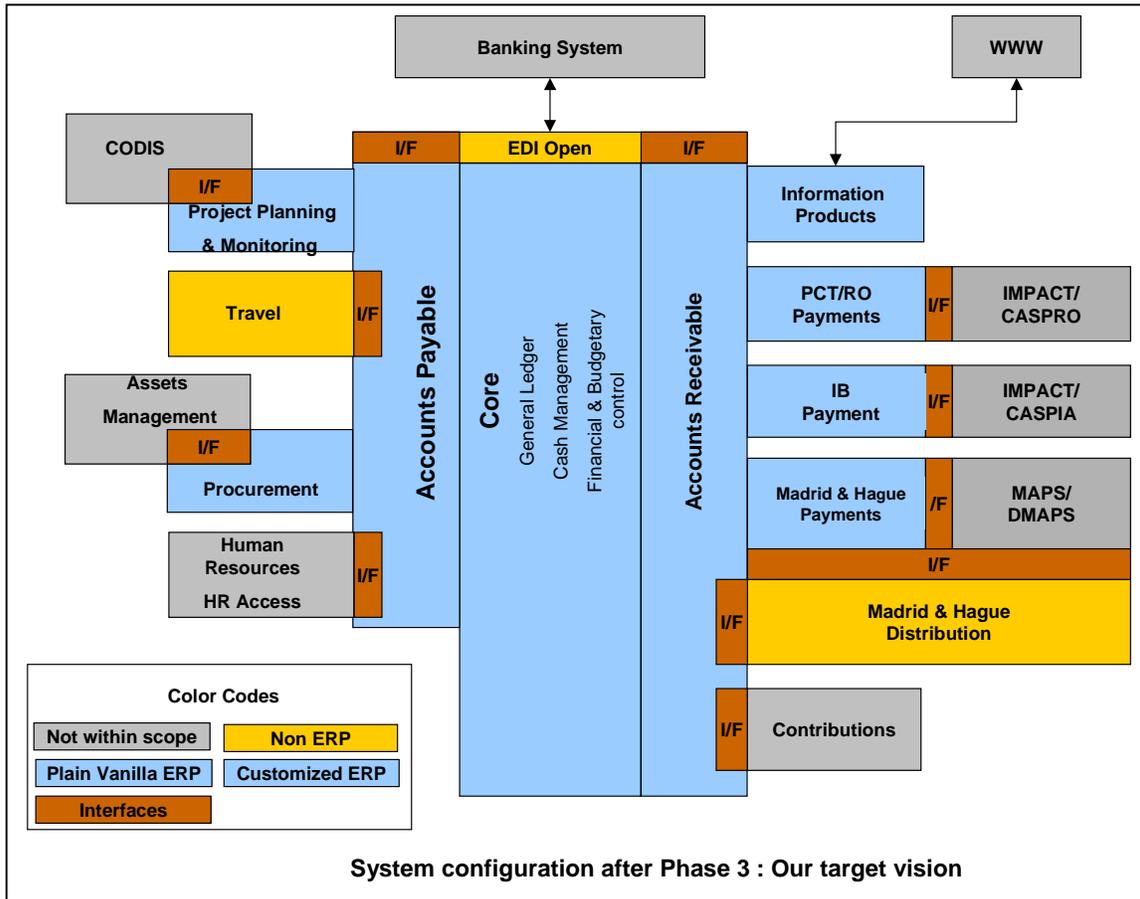


Figure 9

## **Benefits**

In summary, the strategic benefits that can accrue to WIPO include:

- Investments in ERP tend to remain protected over longer periods of time than other investments because world-class ERP vendors are typically long-term players and continuously upgrade their offerings along multiple dimensions which include technology and functionality.
- In-house development and maintenance efforts are drastically reduced.
- ERP offers a platform for structured, controlled organizational change.
- Opportunities for adoption of modern enabling technologies are enhanced.
- Comprehensive functionality is provided to satisfy user needs in individual organizational units.
- ERP supports functional integration across organizational units.

Key project milestones are:

<b>Tasks/Products</b>	<b>Completion Dates</b>		
	Initial Projection	Current Projection	Actual
Establish Project Plan, Structure and Project Team	3Q of 2000		
Complete Basic System Design	4Q of 2000		
Complete Information Products Basic Design	2Q of 2001		
Complete Basic Design of IBIRO Payment Modules	1Q of 2001		

## Supplementary Data

### Estimated Costs

	WIPO Staff	WIPO cons	End Users	ERP Consultants	Hardware	Software	Training	Total
Average cost/month	13000	11000	10000	32500				
1999 Man/month	5.5	27.5	11	0				44
1999 Cost	71500	302500	110000	0				484000
<b>1998/1999</b>	<b>71500</b>	<b>302500</b>	<b>110000</b>	<b>0</b>				<b>484000</b>
2000 Man/month	14.5	70.5	39	28.5				152.5
2000 Cost	188500	775500	390000	926250	350000	1000000	500000	4130250
2001 Man/month	16	114	70	59				259
2001 Cost	208000	1254000	700000	1917500	150000		500000	4729500
<b>2000/2001</b>	<b>396500</b>	<b>2029500</b>	<b>1090000</b>	<b>2843750</b>	<b>500000</b>	<b>1000000</b>	<b>1000000</b>	<b>8859750</b>
2002 Man/month	6	40	16	6				68
2002 Cost	78000	440000	160000	195000			500000	1373000
2003 Man/month	0	0	0	0				0
2003 Cost								0
<b>2003 Cost</b>	<b>78000</b>	<b>440000</b>	<b>160000</b>	<b>195000</b>	<b>0</b>	<b>0</b>	<b>500000</b>	<b>1373000</b>
<b>Total Project</b>	<b>546000</b>	<b>2772000</b>	<b>1360000</b>	<b>3038750</b>	<b>500000</b>	<b>1000000</b>	<b>1500000</b>	<b>10716750</b>

**Figure 10**

# PROJECT 5 – OTHER ADMINISTRATIVE SUPPORT SERVICES

## Introduction

The WIPO Administrative Support Services Sector provides the main backbone services for all financial operations, translation of WIPO publications and documents into the six working languages of the Organization (Arabic, Chinese, English, French, Russian and Spanish), administrative support to WIPO conferences and meetings (including servicing of meeting rooms, interpretation services, document distribution and mailing), the broad spectrum of communications and records management services, production of publications and documents for the Organization, as well as undertaking program performance evaluation and special projects. The Administrative Support Services Sector currently consists of the Finance Division, Language Service, Program Performance Evaluation Division, Conference, Communications and Records Management Division, Publications Production Service, and Special Projects Section.

For the entire Administrative Support Services Sector, the main problem may be defined as:

Sub-optimal utilization of modern, information technology-based office tools and techniques in the provision of administrative support services that are cost-effective, timely and highly responsive to the day-to-day operational demands of the entire Organization, especially in respect of:

- financial, accounting and auditing services
- management information and performance evaluation services
- continuing modernization of administrative procedures
- provision of conference and communications services
- language services.

The level of technology utilization in the Administrative Support Services Sector is currently limited (with the exception of the obsolete systems in the Finance Division and various systems in the WIPO print shop). Much of the existing support services were developed for a much smaller organization, or based essentially on manual processes and procedures. As WIPO has now expanded both in staff size and scope of activities, as well as physically in terms of the number of office locations, the present administrative infrastructure is proving to be seriously inadequate and difficult to sustain without undue increase in costs, delay in services and built-in inefficiencies. Moreover, the administrative processes and procedures need to take advantage of the significant developments that have occurred in the IT field over the past years in order to have the full benefit of state-of-the-art IT systems.

The following sections describe the strategy for development of modern administrative support systems with the corresponding IT development projects, apart from the FINAUT 2000 ERP project, which is described in some detail under Project 4.

## **General Strategy**

To enable the Administrative Support Services Sector to upgrade its infrastructure without significantly disrupting the day-to-day support needed by the various departments and units of WIPO, a phased development of information technology applications will be undertaken. As the scope of services that needs to be modernized is extremely large and disparate, the following have been identified as needing the most attention at the present time:

- Management Information System (MIS);
- modernization of administrative procedures, including records management and archival system;
- conference and communications services, including document distribution and mailing system, scheduling of meeting rooms, provision of interpretation services, and telecommunication services;
- computer-assisted translation system, including development of terminology databases; and
- printing services.

## **Management Information System (MIS)**

As noted in Project 4, a MIS capable of providing the informational framework for undertaking regular monitoring of the implementation of program and project activities with their financial aspects (expenditure versus budget) and evaluation of achievements of results, has never before existed in WIPO. While periodic evaluations of program implementation have been undertaken in the past, these were largely limited to reporting of activities undertaken using detailed textual descriptions or listing of outputs. No attempts were made in the past to systematically relate the outputs of activities undertaken to results achieved, nor to analyze the impact of such results on declared objectives and intended beneficiaries. Evaluations undertaken were qualitative, except where the focus was limited to financial expenditure. Performance indicators and its measurement were not developed nor used in any systematic or analytical fashion.

The new policy on results-based management at WIPO requires the institution of regular monitoring and evaluation of performance using performance indicators and performance standards (when available). This, in turn, would need a comprehensive and dependable management information system that systematically and regularly collects both financial and programmatic information in a pre-agreed evaluative framework. This MIS will also make it possible to generate a baseline against which program performance could be evaluated and performance measures checked or verified. At the same time, such a MIS should also generate day-to-day management feedback to assist program managers in keeping track of program implementation and monitor the level of expenditure against budget and other aspects of financial performance. It should be functionally integrated with development of the Budget and Expenditure Tracking System (BETS)<sup>4</sup> and the financial planning

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<sup>4</sup> On-line information system on the status of budgets, expenditure and commitment intended for Program Managers.

and management tools (“Business Objects”) to be made available under the Enterprise Resource Planning (ERP) system of FINAUT 2000 described in Project 4; in addition, the MIS development should assist, in turn, the further refinement of the said systems to better meet program managers’ needs.

The development of this MIS should be closely coordinated not only with BETS and FINAUT 2000 ERP, but also with the corresponding records management and archival systems, which are described below and should be keyed into the regular reporting schedule for the production of the annual Program Performance Report of the Director General. The MIS should be accessible to program managers, senior staff and other authorized staff members through the internal WIPO office network, with appropriate security and authorization procedures. If possible, it should also be linked to the WIPONET, particularly for surveying or collecting client-based evaluation and feedback information, i.e., from trainees and fellowship recipients, or key government officials. A data base management system using Oracle products and tools is envisaged as the foundation of the proposed MIS.

***Objective:***

To establish a Management Information System that systematically and regularly collects both programmatic and financial information in a pre-agreed evaluative framework, and also generates day-to-day management feedback for program managers on program implementation and financial performance.

***Timetable:***

Long-term, but our intention is to start as early as possible.

***Implementation:***

A detailed business case analysis will be undertaken beforehand. A critical aspect of the business case is establishing the precise user requirements, data flows and required data processing to fit individual program managers’ working methods and facilitate the preparation of all necessary periodic reporting. In part, this will help establish a project work plan and the estimated budgetary and manpower inputs.

**Modernization of Administrative Procedures**

A Task Force on Administrative Procedures was established in 1999 to review all WIPO administrative procedures, and to make recommendations to modernize, streamline and codify them under the premise that WIPO is an information-technology-driven Organization. The objectives are to:

- simplify WIPO administrative procedures to the greatest extent possible;
- enhance access to, and knowledge and understanding of, the rules and practices that govern administrative procedures;
- pursue greater efficiency and productivity in pursuit of WIPO's objectives through reduction in staff time and effort devoted to routine administrative procedures;
- promote improved communication and better use by all staff of information technology in their daily routines;
- encourage a progressive and significant diminution in the number of paper-based transactions; and
- improve the availability of up-to-date information reflecting the status and outcome of administrative decisions.

The Task Force, in focusing on organization-wide procedures<sup>5</sup>, identified and categorized a large number of administrative procedures of general application in the following four broad groups: correspondence and document management; requests for routine approvals or services; dissemination and availability of information within WIPO; and collection of information within the Organization.

## **Correspondence and Document Management**

This group covers procedures governing the two broad fields of correspondence and document management. The first covers procedures related to the receipt and dispatch of correspondence, including the receipt, registration and internal distribution of incoming correspondence (letters, faxes, e-mail, etc.); the monitoring of pending replies to correspondence; the preparation, approval and dispatch of outgoing correspondence; and the filing and archiving of both incoming and outgoing material. The second field covers procedures related to the preparation, circulation and storage of all forms of WIPO documentation; it involves the drafting, approval, translation, printing or posting on the Internet, distribution and storage of documents intended for use both by the Secretariat and by Member States or others interested in the activities of WIPO.

The present records management system is essentially paper-based, both for correspondence and other material arriving in paper form and for that arriving or created by the Secretariat in electronic form. The rapidly increasing flow of correspondence to and from WIPO, the demand for delivery of correspondence and related documentation between the different offices of WIPO, and the greater use of e-mail and faxes all make it imperative for a new IT based records management system to be put in place. Keeping track of correspondence traffic has become extremely difficult under the present essentially manual system.

More critically, what is seriously lacking in this regard is a good archival system. Being a major undertaking by itself, a new archival system will have to be developed in phases over several years.

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<sup>5</sup> i.e., initially excluding procedures confined to distinct areas of activity such as the Global Protection Systems (PCT, Madrid and Hague), the Human Resources Management Division and the Finance Division. The Task Force will, nonetheless, review procedures that involve the relationship of other units or members of WIPO staff with such areas of activity.

Over the longer term, it will need to be incorporated into office procedures across all departments, divisions and units of WIPO. Needless to say, a modern archival system which is functionally integrated with records management, printing services, document distribution and mailing and the MIS described above will naturally be IT intensive, using optical storage/archiving with searchable indices for document retrieval and distribution.

### ***Objectives:***

- To establish a modern records management system for correspondence and documents which is functionally integrated with document distribution and mailing and the WIPO MIS for program monitoring and evaluation;
- To establish an archival system using appropriate storage and retrieval technology.

### ***Timetable:***

Long-term, but our intention is to start as early as possible.

### ***Implementation:***

A business analysis will be needed to make the case for establishing an office-wide electronic records management and archival system for correspondence and documents. A pilot project to start with is envisaged. Existing work procedures will be taken into account so as to ensure a systematic transition to an electronic environment. Coordination with the document management and archival systems of the PCT and Madrid systems will be undertaken. Training of staff at all levels and formulation of office procedures manuals will be important elements of this project.

## **Procedures Concerning Requests for Routine Approvals and Services**

These procedures are related to leave authorization, employee input into flexitime administration, overtime authorization, requests for short-term staff, travel authorization, travel expense claims and the issuance of instructions to UNDP offices to provide tickets and travel advances, procurement of goods and services (including the issuance and approval of “bons de commande”, requests for office supplies and payment of invoices), and requests for a large number of services.

In light of the large number of such procedures, the Task Force is focusing initially on the processing of “travel authorization” and related procedures, including travel expense claims and the issuance of instructions to UNDP offices to provide tickets and travel advances, and leave authorization. The onus of the above-mentioned two initial projects of the Task Force is to gain inroads to the eventual institutionalization of standardized routine approval procedures, especially through the use of workflow software and the Intranet. This is expected to greatly streamline general routine tasks of

program managers and supervisors, freeing their time and energies for more important functions. It will also serve to simplify the flow of internal communications and promote the greater use of electronic forms and electronic approval actions through the WIPO internal office network.

## **Procedures for the Dissemination and Availability of Information Within WIPO**

The third group of procedures comprises those for the dissemination and availability of information within WIPO. It involves procedures for making information of general interest available within WIPO, as well as procedures for updating the manuals and other mechanisms that are used to provide such information. General interest information would include the Staff Regulations and Rules, the Financial Regulations and Rules, Office Instructions, Information Circulars, general circulation memoranda from the Director General and senior WIPO officials, information for new staff, rules for procurement and contracting, procedures for postings on the Intranet, instructions for preparing and processing official documents, the “Secretary’s Handbook”, the “Electronic Mail Policy and Guidelines”, information technology user manuals, and the telephone directory. It would also cover information about when and how to use particular procedures and related forms and about who is responsible for decisions required by each procedure. Information technology will offer many opportunities for client-oriented and user-friendly improvements in this domain through even more effective use of the Intranet and the facility that it offers for hypertext links.

The facilitation of access to information of general interest to staff is the initial stepping stone to the optimization of the use of the WIPO internal office network and the efficient management of the Intranet and Internet facilities. Reform of various operations presently available under the said systems will be gradually undertaken, with the goal of providing a more responsive, more relevant and possibly a more “paperless” office environment. The reform of the internal communication systems of WIPO described below, will become a natural component of this effort in connection with the better use of the GroupWise e-mail system, integration of e-mail, voice mail, fax, video-conferencing and electronic distribution of office circulars and office instructions. Especially crucial is the articulation of new policies concerning the uploading of WIPO documents and searchable databases on the Intranet and the Internet, and ensuring reliable and speedy access to such systems by WIPO staff and, later, by Member State delegations in respect of the WIPO Internet site.

## **Procedures for the Collection of Information Within the Organization**

This group of procedures includes reporting on missions, activities and projects, collection of routinely-requested personal information (e.g., declaration of dependants) for human resources management, collection of input for the preparation of the draft program and budget, collection of information for program performance assessment, collection of information for particular projects within WIPO, collection of information for replies to third party questionnaires (e.g., from Geneva authorities, the JIU, the UN); and collection of statistical information.

## **Observations Concerning Preceding Three Sections**

Recognizing that the implementation of new or improved procedures will be primarily the task of those program managers and staff members directly responsible for administering the procedures in question, and in order to avoid any duplication and to ensure full coordination with related activities (especially those noted in Project 4), the Task Force will establish working groups (including representatives of directly concerned administrative units, representatives of the IT Division, members of the Task Force and resource personnel) to review the various administrative procedures.

The methodical review to be carried out by each working group should also be supported by business analysis expertise to determine whether it is more appropriate to re-engineer particular procedures or to make improvements without fundamentally re-designing the procedure. Moreover, with a view to developing core competencies in WIPO, the Task Force will endeavor to make the fullest possible use of expertise already available in-house. Combined with full commitment from the unit responsible for administering the procedure under review, this approach will be crucial to the success of each of the working groups.

A thorough and methodical review of all of these procedures will take considerable time and require the commitment of significant resources. The Task Force began its work by reviewing the procedures in three areas: (1) for making information of general interest, such as Office Instructions and Information Circulars, available within the Secretariat, (2) for authorizing leave, and (3) for processing travel authorizations, with working groups established for each of these three areas.

### ***Objective:***

To establish simplified and streamlined approval processes and internal communication and routine procedures.

### ***Timetable:***

Mid 1999 to end-2001

### ***Implementation:***

A detailed business case analysis will be undertaken for the first three areas, and to identify further areas to be modernized, on the basis of the experience with the first three. An organizational study will be an important part of the business case, to set the framework for institutionalizing electronic distribution and access to general information, standard approval processes and identification of guidelines and best practices for program managers role in a virtual “paperless” office. Detailed user requirements, systems analysis and establishment of project work plans, budgets and manpower inputs will be part of the business case.

## Conference and Communications Services

Recent years have shown the upward growth in the number of international conferences organized by WIPO in Geneva and elsewhere, substantially greater use of the six working languages in meetings, and the rapid increase in the number of participants to such meetings. In part, accommodating these international conferences in suitable conference facilities has become a major problem, presently being addressed under current plans to expand the WIPO premises and facilities in Geneva. The Conference, Communications and Records Management Division is greatly in need of IT support for servicing these meetings.

In respect of the expansion and modernization of the conference facilities of WIPO (construction of a new high-capacity conference room, more meeting rooms and upgrading of existing conference facilities), information technology inputs need to be specifically identified and studied for each meeting or conference room, including, for example:

- provision of audio (including interpretation) outside the meeting room, possibly via the Internet,
- sending invitations and electronic distribution of conference documents,
- electronic bulletin boards identifying on-going conferences/meetings and their status,
- status of on-going conferences/meetings accessible via the Internet,
- support for video-conferencing,
- more extensive use of multi-media projection equipment,
- Internet, email, fax facilities and office workstations for use by delegates,
- individual video monitors for multi-media presentations,
- plug-in access points for lap-top PC connections and battery charging in conference and meeting rooms, and
- other modern conference facilities and services as required for special meetings or conferences (e.g., satellite TV, Press Room facilities, etc.).

For the present, several immediate improvements have been identified. Foremost is the urgent need for automation of document distribution and mailing, computerized databases for the scheduling of meeting rooms and provision of interpretation services during conferences. In respect of document distribution, a print-on-demand system coupled to an electronic archive for meeting documents has been identified as a high priority project, which will result in significant savings in time, material, manpower and costs to the operations of the Secretariat. This system would be complemented by using the Intranet for in-house distribution of meeting documents.

Second is the modernization of the telecommunication services of WIPO. Systems for obtaining optimal conditions and low charges for communication and telecommunication services in the

deregulated Swiss market, and for the computerization of accounting for direct dialed official long distance calls, need to be completed in the near future. The current voice mail system needs to be reviewed in view of the availability of more efficient models. Moreover, in view of the emerging new electronic office environment, there should be progress towards the full integration of email, fax and voice mail.

### ***Objectives:***

Short-term: To establish computerized operations for: (a) document distribution and mailing; (b) scheduling of meeting rooms; (c) provision of interpretation services during conference; and (d) integration of e-mail, fax and voice mail into one system.

Medium-term: To establish information technology as a basic foundation in the expansion and modernization of the conference facilities and services and in the internal and external communications and telecommunications systems of WIPO.

### ***Timetable:***

From 1999 to end-2001.

### ***Implementation:***

Detailed study of each major conference facility or service and communication and telecommunication systems will be prepared as part of an overall business case analysis. Coordination with other on-going or planned IT projects will be crucial to the successful planning of new conference and communication services. Project work plans and estimated budgetary, manpower and other inputs to be decided.

## **Language Services Support**

The demand for translation of WIPO documents, publications and, from time to time, official correspondence, from one language to any of the five other working languages of the Organization has been increasing dramatically in recent years. While the number of translators has also increased somewhat, other solutions must be found to deal with the increased volume of work over the longer term. An ongoing effort in this connection is keeping track of developments in the field of computer-assisted translation and voice recognition systems, electronic dictionaries for translators and development of terminology databases which have started to appear in the market. While such systems are still in the distant horizon (except for the computer-assisted management of terminology databases, which is being implemented in the Language Service), they could be of significant value to the Organization if they prove to be feasible and cost-effective. Should any of these possible

developments materialize, a significantly enhanced IT infrastructure would be needed to properly utilize them for the provision of modern language services.

***Objectives:***

- To establish pilot systems for experimentation on possible development and use of artificial intelligence in the Language Service.
- To establish test terminology databases and electronic dictionaries for translators in three languages: English, French and Spanish.

***Timetable:***

Throughout 1999 to 2001.

***Implementation:***

The services of a Business Analyst will be needed immediately to undertake preparatory studies of potential artificial intelligence applications in the Language Service. Pilot applications will be the main strategy to enable targeted users to participate in evaluation and testing of any new system being developed. User acceptance of any new system is imperative in this case.

## **Printing Services**

The Publications Production Service is well equipped with up-to-date high-speed laser printers. In this field of rapidly changing technology, the Organization is constantly looking out for faster cost-saving solutions in order to produce top quality printing in a timely manner. A further aspect of the printed matter being produced for the Organization is the increasing need for printing in color. There is also a need for the machines installed in the print shop to be connected to a network where documents can be sent electronically, and subsequently stored electronically, during and after their production in paper form. There is also a perceived need for the electronic storage of documents on a CD-ROM or on magnetic media.

***Objectives:***

- to establish an on-line printing-on-demand facility to handle texts and images for the whole Organization;
- to reduce the number of printing machines by using newest technology;

- to produce publications in color; and
- to establish an automatic archival system (on CD-ROM or magnetic media).

### ***Timetable***

Throughout 2000-2001.

### ***Implementation:***

Detailed study of each project will be prepared as part of an overall business case analysis for the Print Shop. Coordination with other on-going or planned IT projects will be important to the successful planning of new printing facilities and services. Project work plans and estimated budgetary, manpower and other inputs to be decided.

### **Benefits**

The Other Administrative Support Services project supports the SCIT strategic objective to “Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles”.

## **PROJECT 6 - MAPS/DMAPS 2002**

A business case analysis of whether to remain on the mainframe platform that supports the current Madrid processing system or migrate to another platform will be prepared in early 2000. Any possible migration strategy would not be available for review prior to the year 2001.

## **PROJECT 7 - COPYRIGHT SUPPORT SYSTEM**

The possible contents and feasibility of the copyright support system are still under consideration. The information furnished at the first meeting of the Advisory Committee on Management of Copyright and Related Rights in Global Information Networks which took place in Geneva on December 14 and 15, 1998, showed that a considerable number of different network-based rights management systems exist or are under development. Some of these are global, and concentrate on specific categories of works or objects of related rights. Others are national and encompass wide spectrums of different such categories. Several participants in the meeting stressed the urgent need for interoperability of the various systems, notably through the establishment of appropriate metadata definitions, and there were repeated calls for WIPO to assume an appropriate role.

While WIPO clearly is prepared to assume such a role which may be crucial for the development of electronic commerce in works and other protected objects, the exact substance of that role is still to be determined. One possible activity, for example, might be to make available over WIPONET information about licensing sources and links to existing global and national systems, including both licensing systems and databases created under the voluntary registration systems which exist in a number of countries.

Further discussions regarding these issues will take place at the second meeting of the Advisory Committee, which is foreseen for December 1999. Depending on the outcome of these discussions, further analysis of the various possibilities should be commenced early in 2000.

In addition, some issues related to the modernization of copyright and related rights offices and collective management organizations in developing countries will be examined in the context of digital information technology. Providing appropriate tools – software and hardware and the required training – to developing countries and their institutions should be explored so as to increase their ability to access the relevant information needed to fulfill their tasks and to be fully operational within the rapidly expanding electronic environment of the information society.

# GLOBAL SERVICES INITIATIVES

## PROJECT 8 - WIPONET

### Introduction

WIPO was directed in July 1997 by its Member States to develop, deploy, and operate a secure Global Information Network (hereinafter referred to as “WIPONET”), to support automated intellectual property office (IPO) operations. This program, formally authorized by the WIPO Member States in early 1998, will be implemented in several phases and will provide Internet-based connectivity and services to IPOs worldwide.

Global information networks, will continue to evolve as part of the fundamental infrastructure for the conduct of electronic commerce. By using this well-developed, reasonably stable and mature infrastructure, substantial efficiency will be gained in the administration and management of intellectual property rights by imbedding procedures through which such rights are acquired and maintained, as well as the means by which intellectual property information is disseminated. WIPONET, therefore, is not just an IT Network Project. Instead, it is a vehicle for modernization and a medium for achieving international cooperation among WIPO's Member States and the global IP community while contributing to enhancing the administration of intellectual property systems, such as the PCT, Madrid and Hague systems.

WIPONET will:

- address the needs of all Member States by providing fast, cost effective communications for the intellectual property community worldwide by taking advantage of available public networks,
- ensure that all Member States have the necessary means (hardware, software, and training) for network connectivity to enable access to intellectual property information and to support the modernization of intellectual property business functions,
- promote the use of intellectual property (IP) information by Member States, the intellectual property community, and the public at large, thereby fostering the adequate protection and effective enforcement of intellectual property rights,
- facilitate access to intellectual property information by developing countries, thereby providing a tool for technology transfer and economic, scientific and cultural development to the benefit of these countries and their inventors, authors, industry, universities, research and development institutions, so that the gap between the developing and the developed countries can be reduced substantially,
- offer a new mechanism for cooperation between the International Bureau, IPOs and the private sector, and
- establish the technology foundation for electronic application filing and the automation of basic IPO business functions.

The problem to be addressed by the WIPO Global Information Network can be stated simply as follows: **“there now exists no coordinated manner in which IPOs can securely exchange data using open standards or have access to the public information and intellectual property data available from various sources”**.

As a result, there is an increasing gap in the level of technology supported by IPOs around the world, in particular in the developing countries. While many offices in the developed world can profit from the low cost Internet technologies that are currently available, the communications infrastructure in developing countries is either very limited (and expensive) or non-existent. Offices in these regions are thus at a great disadvantage when interacting with offices supporting high level Information Technology infrastructures. Often small offices cannot justify the outlay for equipment and connectivity that would bring them closer to the on-line IP community, making the task of promoting the use of Intellectual Property information more difficult and inhibiting the effective protection and enforcement of IP rights. There is a clear need for a global solution to these problems, and the recent emergence of the global Internet affords WIPO a means to address this disparity.

## **General Strategy**

To correct this situation, WIPO has embarked on the WIPONET project to implement a Global Information Network connecting IPOs throughout the world. WIPONET will be based on the existing public Internet, which provides at least basic levels of connectivity to most countries. Where necessary, WIPO will extend connectivity to IPOs in countries lacking the required telecommunications infrastructure capability. Given the confidential nature of some types of intellectual property data, WIPONET will also include a component similar to many corporate "virtual private networks" to ensure secure, private communications.

In its initial phase, WIPONET will enable two key services provided by other projects covered in this plan.

- The provision of data through Intellectual Property Digital Libraries. IPDLs have been established by the Trilateral Offices and WIPO. WIPONET will provide Member States with a means to access those IPDLs.
- Distance learning facilities offered under the WIPO global training program (known as the WIPO Academy Distance Learning Program (WADLP)) for IPOs and the intellectual property community. It is foreseen that major improvements to WIPO's services in the field of cooperation for development will be generated as a result of the establishment of a coordinated Internet-based communications network incorporating new distance learning, collaborative development and video-conferencing technologies. These services will be particularly useful in distributing information and services to developing countries.

WIPONET will be implemented and operated by a network contractor. The WIPONET project team will direct contractor activities through the implementation phase, at which time a special section of WIPO's IT Division will assume responsibility for monitoring and controlling contractor performance. In the course of its development and deployment, WIPONET will be constantly upgraded and developed to offer a full suite of relevant and useful services to members of the intellectual property community worldwide. Moreover, it will become a tool through which the

intellectual property community can launch a series of new initiatives using modern information technologies.

## **Benefits**

The WIPONET project supports the SCIT strategic objectives to: “Narrow the information gap that exists between developed countries and developing countries;” “Improve the flow of information concerning intellectual property among WIPO Member States, regional IPOs, and the International Bureau” and “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles”, “Improve intellectual property information dissemination” and “Consider the information needs and filing requirements of applicants and develop electronic services keeping in mind the need to provide benefits to applicants and IPOs, and to other interested circles”.

WIPONET will foster the exchange of intellectual property information between Member States. This exchange of information will allow developing countries to benefit from the published technology and patent examination records of other countries, as well as records maintained with respect to copyright works. The benefit of digital access to this knowledge for economic, scientific and cultural development as well as for intellectual property rights enforcement and protection is clear.

WIPONET provides the following benefits:

- Improved communication via cost efficient Internet technologies - address the needs of all Member States by providing fast, cost effective communications for the intellectual property community worldwide by taking advantage of available public networks,
- Equitable access to advanced communications technology - (hardware, software, and training) for network connectivity to enable access to intellectual property information and to support the modernization of intellectual property business functions,
- Enhancement of intellectual property rights - promote the use of intellectual property information by Member States, the intellectual property community, and the public at large, thereby fostering the adequate protection and effective enforcement of intellectual property rights,
- More direct involvement for developing countries - facilitate access to intellectual property information by developing countries, thereby providing a tool for technology transfer and economic, scientific and cultural development to the benefit of these countries and their inventors, authors, industry, universities, research and development institutions, so that the gap between the developing and the developed countries can be reduced substantially,
- Greater cooperation among involved parties - offer a new mechanism for cooperation between the International Bureau, IPOs and the private sector, and
- Promote increased automation - establish the technology foundation for electronic application filing and the automation of basic IPO business functions.

Given that the tendering procedure for WIPONET contractual services has not been completed, it is not possible to proffer specific, overall project deliverables at this time; however, the key milestones that are envisioned are:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
Establish Project Team.	1Q of 1999 and ongoing		
Issue request for proposals.	1Q of 1999		
Bid Closing	2Q of 1999		
Bid Evaluations	In progress		
Begin implementing Internet connectivity for developing countries	2Q of 2000		
Begin implementing WIPONET operation, administration and maintenance functions	2Q of 2000		
Begin initial deployment of WIPONET backbone network	2Q of 2000		
Begin implementing VPN facilities	4Q of 2000		
Complete initial deployment of WIPONET backbone network	2000		
Review quality of service provided via WIPONET based services (IPDL, WADLP)	2000		
Complete initial deployment and plan for next phase	2002		
Start expanding Internet connectivity to all member offices PHASE 2	2002		
Complete PHASE 2 Internet connectivity	2004		

## Supplementary Data

### **Access to and Exchanging IP Information**

WIPONET will provide the intellectual property community with an enhanced level of communications, taking advantage of interactivity, speed and worldwide coverage. The International Bureau, on the one hand, will be able to ensure the highest possible accountability and transparency by making available information concerning WIPO activities on WIPONET. Members of the Intellectual Property community, on the other hand, will be able to respond in timely fashion to the International Bureau via WIPONET in order to put forward their needs and suggestions.

The WIPONET Program will strengthen the collective efforts by Member States to create high-quality, high-value information collections, to be easily yet securely accessible on the Internet by the intellectual property community. The exchange of such information in a networked environment will save duplicative investment and provide Member States with powerful information search and publication tools. In the patent field in particular, access to intellectual property information

represents a powerful means of technology transfer between countries, within the framework of intellectual property rights protection. This is of particular benefit to developing countries. IPOs are major providers of this information through their examination and publication efforts. In the area of copyright and related rights, some Member States collect and maintain useful records identifying and describing protected works and their ownership status. In general, IP offices are placing more and more information on line with regard to protected subject matter, as well as national laws and regulations and rights management. As IPOs move towards automated systems and examination strategies, the volume of available electronic documents will increase. With this increase comes the possibility of comprehensive information exchange between offices using WIPONET, thus reducing the expensive flow of paper between offices and the associated storage and filing costs.

## **Public Access to Information**

There is a growing need to provide public access to published intellectual property data. Several governmental and commercial organizations have provided free access to various types of intellectual property information via the Internet. These services have experienced substantial usage by new communities that previously had limited access to such information. WIPONET will provide a vehicle for the improved dissemination of intellectual property information to previously underserved communities, such as universities, research and development institutions, and copyright users.

## **Office Modernization**

The development of WIPONET will provide the International Bureau with the opportunity to improve technical cooperation through the modernization of IPOs in certain countries. Projects for providing basic network connectivity, equipment, software, and training will be undertaken to assist all IPOs, where needed. IPOs will provide software that can be modified to support a broad range of IPO business functions ranging from electronic application filing to network information publishing.

WIPONET will provide a vehicle for human resources development in all IPOs through distance learning programs for IP managers and staff, conducted by the WIPO Academy Distance Learning Program.

## **Cost Savings**

Significant cost savings for the International Bureau as well as the Member States will be achieved through the use of international networks integrated with electronic information publishing and dissemination systems. The International Bureau is concerned with the cost of printing and mailing the large volumes of PCT documents supplied to each Office.

Member States will reap the benefit of lower office automation costs. Access to the state-of-the-art technology information contained in published intellectual property applications has previously only been available in bulky paper form or as difficult-to-manage facsimile images stored on CD-ROM. This has proven to be a severe bottleneck in the dissemination of material to research institutions,

industries, and government authorities, particularly in developing countries. These formats have proven themselves expensive to store or manage, and have thus been beyond the effective reach of many interested communities, including IPOs, in developing countries. Of particular concern is the duplication of effort each office must undertake to support the current infrastructure. WIPONET will help eliminate duplication and thus reduce costs accordingly in individual offices.

## **WIPONET Implementation and Deployment Strategies**

The strategy selected was to pursue full network coordination, deployment and funding by WIPO. The WIPONET project will concentrate on satisfying basic network requirements in terms of both the physical infrastructure for a global communications network and minimum services necessary to make WIPONET a useful tool for IP offices.

### **Main Services**

WIPONET will be based on the existing public Internet technology, which provides at least basic levels of connectivity to most countries. It will extend connectivity to offices that lack this capability. WIPONET will also include a component similar to many corporate virtual private networks (VPN) secure private communications. Certain offices will require exchange of large amounts of data to and from the International Bureau, as well as with other offices. Higher levels of private, dedicated, secure bandwidth will be established for these offices.

WIPONET will use existing open standards, augmented with specialized information standards suited to intellectual property data, if needed. Where required, IPOs will receive a complete set of information publishing and data search tools<sup>6</sup> through a parallel project. WIPONET will incorporate a flexible design, which will allow for updates and modifications of software and hardware as technology changes.

### **Main WIPONET Applications**

The role of the WIPONET is twofold, as described above, i.e., Member States access to and transmission of IP data and public access to information. The nature of data or information to be accessed on the WIPONET is also twofold. WIPONET will provide both public and private (e.g. limited to IPOs) information services. Fundamental services, such as general information about WIPO activities, on-line tutorials, conferencing services and various announcements through the WIPO Web site, will require sufficient bandwidth to ensure satisfactory minimum access to the Internet. Bandwidth must also be sufficient to allow for text search and retrieval, with occasional image support. More advanced services, such as the IPDL, cross the line between public and private services. These services will require suitable bandwidth for the effective transfer of large volumes of image data (for example, in the case of priority documents) and comprehensive security services, at

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6 These tools will be selected in close cooperation with the WIPO Standing Committee on Information Technologies (SCIT) to ensure low cost and adherence to WIPONET standards

both the hardware and software levels. Many, but not all, offices will require sufficient bandwidth for the regular exchange of such data.

## **Intellectual Property Digital Libraries**

WIPONET is conceptually and functionally linked to the IPDL concept, which is described under Project 9. The general concept of intellectual property digital libraries<sup>7</sup> has been strongly endorsed by the WIPO Member States. Such digital libraries are electronic equivalents to paper collections of intellectual property records. Digital libraries offer a cost-effective and efficient way of disseminating intellectual property information on an as-needed basis to interested users.

With the imminent establishment of WIPONET, WIPO's secure global information network, IPDLs, hold the potential of vastly simplifying the international information dissemination process. This includes providing timely access to complete collections of intellectual property records maintained by IPOs and the IB. IPDLs, accordingly, present an attractive alternative to the paper-based collections maintained today by many IPOs.

The combination of WIPONET and an active IPDL program represents a valuable new mechanism for the delivery of this information quickly, efficiently, and in a cost-effective manner to all Member States and the intellectual property community. Such a combination provides efficient service without requiring extensive search, retrieval, and storage systems to be maintained by developing countries.

## **Electronic Filing**

The electronic filing of intellectual property protection applications will be of increasing importance to IPOs. Large amounts of money are spent each year simply handling paper applications. The International Bureau and IPOs acting as PCT Receiving Offices must have software to process PCT EASY applications into electronic applications and to receive direct electronic applications, as well as adequate network connectivity to support the electronic transfer of such filings. These capabilities will be developed under PCT IMPACT (Project 3). WIPONET will provide the connectivity.

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<sup>7</sup> Digital libraries are server-based collections of intellectual property information resources (i.e., databases of patent information, classification tools, patent or trademark search tools, and examination guidelines, training materials, etc.).

## **WIPO Academy Distance Learning Program (WADLP)**

WIPONET will also support the information needs of the WADLP (Project 13). Major improvements to WIPO's education and training services can be realized as a result of the establishment of a coordinated Internet-based communications network. In particular, applying new distance learning and videoconferencing technologies, supported by the WADLP, will help to overcome difficulties in distributing information and services to developing countries.

The International Bureau anticipates that interested parties in the Member States will use WIPONET:

- To link with other instruction and technical support providers,
- To take part in group discussions about course-related and management matters, and
- To exchange documents and ideas in a collaborative, real-time environment.

The WADLP is finalizing its programs and contents, many of which will make use of WIPONET in a range of services, including:

- A multimedia course production system,
- A virtual classroom instructor facility,
- Instruction delivery and management systems, and
- A network of multimedia Learning Centers in IP offices.

## **PCT Priority Document Exchange**

The Patent Cooperation Treaty (Project 3, PCT IMPACT) administered by WIPO, imposes certain data exchange requirements on participants. One of the most critical activities is the exchange of priority documents between offices and the International Bureau. Meeting this requirement will be facilitated through WIPONET.

## **WIPONET Project Management**

### **The WIPONET Project Team**

A dedicated team will be required to manage the WIPONET project and the Prime Contractor. Initially this team has been tasked with the issuance of the RFP for the defined services and the evaluation of the vendors' proposals. Once the Prime Contractor has been selected the role of the team will change to that of the management of the Prime Contractor and the constant monitoring of their performance against the agreed schedule.

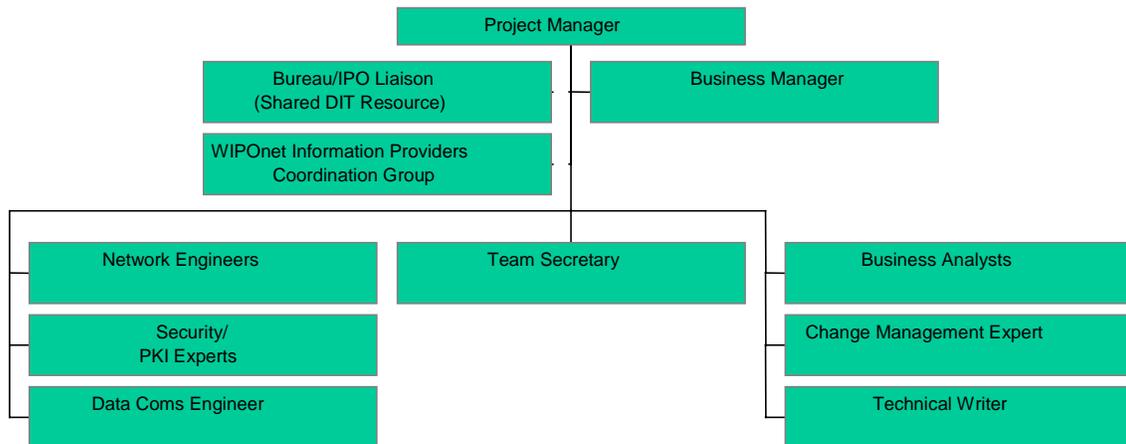
Other responsibilities will include acting as the interface between the Member States and the Prime Contractor and through interaction with the other business areas within the IB, the Member States

and the SCIT determine any new requirements for the network and ensure that the Prime Contractor is apprised of these requirements.

Regular checks will have to be performed with close coordination with the IP Offices to ensure that the level of service provided by the Prime Contract matches that specified in the contract. One problem with global networks is to check what services are being supplied against what is being charged and an important part of the team's responsibility will be the verification of the monthly bills for communications costs and other service charges.

## Team Structure

This section gives an outline of the team structure and skill sets required to manage the Global Information Network. It is important to note that the team must have sufficient resources to effectively manage the Prime Contractor to ensure that the objectives of the project are accomplished within the agreed financial framework.



**Figure 11**

### *Project Manager*

The Project Manager would have the overall responsibility of the WIPONET program and WIPONET team.

### ***Business Manager***

Responsible to the Project Manager for all program administration matters, including budget forecasting and financial control, and liaison between the Program, Member States and the IB.

### ***Business Analysts***

Will ensure that the business objectives and requirements of the IB and the IPOs are well documented and understood by all other members of the project team. They will keep abreast of changes in the business needs of both the users and information providers in order to ensure that the direction of the project is adapted in a timely manner to meet these changes. In particular to identify at an early stage any changes that will affect the bandwidth usage of WIPONET

### ***Change Management Expert***

Will act as an advisor to the PM on how to address the Change Management issues involved with in network implementation.

### ***Technical Writer***

Will prepare technical and managerial reports and documents as required by the PM and ensure a quality control function vis-a-vis the documentation produced by the Prime Contractor.

### ***Network and Data Communications Engineers***

These will be the highly skilled core experts for all main WIPONET technical issues and will be involved in the management and monitoring of the Prime Contractor as well as translating the requirements identified by the Business Analysts into the detailed technical requirement to be given to the Prime Contractor. They will also have a key role to play in the bid evaluation process.

### ***Security/PKI Expert***

The team will require a security expert who has a thorough understanding of the implementation of PKI policies and systems as well as open system security standards.

## ***Team Secretary***

Will undertake the secretarial and administration duties for the team.

## **Contractor Monitoring and Control**

Once selected, the contractor implementation proposal will become the baseline for monitoring contractor performance. A condensed Life Cycle Management (LCM) framework will be superimposed, if not included, to provide structure for systematic quality assurance and management reviews. Contract deliverable items include progress and status reports and other technical information that will provide substance for day to day management of contractor performance as well as for critical project reviews. Regular feedback will be obtained from IPOs to ensure that the level of service is consistent with the contracted level.

## **Coordination with Internal Programs**

A technical coordination committee will be established to meet as required in order to review interdependencies and ensure that the WIPONET service projects in the IB are fully informed about the status of the network and any constraints that may be imposed either on the network or the services.

## **Coordination with Member States**

It is essential that the aims of the Global Information Network remain aligned with those of the Member States and the internal program requirements of the International Bureau. This will be facilitated by the IT Steering Committee and the SCIT.

As the main “users” of the global network, the Member States and the IPOs will need to have a mechanism for exchanging information to ensure that the network meets their requirements for receiving status information about the project. Three types of information exchange are planned:

- High level planning and status reporting (covered within the scope of the SCIT),
- Technical coordination for the deployment and operation which would require a designated Focal Point in each IPO, and
- A mechanism for assuring Member State IP Office agreement.

Agreements are not traditionally considered vehicles for information exchange; however, to ensure that the expectations of both the IB and the Member States are clearly defined we propose the establishment of a “WIPONET IPO Agreement”. This agreement will give the details of what is expected from both the IB and the Member State to enable the deployment of the office equipment and network connectivity provided under the WIPONET program. The agreement would define the

costs to be assumed by the International Bureau and those to be covered by the IPO. It would also establish the timeline and prioritization scheme for service expansion.

Such agreements will form a baseline from which other minimum IT capabilities will be elaborated (See Project 1 for further information).

## **Network Requirements**

### *Overview*

WIPO perceives a need for a combination of public and private network services utilizing the existing public Internet infrastructure where possible, augmented with dedicated connectivity to IPOs in various Member States. Most Member States already have at least basic Internet connectivity in certain regions, but it will almost certainly be necessary to provide wire or wireless communications between Internet access points and the actual IPOs. WIPO should have no preconceived notion of the best way to provide these connectivity services, although the concerns described below remain pre-eminent (the concept of a virtual private network should be considered as a possible technology to ensure the required level of quality of service and security/privacy):

- Standards-Based - the network will be based on the internationally accepted TCP/IP standard.
- Speed - suitable bandwidth and connectivity must be provided to each Member State IPO. Initially this will only provide limited connection speeds, but these connections must be scalable to support increased demand by program participants. Furthermore, it is important that strategies for improved quality of service be evaluated, proposed, and implemented where technologically feasible. Note: it is not currently possible to define a Quality of Service for the traffic using the public Internet.
- Security - the concept of a virtual private network will permit the coexistence of various security mechanisms on both the private high-performance backbone and the commercial Internet connectivity provided to individual offices. Secure, transport-level privacy assurance is desired for all offices, with applications-level authentication services provided as needed.
- Control - the proposed network infrastructure must support global management and control strategies.

Without imposing any preconditions on the nature of the final design, WIPO has discussed the following conceptual possibilities with various member states. They take into account the specific needs and requirements of the WIPO community as perceived by WIPO:

- Fully secured virtual private network linking WIPO (the central WIPONET Network Access Point in Geneva) to up to ten other locations to form a comprehensive, high-performance WIPONET backbone,

- Support of dedicated network connections providing access to this backbone for national or regional IP offices by means of public telecommunication networks, leased lines, and/or the Internet,
- Support of public Internet-based services for the dissemination of public information,
- Support of secure services for various high-level applications, and
- Provision of secured restricted access to specific information resources available on WIPONET by duly authorized entities (e.g. governments, industry, academia, research and development communities, etc.).

The overall nature and choice of the network connections, for the backbone and for the transition and developing countries, will depend on suggested data traffic requirements. For developing countries in particular, options will depend on the available local telecommunication infrastructure alternatives. In some cases, this dependency might be bypassed through the use of “tetherless” (e.g. wireless/satellite) connection schemes between the IPOs and the nearest suitable communications provider. WIPO should be open to proposals that utilize these technologies.

### *Communications Capacities*

To provide efficient, economical service, WIPO anticipates that possible service contractors will seek to connect a local IPO network infrastructure to the Internet by acquiring services from one or more local, regional or global network service providers (possibly themselves). Any potential provider must be reliably connected to an international Internet Protocol traffic carrier that can deliver required performance and service levels. The provider must agree to route and carry all traffic originated at and/or destined for WIPO Member State IPO sites.

Potential providers will be required to utilize the public Internet to the extent possible, augmented by privacy assurance services (VPNs) where needed. WIPO will collaborate with current service providers as long as managed services for adequate connection quality are provided.

It is projected that the number of users and network services supported in the international intellectual property community will continue to grow, and that these users will continue to require new levels of connectivity, performance, and services. New applications involving distributed databases, high-volume secure image exchange, and “telecollaboration”, together with growth in aggregate IPO traffic, make the provision of an increasingly high performance network infrastructure necessary.

Telecommunications requirements for individual offices and office categories vary depending upon the nature of work performed at a given office, its workflow and application volume, and its need to access external resources. As change management strategies within the member state offices are adopted, utilization rates for the network should be expected to rise.

## ***Network Standards***

WIPO requires WIPONET to be based on and continuously interoperable with current, open, standard Internet technologies. At the same time, it must permit the adoption of new Internet protocols as they become available and support both high bandwidth communication links and, as appropriate, new Internet features. The latter includes such features as the ability to dynamically reserve network resources and to guarantee applications various qualities of service (e.g., average and maximum packet delays, average and maximum throughput rates, error rates, etc.) which can not be achieved with the current public Internet standards.

## ***Security Requirements***

WIPO's current planning calls for most security processes to occur in the network layer, and authentication processes to be performed at the applications level. Obviously, the development and deployment of WIPONET is critically dependent upon the development of an Organization-wide security policy for WIPO. In particular, this Organization-wide policy, to be developed through Project 14, must be reconciled with the requirements of a complex data security infrastructure spread between all national jurisdictions. Organizational failure to produce such a suitable security policy could lead to failure of the WIPONET program in the sense that it will not be possible to guarantee the secure exchange of confidential data.

Privacy or security technologies utilized within WIPONET must be available to all participants within WIPONET. This will require WIPO to enter into negotiations with member states that prevent the export, import, or use of encryption systems and/or data. Should these negotiations be unsuccessful, the Organization must adopt strict procedures to restrict the flow of sensitive information to sites judged to be non-secure.

## ***Provider Evaluation***

Proposals of potential providers of this network will be evaluated on the robustness of service for external connectivity, the high-performance backbone, human systems (such as training support), and other criteria related to assured quality of service. WIPO will pay particular attention to the presence or absence of assurances concerning guaranteed restorable service within minimum time periods, multiple service providers, multi-homing, and other redundancy techniques. WIPO will also consider, as a rating factor, the proposed provision of 24 x 7 guaranteed service within a set of minimum acceptable service levels measured over various time periods. Vendors will be required to fully utilize their available expertise to propose state-of-the art solutions providing maximum reliability, robustness, and quality of service, and to make specific guarantees in their proposals, while maintaining due attention to cost.

Proposed connectivity commitments will be a rating factor when proposals are reviewed. Costs and other deployment issues will also be considered. The project will include the provision of basic equipment to each office (PC's, routers/firewalls, small-scale internal office networking for up to 6 new personal computers, training, and support services). These requirements are solely relevant to the provision of suitable network connectivity to each office, with appropriate network terminating

equipment. Access to the network will be provided by connections (either wire or wireless) to an appropriate Internet service provider.

The number of countries to be covered by this project numbers some 171, with the most significant effort required mainly in developing countries.

### ***WIPONET Backbone***

A high performance backbone will provide high-speed connectivity between selected locations and the WIPO IB in Geneva. Designed to provide a private network backbone to facilitate efficient data exchanges related to intellectual property, the network will support standard low-level communications and high-level information systems technologies, which may eventually be extended to a larger group of offices. Envisioned networking speeds will range up to 512 KBPS, depending upon funding availability, feasibility, national infrastructure, traffic requirements, and other related issues.

As many as 10 countries from the Member States will be included. They will be identified by the Prime Contractor and will depend on their points of presence in the world

An important rating factor in the evaluation of responses to these network requirements should be the strength of the various proposals based upon evaluation of the overall architecture diagram provided, combined with the experience of the proposed vendor team. The strongest proposals will present a comprehensive, well-defined solution based on this diagram and other information contained within proposal documents.

### ***Upgrades and Modifications to the IB Internal Network***

The International Bureau of WIPO, located in Geneva, Switzerland, will serve as a main node for WIPONET, including direct, high-speed connections to the WIPONET VPN backbone, and support for various network-wide management services. Because of this, certain upgrades to the internal WIPO network will be required. This is addressed in Project 14.

WIPO will identify suitable space within the International Bureau for the hosting of WIPONET Basic Services and WIPO IPDL nodes, network monitoring equipment, and an internal WIPONET development and support network, including WIPO access to future videoconferencing facilities. This will require extensive conditioned physical space within the International Bureau, provided on a timely basis.

Proposal documents developed by WIPO must invite comments and proposals for providing these network support facilities and development networks, based on the experiences of the vendors.

# PROJECT 9 – INTELLECTUAL PROPERTY DIGITAL LIBRARIES

## Introduction

An Intellectual Property Digital Library (IPDL) is an organized collection of electronic information that is readily available to a designated community through Internet worldwide web technologies. Digital libraries offer to vastly simplify the process of providing access to timely and complete collections of intellectual property records maintained by other IPOs. Digital libraries, accordingly, present an attractive alternative to the paper-based collections maintained today by most IPOs.

The objective of this project is to facilitate access to and exchange of intellectual property information by the intellectual property community worldwide through the creation and use of IPDLs. WIPONET enabled Internet access to IPDLs by developing countries will be a tool for technology transfer and economic development of these countries. IPDL access will benefit the inventors, industry, universities, and research and development institutions of these countries.

The intellectual property community is faced with the challenging task of moving from current paper-based models of information exchange to more advanced electronic information dissemination practices. Such a move will result in more effective intellectual property search strategies for the examination process, and can reduce the cost of information exchange between offices.

Office automation in the intellectual property environment is an expensive undertaking. The sheer volume of data that must be maintained in a precision search environment can be daunting, and the storage capacities required for images (such as drawings and front-page data) are significant. Unfortunately, this cost must be borne by each office that desires to provide quality search and retrieval access to other office's collections.

The only responsible alternative to networked data collections is that of massive CD-ROM manufacturing and distribution. Given the number of offices now producing CD-ROMS, and the complex exchange paths that must be followed, the intellectual property community can find itself in an exponentially increasing trap of CD-ROM shipments, as each country must ship to every other country, and receive from every other country.

With the advent of WIPONET, WIPO's global information network, the primary hurdle of providing universal network connectivity to each IP Office will be cleared. This will permit the effective use of advanced Internet-based information systems to support the intellectual property examination process.

This document summarizes a structured plan and development methodology for the Intellectual Property Digital Libraries (IPDL) Program<sup>8</sup>. It briefly presents the tasks and objectives associated with a well-planned IPDL development effort. The IPDL Program is a critical component of the overall WIPONET effort - without accurate, timely content, presented in a useful, effective manner,

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<sup>8</sup> The IPDLs are electronic equivalents to paper collections of intellectual property records. The IPDLs are server-based collections of intellectual property information resources (i.e., databases of patent information, classification tools, patent or trademark search tools, and examination guidelines, training materials, etc.).

WIPONET would simply be a basic tool for public Internet access, albeit extremely useful for engendering closer co-operation between Member State offices. A carefully designed IPDL program can instead provide useful, maintainable, well-defined intellectual property information services, with a high standard of quality and reliability.

The WIPO IPDL Program represents a major milestone for WIPO; the development of a world-wide automated information system that will be used and critically reviewed by the WIPO Member States and the public. A system such as this must be designed and developed in an atmosphere of transparent cooperation and careful evaluation of constituent needs. Furthermore, the evaluation and documentation of these needs must support the outcomes developed during the design phase, and must support the expenditure of funds to create the final system according to the developed requirements.

## **General Strategy**

The establishment of IPDLs was recommended by the Permanent Committee on Industrial Property Information in November, 1997. By April 1998 the International Bureau developed a prototype WIPO IPDL featuring an electronic form of the PCT Gazette implemented as a patent information database. The service was launched in April, 1998, and is accessible through the worldwide web. The database contains the first page data (bibliographic data, abstract and drawing) of PCT applications published since April 2, 1998. The system provides comprehensive web-based searching, with retrieval and display by users on demand. The first page data of applications published each week in Section I of the Gazette are added to the database immediately following publication. In the next stage of the IPDL project, WIPO will assist the member offices to access the public Internet website IPDL content available from the Trilateral Offices and other member offices already offering suitable content.

During the creation of the prototype of the WIPO IPDL, it became clear that a coordinated approach must be taken by all participating offices. The current prototype services are being provided according to the following policies:

- to make it easier for as many offices as possible to participate in the project, in principle, technical solutions should follow industry standards supported by open systems and the so-called Commercial Off-the-Shelf (COTS) products,
- to take advantage of dynamic activities in the private sector, the WIPO IPDL should provide basic collections of intellectual property data or complementary services to those made available by private database vendors,
- to verify proposed technical solutions, pilot projects should be launched and the result should be reflected in the selection and scaling of potential solutions,
- a multilingual environment should be taken into account to the greatest extent possible when adopting technical solutions,
- a flexible approach should be taken considering the particular circumstances in developing countries,
- all services of the WIPO IPDL should be made available to IPOs of Member States free-of-charge, with the access and charging policies to be applied to certain services available to the general public determined by the SCIT.

WIPO expects to eventually provide, through its IPDL, access to collections of intellectual property information (patent data, trademark data, design data, copyright management data, intellectual property laws, etc.) as well as enhanced search services, such as automatic translation, tools supporting the use of international classifications, automatic delivery of hard copies by facsimile on demand, etc. Similar expansion of services by the Trilateral Offices IPDL websites and selected member offices will be developed in cooperation with WIPO. The objectives of these efforts are:

- To provide intellectual property information users with comprehensive controlled access to world-wide intellectual property information through a standard human and electronic interface.
- To reduce the cost and increase the timeliness and effectiveness of intellectual property exchange between offices,
- To provide modern, effective search and retrieval tools to IP examiners within the WIPO Member States,
- To empower Member State offices to produce and publish electronic intellectual property registration data,
- To facilitate the use of cooperative, integrated data collections in support of new, international, cooperative registration concepts,
- To facilitate the dissemination of limited IP information to the public,
- To provide an interface with integrated access (e.g. cross-searching and referencing, classification tools support, and resource control and location), bulk delivery services, customizable human interfaces and delivery models for multi-language support, and machine-level access for advanced capabilities through standard information retrieval protocols.

## **Benefits**

The IPDL project supports the SCIT strategic objectives to: “Narrow the information gap that exists between developed countries and developing countries”, “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles” and “Improve intellectual property information dissemination.”

Beyond attaining the SCIT objectives, there will be visible benefits to the IP community in terms of

- **Improved Quality:** Reduction of the number of insufficient search results on International Applications submitted to the IB or ISAs from offices that have been provided access to the IPDL websites.
- **Better Feedback:** WIPO will be able to provide feedback to the Trilateral Offices on the quality, consistency and completeness of their IPDL website services.
- **Easier Access to Information:** Expanded availability of IPDL information via IPDL websites will lead to increased access from the IP offices and general public in the WIPO member states.
- **Additionally, IPDL’s:**
  - hold the potential of vastly simplifying the current complex and awkward international information dissemination process,
  - can provide timely access to complete collections of intellectual property records maintained by IPOs and the IB,
  - present an attractive alternative to the cumbersome paper-based collections maintained today by many IPOs,

- can provide a new tool to IP Offices for the on-line international collaboration in the area of search and examination, and
- can enhance the awareness of the public about the value of intellectual property information, in particular, patent information and facilitate the creation of knowledge-based societies in Member States.

Key schedule milestones are:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
WIPO's promotion activities for IPDL prototype services (Seminar, training, information package distribution, etc.)	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 1999	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 2000	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 2000
Office-specific assistance plans developed	mid-1999	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 2000	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 2000
Technical Assistance to IP Offices in developing countries begins	mid-1999	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 2000	1 <sup>st</sup> or 2 <sup>nd</sup> Quarter of 2000
Begin collecting performance measures data on the benefits from IPDL access	mid-1999	mid-2000	mid-2000
First report to SCIT on results achieved, lessons learned and next steps	End 1999	End 2000	End 2000

WIPO proposes that steps be taken to improve IPDL functionality concurrent with the development of the strategic IPDL concept. In the next stage of the IPDL project, WIPO will assist the member offices to access the public Internet Website IPDL content available from the Trilateral Offices and other member offices already offering suitable content.

## Near-Term Commitments

1. WIPO will step up efforts to promote the use of prototypes of IPDLs. WIPO will organize seminars, workshops and training attachments for IP offices and other relevant user community. To facilitate the promotion, WIPO will prepare an information package (CD-ROM, online, brochure on paper etc.) describing the IPDL services available at the Trilateral Offices and WIPO through the Internet. WIPO will identify IP offices with a strong desire and requiring assistance to create their own national/regional IPDL.
2. WIPO will develop plans to assist these offices by providing technical assistance and basic tools.
3. WIPO will investigate the feasibility of expanding the availability of front page information for the IPDL collections in official WIPO languages and implement a project to achieve expansion with SCIT approval. WIPO will also investigate technical solutions to enhance user-friendliness and search capability of IPDLs.

4. WIPO will establish means to capture IPDL documents that are translated into official WIPO languages and add these to the IPDL website maintained by WIPO. WIPO will provide IP Offices in developing countries with technical assistance in undertaking the conversion from paper-based documents into electronic database for their national/regional IPDLs.
5. WIPO will actively work with offices to see that the resources are put to effective use through addressing problems that will arise by means of technical solutions and further training as necessary.
6. WIPO will deliver periodic reports to the SCIT on the progress of this project indicating obstacles that may need to be addressed and improvements in the quality of work done by these offices.

## **Immediate Benefits**

1. Member States IP Offices will be given greater access to intellectual property information once WIPONET is deployed. The information gap between IP Offices in different countries will be immediately narrowed.
2. Reduction of the number of insufficient search results on International Applications submitted to the IB or ISAs from offices that have been provided access to the IPDL websites.
3. WIPO will be able to provide feedback to the Trilateral Offices on the quality, consistency and completeness of their IPDL website services.
4. Expanded availability of IPDL information via IPDL websites will lead to increased access from the IP offices and general public in the WIPO member states.

## **Supplementary Data**

### **General Concept of the IPDLs**

#### ***Two Different Functions***

IPDLs have two distinct purposes as follows;

- (a) Open IPDLs are to provide the general public with searchable published IP information as a result of IP rights registration; and
- (b) Closed IPDLs are to permit the confidential exchange of administrative data and other files for IP rights examination and registration. This confidential data often includes unpublished data; for example, the priority documents, search reports and legal status records. Such a confidential data exchange facility will almost certainly enhance the efficiency of international registration procedures.

Under this arrangement, a complete IPDL will have two components, a component for public IP information dissemination using the Internet, and another confidential component accessible through secure WIPONET connections provided to offices participating in the program to exchange

unpublished data. If a given IP Office has no need to exchange unpublished data with other offices, its IPDL may be as simple as a Web site, publishing the searchable IP information included in IP Gazettes together with other general information for public dissemination such as introductory information about IP office organizational structure, procedures to apply for IP rights and administrative announcements. Clearly, it is advantageous to ensure that these sites provide as much functionality and flexibility as possible; it may therefore be in the best interests of the International Bureau to provide a "toolkit" of software and tools that support WIPO-approved standards for IPDLs.

On the other hand, Closed IPDL's are yet to be fully implemented and certain pilot projects to electronically transmit the priority documents and PCT search reports are under way (see IMPACT Section, PCT Electronic Documents Exchange). The exchange of files and documents online will become more popular and reliable once electronic, backend documentation systems (e.g., IMPACT, MAPS) are fully operational and connected with other systems at IP Offices via WIPONET. PCT Electronic Documents Exchange program is considered as a testbed project to demonstrate a possible business model of closed IPDLs. The remote online access by IP Offices of the Madrid Union Member States to MAPS databases at the International Bureau is another example to show an alternative business model of Closed IPDLs. Together with relevant technologies to ensure the data and network security, the best use of "pull" and "push" technologies will also be examined in designing Closed IPDLs. After all, various projects to exchange unpublished data will be progressively integrated into IPDLs project in the context of designing closed IPDLs.

## **Contents of the IPDLs**

During the PCIPI meeting in Rio de Janeiro, the WIPO Member States indicated that the contents of the IPDLs should be as follows:

- Patent Data -- the first page data (bibliographic data, an abstract, preferably in common language and a representative drawing) and the full text in coded text (in a original language) and drawings of patent documents;
- Trademark Data -- Bibliographic Data and reproduction of marks including figurative elements;
- Industrial Design Data -- Bibliographic data and reproduction of designs;
- Unpublished administrative and procedural data -- priority documents, search reports, examiners action and legal status data; and
- Reference -- bibliographic information about non-patent literature ("Journals of Patents Associated Literature"; JOPAL), industrial property laws and search tools such as the IPC.

WIPO also expects to eventually provide, through its IPDL, enhanced search services, such as automatic translation, tools supporting the use of international classifications, automatic delivery of hard copies by facsimile on demand, etc. Similar expansion of services by the Trilateral Offices IPDL websites and selected member offices will be developed in cooperation with WIPO.

## **Infrastructure**

The infrastructure to support the IPDLs should consist of two components: first, WIPONET, which will provide globally secured Internet access for industrial property offices participating in the IPDL Program, and second, the national infrastructure of each office supported by modern information technologies, including access to the network.

## **Data Collection Tools**

The IPDLs should be created through the use of data collection tools, including electronic filing software, image capturing and conversion software and OCR software. Offices would benefit from software that will convert between various textual standards, such as ST.32 SGML (Standard Generalized Mark-up Language) to HTML. Allowing each office to determine the software and systems to use, a series of internationally common output data formats should be defined to facilitate the data collection from different sources. WIPO can support this data collection effort through the provision of some of the tools mentioned above.

## **International Rules and Policy Coordination**

International standards regarding data processing such as those for capturing, storage, communications and publication of data should be determined and evaluated for their suitability in intellectual property information development, processing, and exchange. Open technologies supported by commercially available products should be preferred. Legal issues concerning data transmission via the network system (e.g., electronic signature, authentication, security, etc.) should be addressed, in particular, to use IPDLs for the exchange of unpublished data. Common approaches to information dissemination policy, in particular, regarding data sale to commercial vendors, pricing policy and data access policy should be explored so that the policy of each office should be coordinated at least to the extent necessary to successfully operate the IPDL Program.

## **The Goal of WIPO IPDL Program**

The goal of the WIPO IPDL Program is to make universal sets of IP information accessible in different IPDLs, with an ultimate goal to integrate various IPDLs into a global IPDL. This global IPDL environment will consist of (a) the WIPO IPDL operated by the International Bureau of WIPO to provide PCT, Madrid and Hague data collections and (b) national and regional IPDLs developed by IP offices participating in the program. The need for establishing the Global IPDL is justified by the requests from users of IP information that there should be a user-friendly system, which permits effective cross-searching of the different data collections provided in various IPDLs.

## Global IPDL

To permit such a cross-search function for the world-wide data collections and other desired functions, basic requirements for the Global IPDL could be defined as follows;

- Internationally standardized data formats based on commercial standards wherever suitable.
- Internationally standardized data communications and search and retrieval standards (such as the WorldWide Web's HTTP protocol, and protocols such as Z39.50, as well as other protocols deemed suitable for international intellectual property data exchange).
- Internationally coordinated dissemination policy (the data should be provided free of charge as long as they are published information without any added-value).
- The minimum set of supported data elements and search and retrieval attributes associated with each element (the data should contain the minimum data elements agreed under the IPDL program to allow for meaningful search results).
- The minimum requirements for security (the participating Offices should follow the minimum security requirements agreed under the IPDL program to ensure the security, authenticity and integrity of the data<sup>9</sup>).
- The data access control policy (with regard to access to unpublished data provided by the participating Offices in the administrative data exchange program, the access control should be agreed and properly implemented).

## Implementation

The WIPO IPDL will be operated by the International Bureau for the collections of PCT, Madrid and Hague registrations. This IPDL should take a lead in the project to demonstrate the usefulness and feasibility of the IPDL program and the standards selected for use under the program, and to encourage the IP offices to participate in the program.

The project of National and Regional IPDLs should be implemented by participating national and regional IPOs which accept the basic principles of "self-support," and the basic requirements for participation in the Global IPDL (discussed above). The Global IPDL project aims at the establishment of distributed global collections of searchable data originally generated and maintained by different IPOs and relevant organizations in a decentralized manner, rather than a centralized model in which, for example, the International Bureau should collect, generate and maintain all the collections of data in the IPDLs. Any interested IPO is encouraged to participate in this project. The International Bureau will provide those offices with technical assistance to set up their own digital libraries and will establish links between their IPDLs and the WIPO IPDL.

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<sup>9</sup> In case of published data, the security is not required. However, the IPDLs still need to ensure data authenticity and integration.

## **Support for Member States and Developing Countries**

The IPDL project supports the SCIT strategic objectives to: “Narrow the information gap that exists between developed countries and developing countries;” “Improve intellectual property information dissemination;” and “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles.”

WIPO will assist interested offices in establishing the components of their IPDLs; e.g., WIPO could help an office establish a database for application data, patent documents or other records, and make the database accessible to other IPOs. The resources necessary for the implementation (human and financial) and institutional arrangement (international body to coordinate the project) and training and technical assistance particularly to developing countries and countries in transition to market economy will be provided under WIPONET Support Program during the 2000 – 2001 biennium.

## **Project Management Structure**

With a well-planned development and implementation strategy, a well-organized, carefully planned design, and an approved development and implementation program, the IPDL Program can be established in an effective, coordinated manner. It requires a dedicated program manager and support team. The support team will be composed of one Project Manager (leader), three permanent professional staff (core sub-managers), three consultants (with limited period and different expertise as the project evolves) and two general staff members. They will take responsibility for (a) the production of the IPDL data, (b) the development of IPDL system, and (c) the provision of users services and promotion. A small unit will be established for each of these critical tasks, supported by contractors where necessary. Currently two professional staff and one consultant and one general services staff are working on the IPDL Program. There is a need for reorganizing and reinforcing this team.

## **Project Management Policy**

Apart from the general policy applicable to all IT projects, for the implementation of this particular project, the large data producers, notably the Trilateral Offices, should be closely involved in the design and development process to ensure a workable, properly supported system. This effort will be geared towards reducing duplication, improving service, and reducing costs for the participating offices.

The coordination and integration with the data producing business managers such as IMPACT and MAPs (Madrid database system), and WIPONET should be pursued. The duplication and competition with private data vendors should be avoided. The IPDL should be users-oriented, and thus the response from users should be reflected into the design and upgrading the IPDL.

## **Business Models, Design of IPDLs**

Comprehensive design work should commence in consultation with the large data producers to effectively analyze and manage development costs. A full planning program must be undertaken to evaluate the needs of WIPO and its Member States, and to develop effective implementation and budgeting scenarios. Once the overall design is prepared together with concepts and plans ratified and supported by WIPO management, it should be presented to the WIPO Member States for approval.

In cooperation with the large Member State offices that already publish IP information on the Internet, a cooperative plan for linking these collections, with WIPO financial assistance, will be developed. Under this model, the team will maintain the existing IPDL collections, while integrating commercial, off-the-shelf information systems, where possible, into a new, standardized IPDL system. This system can be used at WIPO and distributed to other offices that wish to publish their own collections of data.

These IPDL systems, or nodes, will support the necessary communications and standards infrastructure for coordinated on-line search and retrieval, and intellectual property resource location support. The IPDL system and knowledge databases will be aimed at examiners in the WIPO Member States, particularly those in small to medium sized offices. These offices frequently lack access to the world's major collections of intellectual property data, and when access is available it is through slow, bulky CD-ROM collections. The WIPO IPDL program will emphasize the availability of specialized and unpublished material that is normally unavailable through the commercial sector, and can integrate the IPDL system with commercial services to avoid additional duplicative efforts. These commercial services will be integrated through service-level agreements that will ensure high quality service to the WIPO Member States in a transparent, seamless environment.

A more extensive business case will be prepared in order to present the concept in full, as there are many conceptual areas that require thought and analysis.

The prototype WIPO IPDL has been developed by adding PCT, Madrid Express, Hague Registration data as well as certain pilot data collections provided by interested national offices. Through many presentations and live demonstrations of IPDL search functionality at the SCIT meetings and on the occasion of the General Assemblies in 1998, it appears that there exists worldwide recognition and awareness of the impact of the IPDL program. Before additional work is started, a clear program organizational structure must be agreed upon and implemented internally, and presented to the Member States at the SCIT Plenary in December 1999 or the first session of the SCIT in 2000. This requires the formal appointment of a program manager and the assignment of resources for the first stages of the development process.

It is helpful to review what those first stages are:

- Review of existing documentation and selection of commitments
- Analysis of business issues with a business analyst
- Development of a commitments document
- Approval of those commitments by appropriate levels of WIPO management and the WIPO Member States
- Development and approval of basic constraints and methodologies

With the commitments in place and agreed upon, a tentative, technology-neutral concept paper can be developed, possibly based upon the concepts briefly touched upon in this paper. Such a concept paper should include business case justifications, and the basic concept of the functionality and operations of the IPDL System. Given approved commitments and an approved concept, requirements management can begin.

## **Step 1: Requirements Management**

The requirements management process will flesh out the general concept developed in the first step. The timelines and resources for this component are strongly dependent upon the approved concept and the approved organizational commitments. This will require additional support, and some external technical resources. The steps are:

- (a) Convene a small group of technical experts from both inside and outside of the intellectual property community to review the concept and make recommendations as to appropriate technologies and information systems methodologies. This group will draw upon detailed client requirements, their commitments, and the overall concept in developing recommendations and choices. These recommendations should be in the form of a paper suitable for inclusion as an attachment to the program plan, for presentation to the SCIT.
- (b) Selection of a contractor or consultant to assist in requirement management tasks, if internal support is not available.
- (c) Development, organization, prioritization and approval of technical and program requirements.

The development and documentation of these requirements will require approximately three staff members for two to three months, depending upon the complexity of the identified obligations, with contractor support for requirements management and analysis and program documentation management support.

## **Step 2: Resource Estimation**

Resource estimation will cover several basic areas, including budget and human resources. At this point, it will be useful to determine if the IPDL Program should be subdivided into project areas under separate but coordinated control by the Program Manager. The project distinctions, if needed, should be clear from the grouped requirements. Staff members should oversee these projects, if possible, but highly specialized areas may be supported by contractors or consultants. For example, certain operational activities, i.e., the operation and upgrading of the existing prototype WIPO IPDL databases such as PCT Electronic Gazette, and WIPO's provision of technical assistance to developing countries for their creation of national/regional IPDLs could constitute a sub-program which can be separated from the development of IPDL systems with new features and the design work needed for the integration of IPDLs into the Global IPDL. Furthermore, WIPO must be prepared to propose and support tasks associated with the integration of existing Member State collections, to avoid duplicative efforts. The major information producers and publishers within WIPO must be carefully consulted during all design phases to ensure that an effective, cooperative solution is developed.

The result of this process will be an expanded management plan, with a detailed budget and resource estimate, based upon planning inputs from the sub-project managers, if necessary. This process is estimated to take three to four weeks, involving three professional staff members and associated experts.

### **Step 3: Development of the Comprehensive Program Plan**

At this point, the program plan may have separate sub-project plans, developed by the new sub-project managers, with rough estimated budgets. Each project manager (or the program manager, if there are no separate projects) should develop, based on requirements, a full plan for implementing the system (or component).

- If budgetary and resource review is required, the group will perform the review and make necessary changes.
- If commitment changes are required, the group will make the necessary changes and seek approvals.
- If requirements change, the group will make the necessary changes and coordinate as necessary for approvals.
- Develop comprehensive quality plans.

### **Step 4: Development**

The initial development of national and regional IPDLs should proceed to the integration into the Global IPDL. In view of the fact that the exchange of unpublished data requires further discussions and agreement on standards regarding data security, digital signature, digital certificate, the PKI and secured connection of WIPONET, primary efforts for the development will focus on the creation of IPDLs limited to public dissemination of IP information and cross-search capability of such open databases. Depending on the progress of the pilot project for the exchange of unpublished data between offices and the International Bureau, this phased implementation will be subject to review by the SCIT. It is planned that a minimum of five national and regional IPDLs will be developed (with or without WIPO's assistance) under the WIPO IPDL program and additional functionality including cross-search capability, automatic classification search tools, more user-friendly interface and linguistic support will be introduced.

### **Estimated Cost**

#### ***1998 – 1999***

Four million SFr funds will be provisionally allocated from the Special Reserve Fund (SRF), of which it is estimated three million SFr will have been spent by end 1999.

***2000 – 2001***

It is estimated that for the initial development of the global IPDL and assistance to the national and regional development of IPDLs, 3m to 4m SFr would be needed during the next biennium. However, once this business plan is prepared, the planning processes will be launched in the second half of 2000. This will result in a comprehensive program plan and budget, with a detailed business case analysis, for ratification by WIPO management.

Once the SCIT reaches an agreement on the program objectives and, if possible, the general concept and implementation plan for the initial development of IPDLs towards the eventual integration into the Global IPDL in the first half of 2000, using the allocated resources in the 2000-01 biennium, subsequent steps will be taken in consultation with the SCIT.

# PROJECT 10 –WEB SITE DEVELOPMENT SUPPORT

## Introduction

WIPO and many of the Member States use their web sites to disseminate information of all types about their programs, operations and regulations, both internally and globally. This medium has become a major conduct of information to the public, other IPO's and the IP professional community regarding intellectual property rights, inventions and IP office operations. For example, WIPO currently provides to the public such information as:

- Basic information about the PCT,
- PCT Regulations,
- PCT press releases,
- Monthly PCT newsletters,
- PCT Applicant's Guide,
- Key PCT forms in different languages with examples of completed forms.
- Information on the MAPS system,
- Madrid Agreement and Protocol Regulations,
- Guide to international registration of marks, and
- Official forms and other information about the international deposit of industrial designs.

Other information about WIPO and its programs is also accessible – IP news, WIPO Academy Distance Learning program, special events and programs, and other operational information. Use of this resource is growing and will become a major element of WIPO's global information network.

While the current Web dissemination program is fulfilling many information dissemination needs, there is a need to broaden the scope of the program to include information dissemination by Member States that do not have Web site capabilities and other program areas within the IT. Many Member State IPOs do not have the capabilities to develop their own Web Sites and have not or cannot gain the benefits of disseminating information about their role and programs through the Internet. This situation presents an opportunity to assist Member States in developing web site content and facilities to host web pages.

WIPO Web site should demonstrate a model Web site of IPOs and relevant organizations taking advantage of its internal expertise and various contents to disseminate. New opportunities offered by Web-based technologies and policies should be reflected in the upgrading of the WIPO Web site with a view to enhancing user-friendliness and effective interactive communications. This project will be closely coordinated with WIPONET and activities of the Office of Global Communication and Public Diplomacy.

## **General Strategy**

The purposes of the Web Site Development project are to:

- Establish a more systematic program to expand and standardize the format and content of Web sites/pages,
- Provide assistance to Member State IPOs and IB programs in the creation of other sites and the publication of additional information, and
- Actively manage the operation of the internal and global Web Sites.

WIPO will establish a team of professionals – consisting of a Web Master and assistants – that will undertake major activities to assist internal WIPO organizations and member states that have valid content and wish to establish their own websites.

The services to be provided by the team will include:

1. Collect and analyze feedback from WIPO website users to identify areas needing improvement.
2. Prepare guidelines for developing and publishing information in a consistent manner with consistent linkages.
3. Develop an overall design for the IB web site and create the structures for improving understanding and gaining access to all levels of information that may be sought.
4. Establish and publicize an assistance function that will support all program areas in gaining access to and effectively using the web sites to publish information, including reviewing the design and content of material and providing ideas and assistance to achieve uniform quality in published material.
5. Survey Member State IPOs to determine interests in and needs for Internet publishing.
6. Establish policies and procedures for hosting Member State IPOs in the WIPO web site environment.
7. Adapt IB guidelines and site design for use by member IPOs.
8. Provide assistance to member IPOs in the design and development of materials for publication.
9. Provide guidance and assistance to member IPOs that seek to establish independent Web Sites.
10. Systemically review web site contents to identify material that needs updating, deleting, or improvement and provide assistance in making changes.
11. Maintain linkages within and across WIPO and web sites.

## **Benefits**

This project supports the SCIT strategic objectives to “Narrow the information access gap that exists between developed countries and developing countries”, Improve the flow of information concerning intellectual property rights among WIPO Member States, regional IPOs and the International Bureau”, “Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles” and “To improve intellectual property information dissemination.”

Benefits from the Web Site Development Assistance Program include:

- Improved availability of web content – WIPO internal organizations and Member State IP offices having valid content, but lacking the resources to publish this on the Internet, will have opportunities to do so.
- More effective presentation of web content – application of guidelines for organizing web content developed under this program will result in greater consistency among WIPO and Member State web pages. This consistency will make it easier for users in the public and IP professional community to find information.
- Increased visibility for member offices – small IPO’s that otherwise would not have a presence on the Internet World Wide Web will have the opportunity to take a place alongside the other offices.

Key schedule milestones are:

Tasks/Projects	Completion Dates		
	Initial Projection	Current Projection	Actual
Establish website assistance team and complete hiring staff	2Q of 2000		
Collect and analyze feedback from WIPO website users to identify areas for improvement	4Q of 2000		
Create an overall design for the IB website and update site to follow the design	1Q of 2001		
Survey member states to determine interest in and needs for Internet publishing	TBD		
Assess proposals for member website content and validate material to be published	TBD		
Develop and publish policies and procedures for WIPO hosting of Member State web pages	TBD		
Maintain linkages for WIPO web sites and provide assistance to monitor and suggest linkages among member state web sites	TBD		

## Estimated Cost

The estimated annual cost of the Web Site Development Program, including start-up cost, is approximately 900 thousand SFr.

# PROJECT 11 – Y2K

## Introduction

A WIPO Y2K Task Force was created on the basis of the recommendations given to WIPO by Data Dimensions, Inc. when doing the audit of Y2K related activities in WIPO. The Task Force started its work on May 5, 1999 and concentrated its initial efforts on the

- consolidation of the planning activities;
- consolidation of the public WIPO Y2K information and its legal background (Y2K “compliance statement” on the web, FAQ (Frequently Asked Questions));
- launching of an awareness program (Newsletter, memo from the DG to the staff, re-definition and definition of some basic documents, e.g., conformity definition, date format recommendation, dates to be tested);
- completion of inventories;
- (limited) risk analysis; and
- testing of the mission critical systems.

An additional priority was the identification of the resources needed to solve the Y2K problem in WIPO. Information considered when describing the Human Resource Needs of the Y2K Project came from

- a 5–3–1 brainwriting (done with the intention of personalization of the Y2K problems);
- the written proposals coming from the Task Force Members;
- informal discussions with the task force members;
- communications in e-mail and interviews carried out on 20/05/1999 (to integrate proposals coming from the IT Steering Committee);
- evaluation reports.

While there was insufficient time to produce a complete business case analysis, a Y2K Master Plan and a proper Y2K Business Plan following the best practice recommendations, it was imperative that we concentrated on the systems considered being — beyond any dispute — mission critical.

This document deals with the mission critical and critical business systems. Nevertheless, it is considered as an overall Y2K Plan for WIPO.

## **General Strategy**

The objectives of the project are described in the Terms of Reference given to the Y2K Task Force in the Director General's memorandum of June 14, 1999, i.e.,

- Coordinate the Y2K work being carried out across WIPO;
- Complete WIPO-wide inventory of mission-critical software, hardware and other computerized devices;
- Complete a risk assessment and assessment of mission-critical systems;
- Develop a prioritized Year 2000 work plan to be applied to mission-critical hardware, software and other computerized devices for approval by the Chair and Vice-chair of the IT Steering Committee;
- Ensure that all procedures specified in the work plan are implemented properly and on time;
- Ensure that mission-critical services have contingency plans;
- Develop and implement an information plan [called an awareness plan in this document].

## **Mission Critical Systems**

Mission critical systems are those the failure or malfunction of which would lead to a failure by the Organization to meet, on a timely basis, significant obligations and functions deriving from provisions of treaties which WIPO administers or tasks otherwise assigned by Member States.

The following systems are considered **as mission critical** systems:

- PCT: CASPIA
- PCT: CASPRO
- PCT: SPIDI/PAMSCAN
- FINAUT
- MAPS/DMAPS
- Office network
- Telecommunication infrastructure/phones/fax
- Building infrastructure

In addition to the sub-project documents corresponding to these systems a separate Y2K Awareness Plan has been developed.

## **Benefits**

The Y2K project supports the SCIT strategic objective to “Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles.” At this stage the Y2K-related problems cannot be solved using outsourcing. The current (low and medium) level of the quality of the documentation of the various systems and activities does not allow us the total outsourcing. Nevertheless, with appropriate additional support the internal staff of WIPO is capable of solving the problem by:

- having regular and improved communication;
- having additional manpower and support in the overloaded development and operational environment;
- building up a special culture of cooperation;
- sharing more quickly “Best Practices”;
- implementing a professional support service (e.g., Gartner Interactive: [www.gartner.com](http://www.gartner.com)); *this could be a model for the future high-tech projects*;
- implementing a fast track administration in a special project, a know-how, which could be re-used in other projects;
- phasing out, replacing or improving some old systems within the framework of this project; and
- allocating SFr4 million for the Y2K activities.

The main goal of the WIPO Y2K project is to manage the smooth roll over to year 2000 without any problems, disruptions or discrepancies in the operation of the mission critical systems. At the same time, the critical systems should also operate properly. There is a higher degree of likelihood of disruption to services which:

- are user-developed, and
- not supported by the Central IT division, and
- have not been identified to the Y2K Task Force by the users for review.

As for the other computer systems or embedded systems, the risk should be minimized as much as possible.

In the framework of the project, the ongoing Y2K related operational or development activities should be coordinated. The task force itself is not considered as a technical decision making body. The project should cover the basic contingency planning mainly in those areas which have delayed installations or a likelihood of test results indicate future problems or where significant consequences may occur in low-risk areas. In special cases actions will be taken to start circumvention planning. Contingency planning should be started in PCT, in the International Trademark Registration and in the International Industrial Design Sector. This project should also cover the resumption planning, in particular in the IT, PCT and Madrid Sector.

A primary benefit will be to validate the operational readiness and reliability of the following mission-critical systems:

- Mainframe operations (CASPIA, CASPRO, FINAUT, MAPS, DMAPS) related to the mission critical systems;

- Network and network services (including the networked MS Office and GroupWise plus the Internet connectivity);
- UNIX systems;
- ORACLE-based systems;
- User developed Excel worksheets used in the Finance area;
- ICC connections;
- Hardware and software components of the mainframe operations and the WIPO Office Network;
- PCT Easy;
- Other networked systems, e.g., CD Network, Library catalogue;
- Contingency Planning;
- Resumption Planning; and
- Circumvention Planning.

The following systems will be excluded:

- Some minor systems developed and controlled by the users (e.g., locally defined Excel spreadsheets amended with macros);
- Small networked systems (CLAIMS (Classification Automated Information System)) will be covered partially, e.g., the Test LAN will be offered for the validation of the Y2K capable operations of the DOS based “isolated” systems.

Key schedule milestones are:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
Finish Network and small system tests, finish UNIX systems tests, check timing of the awareness campaign	3 <sup>rd</sup> Quarter of 1999	3 <sup>rd</sup> Quarter of 1999	
2 <sup>nd</sup> mainframe test of the Mission critical systems	4 <sup>th</sup> Quarter of 1999	4 <sup>th</sup> Quarter of 1999	
Start the resumption planning, Final check of the small systems, the network, the contingency plans and the resumption plans	4 <sup>th</sup> Quarter of 1999	4 <sup>th</sup> Quarter of 1999	

## **Supplementary Data**

### **Constraints**

- There will not be any WIPO Y2K Master Plan. This document is considered as the basic Y2K planning document. It will not include systems that are not mission-critical or critical for WIPO;
- The legal implications of Y2K will be handled in regular consultation with the legal expert who is the member of the Y2K team;
- Inventories will be “problem list” type inventories. Hardware and software elements of the inventory items will not be described formally giving details on their physical location (because of lack of time this could not be done);
- Several recommendations on the Best Practice will not be followed because of lack of time (e.g., the culture of the “configuration management” cannot be established and improved in the short time we have);
- Mission-critical systems will be handled with top priority, the others in priority order; and
- In respect of the basic building infrastructure the access control systems will be covered, but not the public utility services (electricity, water supply).

### **Dependencies**

- The contingency planning is significantly influenced by the (mainframe or UNIX) test results.
- The circumvention planning is dependent on the installation of some major new systems (e.g., IMAPS).
- The resumption planning will be significantly influenced by the results of the 2nd mainframe test results.

### **Key Assumptions**

- There will not be any major problem in the Swiss public utility supply systems (source: Gartner).
- CASPIA, CASPRO, MAPS/DMAPS and FINAUT are Y2K conformant in respect of the data storage and the date formats, nevertheless these systems should be double-checked through extensive Y2K tests.
- If “isolated DOS applications” tested in the test LAN prove to be Y2K capable, even if they are obviously not Y2K compliant, it is planned to run these applications under the control of special contingency plans.

## General Risks

Since the overall major Y2K risks (e.g., legal threats) imposed on WIPO cannot be analyzed, the following technical or managerial risks are considered as major ones:

- A Y2K bug remaining undiscovered after the transition into the year 2000;
- Key services, for example end-to-end access to mainframe business systems, or the functioning of the e-mail services, require a long chain of interlinked sub-systems (or layers) to work together correctly. End-to-end testing of the whole chain appears to be extremely difficult to achieve (most probably it is not possible);
- The concept of Quality Management is insufficiently practiced in the organization to properly follow-up and document the project, and it would cause problems in fixing problems in January;
- Combined effect of lack of sufficient internal human resources, adequate system documentation, established procedures, standard ways of resolving errors, the sheer number of possible incidents, the fact that interactions between different errors and malfunctions can seriously hinder correct diagnostics, and the foreseeable difficulties of gaining access to vendors and to required information on bug fixes, may potentially render net problem resolution times, even for simple problems, quite lengthy;
- Difficulty of end-to-end testing and the logistics of problem resolution;
- The external systems Y2K incompatibility impacts on receiving WIPO's systems (for instance valid but bad dates). Even if WIPO will not be directly responsible, the result will be just as serious; and
- Late delivery of SIGAGIP may cause overall problems in the organization.

## Quality Management

### *Project Organization*

The project is managed by the Y2K Task Force. Further staff members are also involved in the regular work of the Task Force:

### *Project Control*

The chair of the Task Force is reporting regularly (twice per month at least) to the chair of the IT Steering Committee. The ITSC and the Director of the IT Division can request regular or occasional reports on any Y2K related activities at any time.

## ***Changes Control***

The changes will be based upon the feedback received from the project sponsors or from their representatives, i.e., from the chair or vice-chair of ITSC and from the Director of the IT Division or from the top senior management. Any updated recent version of this document will be made available in the Intranet on the Y2K Home Page. This document will be distributed in paper form only in exceptional cases.

## ***Designated Co-ordinators***

The Designated Co-ordinators shall have responsibility in their respective sectors for, as appropriate:

- ensuring the preparation of inventories of mission-critical systems;
- ensuring preparation of risk analysis;
- reporting on the result of test plans already completed satisfactorily;
- ensuring the preparation of test plans of systems requiring testing or additional testing;
- implementing outstanding test plans;
- reporting on the test results and further necessary actions to the Task Force Co-ordinator; and
- ensuring preparation of contingency plans, as necessary.

## **Risk Analysis**

The risk analysis for mission-critical systems will be prepared in accordance with the following schemes.

### ***Impact classifying scheme is as follows:***

- Critical, high impact
- Moderately critical, medium impact
- Minor, low impact

### ***Risk classifying scheme is as follows:***

- High risk
- Moderate risk
- Low risk

*All items need be classified with the action codes, as follows:*

- Renovate or enhance
- Replace
- Upgrade
- Terminate
- Take no immediate action; accept consequence and/or plan with contingency 6. Take no action, already capable or compliant (this can be used for items that fall into the Low impact and Low risk categories)

## **Contingency and Resumption Plans**

The business continuity of WIPO should be guaranteed by special Y2K related contingency plans. On the basis of the first test results of the mission critical mainframe systems, it is recommended that a two to five days disruption of the networked services should be considered in a worst case scenario as a model for the contingency planning. Disruptions related to the building and telecommunication infrastructure need not be addressed in the Contingency Plans of the operational units.

Special contingency plans should be prepared in the PCT, Madrid and Hague operational systems. Similarly the units responsible for the basic infrastructure (IT, Building, Telecommunication) should prepare their special contingency plans which should be made available for the whole management.

An Office Instruction should deal with the problems of the contingency planning. It should be circulated in September.

Based upon the results of the second test of the mission critical mainframe systems, a resumption plan should be prepared by the co-ordinators of the Y2K Task Force. This plan should be submitted for approval to the director of the IT Division.

## **Documentation**

The documentation policy is based upon the extensive use of the electronic communication and sharing of documents. All the communications related to the Y2K project should be sent to the Y2K-taskforce list server. The documentation is made available and visible for the whole WIPO user community throughout the Intranet. The server archives all the communications automatically. These documents should be kept up to the end of Year 2000.

## **Reporting**

The regular weekly meetings of the Y2K Task Force serve the needs of follow-up and reporting on the ongoing Y2K related activities. The follow-up of the Y2K project is the responsibility of the

Director of the IT Division. The Y2K Coordinator should report twice a month on the progress of the project and on any anomalies or problems experienced.

The Y2K Task Force, through its Coordinator, shall submit a report on the activities of the designated Coordinators, and other actions it recommends be undertaken, to the Director General via the IT Steering Committee.

# **PROJECT 12 - CLAIMS (CLASSIFICATION AUTOMATED INFORMATION SYSTEM)**

## **Introduction**

A patent is the physical manifestation of a long and well-established governmental process to encourage inventiveness by granting inventors exclusive rights to their inventions. This process has functioned effectively for well over 200 years, resulting in the publication of approximately 40 million patent documents by governments and inter-governmental organizations throughout the world. Each unique patent document describes a technological context and, within that context, discloses an improvement or advancement - the invention that is the basis for the patent. Taken together, patent documents represent a rich source of information, perhaps the world's largest single coherent source of technological information. Such information has great value to the public and is vital to the functioning of the global patent process.

Historically, each IPO has developed its own classification system for categorizing patent documents according to the technology each disclosed. The classification is used to enable storage and subsequent search for and retrieval of documents. Finding prior technology related to an application for a new patent is crucial to determining patentability.

In general, classification systems became progressively less effective and the dissimilarities among the many systems hindered effective exchange and use of documents among IPOs. In response, an international effort was launched to establish a standard patent classification system in the 1960's. The IPC system was produced and, in one important respect, has been highly successful in that virtually all published patent documents carry IPC classification symbols.

The IPC (International Patent Classification), being the only patent classification used worldwide, will maintain its value as a language-independent patent information search tool. However, it has been designed for paper-based searching, and its efficient and effective application in the electronic environment requires changes to the IPC itself and methods of its revision and use. For example, currently applied IPC maintenance and revision procedures do not provide for sufficient use of information technologies. In order to take account of technical development, the IPC is revised through the cooperative international system in five-year cycles. This has resulted in the appearance of several IPC editions each relating to separate document collections. In view of a huge amount of the necessary intellectual work involved, reclassification of patent collections into a new IPC edition has never been achieved worldwide. Consequently, the patent information search is hindered by the need.

## **Needs for a New Classification Database System**

The current databases, supporting the revision and maintenance work by the International Bureau of the international classifications for patent, trademark, design information, have been out-dated, as they are based on the main frame and proprietary software and user interface which are not compatible with the Internet based technology. As the international classifications need a fresh idea to keep abreast of the Internet age, Member States started with the IPC reform as a first attempt to

review the whole system of international classifications. The IPC Reform WG described that the future IPC should be a two-level IPC system with the core and advanced level. The core level will be the “official version” comprised of all IPC categories established by international agreement. It will be maintained in a more timely and effective manner by a range of innovative techniques, including automated text classification. A master inventory database of all patent documents and the currently valid IPC categories to which they are assigned, directly or relationally by cross-indexes, will support the core level. Initially, this inventory will be created, in large part, by extracting and merging classification information from the databases of major IPOs that maintain IPC-derived classification systems.

The IPC reform effort recognizes that the requirements of IPOs vary and, therefore, envision that many IPOs will need to continue to maintain or elaborate the core level of the “official” IPC through further subdivisions, indexing systems, etc. These extensions will also constitute the advanced level – one rich in value added information that might be shared among all IPOs.

## **Automated Text Classification**

In creating the initial master inventory file from IPO databases, it is anticipated that a large unclassifiable residue of patent documents lacking ascribed data sufficient to assign them to a currently valid first tier IPC category will be identified. The reformed IPC maintenance process includes reclassification of patent documents bearing invalidated classification symbols, into the newly established IPC categories. This “backfile reclassification” will also involve large numbers of documents.

The work required to classify all these documents, using current manual techniques, would generate an unacceptably substantial investment of skilled professional IPO staff time. Alternatively, if performed under contract, the effort would be very expensive. Thus, a key underlying assumption of the IPC reform effort is that much of this work can be accomplished or greatly facilitated by the application of automated text analysis techniques in the form of “automated classification tools.”

Most patent documents have associated text information in electronic form, including titles, abstracts, related classification category titles, etc. Many patent documents have been full text encoded. It is expected that analysis of these texts, and of the text associated with currently valid classification categories, as well as all or representative groupings of the patent documents already assigned to those categories, will enable the identification of relationships sufficient to establish or imply appropriate document classification assignments.

A related implementation in this context could be text analysis of a grouping of patent documents for the purpose of identifying subgroup relationships. These subgroups might suggest new categories appropriate for establishment within the IPC and assist IPC classifiers in maintaining the currency of the IPC system.

Conversely, a role for automated text analysis is foreseen in aiding patent document searchers to identify IPC categories appropriate to their search needs. Using the free text of a search query, automated text analysis, functioning somewhat in the manner of “expert system”, could establish relationships to textual material associated with existing IPC categories and suggest categories that may be pertinent.

In practice, a user might present a unit of text to the system and the system would return a set of potential IPC classifications for the text. The system might then present the symbols, the text, or both to IPC-enabled search systems and retrieve documents of similar classification. The user would be able to provide feedback as to the accuracy of the classification, thereby allowing the system to "learn" from its mistakes. The proposed system would enable both professional patent information searchers and the public to search millions of patent documents in character coded form on the Internet, with the goal of limiting to a reasonable level the number of "hit documents" for subsequent scrutiny.

## **General Strategy**

The objectives of the CLAIMS (Classification Automated Information System) project are to develop a new IPC support system that will facilitate the continuous maintenance and publication of IP classifications and provide tools and techniques that can be used to aid search and retrieval of documents contained in IP digital libraries. The system(s) will explore the development of server based software and databases for "automated text classification" to:

- Automate patent document classification into the IPC;
- Assist development of new IPC categories; and
- Assist IPC users in the identification of IPC categories appropriate to their search needs.

Proven methodologies and software will be incorporated into the production model CLAIMS. An interactive process is envisioned for the production system for continuous refinement and improvement of system results. It is desirable for the system to capture the essence of user/system interactions and "learn" rules for improving automatic classification. Thus, the system will not adopt a classic approach of static and fixed technical dictionaries. Rather, it will be dynamic in the sense that it will train itself based on human input.

To carry out the project, a dedicated program manager and project team will be required and will be established as the first event in the project plan. The support team will be composed of a project manager and two permanent professional staff members (core team). The core team will be supplemented with consultants and general staff members. The number will vary in number as the project is conducted. At least five consultants and/or general staff members will be required for tasks 2 through 19, below. Additional support may be required for some of the tasks. The number required for the remainder of the task will depend on contractor scope of work. The current assumption is that that an IT integration contractor will be responsible for supplying all components and perform most development tasks.

The project team, with consultant and contractor support, will be responsible for (a) production of the IPC data, (b) development of CLAIMS and (c) provision of initial training and other users services. It will also be responsible for coordination of the CLAIMS project with the IPC member community and the IPDL project.

A different program structure will be established for the operation and maintenance of the CLAIMS and continued support, including training, to users.

The plan for developing the new CLAIMS will require the following major tasks and events:

1. Establishing project team.

Before additional work is started, a clear project structure must be established. This requires the formal appointment of a program manager, and the assignment of resources for the first phase of the development process.

2. Completing the preliminary review and documentation of the process and information needs and other mission performance improvement opportunities.
3. Preparing a detailed project work plan and validate resource and time requirements to develop the system.
4. Completing the identification and documentation of functional requirements.
5. Identifying criteria that will be used in evaluating both specific design options and in testing operational systems that will be developed.
6. Identifying and document all data requirements.
7. Preparing the data management plan for all classification information to be used in CLAIMS.
8. Preparing or completing the configuration management plan.
9. Completing the procurement strategy and plan.
10. Completing definition of the conceptual architectures - operational and technical - necessary to satisfy functional and data requirements, including hardware, software, communications, and operational layers and the inter-relations among the components and layers.
11. Specifying required developmental and operational software frameworks.
12. Completing the identification and definition of all operational processes to be supported.
13. Completing the definition of all system functional processes to be performed.
14. Identifying, describing, and developing design requirements for all interactive user interfaces, including screen formats, inputs, outputs, and user aids (or 'help' screens).
15. Specifying the data and databases that will be used by the system.
16. Preparing detailed requirements for data conversion.
17. Completing test and acceptance requirements.
18. Adapting requirement specifications into procurement information, materials, and documents in conformance with the procurement strategy and plan.
19. Acquiring IT Components and Services

20. Developing classification databases.
21. Developing user operational processes.
22. Conducting pilot projects to test automatic text classification methods and software.
23. Developing system maintenance and computer operations processes for the production system.
24. Completing acceptance testing.
25. Completing transitional activities.
26. Initiating the operational phase.

Tasks 2 through 19 will require from 6 to 9 months to complete after establishing the project team. The most likely duration of these tasks is 9 months.

Given adequate preparatory activities by potential contractors, tasks 20 through 26 are estimated to require 18 to 24 months to complete.

## **Benefits**

The CLAIMS project supports the SCIT strategic objective to “Improve the retrieval of intellectual property information through further development of international classification of patents, trademarks and industrial designs as efficient search tools.”

## **Estimated Cost**

The estimated cost of completing tasks 1 through 19 is approximately 1.6 million SFr. The cost of implementing the CLAIMS is expected to be about 4 million SFr for equipment, software, and contractor services.

# PROJECT 13 - WIPO ACADEMY DISTANCE LEARNING PROGRAM

## Introduction

The WIPO Academy is responsible for organizing, developing and administering a series of programs devoted to the development of human resources, teaching, training and research in the field of intellectual property. These programs are a vital component of efforts to achieve WIPO's vision of a modern global network that will strengthen the international intellectual property system. Focused and policy-oriented information-sharing, orientation and training are expected to broaden the Academy's outreach to include policy advisors, diplomats and individuals from the commerce and business sectors, as well as management and staff within Member IPOs.

The Academy's Distance Learning Program was developed to respond to this need to reach out to an expanded, worldwide audience of current and potential users and beneficiaries of the intellectual property system. Toward this end, the Academy has created an Internet-based distance learning platform, specifically structured so as to deliver a series of courses based on users' demand.

## General Strategy

Since its inception, the Distance Learning Program has been involved in the substantive pedagogical process of course development and delivery. New target audiences, new teaching methodologies, new delivery means and new evaluation tools – every phase of the learning process is being addressed, and every function of the learning process is being defined in order to take full advantage of the opportunities offered by information technology.

To assist in the implementation of the Program, the concept of a Distance Learning Support Unit will be evaluated, according to a business plan currently under development. The objective of the analysis is to ensure that the Academy is provided with up-to-date facilities and systems that will enable the development of multimedia course materials and the delivery of both live and pre-recorded instruction using the latest technology. Specific systems and facilities that have been envisioned include:

- A multimedia course production system,
- A virtual classroom instructor facility,
- Instruction delivery and management systems, and
- A network of multimedia Learning Centers in IP offices.

## Benefits

The WIPO Academy Distance Learning Program supports the SCIT strategic objectives to: “Narrow the information access gap that exists between developed countries and developing countries”, “Improve the flow of information concerning intellectual property among WIPO Member

States, regional intellectual property offices, and the International Bureau,” and “Improve access to and exchange of intellectual property information in terms of cost and access time in accordance with agreed upon principles.” Although the overall scope of the Distance Learning Program extends beyond the use of training courses within IP offices (see section on Target Audience), the Program can play an important role in training and informing the staff of IP offices and Intellectual Property community members in developing countries on the use of services to be provided through WIPONET and the new developments taking place in the global Intellectual Property system.

Benefits derived from the Academy Distance Learning Program toward the attainment of SCIT objectives will include:

- Improved ability to train personnel in ROs – with the deployment of On-line filing to the Ros, WIPO developed training courses will be made available on an as-needed basis.
- Increased consistency in products delivered by member offices – improved training capabilities will result in a more consistent work product being produced in the receiving offices for delivery of the IB.
- Better ability to assist IP community customers – by increasing the level of knowledge and skill in the Intellectual Property business for persons working in the member offices, they will be able to improve the assistance they provide to their respective IP community customers.

Key schedule milestones are:

Tasks/Products	Completion Dates		
	Initial Projection	Current Projection	Actual
Establish the project team	4 <sup>th</sup> Quarter of 1999		
Develop Distance Learning Program Business Plan	1 <sup>st</sup> Quarter of 2000		
Deliver development/acquisition strategy and plan	TBD		
Complete development of procurement specifications and procurement materials	TBD		
Award implementation contract	TBD		
Start development of training courses	TBD		
Complete acceptance of installed system components	TBD		
Complete development of initial training courses and pilot testing	TBD		
Deploy initial distance learning programs	TBD		
Begin assessment of training effectiveness	TBD		
Develop additional training, orientation, assistance programs and courses	TBD		

## **Supplementary Data**

### **The Current Distance Learning Program**

In the WIPO Academy, distance learning is being used as an innovative Internet-based teaching technique that enables course participants in all parts of the world to access a range of educational programs in intellectual property at their own pace, in their own space.

Teaching takes place in the virtual environment of the Academy website (<http://academy.wipo.int>). Courses are specifically adapted to allow student-teacher interaction, student tests, course monitoring, and on-line registration and evaluation systems. Website pages consist of low-resolution graphics and texts created and optimized for delivery at 14.4 kbps. In order to be able to participate in the courses, students will require an Internet-connected computer, with a minimum of 28.8 kbps connectivity, sound card and MS Internet Explorer5 or Netscape 4.05.

A network of tutors in various regions support students during their work. Students and teachers can interact as often as necessary because communication takes place through electronic mail, and where appropriate, through videoconferencing. Depending on the level of the courses, students receive either a certificate or an advanced diploma at the end of the program that acknowledges completion of the course.

### **Program Development and Requirements**

#### ***Target Audience***

The development of training modules for distance learning is based on the actual demand of different categories of end-users. Target audience definition was the first step in the process of designing distance learning course materials. In addition to IP Offices, groups such as lawyers, especially patent agents, engineers, economists, journalists, and particularly students in university programs have been identified as the beneficiaries of tailor-made courses, addressing general and specific IP issues.

Internet connectivity is the main requirement for course participation. This presents serious challenges in many developing countries where connectivity is still scarce and expensive.

IT requirements: WIPONET implementation could facilitate the delivery of distance learning courses within IP Offices. However, since it is expected that the large majority of course participants will continue to be in the private sector and in universities, it is envisaged that WIPONET connectivity be extended beyond the national IP Office, as to embrace selected universities in various countries. This would fulfill the study and research needs of a wide sector of users of the Academy's services.

## ***Curricula and Course Development***

The first on-line delivered course developed by the Academy, *Introduction to Intellectual Property (DL101)*, was launched in June 1999 as a pilot in English, and is being offered on a regular basis three times a year in English, French and Spanish. Estimated at approximately 40 hours of study time, the course is open for registration of up to 200 participants per language, per session.

Following the implementation of the introductory courses, the Academy is developing a comprehensive course curriculum, covering all substantive areas of intellectual property, thus starting a process leading to the academic recognition of the Academy as a teaching institution.

Advanced modules will be developed, following the basic template of the introductory course, and will continue to be delivered through the Academy website. According to their level, these courses will require between 50 and 100 hours of study time. In the overall course structure, each module will entail an established number of credits, leading toward the award of a fully-fledged diploma by the WIPO Academy. Other courses will be offered as stand-alone modules, leading to an award of a Certificate on successful completion.

IT requirements: The complex process of course design will require the support of adequate technical advice on the most appropriate distance learning applications to be adopted in the light of the needs of each specific course and its target audience.

The technical solutions thus identified, such as, for example, choice of virtual classroom environments, VSAT technology to support student-teacher interaction via videoconferencing, specific distance learning authorizing tools, etc., need to be implemented, in accordance with the overall strategy of Distance Learning Program development.

Production facilities for audiovisual recording and editing are also envisaged to support the ongoing development of the Academy's educational programs.

## ***On-line Course Management and Evaluation***

The day-to-day administration of on-line courses, offered in parallel sessions, several times a year, in three languages, presents major challenges. Several hundreds of students are expected to be enrolled at any given time throughout the academic year, at different academic levels. Each student will be followed through the course of his/her studies, from registration to completion of the course(s). Tutorial support will be effectively ensured, and complete records of students' performance, including grading tests and final exams, will have to be maintained.

A fee structure for course participation will be developed and applied, and electronic commerce features will be included in the management system. Finally, a system to analyze and systematize course evaluation will be developed.

In order to facilitate the management of on-line courses, a sophisticated Management Information System (MIS) has been developed. This system is entirely web-based, and empowers tutors and course administrators with a real-time management tool, independent of their physical location. The MIS encompasses all the information gathered during registration, delivery and evaluation.

Tutors/administrators can review students' progress, including examination results, study-time per module, dates and times of access etc.

IT requirements: This important management information tool will require constant updating and maintenance. A core team of program assistants will be needed to perform the functions of on-line course management and evaluation. Tutorial support will also have to be managed and supervised, creating and maintaining records of student-teacher interaction. Tutor's training in on-line course delivery will also need to be provided. Electronic commerce applications for fee collection (where applicable) will require to be developed and managed.

# **INFORMATION TECHNOLOGY INFRASTRUCTURE PROJECT INITIATIVES**

## **PROJECT 14 - IT INFRASTRUCTURE IMPROVEMENTS**

### **Introduction**

Information Technology (IT) has been used in WIPO for many years to improve the efficiency of business processes and to provide information and services to member states, industry and commerce, and IP owners. Major information systems support operations in the main business areas - the PCT and Madrid systems - and in organization-wide administrative functions. Some currently used systems were first deployed more than a decade ago, others, more recently. These have been subsequently expanded and improved. Other less encompassing systems support specific functions within the major business, program, and administrative areas.

Today most staff members of WIPO are using IT facilities in some way, thanks to the full deployment of the Network Office System (NOS). The NOS infrastructure provides organization-wide network connectivity, as well as a broad set of network services consisting of MS Office based office tools, file storage and print services, e-mail services and various gateways for internal and external communications links, and connectivity to the main automated systems hosted on the ICC mainframe. These network services are provided through Novell NetWare servers, and the use of centralized directory services based on the NDS (NetWare Directory Services).

The NOS infrastructure interconnects several building locations in Geneva using routers and 2 Mbps PTT optical fiber links. Each WIPO building is fully networked and contains one or more local area network segments based on 16 Mbps Token-Ring technology.

WIPO information systems are implemented on the ICC mainframe system and on application servers running in the NOS environment, operating mainly under Unix. Some NT application servers are also being deployed.

### **General Strategy**

The new WIPO strategic information technology initiatives can not be implemented without the expansion and enhancement of the existing internal IT infrastructure. Today's business critical applications will be gradually shifted from the mainframe platform to client-server and multi-tier platforms. With the deployment of projects such as PCT IMPACT, large volumes of information that are today stored and processed on paper will be handled entirely in electronic form. Electronic data exchange will become the predominant means of exchanging information with the IP community and with the public.

In order to accommodate these changes, the new IT infrastructure will have to provide significantly enhanced characteristics in terms of:

- System and network performance and functionality,
- System and network resilience and availability,
- Internet and Intranet technologies,
- System management and administration,
- System and data security, auditing,
- Network security,
- Disaster recovery.

In order to achieve these objectives, the following sub-projects have been identified:

- NOS network upgrade
- Computer room consolidation
- Extension of Intranet/Internet services
- Implementation of Help Desk and support facilities
- Disaster recovery

Detailed project plans will be developed for each of the sub-projects outlined below. It should be noted, however, that many of the IT Infrastructure development tasks are related to specific business and administration projects and will need to be implemented according to the requirements and scheduling of those projects.

## **NOS Network Upgrade**

### ***Objectives***

In order to increase performance, flexibility and resilience, the internal WIPO network will be migrated to a high-speed, switched LAN architecture based on Fast/Gigabit Ethernet. Furthermore, where feasible, the WAN links interconnecting different locations will be upgraded to near-LAN speeds, thereby allowing the consolidation of computer facilities at the central WIPO location. Such a move would allow rationalization of computing and storage facilities, reduce administration overheads and facilitate disaster recovery. Remote access facilities with strong user authentication will be introduced in order to support mobile users. The use of wireless technologies for LAN/WAN links will also be evaluated and implemented where appropriate.

Network security will be enhanced with the implementation of firewalls, data encryption techniques, and the use of state-of-the-art user authentication methods, including single-login solutions and biometrics.

Enhanced network management, monitoring and diagnostic systems will be implemented to improve network availability and to minimize down-times. At the same time, traffic monitoring, bandwidth management, traffic prioritization, and QoS (Quality of Service) management facilities will be introduced in order to provide support for multiservice networking (data, voice, video) while ensuring necessary network performance for mission-critical applications. The use of central directory services will be extended through the integration of Unix and NT application servers into the NDS, and through the implementation of LDAP (Lightweight directory access protocol).

CTI (Computer-telephony integration) and IP telephony solutions will be investigated and implemented as appropriate.

## **Computer Room Consolidation**

### ***Objectives***

A new computer room facility, suitable for housing existing IT systems, as well as additional computing and communications equipment required by major projects such as PCT IMPACT, WIPONET and FINAUT 2000 ERP, will be implemented at the WIPO Main Building. It will be equipped with all the necessary facilities such as air conditioning, uninterruptable power supply (UPS) with backup generator, fire protection systems, automated alarm systems, access control, etc.

The new centralized facility will enable the consolidation of storage systems through the use of automated multi-platform storage facilities and dedicated high-speed backup systems, thereby improving the reliability and availability of IT facilities and facilitating disaster recovery. Automated archival solutions based on the use of HSM (Hierarchical Storage Management) systems will be introduced where appropriate. Integrated system monitoring and management facilities, including remote management solutions, will be implemented in order to facilitate system support and monitoring, and enhance overall system availability.

## **Extension of Internet/Intranet Services**

### ***Objectives***

The purpose of this sub-project is to expand the scope and functionality of the Internet/Intranet services provided to end-users, in order to enhance their efficiency and overall office productivity.

In order to facilitate communications and the flow of information within the Organization, as well as with external partners, the 'universal in-box' and 'universal out-box' concept will be further exploited. Accordingly, electronic mailboxes will be enhanced to handle not only e-mail, task lists and appointments, but also faxes and telephone voice mails.

A generalized electronic document management system will be implemented in order to facilitate the creation, revision, storage and retrieval of electronic documents, and to allow more flexibility in document sharing and access controls. Electronic forms, together with message routing and electronic workflow solutions will be introduced to improve the efficiency of internal administrative processes.

Electronic information dissemination to all Intranet users will be enhanced through the use of Internal Web servers, list servers, discussion groups, as well as 'publish and subscribe' solutions. Enhanced knowledge management technologies will be progressively implemented.

Multi-lingual client workstation and application support (including support of non-Latin character sets) will be improved and delivered as an integrated service. Support for mobile users will be implemented in line with IT security policies.

## **Implementation of Helpdesk Facility**

### ***Objectives***

Adapting to the rate at which end-user software functionality changes and expands poses a significant challenge to the staff who rely increasingly on IT tools for executing their daily tasks. Apart from formal training, a well functioning Help Desk can provide the best solution for obtaining the full benefits out of office productivity tools. The objective is to achieve improved efficiency and to significantly reducing computer related work stress.

In order to reinforce these objectives, Help Desk resources will be trained and reinforced. Suitable Help Desk software tools will be implemented, and remote control facilities deployed for delivering prompt user assistance from a distance. FAQ (frequently asked questions) knowledge bases with appropriate search tools, self-training materials, discussion groups and User Newsletters, will be made available on the Intranet to assist the users. Help Desk, and network services support will be extended beyond the regular working hours.

## **Disaster Recovery**

### ***Objectives***

Today the major information systems used by WIPO are running on the ICC mainframe, which is a facility shared with other UN organizations under the management control of the UN. As part of this arrangement, provisions have been made for putting in place an alternate disaster recovery site.

In the future, as WIPO's business critical applications will shift from the mainframe to in-house client-server and multi-tier platforms, it will become necessary to implement complementary disaster recovery solutions that would ensure, in case of a major disaster, the safeguarding of all critical business information and the resumption of WIPO's IT services within a very short time period. As part of this undertaking, it will be necessary to consolidate and rationalize WIPO's computer systems, in particular the disk storage and backup systems, and to develop and maintain up-to-date documentation of all WIPO's computer systems. Auditable operating procedures, as well as configuration and change management procedures will have to be implemented. These measures will serve not only as a basis for disaster recovery, but also for achieving more secure and robust day-to-day operations.

On the basis of the outlined measures, the procurement of an off-site data mirroring/storage facility and of a full disaster recovery site, together with the appropriate telecommunications services will be

undertaken. Such a facility will itself require adequate operating procedures, regular maintenance, and periodic disaster recovery testing.

## **Benefits**

The IT Infrastructure Improvements project supports the SCIT strategic objectives to “Improve access to and exchange of intellectual property information in terms of costs and access time in accordance with the agreed upon principles” and “Improve intellectual property information dissemination.” The sub-projects described above are ready to be launched once the project teams have been set up.

<b>Tasks/Projects</b>	<b>Completion Dates</b>		
	<b>Initial Projection</b>	<b>Current Projection</b>	<b>Actual</b>
Chambésy site networked using switched, Fast Ethernet technology	Completed by 3 <sup>rd</sup> Quarter, 1999	Completed by 3 <sup>rd</sup> Quarter, 1999	
Full project plan worked out	1 <sup>st</sup> Quarter of 2000	1 <sup>st</sup> Quarter of 2000	
RFP issued in order to select a support contractor to prepare a comprehensive design for the computer room facility and to provide overall projection coordination and management services for the implementation	3 <sup>rd</sup> Quarter of 1999	3 <sup>rd</sup> Quarter of 1999	
Extension of Intranet/Internet Services – IT Division	3 <sup>rd</sup> Quarter of 1999 – ongoing activity	3 <sup>rd</sup> Quarter of 1999 – ongoing activity	
Implementation of Help Desk and Support Facilities	1 <sup>st</sup> Quarter of 2000	1 <sup>st</sup> Quarter of 2000	
Disaster Recovery – Feasibility Study	3 <sup>rd</sup> Quarter of 1999	3 <sup>rd</sup> Quarter of 1999	

# **GOVERNING STRATEGIES FOR MANAGING INFORMATION TECHNOLOGY**

## **Introduction**

The strategies discussed in this section describe the way in which the WIPO information technology program will be conducted. In combination, they constitute the management framework that will govern all program projects and activities.

Projects will continue to be treated as independent projects, but will be closely coordinated to ensure that inter-dependencies are identified and common management and information technology standards are used. The IB, with advice from the SCIT, will integrate the management of these components in the planning/execution processes.

## **Process Re-engineering and Change Management**

WIPO is committed to improving its operational processes. Consequently, for every IT project, an approach for process re-engineering will be utilized that incorporates proven principles of methods and human factor engineering, as well as systems engineering.

A standard software tool will be selected that aids the implementation of the general reengineering process as described here. The reengineering process will begin with the creation of models of existing work processes, identifying methods, information, and tools that are used and unchangeable operating constraints, such as legal and policy requirements. More optimal models will then be created by applying new technology and methods that can be used and by streamlining the processes. The latter will be done by eliminating non-essential data and tasks and by using IT tools and systems to provide new or more usable information, including any performance aids that may simplify task performance. Overall, the goal is to make each task or decision simple and efficient and to eliminate unnecessary communications and dependencies on actions by other persons or organizations.

New process models typically result in the need to redefine and restructure jobs and organizational entities. Because reengineering will introduce significant changes, the change management process is often characterized as a 'people reengineering challenge'. To meet the challenge, a two-pronged strategy will be used, one focusing on process re-design issues and the other on change management.

Process re-design efforts will apply human factors engineering principles to job redesign, organization restructuring, work environment modification, and process management changes. Where new methods involve man-machine interface design, both human factors and system engineering principles will be applied to obtain operational effectiveness, such as in display design, content optimization and action flows.

Process re-engineering will precede or proceed in parallel with the development of automated information systems (AIS). In planning for and in implementing reengineered processes and new systems, an attempt will be made to mitigate the human impact problem by following proven practices for managing the change process. This includes:

- Treating reengineering as a business initiative, not an IT initiative,
- Making expectations clear before beginning implementation,
- Implementing in an evolutionary manner where possible,
- Identifying the sub-cultures and cultural attitudes that are likely to affect changeover,
- Involving and educating all stakeholders, not just the end users,
- Involving functional and senior management and establishing review and oversight structures and methods to ensure their participation, and involvement,
- Identifying change champions with the affected areas to speak for and support the changes, and
- Keeping the relationship between the changing processes and enterprise visions and objectives highly visible.

While project managers play a key role in change management, centralized change management support for job and organization redesign, as well as change management, is needed and will be provided to assist project managers in assessing potential problems and in planning approaches to deal with human factors.

## **IT Project Management**

Acknowledging the criticality of project management to the success of IT systems, the following principles have been adopted and will be applied to all AIS projects.

## **Project Management and Control**

Effective project management involves three elements:

- Direct Project Management,
- Quality Control, and
- Senior Management Control.

The project management framework will be formalized for each project or group of related projects, normally consisting of a three-tier structure superimposed on each project, as follows:

- Technical Review or Quality Assurance (QA) Team,
- Business Area Review Committee, and
- IT Steering Committee, representing Senior Management.

Project plans will be maintained in a management control system to ensure visibility of all project products and planned to actual progress and to enable accurate tracking of project costs.

Every project will have a single project manager, an individual with project management and contract management training or experience.

The project manager will be responsible and accountable for:

- Clarifying project goals and objectives,
- Preparing project plans and budgets according to pre-established standards and guidelines,
- Allocating resources and making task assignments,
- Directing and managing project activities on a day to day basis, including direction of the project staff and or contractors,
- Evaluating the results of work performed,
- Identifying obstacles and barriers to completion of work as planned and taking corrective steps to avoid or minimize impact on project schedules and costs,
- Maintaining awareness of and reporting project status to direct higher level management and to the project oversight groups, and
- Coordinating project work with business area management and with other IT projects or systems that may be affected by the project.

The project manager will be accountable for attaining objectives in the approved project plan within any project constraints that may be imposed by IT policies and guidelines and higher management.

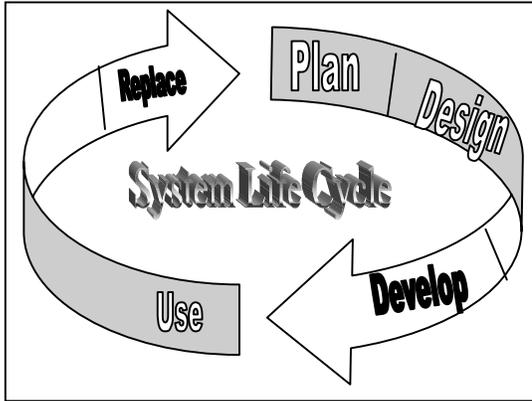
Quality control will be implemented through a formal quality assurance process. Quality assurance (QA) reviews will be conducted throughout the life cycle of the system by an independent QA review team reporting to either the project manager or the Director IT (DIT) to ensure that systems either being developed or reviewed after initial deployment meet requirements and remain cost effective. Working independently from designers and developers, the QA team will be responsible for reviewing system life cycle products on both informal and formal bases and providing feedback to the project manager, other work groups in the project team, and higher management.

The project manager and/or DIT will be responsible for establishing the quality assurance structure and process. Quality Assurance team members may include persons representing either or both the business and information technology areas.

Management control will be assured through a systematic review process. Project management reviews will be conducted as needed and at designated points in the system life cycle, as defined in the life cycle methodology that will be used for all projects. Business/Support area and IT Steering Committee review and approval will be required at each critical decision point.

The DIT is responsible for establishing the business and senior management reporting, review and approval process applicable to each project.

## System Life Cycle Management Framework



**Figure 12**

An adaptable system life cycle management (LCM) framework will be utilized and all projects will be planned and conducted according to the standards and guidelines provided by the LCM framework. The LCM approach is based on the recognition that all systems evolve through similar phases from inception to, at some point, replacement by another system. In each phase, certain tasks must be performed that result in specific products – project plans, functional requirements, data requirements, design specifications, design documents,

product descriptions, instructions for use, etc. – for which there are pre-established standards and guidelines. The phases and steps within the phases establish checkpoints where certain actions should take place – quality assurance reviews, component or system tests, management reviews, and management decisions about the project.

This structured framework has proven to be an effective way of planning, managing, and controlling automated information system projects to successful completion. The following principles will be applied within the LCM framework:

- Standardized data models, data element specifications, and extended data formatting conventions will be adopted and used in all projects. Appropriate standards, including those established by the Trilateral Offices, will be used where applicable.
- Standard system development tools will be used in all new projects; systems that will be migrated to the new standard IT framework will employ the same tools.
- Automated information system development projects will favor an evolutionary approach to development based on maximum use of off-the-shelf IT components, prototyping, and incremental delivery of capabilities.

## Configuration Management

Continual, consistent documentation of a system is necessary to ensure that, at all points in the system life cycle, the system is accurately specified and described, key decisions are recorded, and there is consensus on what will be or has been developed. Configuration management serves to maintain a controlled library of all life cycle products, equipment and software specifications, documentation, etc., and to provide a process for the consideration and disposition of requested modifications to the system during development and later. The documentation also is used for quality assurance and management reviews, change impact analysis, system conversion and system maintenance. The project manager will be responsible and accountable for configuration management.

## **Risk Assessment and Management**

Eight major risk factors are usually encountered in system development projects:

- Requirements volatility
- Unrealistic problem definitions and/or project plans
- Under-qualified project managers
- Under-qualified project staffs
- Lack of experience with technology to be used
- Funding uncertainty
- Lack of senior management support
- Lack of qualifications to manage IT procurement activities

The impact of these factors will be managed by applying the principles that follow:

- The use of a standard LCM structure and other related guidelines and project management principles will contribute to the mitigation of requirement volatility and poorly defined requirements and project plans.
- The risk associated with project manager qualifications will be managed by assigning project managers who have relevant skills and experience for the project to be undertaken, where possible, in planning and managing projects of similar size, scope, and type. The requirements of each project will be evaluated and appropriately qualified project managers assigned. Training and support staff will be provided to supplement the project manager's skills, if needed.
- Project managers will also be given sufficient authority to make project decisions, including:
  - Control of key personnel,
  - Authority to make day-to-day technical, administrative, and financial decisions,
  - Control of the project budgeting process and of expenditures, and
  - Direct access to higher level management.
- For projects where in-house staff resources and/or skills are unavailable, contractors and/or consultants will be used. In projects where a few individuals possess key technical skills, steps will be taken to recruit or train qualified back-ups.
- Project risks will be further minimized by adopting an evolutionary approach to development based on maximum use of commercial off-the-shelf (COTS) components, prototyping, and incremental delivery of capabilities.

- Risks involved in changing the technology base of the organization will be minimized by selecting methodologies, tools, and/or approaches that:
  - have been successfully applied on projects of similar scale and complexity and have an industry-wide experience base,
  - are well documented, vendor-independent, and fully supported,
  - are easy to learn and use, and, where possible, are compatible with the existing technology base.
- Maintaining senior management involvement is a critical risk factor and will be an important task for project managers and the DIT. The LCM will provide the structure for documenting project information and for conducting technical and management reviews at appropriate checkpoints. The DIT and project manager will take steps to ensure senior management involvement in important reviews, as stated above, and in other meetings between senior management and the project manager and project team.
- Major acquisitions are an integral part of engineering AIS. Key elements of success are adaptable, usable procurement guidelines, thoroughly prepared and pre-approved procurement strategies and plans, project staff experienced with IT goods and services acquisition, and specifications based on realistic requirements that unambiguously and accurately express what is needed. Consequently, a comprehensive set of procurement guidelines will be developed. As required by these guidelines, procurement strategies will be formalized, reviewed, and approved by the DIT, and the central procurement organization. Acquisition projects will be carefully planned and coordinated with all involved parties to minimize this area of risk.

## **Resource Management**

Projects will typically be staffed on a matrix management basis through collaboration between the IT Organization and the involved business areas. Project teams will include both business area and IT members. IT staff members may be drawn from any section, as dictated by the skill requirements of the project, and remain with the project as long as their skills are required. Consultants may be used to meet project needs, but the core team capabilities must be established with WIPO personnel. The project manager may be from either area so long as the person has appropriate training and experience. The management and oversight structures discussed above, in combination with the application life cycle management guidelines, will ensure that project activities and products are fully coordinated with the business areas affected by the project.

## **Coordination of System Interfaces and Implementation**

Project Managers will be responsible for identifying external system interfaces and the need for coordination in planning system implementation. They will remain sensitive to the needs of Member States and will cooperate with Member States in planning and reviewing system projects. They will also cooperate with international partners by incorporating established data interchange standards into its own standards and by continuing to pursue agreements with other intellectual property organizations for the standardization and exchange of IP information.

In consultation with the DIT, coordination committees will be formed to review the relationships and interfaces between systems that share data and/or relate to common operational/business processes. All IB system projects will remain cognizant of the possible impact systems may have on IPOs and will incorporate plans for assisting potential system user organizations in migrating to new work practices that will be required to exploit the potential of the new systems.

## **Procurement and Contractor Management**

Adaptable, uniform procurement guidelines will be adopted within the existing legal and regulatory framework. Guidelines will complement LCM guidelines and conform to WIPO procurement requirements. Guidelines will aid Project Managers in formulating procurement strategies, developing procurement documents, and planning and evaluating bids and proposals. All projects involving procurement of IT goods and services will conform to IT procurement guidelines.

Contract/Contractor Management guidelines also will be established and all projects in which contractors will develop and/or provide system capabilities will use the guidelines to ensure that contractor performance and costs are adequately tracked, reported, and controlled.

## **System Conversion and Migration**

Systems to be converted from the current IT infrastructure to the new standardized framework without basic process reengineering will be planned to conform, to the maximum extent, with the software and other standards established for the new framework.

## **Costs, Benefits, and Return on Investment**

IT systems will be evaluated at the time of deployment against operational criteria derived from business functional requirements and other performance criteria based on key indicators established at project initiation. The latter usually relate to project costs, benefits, and return on investment. Systems will be evaluated periodically after initial deployment to ensure that they continue to meet requirements, provide expected cost benefits, and remain cost effective.

## **Data Management**

It is generally recognized that:

- data is a valuable resource which requires careful planning, development, and management;
- it is necessary to define data independently from the technology that may be used, including application software; and
- accurate information about the data is essential and, in itself, must be accurately developed and maintained.

Sound data management methods are necessary to ensure data quality and enable data to be shared among systems and organizations. Methods include a set of activities for defining, modeling, designing, and documenting data that will be performed according to proven guidelines using industry standard tools. This will help ensure that:

- data collected and disseminated by systems meets accuracy and timeliness requirements, as well as operational needs,
- maximum data sharing is achieved, thereby avoiding the cost of redundant data collection and storage, and
- the cost of system development and maintenance will be minimized through generalized data base designs, while, at the same time, providing more stable, flexible data resources.

Following the above principles, organization-wide data administration policies will be established. Policies will encompass the use of common data models and data element specifications for all application systems, a common data dictionary, and the standard relational database management system, Oracle.

Database management and related project support services will be centralized and administered independently of system development projects. A data management plan will be prepared to identify data and the management activities that will be performed. Products will be developed by the centralized staff to support database design and operation, and maintain the integrity of data specifications and the corresponding databases.

Data management standards will be established for all data elements, document formats, and document mark-ups. These will incorporate established and evolving partner standards for data, non-text documents, and combined text/image formats. To ensure effective management of data resources, all systems will be created and maintained in accordance with standardized data models, data elements specifications, and extended data/document standards, including SDML/XML conventions and formats. Standards adopted by the Trilateral Offices will become the foundation for WIPO standards. Configuration management practices will verify compliance with these standards.

Databases that will be migrated from current systems to the future IT framework will be made compliant with standards to be used within that framework.

Project managers will be responsible for identifying and coordinating data element changes with using organizations through the system coordination committees and/or the project management and oversight structures.

## **Security Management**

Best security practice guidelines emphasize the need for comprehensive, definitive security policies in addition to the implementation of mechanisms and operations methods of monitoring and auditing security status. A typical best practice checklist generally includes the following items:

- Remote Access Security Policy
- Policy prohibiting uncontrolled model lines
- Policy requiring manager's signature on all remote access requests
- Policy requiring strict supervision of remote control connections
- Policy specifying security control requirements for EDI
- Policy regarding home storage of confidential information
- Security logging of connections and violations
- Weekly monitoring of remote access security logs
- Positive authentication required for all interactive remote access sessions
- Encryption for remote access session conducted across the Internet or for unattended file transfers related to monetary transactions
- Authentication Token Signature Forms that require user to state understanding of remote access policies
- Documented security procedures for remote access administrators and support personnel
- Access control and encryption for unattended file transfers
- Positive authentication control on PBX or phone switches
- User training that describes the system, security features, and procedural requirements

A more comprehensive requirement checklist will be needed to meet WIPO security needs.

A WIPO-wide security program will be established, following the ISO/IEC standard 15408.

Several steps will be taken to develop a comprehensive security policy and plan, i.e.,

- Define and document the security environment, identifying all aspects of the physical environment relative to security, including known physical and personnel security arrangements and the assets requiring protection, including data, authorization credentials.
- Develop security statements applicable to WIPO, including a statement of assumptions to be met by the environment in order for the environment to be considered secure, a statement of threats to security of assets, and a statement of existing relevant organizational security policies.
- Based on the results of the preceding analysis, the security objectives will be developed. These will address the measures that will be taken to counter identified threats, consistent with identified organizational security policies and assumptions. The intent is to address all security concerns and to determine which security aspects will be addressed by the IT security program. IT security requirements are derived from security objectives to form a set of specific requirements for the total WIPO IT environment, which, if met, will ensure that it can meet its security objectives. Requirements may be expressed as either or both policies and procedures and hardware, firmware and software implementations.

Only the security objectives that affect the IT environment will be addressed by the IT security requirements. Any attempt to delineate IT security requirements may be difficult, as illustrated in the following two figures, which are adapted from ISO 15408.

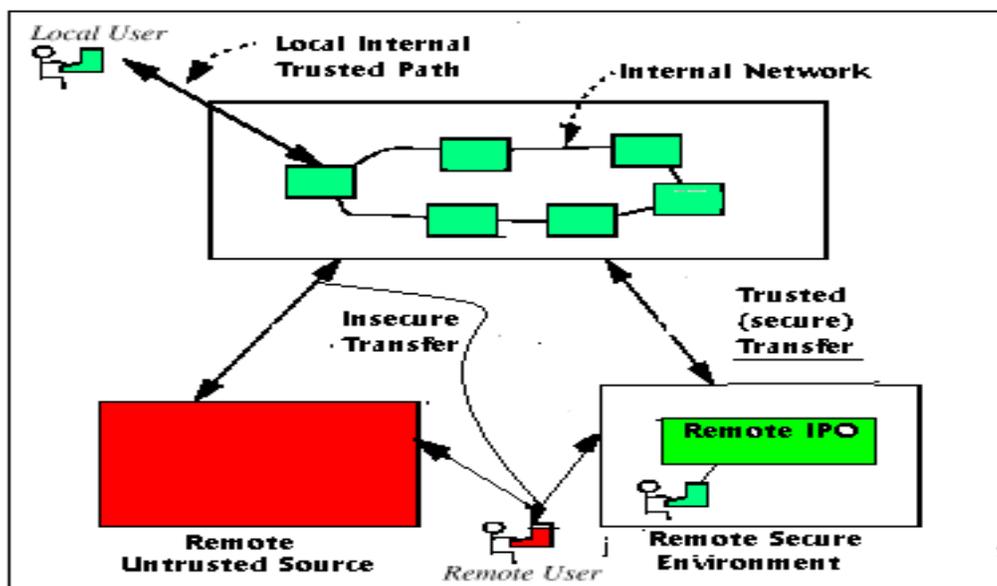
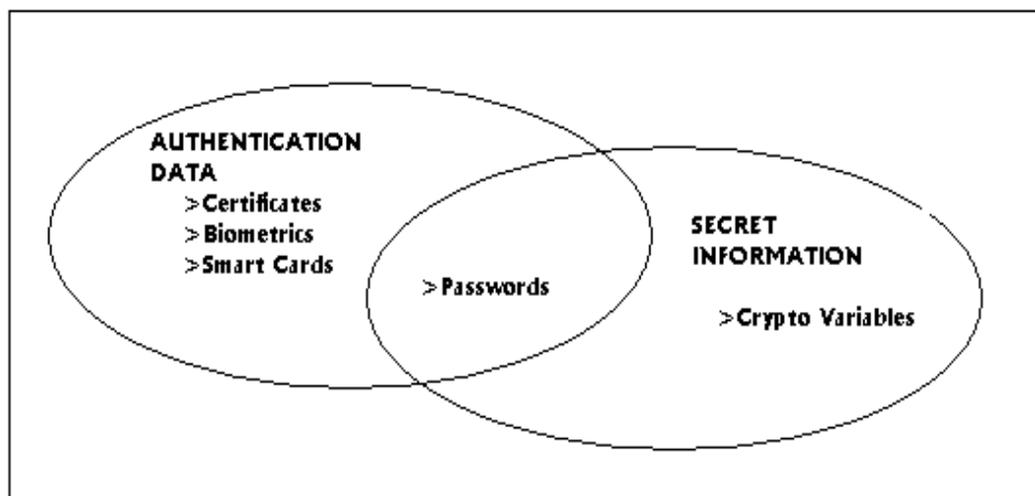


Figure 13

Figure 13 shows a simplified representation of the WIPO IT networks that span local and remote facilities. Trusted, secure links or insecure links connects local and remote facilities and users. In both local and remote secure facilities, users and the facilities themselves are outside the electronic boundaries that can be affected directly by hardware, firmware, and

software security measures. Nevertheless, they affect the security of WIPO IT systems and must be considered in IT security requirements.

Figure 14 illustrates the relationship between authentication data and secret information. Authentication information is handled within the electronic envelope but secret information must be protected by other means, namely, in personnel screening and in policies and procedures dealing with the disclosure of secret information.



**Figure 14**

With a defined set of requirements, a security plan will be prepared to develop the necessary means of securing the WIPO IT environment. The plan will include the development of comprehensive policies and procedures as well as the implementation of electronic security technologies and techniques directed at providing protection of information against unauthorized disclosure, modification or loss of use, usually referred to as confidentiality, integrity, and availability. Consequently, the plan will address the means of providing electronic security through such techniques and mechanisms for user authentication and data encryption. It will also describe the plans for improving facility security and for system and data disaster recovery as well as a system for actively managing the security program. The disaster recovery plan will consider both Internal Mirror Backup and External Mirror Recovery capabilities.

The security plan will include a Public Key Infrastructure (PKI), which WIPO needs to support secure communications and commerce with its clients, IPOs, ISAs, IPEAs, and Trilateral Offices. A PKI is a set of hardware, software, policies and procedures used to manage the public/private keys that provide the basis for security services, such as authentication, integrity, non-repudiation, confidentiality, and access control. These services are essential to the successful implementation of electronic communications and electronic document management such as will be developed by WIPO.

WIPO's PKI support the secure use of information to use public key based certificates for information system security, electronic commerce and secure communications, including e-mail. The security plan will assume a single WIPO PKI infrastructure and describe how PKI will be phased into operation. It also will present a strategy for migrating existing systems to the use of the PKI infrastructure.

A central security management staff will be formed by the DIT to develop the IT security plan and administer the program. New roles for Certification and Registration Authority will be specified as security management staff functions.

## **IT Infrastructure Development and Management**

The WIPO IT infrastructure will be developed and maintained as a separate activity, independent of system development and maintenance activities. A new, standardized infrastructure will be evolved to include all IT platforms and systems procured by WIPO as a part of the framework described below, including the internal and external communications networks.

One goal of the new infrastructure is to establish a framework within which systems can be developed and operated such that technology platforms can be replaced to accommodate changing workloads, take advantage of newer, higher performance technology, or offer greater cost effectiveness without affecting the functionality of operational systems. A second goal is to simplify maintenance and management of the infrastructure by reducing the set of tools and related skills that are required. A third is to standardize system development tools, thereby facilitating skill development and increasing flexibility in staff assignments. This will also simplify and reduce the level of effort needed for system enhancement and maintenance. A fourth goal is to simplify the task of providing training and assistance to user organizations using standard tools and techniques.

The new WIPO standard IT framework will be built in accordance with the following architectural guidelines:

### **IT Infrastructure**

- The WIPO IT infrastructure will evolve to a client server architecture with commercial off-the-shelf components under the complete control of WIPO.
- All components will conform to open system and de facto industry standards wherever possible.
- Local components will interconnect through the WIPO local area network using the NetWare network operating system and the NDS Directory Services. Remote components will connect through WIPONET, which will establish the extranet standard. IPO components will be configured in local area networks following the same standard.
- Workstation terminals will conform to a minimum level processor and component configuration and operate under the NT client operating system.
- A standard set of workstation tools will be provided from which both minimum and extended configurations can be selected. The minimum configuration in both the IB and IPOs will include MS Office, Netscape Communicator, virus detection software, and other commonly used tools. The current minimum and extended tool sets will be upgraded over time as user needs evolve.

- Oracle will become the standard relational database management system for all multi-user databases. For single user PC based applications, MS Access in the MS Office suite will be the de facto standard.
- Oracle Designer, Developer, WebDB, and Data Warehouse tools will be used for all shared database system development projects.
- Middleware products will be used in order to provide open connectivity solutions between distributed processes and applications.

## **Network Management**

- A network management system will be installed to enable monitoring of the status of all IB networks and network components and enable automated problem diagnosis and management of network resources. Network problem incident and usage statistics will be collected to aid in identifying persistent problem areas and long term needs. A qualified technical staff will be dedicated to the maintenance of the internal network during all hours of operation. Network status, load, and problem statistics will be reported to the DIT weekly.

## **User Assistance**

- An end user support program is critical to the successful deployment and operation of IT systems. The DIT will establish a program that focuses on three main areas - user operating manuals and quick task reference aids, education/training, and operational support.
- Complete user operating manuals and task performance guides will be produced for all systems in both document and electronic formats. Manuals will be prepared so that they provide general system and database information and can guide inexperienced users through the performance of any task within the scope of the system. Manuals will include the use of any special equipment that may be required in conjunction with performing a given task but will typically not include the use of standard IT components. End users will be able to access manual information using printed documents or their PC workstation.
- System user education and training will encompass both general IT program and system familiarization and task training. The former will focus on providing all persons, specifically including business area and IPO management, with information about the purpose and characteristics of the system and how they will be used in their organizations. The latter will concentrate on providing 'how to do' task skills needed to make effective use of the technology and systems that will be deployed.
- Instructional methods may include any of the following:
  - Conventional classroom instruction,
  - Automated multi-media tutorials, and
  - Distance learning methods including broadcast instruction, virtual classrooms, correspondence courses via the Internet, and open forum discussion rooms.

The method for any given system or course will be determined by balancing method suitability with development, delivery, and system requirements considerations and costs.

- Project managers will be responsible for ensuring that both manuals and appropriate training are developed. They will be responsible for the development of manuals and supporting training materials. An IT training support staff will be established to be responsible for development and delivery of suitable training courses, with assistance from project staff members and in cooperation with the WIPO Academy Distance Learning Program.
- Operational support includes assistance to direct end users and user organizations in identifying and resolving operational problems with application systems and IT network components. User assistance will be provided through a central 'Help Desk'. The Help Desk will address both network and application system problems. Users can seek assistance by telephone, e-mail, and/or an open problem chat room on the Intra/Internet. Problem reports will be systematically analyzed to identify potential improvements needed in system manuals, courses, application systems, and network components. Analysis reports and problem statistics will be reported weekly to the DIT.

## **IT Staffing**

Implementation of the IT Strategic Plan will require the development of a core technical staff and provide opportunities for them to acquire advanced skills. Additionally, a different organizational structure is needed within the IT Division to effectively carry out its role. To position itself for the challenges of implementing the Strategic Plan, the following actions will be taken:

- Current staff knowledge and skills will be inventoried and compared to the knowledge/skill requirements implied in the Strategic Plan. It is anticipated that additional knowledge/skills will be required in at least the following areas:
  - the Life Cycle Management (LCM) process to be adopted,
  - LCM standards and guidelines,
  - Business Analysis and business case development,
  - Process Reengineering,
  - Project Planning,
  - Project Management,
  - Contract and Contractor Management,
  - Effective Communications,
  - Change Management,
  - IT infrastructure component operation and use,
  - System manual design and development, and
  - Development of system training.
- An assessment will be conducted in 1999 to determine the level of permanent staff and consultants that will be needed to supplement the existing staff. WIPO anticipates the need for technologists in such critical areas as network management, business analysis,

project planning, training, security policy and audit, and change management. A training program will be defined and established to develop staff knowledge/skills in the areas outlined above.

## **IT Management Framework Development**

### **Introduction**

In the past, WIPO had no single documented process to develop, deploy, and maintain automated systems. Each application development group defined its own and/or relied on a contractor to define processes, standards, and supporting tools. This resulted in the implementation of systems that are costly and difficult to maintain and integrate, and which could not be easily adapted to take advantage of advances made in technology. A standard system development life cycle management process is needed to improve productivity, measure and improve performance, and take advantage of modern system development techniques and tools. All WIPO system projects will use this life cycle management process, the technical standards and guidelines, and established standard development tools in order to realize total benefits.

### **Implementation**

Implementing a standard process is done in three steps:

- defining an adaptable process,
- adopting a standard tool set, and
- orienting and training people.

The process must be defined with a foundation document and supporting guidelines so that people know what to do. A standard tool set is needed to make the process faster and more efficient, and people must be oriented and trained.

A suitable Life Cycle Management model has been developed by the USPTO. Rather than select a commercial model or reinvent one, WIPO will adapt the USPTO model.<sup>10</sup>

Use of this model allows system project teams to select only those processes, standards, and supporting tools that are appropriate and necessary for the development and operation of their specific system with consideration as to the size, complexity, or extent of use of Commercial-Off-the-Shelf products. Because this process is adaptable, project teams will be able to improve productivity while taking advantage of modern system development techniques and tools.

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<sup>10</sup> The revised Life Cycle Management Overview was published in December 1996 and the revised Life Cycle Manual was completed in December 1997.

WIPO will place emphasis on institutionalizing the defined processes. All IT Division employees, as well as project managers and other persons involved in development will complete Life Cycle Management Overview training. The DIT will also provide training specific to the WIPO standard development tools. Implementation of the LCM program will be the responsibility of the IT Support staff reporting to the Deputy DIT.

## **Schedule**

The major tasks to be completed in 1999 are the following:

- Evaluating and adopting a standard tool set to support the LCM,
- Providing training in the application of the LCM process and use of standard tools, and
- Maintaining the LCM materials and supporting tools.

The initial work will involve two support staff members/consultants and the continuing maintenance and training effort will require the equivalent of one FTE.

By using an available LCM product, the initial evaluation for selection of a standard tool set and preparation for conducting training will be completed in six weeks. Training the necessary staff in the use of LCM and the tool set will be completed in two weeks.

## **Install an IT Project Management System**

### **Problem Statement**

In pursuit of its global IP system objectives, WIPO will initiate a large number of major IT project initiatives. To assist in the management of these projects and provide visibility of the progress of each project, a project management systems (PMS) is required. In addition, a PMS will help project managers estimate project schedules and costs. The system should include both cost and schedule tracking that ties schedules to actual costs according to the project work breakdown structure. Both WIPO and contractor cost of labor and other IT goods and services should be included. The system should also allow comparison of costs to budgets, at least at the sub-activity level.

### **Implementation**

The DIT will establish a PMS that meets the goals established in the Problem Statement. All project managers will be required to incorporate their plan and costs data into the PMS.

A project management support function will be established in the Project Support Staff reporting to the Deputy DIT. It will develop policies and procedures to be followed and assist project managers providing the data required to maintain the system and to effectively use it in the management of their projects. The support function also will produce periodic reports for project managers and senior management.

The PMS function will require the equivalent of one FTE staff member or consultant. Selection and installation of a PMS tool and providing orientation training to project managers and staff will require approximately 3 months.

## **Establish a Data Management Program.**

### **Description**

WIPO-wide data management activities are aimed at providing clear, concise, consistent, unambiguous, and easily accessible business data throughout WIPO and in applications shared throughout the worldwide intellectual property community. The program addresses such data requirements as accuracy and timeliness, improved management decision making through better access to more accurate and timely data, increased productivity in the information collection and processing activities as the understanding and use of available data increases, existing data shared to the maximum practicable extent, avoiding the cost of redundant data collection and storage, and reduced cost of system maintenance and time needed to modify implemented systems by designing more stable and flexible databases.

The components of a strong data management program to support decision making and operations include an enterprise data model, standard data elements, an information repository, and a data quality improvement and monitoring function.

- The enterprise data model exists to support reuse of system development work. The development of data models for business areas continues to support systems development, always drawing from the data in the enterprise data model.
- Data modeling and standardization support reengineering of business processes. Data modeling identifies the information needs of an activity. It is a communication tool that provides an accurate understanding of how the enterprise conducts its business based on enterprise needs. Model-based data standardization will continue to reduce redundancy, facilitate single-point-of-entry of data, and provide for the reuse of data. An important activity is mapping physical and legacy data elements to standard data elements to enhance data understanding and sharing, which is accomplished through the information repository. Metadata (information about data) management will be perfected through optimum use of repository tools and procedures.
- Data stewardship designations are required to achieve full data management maturity. A data steward is the business area user and owner of a data element. Designation of data stewards will allow the data management program to perfect the definitions of data and ensure their use is properly secure. Data stewards are ultimately responsible for data quality. A data stewardship program and development of requisite training material will be initiated in mid-2000.

- The data management program recognizes that a single point of reference for all data elements is needed to facilitate cooperation and exchange of electronic data in the intellectual property community. Since common patent application data elements have been compiled, analyzed, described, and integrated in a single dictionary to support the exchange of common patent application information among the European and Japanese Patent Offices, the World Intellectual Property Organization, and the PTO, they will be adopted by WIPO.

## Benefits

The WIPO data management program supports the goal of helping to protect, promote, and expand intellectual property rights systems. It accomplishes this by protecting and leveraging a very critical asset - data. This is an enterprise commitment employing the strategy of effectively managing resources as well as leveraging information technology. Benefits of the data management program are numerous.

- The program reduces data redundancy, facilitates single-point-of-entry, and promotes reuse of data.
- A viable data management program helps achieve the goal of delivering quality software products when promised and within cost estimates.
- Data modeling of existing systems provides a snapshot of current operations and allows future system development efforts to move in a consistent business direction.
- Standardizing and using standard data enables processes to be reusable and shared across the enterprise. System development and maintenance are supported and expedited with a common starter set of data elements culled from the repository. Standardization also results in enhanced data quality.
- Data sharing reduces storage costs, and facilitates faster and more efficient system development.
- Enhanced data quality occurs when the meaning of data is totally unambiguous. The user then has a higher level of confidence in the data.

## Implementation

Key implementation milestones include the following:

1. Appoint a data management official as a focal point of all related activities.
2. Develop a policy and procedure framework.
3. Select an independent data management support tool.
4. Begin enterprise-wide data modeling incorporating standards developed by trilateral partners.
5. Begin standardization of all other data elements.
6. Approve standard data elements.
7. Complete the Enterprise Data Model.
8. Migrate all supported logical data models into the Enterprise Data Model.
9. Standardize core Dissemination data elements.

10. Standardize information repository use for all system developers.

Three staff members/consultants will be needed to establish the data management program over a period of approximately two months. This will be a continuing level of effort activity that will require a staff of at least two persons over the next 3 years.

## **Establish a Configuration Management Program**

### **Description**

The Configuration Management function indirectly supports business area and infrastructure system development, maintenance, testing, and operations activities. Specifically, Configuration Management stores computer program code and documentation and other information for reuse, reference, and archiving; manages changes; and verifies that the organization's systems can be recreated. The Configuration Management program implements integrated, professional, industry standard disciplines to improve project coordination, increases quality and efficiency by implementing standard processes supported by standard tools, and increases management visibility and control of information technology.

The goals of this program are traceability, accountability, maintainability, and replicability, so that accurate materials are available for the developers, and so that complete systems are available for production use. The Configuration Management program is critical to successful transition by providing materials from which employees and the system development and maintenance contractors can maintain and enhance automated systems.

Configuration Management activities include:

- establishing baselines and creating releases (based on direction from technical reviews and using materials supplied by the developers);
- providing a software repository which developers can search;
- enabling business area and IT management to track and control all versions of and changes to automated systems;
- training developers and providing technical assistance for using standard Configuration Management processes and tools;
- writing Configuration Management plans; and
- operating a Configuration Management library.

A standard Configuration Management tool supports relationships between components to ensure that when a change is made to one component, related components are also changed, such that the documentation matches the product. This approach supports maintainability, provides impact analysis capabilities, and makes reuse feasible.

The standard Configuration Management tool provides a repository of, and change control over all data under its control. Configuration Management provides developers and contractors with clearly identified information as a basis for their redesign of legacy systems

to operate in an open systems environment. It provides responsive day-to-day support to developers while reducing the risk that unauthorized changes are made to production systems and supports a comprehensive retrieval capability for both stored and referenced components via listings and queries of information collected about each component.

## **Benefits**

Configuration Management enables WIPO to maintain current business production, improve and enhance current business and information technology infrastructure, migrate automated systems to operate on an evolving infrastructure, and enhance and improve the life cycle management process. Benefits obtained from Configuration Management include the following:

- Increased customer satisfaction: Greater reliability and availability of systems contributes to an increase in customer satisfaction as well as lower costs for help desk and troubleshooting functions. Configuration Management provides insurance that the wrong version of hardware and software is not used for acceptance testing and is not installed in production. This avoids system failures that would directly affect the users.
- A saving of both time and money: Time and money is saved through reuse rather than rework. The Configuration Management repository is available for reuse of source code, documentation, and test materials.
- Defect analysis: Standard Configuration Management process prevents unauthorized changes and provides an audit trail of authorized changes, which allows more efficient and thorough problem analysis.
- More efficient process: Common information technology infrastructure and application software components can be linked to automate portions of defect analysis, impact analysis, and compatibility testing.

## **Configuration Management Program Implementation**

The DIT will implement a configuration management program to which all IT projects will conform. Responsibility will be assigned to the Project Support Staff reporting to the Deputy DIT.

To implement the program, a configuration management coordinator will be appointed. In establishing the program, the coordinator will be assisted by other support staff members and consultants to

1. Define the program and establish policies and procedures,
2. Select a standard configuration management tool,

3. Prepare and instruct project staff members in how to conduct configuration management activities.

When the program is established over a two-month period, the coordinator will administer the configuration management program, in cooperation with project managers.

Configuration Management activities are a continuing level of effort that supports all system development and maintenance activities.

## **Develop an Acquisition Management Program.**

### **Description**

Elements of the information technology acquisition strategy include the following:

- Establishing and using fewer sources of supply by:-
  - consolidating similar requirements into single procurement packages if practical and reasonable,
  - making the consolidated contracts the preferred sources of all information technology products and services,
  - requiring that acquisitions from other than these preferred sources be justified, and
  - migrating existing contracts into consolidated contracts, and lengthening contract durations.
- Establishing more reliable and more flexible sources of supply by:-
  - building in flexibility through technology infusion clauses to help prevent obsolescence,
  - including options for future generations that cannot be fully specified at the time of contract award,
  - increasing the use of COTS hardware and software, and
  - establishing enterprise-wide contracts based on technical standards when appropriate and cost-effective.
- Improve enforcement of technical and contractual standards by:-
  - Centralizing technical responsibilities for acquisition management and contract administration in one location - the project support staff,
  - ensuring that all information technology contracts have consistent and enforceable provisions requiring compliance with the Life Cycle Management Manual and associated Technical Standards and Guidelines, the Technical Reference Model, project management tools, cost/schedule controls, and other standards, and providing incentives for compliance and penalties for non-compliance to standards.

- Streamline acquisitions by providing policies and guidelines to take full advantage of streamlining allowed by regulations for acquiring IT goods and services and managing contractor performance.

## **Implementation**

An acquisition support staff function will be formed under the Deputy DIT to develop policies, procedures and guidelines for procurement and contract management and to assist project managers in planning and carrying out effective procurement strategies and projects. Development of policies, procedures, and guidelines will require approximately two months with two qualified consultants. Development of manuals and training materials and providing training for Project Managers and staff members will require an additional month. The administration of the program thereafter will require, on average one consultant/staff member with possible peaks requiring two or more, depending on the number of concurrent procurement projects.

## **Develop a Comprehensive Security Program**

To establish an enterprise wide security program, several steps will be taken to develop a comprehensive security policy and plan:

- Define and document the security environment, identifying all aspects of the physical environment relative to security, including known physical and personnel security arrangements and the assets requiring protection, including data and authorization credentials.
- Develop security statements applicable to WIPO, including a statement of assumptions to be met by the environment in order for the environment to be considered secure, a statement of threats to security of assets, and a statement of existing relevant organizational security policies.
- Based on the results of the preceding analysis, develop the security objectives. These will address the measures that will be taken to counter identified threats, consistent with identified organizational security policies and assumptions. The intent is to address all security concerns and to determine which security aspects will be addressed by the IT security program. IT security requirements are derived from security objectives to form a set of specific requirements for the total WIPO IT environment, which, if met, will ensure that it can meet its security objectives. Requirements may be expressed as either or both policies and procedures and hardware, firmware and software implementations.
- The plan will include the development of comprehensive policies and procedures as well as the implementation of electronic security technologies and techniques, directed at providing protection of information against unauthorized disclosure, modification or loss of use, usually referred to as confidentiality, integrity, and availability. Consequently, the plan will address the means of providing electronic security through

such techniques and mechanisms for user authentication and data encryption. It will also address and describe the plans for improving facility security and for system and data disaster recovery as well as a system for actively managing the security program. The disaster recovery plan will consider both Internal Mirror Backup and External Mirror Recovery capabilities.

- The security plan will also include a Public Key Infrastructure (PKI), which WIPO needs to support secure communications and commerce with its clients, IPOs, ISAs, IPEAs, and Trilateral Offices. A PKI is a set of hardware, software, policies, and procedures used to manage the public/private keys that provide the basis for security services such as authentication, integrity, non-repudiation, confidentiality, and access control. These services are essential to the successful implementation of electronic communications and electronic document management such as will be developed by WIPO. It is probable that these services would form part of the WIPONET Basic Services and be operated by the WIPONET Prime Contractor.
- WIPO's PKI will support the secure use of information to use public key based certificates for information system security, electronic commerce, and secure communications, including e-mail. The security plan will assume a single WIPO PKI infrastructure and describe how PKI will be phased into operation. It will also present a strategy for migrating existing systems to the use of the PKI infrastructure.
- PKI will be implemented in a phased approach, tied to the development of other WIPO support systems that require public-key based security services. This approach will enable WIPO to have a single, scaleable security infrastructure to support both internal and external applications regardless of risk level. The implementation of a single PKI infrastructure will provide security and authentication for a wide range of business applications rather than providing separate security solutions for individual applications. As part of the project a strategy will be developed for migration of existing systems to the use of the PKI infrastructure.
- In view of the security requirements for WIPONET the developers of the security plan will have to work with the WIPONET project team to ensure alignment of all the security requirements of the Global Network and the IPOs.

Security program implementation will require that several new management and administrative roles be established, including a Certification Authority (CA), and Registration Authority (RA). In addition, as with any information technology infrastructure, the PKI will require traditional operational support of the client and server hardware and software (e.g., directory management, desktop management, help desk, archival electronic records management, backup, contingency planning) to ensure continued system availability and user productivity.

A central security management staff of three full time staff members, supplemented by three or more consultants during the initial six months, will be formed by the DIT to develop the IT security plan. A full-time staff of five will administer the program and provide traditional operational support.

## **Establish a Technical Reference Model of open system and *de facto* industry standards and products.**

### **Description**

The Technical Reference Model (TRM) defines the information technology services, standards, and products used by the WIPO. The purpose of the Technical Reference Model is to guide WIPO information technology investments and to provide the set of consistent, agency-wide standards and products. These standards also serve as a guide for project managers, system development managers, and project staff for:

- acquiring information technology products and services;
- developing and maintaining automated systems; and
- designing the information technology infrastructure.

Without the identification and enforcement of standards, there would be incompatible formats, insufficient security, unknown data integrity, and questionable authenticity of electronic information. Standards will enable WIPO business systems to be modular for more flexible and adaptable automated business solutions, vendor independent for more cost effective service support, loosely coupled with interchangeable parts for easier component replacement as technology evolves, and more cost effective over the life-cycle of systems. For example, the use of Standard Generalized Mark-up Language (SGML) and other electronic commerce and electronic documentation standards frees WIPO from the burden of having to archive the submitted application in proprietary formats or as non-searchable images, and eliminates errors that would occur during format conversion.

WIPO will adapt the USPTO TRM to its unique operating circumstances, rather than incur the expense and the delay of developing its own. The USPTO Technical Reference Model is based on the Application Portability Profile, developed by the US National Institute of Standards and Technology and the Technical Architecture Framework for Information Management, developed by the US Department of Defense. The Model outlines a suite of selected standards and standards-based commercial products that define the services, interfaces, protocols, and supporting data formats for implementation of open systems standards-based information technology infrastructure. The Model also includes services such as document management services and full text search services which are not covered by sanctioned standards, but are critical to WIPO's information technology infrastructure.

These standards and standards-based products provide tools for enterprise data modeling, information repository, business process re-engineering, electronic filing that uses SGML technology, as well as tools for project planning, configuration management, requirement analysis, application program development, image and workflow management, network and system development and management, and security risk analysis. To provide more explicit guidance for systems development and maintenance, the selected system development tools will be incorporated into the life cycle phases that are described in this plan.

## **Benefits**

The adaptation, extension, and maintenance of WIPO's TRM is an information technology infrastructure function that supports all business areas as well as information technology infrastructure projects. It enables WIPO to maintain current business production, improve and enhance current business and information technology infrastructure, migrate automated systems to operate on an evolving infrastructure, and enhance and improve the tailored life cycle management process.

The TRM serves as the focus to direct the acquisition, design, development, and maintenance of automated systems and information technology infrastructure within the bounds of designated standard products. The TRM supports the strategic information technology objectives to:

- Promote vendor independence through the use of standards-based products and interchangeable components;
- Improve development efficiency across business areas through a common open systems environment and resource sharing;
- Improve interoperability across applications and mission areas through common infrastructure components and services; and
- The security and authenticity of electronic information will be enhanced through application of the standards supported under this project. The acceptance of electronic records as valid legal documents based on standards recognized by the legal establishment will offer protection in the electronic workplace era that exceeds that of today's paper workplace.

## **Implementation**

Adaptation, extension, maintenance, and administration of the TRM is another function of the Project support staff under the Deputy DIT.

## **Organization of IT Resources**

All IT staff will be centralized and organized as shown in Figure 15.

Under the DIT, the staff is divided into four main components:

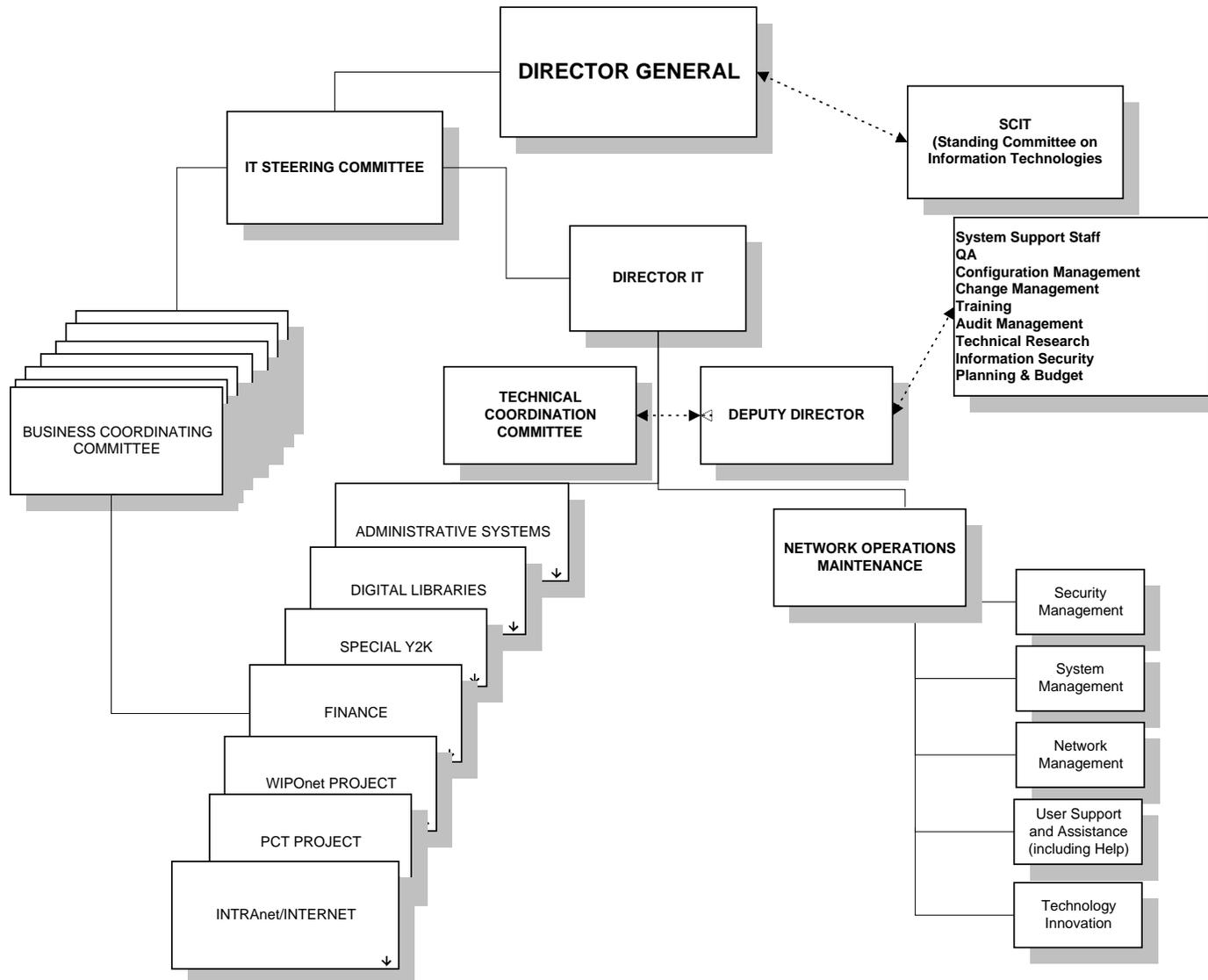
- System Development,
- Network Operations and Maintenance,

- Internet Operations, and
- IT Management and Support Staff.

All system development projects are separated from operation and maintenance functions with development staff reporting to project managers.

## **SECRETARIAT OF THE SCIT**

The SCIT (the Plenary and Working Groups) serve as a forum to discuss issues, facilitate coordination and provide guidance concerning the implementation of WIPO IT projects which require international coordination and cooperation. WIPO will provide financial assistance to developing countries for their representatives to attend the SCIT meetings. Documentation and information services are provided to increase awareness and understanding about the SCIT activities. The International Bureau as the Secretariat of the SCIT will undertake all administrative work including certain activities highlighted above. Moreover, the International Bureau will occasionally out-source a task to consultants or consulting firms in order to conduct surveys or investigation of technical solutions, if they require a high level of technical expertise. To carry out the secretarial work, resources allocated to Sub-Program 12.2 of the Program and Budget of the next biennium will be used.



**Figure 15 – Organizational Structure of the WIPO IT Staff**

All new development work will be organized in project fashion, including projects to develop or procure IT infrastructure components. Small IT development requirements within an area, such as administration may be bundled for treatment as a single project. Projects identified in Figure 15 are not inclusive, but illustrate the project management strategy that is being adopted to delegate authority to project managers and to enable them to control their resources and complete projects as planned.

The recently formed Information Technology Steering Committee, with members representing all business and administrative areas and chaired by the Coordinator of IT Projects, will provide direction and guidance to coordinate and integrate systems. In parallel with the direct management reporting chain, project managers will have communication access to the IT Steering Committee and, thereby, to the Director General.

Business area Coordinating committees will be formally established for all systems projects supporting a particular area. To address and resolve any problems that may arise across system interfaces, the DIT will establish a Technical Coordination Committee.

The Internet Management and Services section will be divided to two groups, one directed toward management of the Web Site and maintaining coordination with internal and external network management functions. The other section will provide assistance and services to user organizations developing or using the Web capabilities.

Internal network operations and maintenance is divided into four groups, each committed to a specific set of functions, as shown - user support and assistance, network operation and management, application system maintenance, and security management. These groups all \*share a common objective of keeping both the infrastructure and operations systems in effective working order and secure, and assisting users with any problems they may encounter in using either.

Support functions that are required across projects and IT organizational areas are centralized under the Deputy DIT in a System Support Staff. This will include quality assurance management, configuration management, change management, training, and audit management. Specialists will be available to develop these basic IT Management Framework programs and to support project and section managers within these areas of IT development and operations work.

As an ongoing activity, IT resources will be dedicated to working out and maintaining WIPO IT standards and guidelines, and for the testing and deployment of new and emerging technologies in view of incorporating them into the IT infrastructure. Resources will be dedicated, in particular, to the implementation of new Internet and Web-based technologies (e.g. three-tier architectures, thin client solutions, XML, Java), introduction and support of middleware technologies and solutions (MQSeries, CORBA, EntireX, DCOM, EJB), support for object-oriented technologies, as well as for enterprise data consolidation and data warehousing solutions.

The organizational structure shown in Figure 15 provides for the dedication of staff to specific areas and functions where appropriate knowledge/skills can be developed, work can be shared, and critical backup skills developed at all levels.

IT projects will be formed by selecting a team from the business/support area and any section of the IT organization, based on the skill needs of the project. Project team members will be assigned to the project as long as their capabilities are required.

Staff committed to system maintenance will typically transition in and out of system projects periodically to ensure that skills are maintained and growth opportunities are provided.

When a system is developed, it will undergo system testing, including test criteria established by the Internet Services and/or Network Management and Maintenance sections, that will certify the serviceability and maintainability of the system. On certification, the system will be deployed and become the responsibility of the involved operational support section.

The project team will be reassigned to their respective home organizations or to new projects, as may be appropriate.

# APPENDIX A - CURRENT IT ENVIRONMENT

## Introduction

Information Technology (IT) has been used in WIPO for many years to improve the efficiency of business processes and to provide information and services to member states, industry and commerce, and IP owners. Major information systems support operations in the main business areas -- the PCT and Madrid systems -- and in organization-wide administrative functions. Some current systems were first deployed more than a decade ago, others, more recently. These have been subsequently expanded and improved. Other smaller systems support specific functions within the major business, program, and administrative areas.

Recently, most staff members of WIPO have begun to use IT facilities in some way. This has resulted from the expanded scope of the major information systems and from the creation of the Network Office System (NOS), an organization-wide IT infrastructure that offers to all staff common office tools, as well as connectivity to the main automated systems.

Another basic IT infrastructure, WIPO's Intra- and Internet Web Sites, provide significant capabilities for both internal and world wide information dissemination and a beginning framework for Member State training assistance by the WIPO Academy Distance Learning Program.

The following sub-sections summarize the current IT systems from operational and technology viewpoints.

## IT Framework

The NOS infrastructure provides the basis for delivering to the end-users organization-wide network services as well as access to WIPO information systems as shown in Figure A.1.

Network services, consisting of MS Office based office tools, file storage and print services, e-mail services, and various gateways for internal and external communications links as well as connectivity to the ICC mainframe system, are provided through Novell NetWare servers. Centralized directory services are implemented through the NDS (NetWare Directory Services).

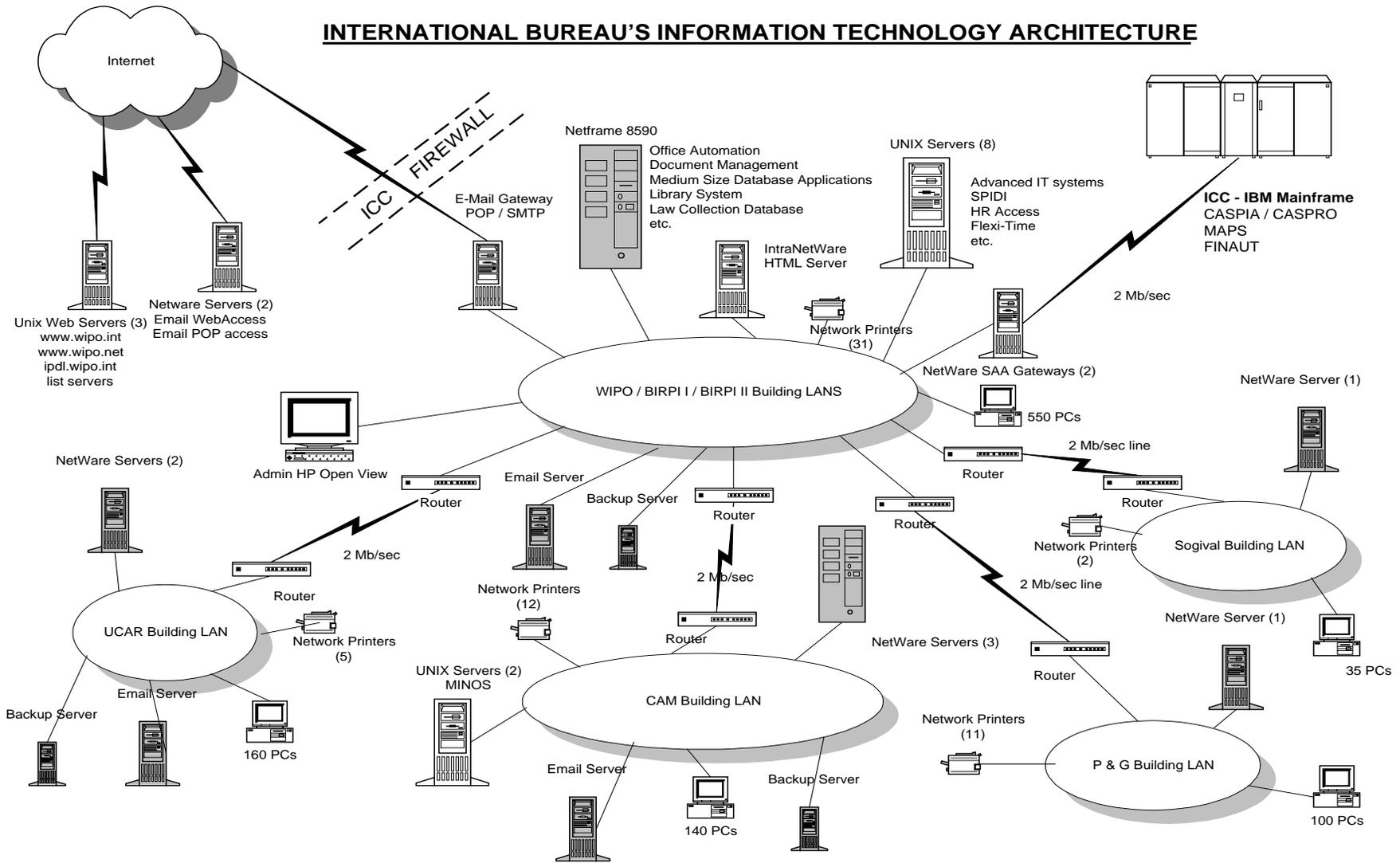
The NOS infrastructure interconnects several building locations in Geneva using routers and two MBPS PTT optical fiber links. Each WIPO building is fully networked and contains one or more local area network segments. Network technology is based on a structured building cabling system comprising multi-mode optical fiber vertical cabling and Lucent Systimax Category 5 UTP (unshielded twisted pair) horizontal office cabling, 16 MBPS Token-Ring technology, Bay Networks concentrators, Cisco routers for wide area connection, and HP OpenView network management tools.

WIPO information systems are implemented on the ICC mainframe system and on application servers running in the NOS environment.

All the major information systems are based on the ICC mainframe. The ICC system, an IBM mainframe operating under the MVS/ESA operating system, is shared with other UN organizations under management control of the UN. The ADABAS database management system is used and most applications are developed using the high level language, NATURAL.

Some recently implemented medium size business applications have been developed in a Client-Server environment. These systems typically run on NOS application servers operating mainly under Unix. Some NT application servers are also planned.

**INTERNATIONAL BUREAU'S INFORMATION TECHNOLOGY ARCHITECTURE**



**Figure A.1**

## **Major Business and Administrative Support Systems**

Information technology has not been applied uniformly within WIPO until recently. Consequently, within the IB, the major automated information systems are concentrated in a few business and administrative support areas. This is illustrated in Figure A.2, which presents an overview of the major IB support systems currently in operation, grouped by business and functional areas supported.

Each of these major systems is discussed below within the context of the operational areas they support. Where there are other more focused application systems that support specific functions within those areas, they also are discussed. Other free-standing application systems will be listed following discussion of the major support systems.

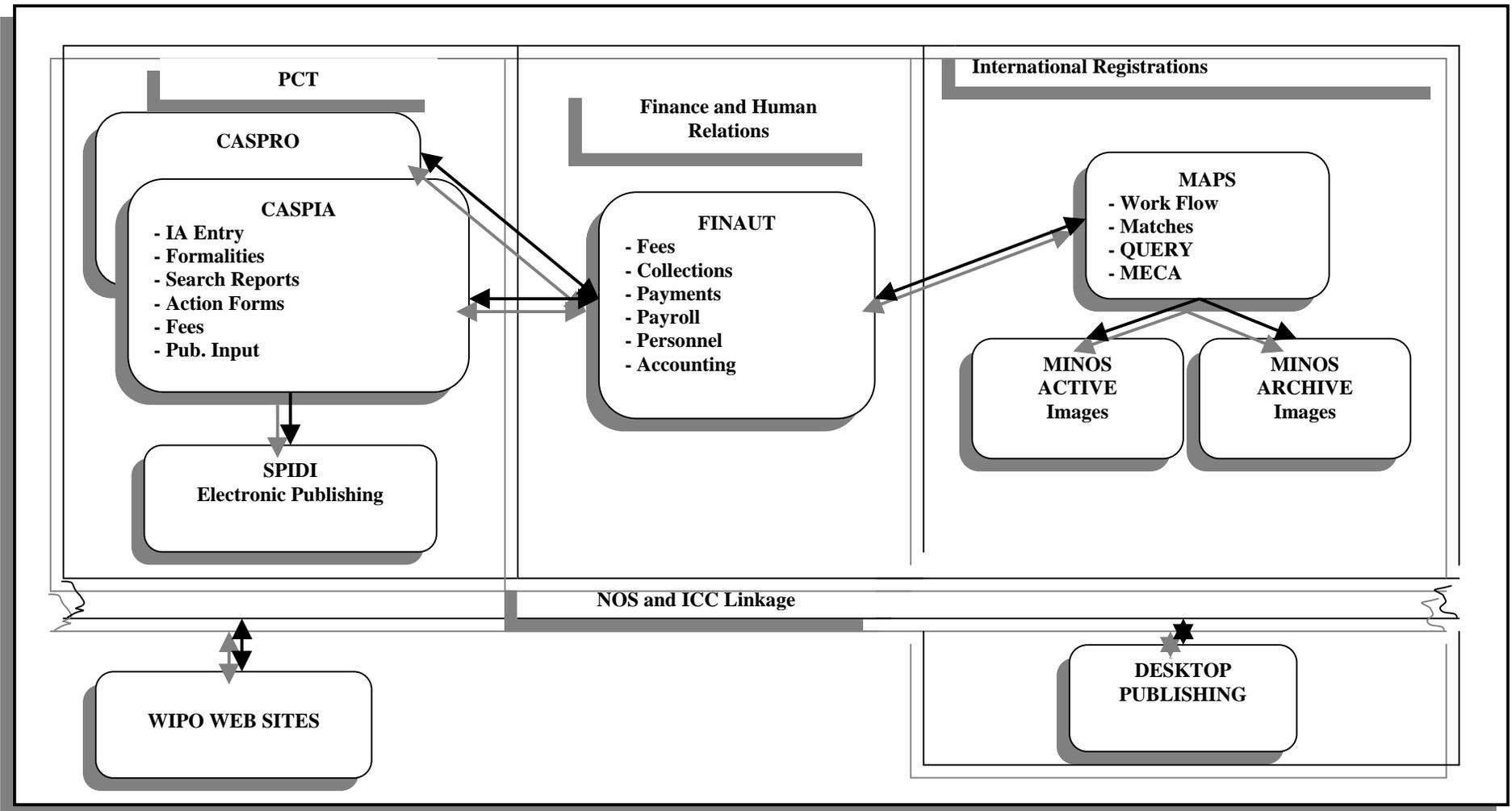


Figure A.2. . Major WIPO Business Support Systems grouped by support area.

## **PCT Support Systems**

### **Business Functions**

The Office of the PCT, through its four divisions, provides services to IP owners seeking protection in one or more of the PCT Contracting States. The fee based services include, in particular, receiving international applications, performing formality reviews of international applications, translating certain elements of international applications, publishing of international applications and of international search reports, performing formality reviews of demands for international preliminary examination, translating international preliminary examination reports, and communicating documents to designated and elected Offices, among other services.

### **Support Systems**

Services provided by the Office of the PCT are supported by four major systems, namely CASPIA, CASPRO, SPIDI and PAMSCAN. CASPIA and CASPRO perform similar functions: CASPIA for applications forwarded from external receiving Offices and CASPRO for those received directly by the receiving Office at the International Bureau.

CASPIA (Computer Assisted System for Processing International Applications) supports tasks related to processing international applications including:

- Receipt, entry and validation of bibliographic data, formalities examination, and subsequent processing of record copies;
- Receipt and processing of search and examination reports;
- Generation of forms, both paper and electronic, used in corresponding with applicants and Offices;
- Monitoring event deadlines;
- Verification of fee payment with the financial system, FINAUT 2000 ERP;
- Providing data to the SPIDI system for publication of Gazettes and the front pages of PCT pamphlets;
- Providing data for the publication of standing orders for PCT pamphlets; and
- Producing indexes and statistical data.

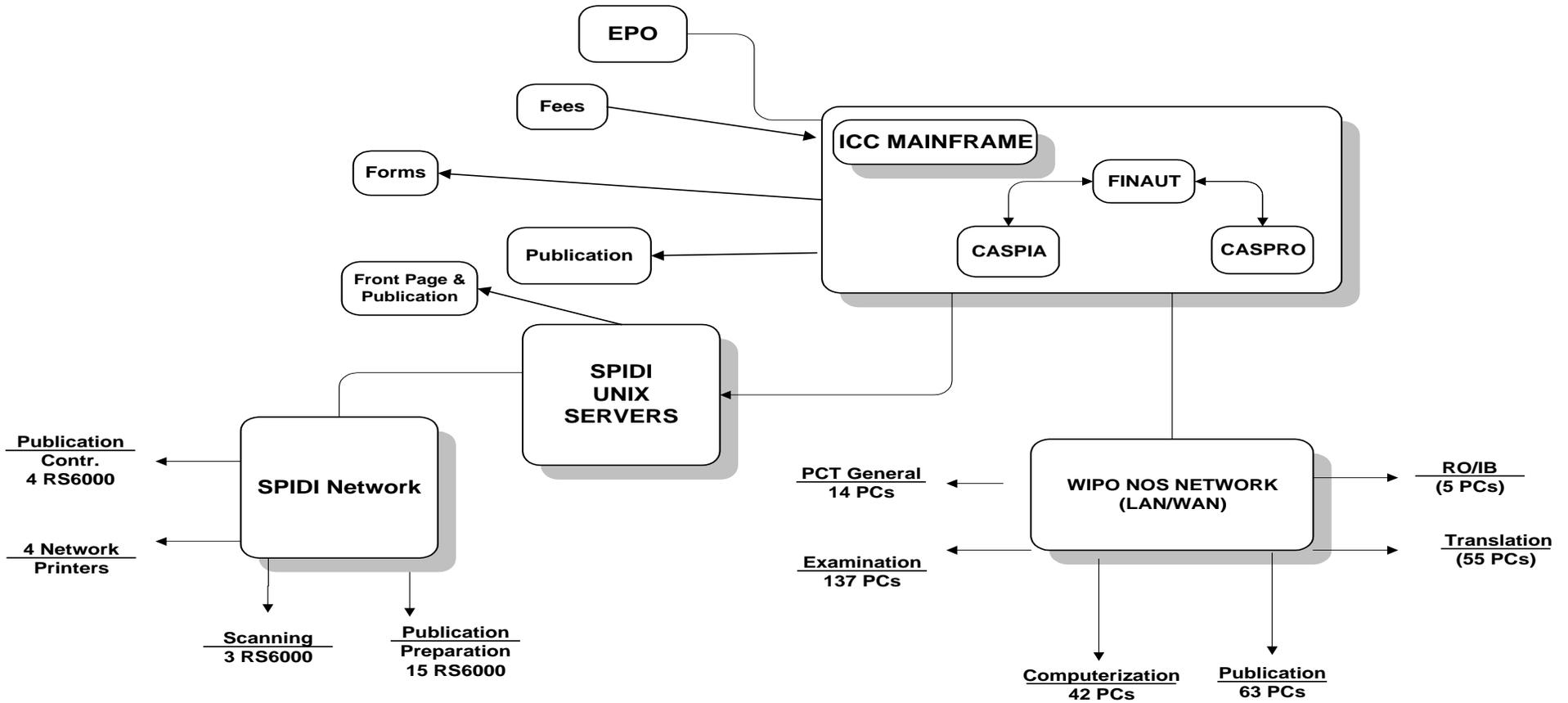
CASPIA provides for copying photo-composition files and forms on magnetic tape for distribution to external organizations. It also provides interfaces to standard PC workstations for uploading MS Word files. The two interface “systems”, referred to as MISCA and PCTabs, are implemented as Word macro operators. The first is used to upload data from application abstracts, the latter for translations.

CASPRO (Computer Assisted System for Processing International Applications as Receiving Office) functions are comparable to those of CASPIA to support the smaller tasks carried out by the IB as a receiving Office. Whereas CASPIA has about 150 users, CASPRO has only 5, on average.

SPIDI (System for Publication of International Application Data and Images) is an electronic publishing system for production of PCT pamphlets and gazettes. Bibliographic data is pulled from CASPIA where the front pages are edited, scanned drawings and translated text are formatted and inserted, bibliographic data is formatted, and camera ready copies are produced. CD-ROM product master copies are also produced.

Because of security considerations, SPIDI operates through its own network.

PAMSCAN (Pamphlet Scanning) is a related system that takes information from SPIDI to prepare master copies of PCT pamphlets. The same data is copied to magnetic tape for use in CD-ROM production.



**Figure A.3 - PCT Information Systems**

## **International Registrations Support Systems**

### **Business Functions**

The International Registration Department (IRD) administers the Madrid Agreement Concerning the International Registration of Trademarks, the Protocol relating to that Agreement as well as the Hague Agreement Concerning the International Registration of Industrial Designs and the Lisbon Agreement for the Protection of Appellations of Origin and their International Registration.

Through these treaties, trademarks, industrial designs and appellations of origin may be protected in member countries by filing a single application for international registration and paying appropriate fees. IRD's principal functions include:

- Receiving international applications,
- Performing formality examination,
- Recording data from acceptable applications in the respective international registers and
- Publishing and notifying the international registration.

These functions are carried out by a staff of 80 that processes incoming mail, scans document images, enters bibliographic data, examines applications, and prepares notifications and publications.

### **Support Systems**

IRD business operations in respect of the Madrid and Hague systems are fully integrated with its automated support systems – MAPS in the case of Madrid and DMAPS in the case of industrial designs. There are several subordinate systems: MINOS Active and MINOS Archive (soon to be replaced by IMAPS), MAPS Publication and Notification and DMAPS Publication and Notification.

MAPS/DMAPS manages the entire international registration process and provides access to trademark and industrial design information, both textual and images, stored in related subsystems.

The Administration Subsystem, using unique case identifiers, tracks and coordinates the flow of work through the system and provides capabilities to support end users in performing their tasks. One component, referred to as MATCHES (MAPS Assisted Translation and Classification Help for Examiners Subsystem), for example, facilitates the classification and translation to French or English. MAPS/DMAPS Administration also communicates with the financial system, FINAUT 2000 ERP, for verification of fee payments.

All the textual data contained in the international registry are maintained in an electronic database and used for preparation of notifications and publication of the bilingual trademark Gazette of International Marks and the bilingual Industrial Designs Bulletin.

In the case of trademarks the operation is entirely paperless where both the graphic reproductions of the trademarks and all other documents received by IRD are scanned and stored magnetically in facsimile image format until completion of the registration and publication processes on the subsystem identified as MINOS Active. (MINOS is the acronym for Marks Information Optically Stored.) Documents are then transferred to MINOS Archive in optical disk format.

In the case of Industrial Designs however, only the designs are scanned, while the remainder of the operation remains paper based.

The MAPS Publications Subsystem, with PC based desktop publishing software, uses both the electronic (character) and image databases for composition and printing of notifications to the trademark administrations of the Contracting Parties and of the registration and renewal certificates sent to the holders of the registrations. The bibliographic data, composed in SGML format, is transmitted by the MECA (Madrid Electronic Communications) subsystem. Image data is transmitted independently and the WIPO Gazette of International Marks is also composed in the Publications Subsystem. The MAPS Publications Subsystem also produces a cumulative CD-ROM containing Gazettes of International Marks.

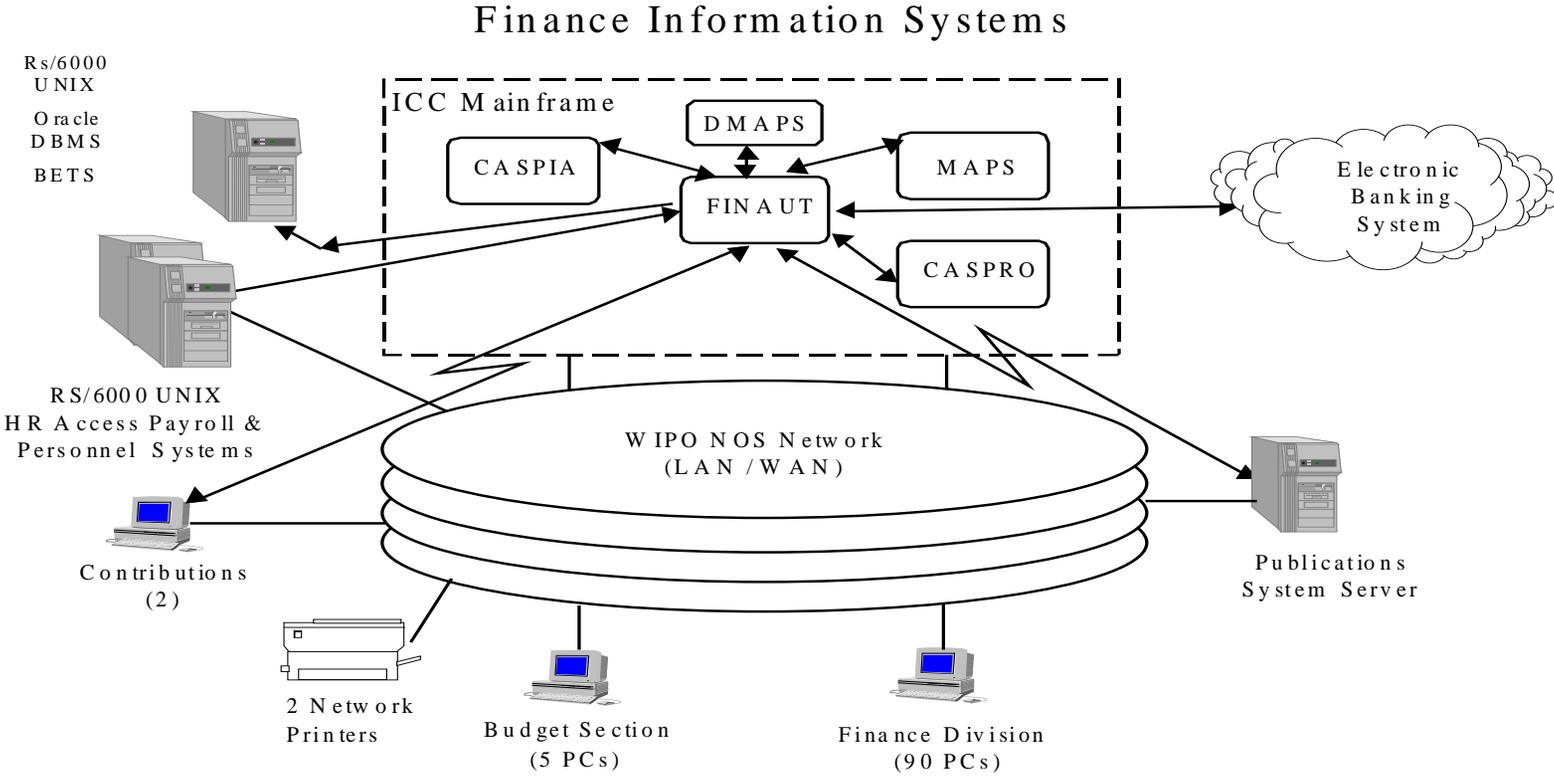
The DMAPS Publications Subsystem, with PC based desktop publishing software, uses both the electronic (character) and image databases for composition, printing and electronic publication on CD-ROM of the Industrial Designs Bulletin. The system also produces registration certificates. The bibliographic data, composed in SGML format, is transmitted by an improved version of the MECA standard.

## **Finance and Human Relations Support Systems**

### **Finance Division Functions**

The Finance Division within the Administrative Support Services organization provides financial management services for all WIPO business and support functions. These functions encompass:

- Billing and collection of fees from individuals and companies for WIPO business functions and receipt and processing of contributions from Member States;
- Management of cash assets and banking operations;
- Payment of invoices for goods and services purchased by WIPO, including staff travel expenses;
- Payroll processing;
- General accounting, and financial reporting and provision of access to WIPO financial data.



**Figure A.4**

## **Human Resources Management Functions**

The Human Resources Management Division provides a variety of personnel and personnel support services to all International Bureau organizations. These primarily include:

- Staff recruitment,
- Staff development,
- Maintenance of personnel records,
- Administration of staff entitlements and benefits, and
- Administration of other employee benefits and services.

While the Human Resources Management Division is not now a part of the Administrative Support Services organization, it was previously in the same organization and, consequently, was linked closely with the Finance Division in its use of IT, especially for personnel records and payments.

## **Support Systems**

Finance was the area in which IT was first used in WIPO for payroll and accounting. It has continued in its application of IT and the FINAUT system supports most of the Finance Division's functions as well as some Human Resource Division functions. It processes all accounting transactions and records for the enterprise, as well as payment invoices and travel requests. It handles billing to Member States, acknowledges receipt of payments, and produces status of payment reports. FINAUT also processes fee payments for business services. It receives most of the payments due to WIPO through an interface with WIPO's main banks, eliminating much data entry and cross-checking through automatic bank reconciliation. The system supports a range of financial control functions by producing financial status and analysis reports.

Scheduled to be replaced in the near future by a new HR-Access support system, FINAUT now processes the regular and short-term consultant payroll and supports processing of post, candidate, personnel and leave records.

Two other independent systems support some HR Division functions. A recruitment support system assists in maintaining candidate records, correspondence, and candidate selection. The Flexitime and Leave Recording System provides devices for recording staff presence and reports on actual working hours, annual and sick leave, overtime work, and similar information.

## **Medium-Size Business Applications**

Some of the more recently implemented, medium size business applications have been developed on NOS application servers, mainly in a Client-Server environment. These systems typically run under Unix operating system with the servers located in the computer

room at the WIPO Main Building. Some of the most important applications are the following:

BETS	Budget Expenditure Tracking System
BPS	Budget Planning System
SIGAGIP	Application for the management of Personnel and Payroll
HR-Access	Application for the management of Strategic Human Resources (which will replace the SIGAGIP system)
CODIS	Cooperation for Development Information System
ESCROW	Electronic System for Conflict Resolution On the Web

## **WIPO Web Sites**

WIPO's Web Sites on the Intranet and Internet provide another enterprise resource and capability infrastructure. They offer a means of dissemination information of all types about WIPO programs and operations. Examples of the information available on the Internet Web Site include the following:

- Basic information about the PCT,
- PCT Regulations,
- PCT Press Releases,
- Monthly PCT Newsletters,
- PCT Applicant Guide,
- Key PCT forms in different languages with examples of completed forms,
- Information on the MAPS system,
- Madrid Agreement and Protocol regulations,
- Guide to international registration of marks, and
- Official forms and other information about the international deposit of industrial designs.

Use of this resource is growing and will become a major element of WIPO's global information network.

## **Office Automation Systems**

While its basic function, is to serve as an integrated communications platform within the Organization, the Network Office System (NOS) also provides significant office productivity capabilities to most of the WIPO staff. The NOS environment delivers to all users a standard set of office productivity, communications, and Internet tools, as well as the basic communications infrastructure to link workstations to the major information systems and to the Intranet and Internet.

Basic office tools include MS Office products (word processing, spreadsheet processing, presentation graphics), file handling tools for compression/decompression and creation/use of

file formats used in Web sites (PDF), communication and productivity tools (e-mail, calendar coordination, task management, etc.), and browsing. These tools are used by almost all of the WIPO staff. Also available is the MS Access database software, used to create and use smaller, function-specific database applications.

## **Other IT Systems**

In addition to the major information systems and enterprise support systems, NOS and Web Sites, a number of smaller IT application systems have been developed or procured to support specific functions. Some are used for the production of document or CD-ROM products and others to assist with basic functions within a narrow area. These include:

- CLAIMS (Classification Automated Information System) - used in maintenance and publication of the IP classification system;
- NIVLIS (Nice, Vienna, and Locarno Information System) - used for maintenance and publication of the design classification system;
- IPLEX (IP Legislative texts) - for production of CD-ROMs;
- CLEA (Collection of Laws) - for production of CD-ROMs;
- PCT sales and distribution control system;
- Meetings and document services system, and
- WIPO equipment inventory management system.

Additionally, there are evolving Internet-based applications, such as CLEA, as well as well-established published documents, such as the monthly periodical “Intellectual Property Laws and Treaties” (IPLT), that will continue to be important parts of WIPO’s portfolio of application systems. Other small systems have been user developed within the NOS framework and are not identified as significant information systems

# APPENDIX B – INFORMATION TECHNOLOGY NEEDS

## Introduction

The current situation with respect to application of Information Technology (IT) can be evaluated in terms of two groups of criteria arising from the following questions:

- (1) How well do existing IT based support systems satisfy the needs of current business processes?
- (2) How well does IT serve the larger mission of WIPO with respect to both its member states and the world community in establishing and protecting intellectual property rights and in stimulating innovation and invention?

Within the first group, five areas must be considered:

- Support system and related business/administrative process deficiencies,
- Workload and IT infrastructure problems,
- Additional and new support capability needs,
- IT methodology and policy needs, and
- IT resource management needs.

Pertaining to the second group of criteria, the Director General, in the informal consultations with Regional Group Coordinators and members of the Budget Committee on January 21, 1998, pointed out that "... Member States are resolved to make greater use of the potential that information technology offers in promoting international cooperation in the field of intellectual property ...." Further, there is a growing "... consensus on the (need for) establishment of a global network, centered in WIPO and serving the interests of the Member States, especially among developing countries, with the necessary technical support to ensure that all countries can derive immediate practical benefits ... ". And, as Mr. R.A. Mashelker<sup>11</sup> subsequently stated<sup>12</sup>, this view implies that such a global network that would not be just an IT development project but a "... vehicle for modernization (of IPO's) and as a medium for achieving international cooperation among the Member States and the global IP community." Further, it would serve to benefit Member States so "... that the gap between the developing and the developed countries could be reduced substantially."

This subsection summarizes the assessment of the current situation with respect to these considerations.

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11 Director General, Council of Scientific and Industrial Research, and Secretary, Department of Scientific and Industrial Research, Government of India.

12 in an address during the WIPO Asia-Pacific Regional Forum, July 7, 1999.

## **Existing IB Support System and Process Deficiencies**

A study recently performed by a consulting firm presented the consolidated views of users, IT staff members, and WIPO management regarding deficiencies in current information support systems. There appeared to be a consensus that two of the three major IB systems and most independent application systems do not meet current user requirements. All of these systems were designed and developed several years ago. As they were maintained and enhanced, changes were accomplished in series of “patches”, creating a growing base of add-on features and capabilities that are not fully integrated into a coherent design framework. This process has resulted in increasingly difficult maintenance and further enhancement of the systems.

More serious, these deficient systems support business and administrative processes that were in effect at the original time of design. It has become increasingly clear that process reengineering is a necessary action to precede or proceed in parallel with the design of new IT systems in order to fully leverage the potential of information technology. Reengineered processes cannot be retrofitted to the older systems. They must be replaced with newly designed systems based on current technology. Initiatives have already begun toward this goal.

Some of the smaller, independent systems were created to work around deficiencies in the major support systems. Consequently, they have limited scope and are not or cannot be integrated with the older major support systems or reengineered process. Even some of the newer systems, including those recently launched or now ready for deployment, are seen by users as not meeting current needs. The needs addressed by these, as well as current unmet requirements, will need to be met by replacement systems. For this to be accomplished, a systematic reanalysis of requirements is necessary.

MAPS is an exception among the major support systems. MAPS was designed to be integrated with its underlying business process in a “paperless” workflow. Even for MAPS, some unmet needs remain.

The current reality is that system replacement will take three or more years. For that time period, the current business processes will continue along with these systems. Continued maintenance and support of old systems will be necessary. To avoid compromising the new development projects, it will be essential to maintain a separation of the core teams involved in development from the staff committed to maintenance and support.

Another component of the current IT environment is the WIPO Web Site. It has become an increasingly used instrument for disseminating WIPO and IP information internally and globally. However, a coherent Web publishing strategy/policy does not exist. There are no central support services to assist potential users in using the Web Site tool. Both of these are needed. A Web Site management organization needs to be established.

## **IT Infrastructure Considerations**

Major support systems are based in a shared IBM mainframe computer complex managed by the UN. Systems are linked to users through a gateway to the Network Office System, which provides the PC workstations and basic office application software. Terminal emulation is used to enable PC functions to operate in the mainframe environment. There appear to be continuing problems in this network arrangement with periodic outages and in-process work loss without adequate recovery mechanisms. The split management setup creates problems in ability to control all aspects of the network. A decision has been made to migrate all WIPO systems to a modern client server architecture within the NOS framework and under the direct management of WIPO. Follow-through on this decision is essential.

The older major systems are built on an ADABAS database management system foundation using the ADABAS application language, NATURAL. Newer systems have been migrating to a different foundation, ORACLE, which has been chosen for the new shared database application. Both these factors have implications for the MAPS system that will be assessed for possible conversion to a client server and ORACLE foundation.

Another factor affecting the IB network is that workloads are increasing rapidly in all business processes. Such workload increases would not only strain the business areas but will also exacerbate problems with the current support systems and the IB network. It is necessary to formalize plans for further developing and upgrading of the network and for maintaining the separation between network development and application development projects.

## **Additional and New Support Capability Needs**

A significant problem in the International Bureau is that there are many program and administrative areas that have limited or no information technology support. This stems partially from the prior focus on the three main areas in IT systems that have been developed without benefit of systematic strategic planning. As a result, a system for justifying future priorities for potentially beneficial IT applications must be established. Many areas within the IB now recognize the need for IT capabilities, but lack program and budget initiatives to address their needs.

Other important support areas require enhancements to keep pace with client expectations, such as:

- IT infrastructure development, including a high speed LAN,
- consolidated Web site development support, and
- global network security management.

## **Global network needs**

The basic IT infrastructure necessary for creation of a global network, linked to the IB internal network, does not now exist. The WIPONET initiative is aimed at establishing this basic framework. After the first phase of WIPONET is completed, the IPO level services (not yet completely defined) will remain to be developed. Likewise, essential elements of the global network concept will not be present until other projects are initiated and completed. These include most of the “unmet needs” discussed above and other IPO level needs that still remain to be addressed. Also included are system processing capabilities for IPO’s that are needed to implement the concept. At present, not even the receiving office capability to handle the back end processing of EASY applications is available. Working models of developing country IPO’s, where workflow management of essentially paperless processes and other state-of-the-art operations have been implanted, are needed to validate and refine requirements and to develop training and technical assistance support models that may be necessary.

## **IT Policy and Management Needs**

Current system deficiencies and unmet needs reflect deficiencies in the underlying framework for the application of IT in WIPO and WIPO’s management of IT development programs.

There has been no formal strategic planning process and, consequently, no vehicle for the systematic review and prioritization of needs and potential projects. Initiatives have been pursued by each program and budget area virtually independently, which should not be the primary vehicle for starting any IT project. The cycle time is excessively long for addressing, planning, and deciding on IT applicability in a rapidly changing technology. In addition, while preliminary project initiation or feasibility studies may have been conducted in preparation for new initiatives, this information has tended to be lost in the condensed format used for presenting Program and Budget initiatives. Consequently, project plans have tended to lack some of the essential elements associated with IT project planning, including cost benefit analysis. As a result, initiatives tend to lack the foundation usually found in business plans and the information needed to both justify initiatives and determine priorities.

While some business programs have their own IT support staffs, support to other areas is dependent on a small central staff that historically focuses more on maintenance and operation of existing systems than on identifying needs in the areas the systems support.

There are no formal system development and project management policies and methodologies and no guidelines or mechanisms for the management and control of development and acquisition. Until recently, information system development, database projects and IT infrastructure developments have proceeded independently as determined by project teams and/or the IT staff working the problem. There have been no uniform approaches and standards. Even current NOS standards are informal. Business area management involvement and control of IT projects has also been informal and, until recently, there has been no vehicle to ensure senior management involvement, review and control.

All these areas must be fully addressed by the selection and promulgation of appropriate standards and guidelines in order to improve the effectiveness of IT programs and projects, and to ensure a systematic program that will lead to the realization of WIPO goals. This will require establishing a management framework and staff support to both establish the policy framework and provide services to development projects.

## **IT Resource Management Needs**

In addition to more technical methods and policies, the current situation reflects deficiencies and needs in IT resource management. These needs have been manifested in IT user perceptions about network performance, system maintenance, poor IT/user communications, and support availability problems. They are also manifested in IT staff concerns about overwork, isolation and lack of teamwork, and poor internal communications. While insufficient IT staffing is a recognized problem, it is also clear that staff allocation versus outsourcing decisions have not been consistently analyzed, and a method of allocating resources to priority needs for establishing a better IT framework has been lacking. The initial absence of an appropriate framework of standards and guidelines has tended to perpetuate the apparent and real operational problems. Many functions normally expected in an IT program are not being performed -- quality assurance, configuration management, data management, IT procurement support, business analysis support, change management assistance and security. Staff development programs for these and other critical performance areas such as business case development, project planning, project management, and contract management are available only on a very limited scale.

To remedy these problems, it will be necessary to restructure the WIPO IT organization and establish a support staff to administer the policy framework. All application development projects should be separated from network development and operations.

All development work must be integrated and consolidated. Likewise, network and other operational functions need to be closely coordinated and managed. This will avoid conflicts and assure maximum support to IT users during the transition to new support systems and infrastructure components. Both development projects and internal IB services must be coordinated with Member States, the Trilateral Offices and other IP organizations.

# GLOSSARY

<b>AIS</b>	Automated Information Systems
<b>BETS</b>	Budget Expenditure Tracking System
<b>BPS</b>	Budget Preparation System
<b>CA</b>	Certification Authority
<b>CASPIA</b>	Computer Assisted System for Processing International Applications
<b>CASPRO</b>	Computer Assisted System for Processing International Applications as Receiving Office
<b>CD Rom</b>	Compact Disc/Read only memory
<b>CFD</b>	Cooperation for Development
<b>CLAIMS</b>	Classification Automated Information System
<b>CLEA</b>	Collection of Laws for Electronic Access
<b>COR</b>	Communications Upon Request
<b>CODIS</b>	Cooperation for Development Information System
<b>COTS</b>	Commercial Off the Shelf Software
<b>CTI</b>	Computer Telephony Integration
<b>DBMS</b>	Database Management System
<b>DIT</b>	Director IT
<b>DTD</b>	Document Type Definition
<b>DVD</b>	Portable data carrier
<b>EASY</b>	Electronic Application System
<b>EDE</b>	Electronic Document Exchange
<b>EDI</b>	
<b>EPO</b>	European Patent Office
<b>ERP</b>	Enterprise Resource Planning
<b>ESCROW</b>	Electronic System for Conflict Resolution on the Web
<b>FAQ</b>	Frequently Asked Questions
<b>FINAUT 2000 ERP</b>	Finance Automation Project
<b>FIT</b>	Fund in Trust
<b>HR-Access</b>	Application for the management of Strategic Human Resources
<b>HSM</b>	Hierarchical Storage Management
<b>IB</b>	International Bureau
<b>IBNOS</b>	International Bureau Network Office System
<b>IMPACT</b>	Information Management for the Patent Cooperation Treaty

IV & V	Independent Verification and Validation
IP	Intellectual Property
IPC	International Patent Classification
IP-CLASS-CD-ROM	International Patent Classification Database
IPDL	Intellectual Property Digital Library
IPER	International Preliminary Examination Report
IPLEX	IP Legislative texts
IPLT	Intellectual Property Laws and Treaties
IPOs	Intellectual Property Offices
IRD	International Registration Department
JOPAL	Journals of Patents Associated Literature
LCM	Life Cycle Management
LDAP	Lightweight directory access protocol
LDCs	Least Developed Countries
MAPS/DMAPS	Madrid Database System
MATCHES	MAPS Assisted Translation and Classification Help for Examiners Subsystem
MECA	Madrid Electronic Communications
MINOS	Marks Information Optically Stored
MIS	Management Information System
MMS	Minimum Modernization Standards
NATURAL	High Level Language
NDS	NetWare Directory Services
NFAP	Nationally Focused Action Plans
NIVLIS	Nice, Vienna & Locarno Information System
NOS	Network Office System
OIOP	Office of Internal Oversight and Productivity
OLAP	Online Analytical Processing
PAMSCAN	Pamphlet Scanning
PCIPI	Permanent Committee on Industrial Property Information
PCT	Patent Cooperation Treaty
PKI	Public Key Infrastructure
PM	Project Manager
PMS	Project Management Systems
QA	Quality Assurance
QoS	Quality of Service
RA	Registration Authority
SCIT	Standing Committee on Information Technology

<b>SGML</b>	Standard Generalized Mark-up Language
<b>SIGAGIP</b>	Application for the management of Personnel & Payroll
<b>SPIDI</b>	System for Publication of International Applications Data & Images
<b>SRF</b>	Special Reserve Fund
<b>TAs</b>	Travel Authorizations
<b>TRM</b>	Technical Reference Model
<b>UPS</b>	Uninterruptable Power Supply
<b>USPTO</b>	United States Patent and Trademark Office
<b>UTP</b>	Unshielded Twisted Pair
<b>VPN</b>	Virtual Private Networks
<b>WIPO</b>	World Intellectual Property Office
<b>WIPONET</b>	Global Information Network
<b>WIPONET SP</b>	WIPONET Support Program

[End of Annex 2 and of document]