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To: Members of the Executive Board

From: The Acting Secretary

Subject: **Review of the Information Technology Strategy**

Attached for the information of Executive Directors is a paper on the review of the information technology strategy. This paper provides background material to the statement by the Managing Director on the budget outlook (EBAP/98/147, 12/30/98), which is tentatively scheduled for discussion on Friday, January 15, 1999.

Mr. Stuart (ext. 34579) or Mr. Minami (ext. 37500) is available to answer technical or factual questions relating to this paper prior to the Board discussion.

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INTERNATIONAL MONETARY FUND

Review of the Information Technology Strategy

Prepared by the Information Technology Policy Committee

(In consultation with the Bureau of Computing Services)

Approved by Brian Stuart

January 4, 1999

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I. INTRODUCTION

1. This companion paper to The Budget Outlook for FY 2000–FY 2002 provides background information on the Fund's Information Technology (IT) strategy. More specifically, it reviews the accomplishments to date under the IT strategy and describes the main projects that constitute the IT strategy that is to be implemented over the next 5 years.

2. The budgetary projections discussed in the Outlook paper include the resource requirements for the Information Technology strategic initiatives over the next five years, based on the latest revised cost estimates. For the past several years, IT spending has remained at roughly 10 percent of the Fund's administrative budget. However, the program of IT strategic investments, endorsed by management and the Executive Board in 1996, is expected to undergo a period of intensive activity in the next several years, with commensurate increases in spending, following an initial period of project planning and development.

3. The Outlook paper also proposes that, beginning in FY 2000, major IT development efforts be funded in the capital budget rather than the administrative budget. This background note discusses the rationale for the proposed change from the perspective of improving the planning and implementation of the IT strategy.

II. BACKGROUND

4. In the past decade, information technology has taken on an increasingly important role in facilitating the work of the Fund. In the mid-1990s the Fund began to intensify its IT planning and development efforts in an attempt to keep pace with the demand for more advanced working tools that would enhance the productivity and effectiveness of the staff. At the same time, the pace of technological change in the marketplace began to accelerate rapidly, presenting the Fund with a wide range of alternatives, opportunities and investment decisions. In response to this new and challenging environment, in 1995 management formed the Fund-wide Information Technology Policy Committee (ITPC) to review IT issues on an ongoing basis and provide policy advice on IT directions and initiatives for the Fund.

5. As a first priority, management asked the ITPC to undertake a study of opportunities for increasing the effectiveness of the Fund's IT infrastructure and operations. The committee contracted with Computer Science Corporation (CSC) to conduct the study, which was completed in June 1996.

6. The outcome of the study was the recommendation that the Fund implement a five-year IT strategy comprising three key elements: (i) provide secure anytime, anywhere online access to Fund information by management, Executive Directors and authorized staff, both at headquarters and abroad; (ii) streamline the Fund's work practices to make more effective use of IT; and, (iii) improve IT decision making, and organize and operate the Fund's

IT resources more effectively, ensuring that the Fund's IT environment reflects industry best practices. To achieve these goals, the study recommended that the Fund develop an integrated portfolio of applications systems that would meet current and future information management needs. This would require the replacement of many of the Fund's outdated major applications, and the development of new applications to improve the management and accessibility of information. To define these broad recommendations further, a five-year strategic plan based on specific projects was developed by CSC in collaboration with Fund staff. The plan was divided into four major programs comprising a total of 39 initiatives.

7. A paper outlining the strategy was presented to the members of the Committee on the Budget on October 24, 1996. The paper included CSC's preliminary estimates to implement the five-year strategic plan, which amounted to approximately \$46 million in incremental funds. Subsequently, the Executive Board endorsed the work program and its associated funding requirements. A review and update of the strategy was presented to the Committee on the Budget on December 4, 1998. The paper presented a revised cost estimate of \$69 million and an extension of the schedule to 2004 for completion of the plan.

III. ACCOMPLISHMENTS TO DATE

8. In the past two years, there have been significant achievements under the IT strategy, involving implementation of new systems and the planning and organization of a number of complex interdepartmental projects. These are summarized below and described in greater detail in Section VII.

9. With the setting up of the ITPC, changes have been implemented in the **governance of IT**, with many positive effects. In particular the user community has taken greater responsibility for IT initiatives and for prioritizing IT efforts, and has shown a greater willingness to accept change than in the past. The result has been rapid progress in a number of aspects of the Fund's technology environment, including the move to Windows 95, adoption of a new e-mail system, and the execution of a special multi-year contractual arrangement which reduces the cost of desktop software and ensures that the Fund obtains vendor upgrades quickly.

10. Significant progress has also been made on several IT initiatives which focus on the objective of improving access to data and other information. The **Economic Data Sharing System (EDSS)**, which was released to Fund staff in March 1998, gives access to a wide range of economic data resources, reduces the time required to collect data, and improves data accuracy (by eliminating re-keying) and ease of manipulation by placing the data in a user-friendly spreadsheet. The recently completed study of business processes and functional requirements for the **replacement of EIS** (the Fund's main centralized economic database) provides the foundation for a database management environment capable of effectively supporting the work of STA and the entire Fund community. The **Dissemination Standards**

Bulletin Board (DSBB) is a good example of how the Fund is using web technology to capture information in a timely manner and make it readily available around the globe at far lower cost than would otherwise be possible.

11. The comprehensive **documents plan** to improve the way Fund documents are prepared, distributed, stored and accessed by Fund staff, management, the Board, member countries and the general public (as appropriate) is well underway. Three major components of the plan—the creation of electronic compound documents, the implementation of a document management system, and the establishment of a Fund-wide repository of institutional knowledge—are in progress, with pilot testing scheduled to begin in early 1999.

12. **The IMF Institute** implemented its new system for managing the administration of training programs. The new system, which uses e-mail and worldwide web systems for communication, provides improved service to member countries including easier access to course information, a streamlined registration process, greater accuracy in administrative processes, and increased productivity of the administrative staff.

13. A plan has been developed to replace or upgrade older stand-alone **financial applications**. The benefits of the new systems include Y2K compliance, greater integration of financial data, more effective work processes, and the recent introduction of an Internet Web site providing up-to-date information on the Fund's and members' financial positions.

14. **Electronic news services** have enabled staff, management and Executive Directors to keep current on important world developments on an up-to-the-minute basis. This service is undergoing further improvements to provide news services directly to the users' workstations.

IV. IT STRATEGIC OBJECTIVES FOR THE MEDIUM TERM

15. The IT strategy will, over the next several years, maintain its focus on improving the way economic, financial, and administrative information is gathered and analyzed in the Fund, and how it is shared in the Fund and with member countries and the general public (subject to the Fund's policies on maintaining appropriate confidentiality). Projects can be grouped into five broad categories, which aim to improve the management of documents, economic data, financial information, administrative information, and general information (Table 1).

- The documents strategy aims for fundamental improvements in the way we prepare, access and disseminate documents and publications.
- In the area of economic data, the strategy aims to replace the present mainframe-based Economic Information System (EIS) and develop computer applications and work processes to enable member countries to report economic and financial statistics to STA and area departments in electronic form.

- Enhancements to TRE systems for recording and managing the Fund's financial transactions are expected to streamline work processes, reduce redundant data entry and improve reporting capabilities.
- The development of administrative systems in the travel, technical assistance, administrative and budget accounting, and human resources areas will enable productivity improvements in area, functional and support departments, and complete the program for eliminating reliance on the World Bank mainframe computer.
- Enhancement of the Fund's Internet and Intranet sites will improve the timeliness and accessibility of information within the institution, reduce the volume of information processed in hard copy, and provide a more effective mechanism for disseminating information to member governments, other multilateral organizations, and the general public.

16. The IT plan is expected to generate **substantial benefits** for the Fund, which fall into three main categories: (i) retirement and replacement of obsolete systems, thereby avoiding the risk of system failures, high-cost repairs, and loss of vendor support; (ii) improvements in the effectiveness of the organization by updating the tools and methods for organizing and managing information; and (iii) tangible cost savings (providing for staff reductions or redeployment of staff) by increasing staff productivity.

17. **Replacement of obsolete systems.** There are several systems that are rapidly approaching or have already reached the end of their useful life. These systems no longer meet the institution's requirements, cannot be updated, are costly to maintain and pose the risk of breaking down. Replacement of these systems is an operational necessity. The IT initiatives in this category include replacement of Millennium (the Fund's administrative and budget accounting system), and the EIS (the core economic data base of the institution). Both of these systems reside on the mainframe computer at the World Bank. The space planning system, GDS, which maintains building floor plans and facilities maintenance data for all the owned, leased, and planned space in Fund buildings, is obsolete. The benefits of initiatives in these areas include risk avoidance, improved system reliability and support, lower operating costs, and a substantial increase in functionality to meet the Fund's current and future requirements.

18. **Improvements in effectiveness.** Several of the initiatives in the IT plan are intended to use technology to improve the way the Fund manages its information. The Documents Strategy and the Economic Data Sharing System are the primary initiatives that will enable staff to locate, organize, analyze, and share information more effectively, thereby improving the speed of information delivery. These benefits, while difficult to quantify, will make a significant contribution to the quality of the Fund's work and the effectiveness of the staff.

Projects related to Electronic News Services and the Financial Information Systems are expected to generate similar performance improvements.

19. **Staff savings.** Several of the strategic initiatives will produce quantifiable savings by simplifying processes and automating procedures so that fewer staff will be required to handle the work load. These tangible benefits are expected primarily in the Administrative Systems area. (For example, two positions have been redeployed within the IMF Institute as a result of the efficiencies gained from the implementation of its new administrative system). The savings generated by these systems may allow additional administrative work to be absorbed without increasing the staff and, in some cases, will permit staff resources to be reduced or redeployed to other areas.

V. BUDGETARY STATUS

20. Notwithstanding the considerable progress that has been made in advancing the IT strategy in the past few years, incremental IT expenditures to date (relative to a pre-strategy baseline) have been lower than envisaged in the original IT plan. There are several explanations for this. First, the Fund's overall budget consolidation strategy had the effect of limiting the resources available for IT. To address these constraints, strategic IT investment projects were scaled back from the original plan (including in the important area of work practice reviews associated with the projects), and some development work that was in progress prior to the approval of the IT strategic plan (particularly in the administrative area) was suspended. Second, some major IT projects (for example in the documents area) started slowly, largely because of the substantial time required to achieve consensus on a detailed Fund-wide action plan that would address the diverse needs of staff in all departments. As a result of the lengthy start-up period, the more labor-intensive activities were delayed, causing early expenditures in these projects to be lower than anticipated.

21. Substantial progress has been made in the past year in laying the groundwork for a number of projects, in particular with respect to the document strategy, TRE financial systems, replacement of EIS, and Millennium. Accordingly, starting in FY 2000, implementation of the strategy will require a major increase in IT spending. In addition, there is considerable pent up demand for investments in the administrative area, resulting from cutbacks in regular development work in the past two years.

22. Over the past few months, the ITPC has reviewed the status of the IT strategic plan and has updated its estimates of the financing requirements for IT for the next several years. The projections include revised estimates of the cost of the major development programs, as well as estimates of spending needed to maintain existing IT infrastructure and current levels of user support for software applications that are in place and that are to be developed under the IT strategy. Allowance is also made for normal levels of spending on minor development projects which are expected to address the specific needs of departments. The estimated costs

of work practice reviews and improvements for all projects in the IT plan are also included in the projections.

23. The ITPC now estimates that the total cost of implementing the IT strategic plan will amount to about \$69 million over the period from FY 1998 to FY 2004, compared with the preliminary estimate of \$46 million (Table 2). The variance in the estimated costs is attributable to several factors.

24. First, the original estimates were very preliminary, and were based on rough assessments of requirements to improve central or core systems and work processes. The scope of a number of projects has been increased compared with the initiatives in the original plan, to allow the benefits from improvements in these systems and processes to be realized more widely throughout the institution. For example, to maximize the productivity gains of the technologies to be introduced under the documents strategy, the plan was expanded to include a more comprehensive program of work practice improvements; a strategy for improving the production and distribution of publications; the electronic dissemination of documents and publications both within and outside the Fund; improved processes for internal circulation and review of documents; automated ordering and fulfillment processes; and enhanced use of the Internet and Intranet for improving the accessibility and management of documents. Similarly, the original plan for replacing Millennium focused on the central system of administrative accounts. However, the project has been expanded to include replacement of the ancillary systems used by a wide range of departments in the Fund, given the substantial benefits to be realized by integrating these disparate systems under a single platform.

25. Second, several high priority projects, which were not included in the original estimates, were incorporated into the plan, for example, the Data Dissemination Bulletin Board; the Fund's internal Intranet development; desktop access to Electronic News Services; the expansion of the newly implemented PeopleSoft Human Resources System; and the planning and design work required to integrate the human resources, payroll, and financial systems.

26. Third, the costs for work practice reviews and improvements proved to be considerably higher than the original estimates indicated.

27. Finally, costs have increased overall since the original estimates were formulated, especially with respect to labor costs for technology skills that are in high demand. Delays in implementing the strategy have exacerbated the impact of these cost increases.

28. Given the difficulty in some cases of differentiating strategic projects from other parts of the IT budget, and in light of the need to ensure that implementation of the strategic plan is not undertaken at the expense of ongoing IT expenditure requirements such as maintenance and support and minor enhancements of existing systems, it is important to place the strategic plan in the context of the overall level of spending on IT. Based on a medium-term IT budget exercise, the ITPC estimates that implementation of the revised strategy would result in a

sharp increase in IT spending in real terms in FY 2000, and that spending would taper off gradually in subsequent years. More specifically, the exercise suggests that the IT budget would rise from about \$46 million in the current fiscal year to \$66 million in FY 2000 and decline gradually to below \$60 million in the following years (Table 3). Relative to a baseline of average spending in FY 1996 and FY 1997 before the IT strategy was adopted (adjusted by 5 percent a year to account for cost increases), incremental IT spending would rise from about \$4 million in FY 1999 to \$22 million in FY 2000 and then drop back to the baseline by FY 2004 (Figure 1).

29. It should be noted that these latest projections are designed to provide an indication of the order of magnitude of the increase in resources that will be needed in the coming years to bring to fruition the strategic IT initiatives. More precise estimates will be made on the basis of detailed proposals for individual projects. Actual budget approval would be given only after completion of a detailed analysis of costs and benefits for each project or program. These revised cost estimates may need to be adjusted further in the event that new projects are identified or new technologies become available that would create advantageous investment opportunities. However, it is likely that such expenditures will be relatively small compared with the spending increases envisaged in the strategic plan, as the plan involves a fundamental change in the way in which information is managed in the Fund (in particular, with respect to the management of information embodied in Fund documents and publications) and an overhaul of major old systems that have outlived their usefulness (for example EIS and Millennium). The new systems and associated work process improvements should serve the Fund well for a period of several years.

VI. CAPITAL FUNDING FOR IT INITIATIVES

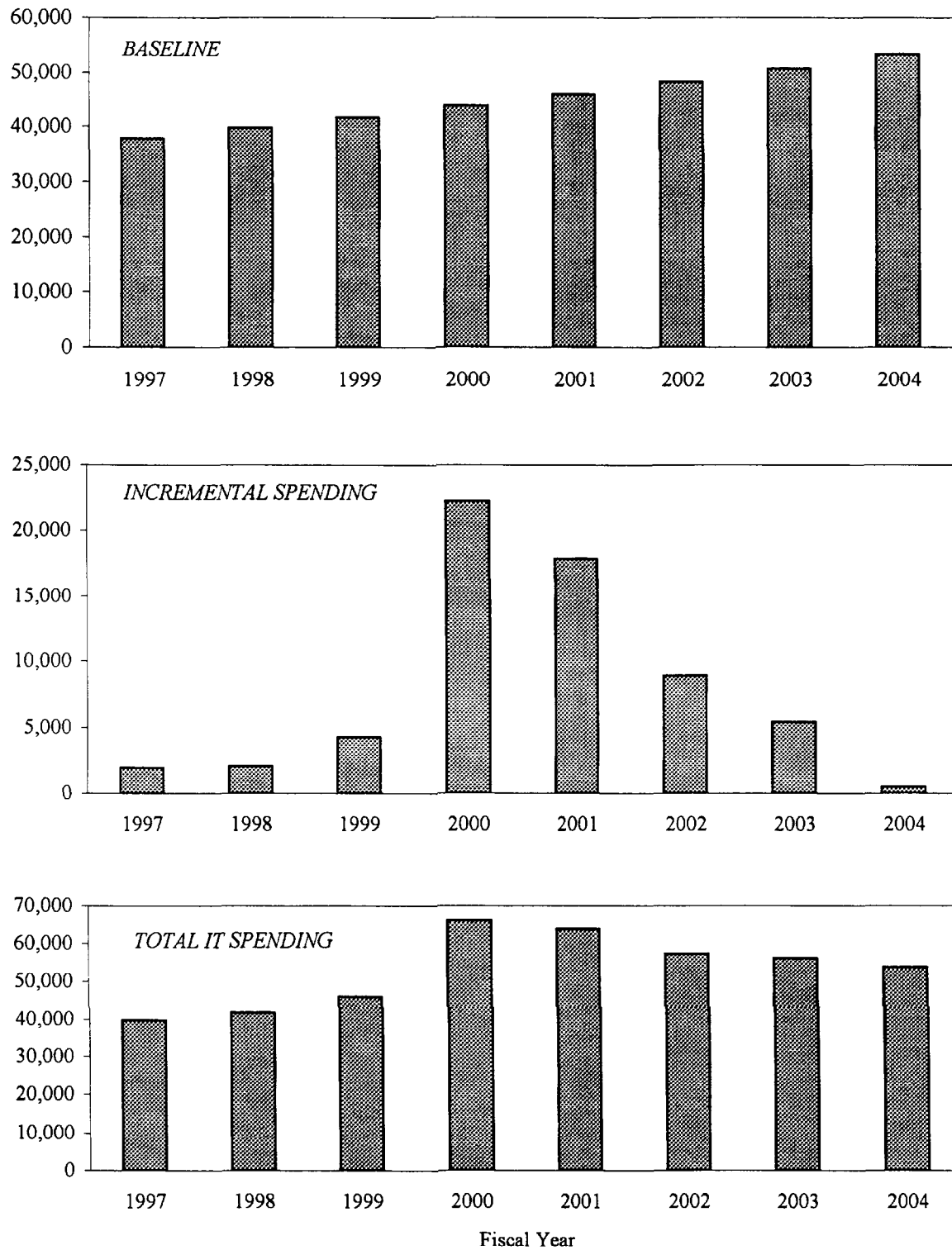
30. The major IT initiatives are multi-year projects and, as such, the resource requirements tend to vary greatly from year to year as a project is implemented. In the same way that the strategic plan needs to be based on a long-term perspective, the funding to support the plan needs to be committed on a long-term basis. Multi-year projects are most effectively managed and implemented when supported by multi-year budgets. Accordingly, the ITPC has proposed to fund major IT investments from the Fund's capital budget, and in the December 1998 meeting the Committee on the Budget broadly endorsed this change.

31. This funding approach would offer a number of advantages:

- It would greatly simplify the budgeting and management of system development projects, in that all the costs associated with a project would be funded and managed together. Under the present system, major development projects are split across two separate budget processes. The funding for the major hardware components reside in the capital budget and are managed on a multi-year basis, and other costs are included in the administrative budget, where they are allocated and managed year to year. The capital budget model would afford greater congruence to the overall management of

Figure 1. Annual Comparison of EDP Budgets

(In thousands of U.S. dollars)



Source: Bureau of Computing Services

investment efforts. In addition, it would greatly improve the efficiency of decision making and of the system development process overall.

- The peaks and valleys in spending that are a natural consequence of long-term projects could be addressed without stressing the operational budget of the institution.
- A regularly scheduled and systematic long-term planning process would facilitate the forecasting and prioritization of new technologies and their impact on the work program and productivity of the staff.
- The flexibility afforded by multi-year funding would ensure the continuity of major development efforts, enable the Fund to enter into contracts that cross financial year boundaries, and allow advantageous scheduling of purchases.
- The stringent reporting requirements and rigorous project monitoring procedures applicable to all capital projects would be imposed on major IT development projects, ensuring cost controls on each individual project, disciplined project management, and clear lines of responsibility and accountability from one year to the next.

VII. SUMMARY OF MAJOR IT DEVELOPMENT PROGRAMS

32. This section summarizes the major strategic development efforts that are underway or planned to begin over the next five years, including project descriptions, current status, and anticipated benefits. The project summaries are organized into seven categories:

- Work Practice/Process Improvements
- Project Management/Systems Development/Technology Evaluation
- Documents and Publications
- Economic Information
- Financial Information
- Administrative Information
- Information Services

A. Work Practice/Process Improvements

33. The projects in this initiative share a common objective: to improve Fund work practices and business processes in conjunction with the development of IT systems. A key principle of the IT strategy, which is supported by substantial evidence from the experience of private and government organizations, is that IT development will yield its full benefits only if the associated improvements in work practices are undertaken.

34. Work practice reviews have been completed for several projects in the strategic plan, and others are underway in conjunction with project planning efforts. In most cases, the reviews entail developing an "as is" model of current work processes, and then formulating a "to be" model based on streamlined, improved work processes that take full advantage of the capabilities of the new technology.

35. Examples of the accomplishments of this program include the following.

- **The IMF Institute** completed a detailed work practice review of its new system for managing the administration of training programs. The new system allows easier communications within the Fund and with member countries, using improved e-mail and worldwide web systems. Applications and evaluations of candidates, for instance, can be submitted through the worldwide web, saving time and paperwork for member countries and Fund staff.
- In the **human resources** area, a work practice review resulted in the design of a simplified procedure which will reduce by 80 percent the steps required to process a personnel action and will enable the introduction of electronic workflow. ADM staff, in conjunction with other Fund departments, successfully streamlined work practices associated with the training nomination process and Individual Development Plan in preparation for further development work on the human resources system.
- A review of work practices conducted in conjunction with the implementation of the **asset management** module of PeopleSoft Financials helped to ensure a smooth implementation of the software by enabling identification of a number of system design and work flow issues.
- A comprehensive review of the work practices in the **financial area** was completed in April 1998 and a number of important successes were realized in the short term with (i) the replacement of one component system that was not Y2K compliant (the rates maintenance system); (ii) the formulation of an integrated financial data concept that will eliminate fragmented and duplicate financial data sources and processes; and (iii) the introduction on an intra- and Internet Web site providing a wide range of up-to-date financial data on the Fund's and the members' financial position (Members Accounts).
- The study of Business Processes, Work Practices, and Functional Requirements for the **EIS replacement**, which has been carried out with the assistance of consultants, was completed in November 1998. The study served to build an interdepartmental vision of a new data base management environment for economic information.
- A work practice review of present **STA data collection processes** identified many opportunities to employ technology to reduce the re-keying of data, improve the

detection of errors, and increase the speed with which data from member countries are captured in the EIS system. Work is underway on the development of an electronic reporting system that would enable realization of these opportunities.

B. Project Management/Systems Development/Technology Evaluation

36. This program is aimed at (i) investigating how emerging new technologies might be applied to the Fund's work in the medium term; (ii) involving Fund staff in evaluating new technologies that could be implemented in the short term (for example the selection of the Outlook messaging system, the choice of Windows 98 over Windows NT, and the assessment of new Internet/Intranet products) and (iii) providing standardized project management methodologies as well as training and assistance for IT staff in how to use them effectively. These efforts will help ensure that technology services in the Fund keep up with established industry standards.

37. **Strategic technology prototyping** activities analyze emerging tools and technologies and prototype those that have potential use in the Fund. Recent accomplishments include: (i) the development of the Data Access Engine which is one of the fundamental parts of the Economic Data Sharing System (EDSS) initiative enabling users to access data in EIS and AREMOS data banks in a straightforward way; (ii) a series of training seminars given to BCS staff to update their technical knowledge of the Microsoft Office architecture, so that they can use the standard office systems tools to meet department-specific requirements; (iii) development of a prototype using advanced multimedia technologies to broadcast taped videos, presentations, and training programs over the Fund's internal computer network; and (iv) investigation of the most recent advances in the development of Web-based applications.

38. The **Core Technology Lab** is a project which provides the facilities and technical support to assist in: (i) investigating technologies for the Fund's strategic IT planning process, and (ii) addressing user requests for evaluation of new hardware/software. The staff have provided assistance in evaluating the Fund's messaging system, network file and print services, network computers, electronic software distribution, asset management, remote diagnostic and support tools, and application suites.

39. **Project management methodologies and support** provides project management and methodology tools, training, and other assistance to IT project managers and teams on a Fund-wide basis. The objective is to enhance the project management and cost control capabilities of staff responsible for managing major IT projects. This initiative includes resources to: (i) train and assist project managers in the use of the Fund's standard methods (adapted from James Martin and Co.) and project management tools (PlanView, MS Project); (ii) provide hands-on methodology, project management, and facilitation support to project teams; (iii) analyze project data and IT industry information to identify best practices and

promote their use in the Fund; and (iv) collect and apply IT measurement tools to encourage and monitor performance improvement.

C. Documents and Publications

40. This program is a comprehensive strategy to improve the efficiency and effectiveness of Fund staff in their daily work by providing: tools for the preparation and publication of compound electronic documents comprising text, tables and charts; tools for the organization, retrieval, and distribution of documents; and easy access to the Fund's information and the institutional memory embodied in its documents. The first three phases of this program, now in progress, are as follows.

41. **Document management system implementation** will introduce major improvements in the ability of departments to file, organize, manage, locate and retrieve information. In conjunction with the new authoring tools to be introduced, the document management system also will facilitate the creation, management and distribution of compound documents in the Fund. This will enable many document related functions to be performed electronically, reducing the need to print, copy, circulate and file paper documents. This will improve turnaround times for document-related processes and speed up the delivery of documents to reviewers and final recipients. Scanning capabilities will be installed in departments as part of this effort, allowing the creation of electronic versions of existing (legacy) and other documents that exist only in paper form.

42. The objective of **electronic compound document creation** is to provide staff with improved authoring tools that will enable them to produce compound documents containing text, tables, and charts. The plan calls for upgrading or replacing the word processing and graphics software that staff currently use to create text and charts, and integrating these tools with the new document management system. As part of this effort, templates are being developed that will facilitate the capture of data for the document management system and also improve compliance with Fund format guidelines to minimize the reformatting required when producing a publication from a document. In addition, utilities will be made available to allow staff to convert documents into widely-accepted formats (for example PDF and HTML) to improve electronic document distribution within the Fund and with member countries and the general public.

43. The **records management** initiative addresses the strategic objectives of preserving institutional knowledge and making it easily available to and usable by Fund staff. These tasks will be accomplished by establishing a searchable institutional repository of Fund documents and other records, comprising internally authored electronic documents; scanned images of selected legacy paper documents; and selected documents (electronic and paper) received from external sources. Authorized users at headquarters will have the ability to search the Fund's institutional memory from desktop workstations, thereby reducing the time required to

locate information. With the introduction of encryption and digital signature capability, authorized users will be able to conduct document-based business outside the Fund electronically with the same confidence as they currently do with paper records, but with the convenience and efficiencies offered by modern, automated methods. In future phases of the Records Management effort, there are plans to extend repository access to Fund staff in the field and to include Fund publications in the repository.

44. The three efforts described above, which comprise the first stages of the comprehensive Documents Strategy, are well underway. Over 200 Fund staff have participated in the IMF Documents Laboratory where the new word processor and document management system have been tested and evaluated. The first pilot test of this suite of authoring and document management capabilities will take place in March 1999. At the same time, the new word processor will be distributed to all Fund desktops to ensure that documents can be exchanged efficiently. This will be followed by Fund-wide implementation of document management capabilities and the establishment of an institutional repository of Fund documents. Subsequent efforts will focus on: (i) the electronic dissemination of documents and publications both within the Fund and externally (to member country authorities, other organizations, and the general public, as appropriate); (ii) improvements to the processes for the production and management of Fund publications; (iii) automated tracking of documents through the review and approval process; and (iv) extension of document management capabilities to the Fund's Intranet and external web sites.

45. One initiative that is critical to the success of the Documents Strategy is the **encryption technology** effort, which aims to ensure the security of sensitive information transmitted over public networks between Fund headquarters, mission sites, field offices and member countries. This effort will benefit Fund staff, management, Executive Directors and member countries by offering the opportunity for electronic transmission of documents and information, resulting in faster turnaround times and the elimination of many time-consuming and labor-intensive paper-handling processes.

D. Economic Information

46. This program encompasses applications and tools that support the collection, management, analysis, presentation and sharing of economic information. The maturing of Internet technology as well as the emergence of fast (32-bit) applications and database technologies figure prominently in the development of these applications and tools. Included in this program are four key efforts.

47. The **Data Sharing Architecture plan** provides for the maintenance and further development (including increasing the number and coverage of databases) of the **Economic Data Sharing System (EDSS)**, which was made available to Fund staff in March 1998. The EDSS provides an environment in which staff can easily locate, access, and use a wide range

of economic data stored in data bases throughout the Fund. Many of these databases had not been generally accessible previously or had been difficult to access. The new system allows data from different databases to be retrieved and integrated more easily, thereby increasing the productivity of the staff and the quality of Fund economic analysis. It also provides greater transparency of data in support of the initiative to strengthen data management in the Fund. In early 1999, new capabilities will be introduced to enable the administrators of the system to specify the databases to which a user may have access. As a result, Executive Directors will have ready electronic access to the data that have customarily been provided to them.

48. The **Economic Information System (EIS)** is a core system of the Fund, used to gather, manage and disseminate economic data collected by STA from member countries. The underlying system, which resides on a mainframe computer at the World Bank, has reached the end of its useful life and needs to be replaced. A multi-year initiative to replace the current EIS system was begun in FY 1998. The study of work practices, business processes and functional requirements for the replacement of EIS was completed at the end of November 1998. This involved a successful interdepartmental effort to build a shared vision of a new system for managing the Fund's larger economic statistics databases. The new system, which will be referred to as the **Economic Data Management System (EDMS)**, will be more comprehensive in scope than its predecessor. The evaluation of technical alternatives and the refinement of the plan is expected to be completed in early 1999, and the project should then move ahead rapidly. It is envisaged that the new system will fit within the architecture for data access and sharing.

49. The **WEO restructuring** effort will make the World Economic Outlook (WEO) publication database compatible with the EDMS. This compatibility will provide for consistent data management and access procedures for all major economic databases of the Fund.

50. **Electronic news services** have become an important resource for Fund economists to stay current on late-breaking world events and economic developments. In response to the recommendation of the OIA, an effort is planned to implement the technical infrastructure that will enable staff to access Electronic News Services from their desktops, replacing the current access method of departmental kiosks. The plan also calls for building a financial market data base and providing staff with the profiling services offered by most commercial news suppliers.

E. Financial Information

51. The objective of this program is to design and implement an integrated financial strategy for the Treasurer's systems—which are the official repository of information on financial transactions between the Fund and its members and, as such, are key in supporting the mission of the Fund as a financial institution.

52. The **TRE financial systems review** will add functionality to TRE's major financial systems, including TAD (the Treasurer's Accounting Database)—which serves as the official repository of information on financial transactions between the Fund and its members—and TOS (the Treasurer's Operations System)—which generates calendars of operational transactions. The TAD system supports accounting and reporting functions for each of the 21 accounting entities of the Fund and allows the Fund to prepare audited financial statements, which are distributed monthly to members. TOS tracks the status of transactions between the Fund and its members, monitors the status of obligations, and controls and reports on the payment of obligations to the Fund.

53. A plan to replace or upgrade older stand-alone **financial applications** has been developed. A comprehensive review of the work practices in the financial area was completed in April 1998. Work is progressing on replacing core systems and enhancing the provision of data to the public. The benefits of the new system will include greater integration among the systems to streamline current work processes, automated links among systems to reduce the manual entry of data in multiple systems, and improved reporting capabilities to reduce reliance on a paper-based process.

F. Administrative Information

54. The initiatives in the administrative applications program will replace outmoded systems and provide modern data processing capabilities to support the work of staff throughout the Fund. Systems slated for replacement or improvement include facilities for planning and managing travel and technical assistance, the human resource management system (PeopleSoft), the administrative accounting software (Millennium), the Annual Meetings/Locator systems, and systems that support the design and outfitting of Fund owned and leased space. The replacement and/or enhancement of the first three systems will go a long way in meeting the needs of area and functional departments for improved tools for budget planning, reporting and control, while reducing the time spent on administrative work. In the case of applications in the human resource areas, the additional investment will leverage the development costs incurred in the early 1990s in these areas to automate and streamline processes further, making it possible to either reassign or reduce staff resources in these areas in the future.

55. These initiatives will also increase the productivity in departments providing administrative support, and generate substantial savings in future technology budgets (e.g., the elimination of the Fund's reliance on the World Bank's mainframe computer). Further savings will be possible through closer integration of the Fund's administrative systems by reducing redundant data entry and storage, and lowering costs for systems training, deployment, and maintenance. An effort to ensure Y2K compliancy for Fund applications has also been included.

56. The system for **planning and coordination of technical assistance** will afford TA-providing departments with the tools to: develop their annual regional allocation plan (RAP) estimates in coordination with area departments and outside donors; report quarterly to the Technical Assistance Committee on actual TA delivery; develop and easily update their databases of potential candidates for expert assignments; more easily prepare requests for the recruitment of experts; plan and monitor the utilization of travel budgets and staff resources, including external financing such as that received from the Japanese government, UNDP, the World Bank, and the European Union; integrate, coordinate, and schedule the timing of TA in conjunction with the work of other Fund departments, the World Bank, and outside donors; and provide to member countries clear indications of schedules.

57. **PeopleSoft HRMS development** activities will provide for enhanced personnel services for Fund staff, reduce costs by streamlining current processes, and help ensure cost-effective access to personnel information. Currently most personnel functions require staff to enter information manually on a form, which then must be transcribed by personnel staff and entered into the personnel database. The new system will enable staff to enter their personal information directly and securely into the PeopleSoft database via the Fund's Intranet, obviating the need for staff to complete and route paper forms and for personnel staff to rekey the data. This technology will streamline procedures for home leave requests, leave accounting, training course registration, and changes to benefit plan enrollments. By using web technology to push software availability to users' desktops, the costs to configure, install, and manage PeopleSoft software on individual computers is eliminated.

58. A major component of the Administrative Information program is a plan to replace Millennium, the Fund's **administrative accounting and budgeting system**, which operates on the World Bank's mainframe computer. The system is long past the end of its useful life, does not provide the flexibility required by the Fund and, prior to recent remedial work, was not Y2K compliant. Work was started on replacing the system with a more contemporary product that would better meet the Fund's needs as well as address the Y2K problems of the current Millennium system. After the initial analysis, the replacement effort was deferred as, inter alia, the magnitude of the effort was deemed to present too large a risk for meeting Y2K deadlines. Instead, it was decided to slow down deployment of the new software and "fix" the Y2K problems in the existing Millennium system. This deferral allowed time for the selected vendor's (PeopleSoft) product offering to better meet the Fund's needs.

59. The new system will modernize administrative work practices throughout the Fund, and will provide staff with better and more timely financial data. In addition, end-users throughout the Fund will be given access to the system for initiating administrative transactions (and automated routing for review and approvals) and for performing ad hoc queries and reporting. The main modules of the new system include general ledger, budget management and reporting, project accounting, accounts payable, purchasing, asset management, technical assistance accounting, and travel claim processing.

60. Also included in this program are major functional enhancements to the **PeopleSoft payroll, pension and tax allowance** systems. These enhancements were either deferred following original base system implementation, or have become possible only recently as a result of new technology, e.g., application integration with the web, workflow and e-mail. As a result of this project, staff will be able to receive pay advices electronically through e-mail. Using an employee self-service kiosk in the IMF Intranet, staff will also be able to apply for benefits (e.g., Tax Allowance), make payroll changes (e.g., direct deposit choices) and do pension projections where they can supply various "what-if" criteria (e.g., date of separation, projected salary increases). Furthermore, secure on-line viewing of employee payroll data and paycheck history will be possible. Departments will also have the ability to enter overtime information and time reports for staff paid on an hourly or daily basis.

61. Improvements to the **Annual Meetings/Locator** systems will make it possible to streamline the services provided to members and simplify processes. The Locator system contains the official names, addresses and titles of member country authorities involved with the Bank and Fund. The system is used daily by the communications section of SEC. Replacement of the **space planning system** is required because the vendor will no longer support the present system, and automated support is required to complete the Phase III and Phase IV fit-out programs.

G. General Information Services

62. This program has been developed to expand the Fund's communications, both internally and with the general public, taking advantage of Internet/Intranet-based technologies.

63. The plan for **Internet enhancements** affirms the Fund's commitment to a strong Internet presence. Activities in this area will facilitate the electronic delivery of materials such as press releases and the IMF Survey to member countries and the public and will also provide tools to help the public locate information quickly and easily on the Fund's web site. Additional integration with document repositories and electronic commerce capabilities will be explored as well.

64. A major component of this program is the **Dissemination Standards Bulletin Board (DSBB)**. The Special Data Dissemination Standard is operational with 47 member countries subscribing and 46 providing metadata for access on the World Wide Web. In addition, hyperlinks to the national summary data sites are operational for 17 countries. The planned enhancements are essential to develop user tools to minimize the operational resources required within the Data Dissemination Standards Division of STA (primarily in the areas of processing metadata and information on registered users). In addition, an Internet site for the General Data Dissemination Standards will be developed along the lines of the current Special

Data Dissemination Standard. In FY 1999, the GDDS site will be developed further, and metadata from some "model" countries will be processed.

65. The purpose of the **Internet-based correspondent system** is to provide an Internet-based system for countries to report statistical data, initially to the Statistics Department and later, to area and other departments. The new system will replace the current paper-based country correspondent system and generally improve the efficiency of the data reporting process.

66. **Enhancements to the Intranet** have been requested by the Economic Data Sharing Committee. The purpose of this initiative is to develop the Intranet as a tool for more effective communication within the Fund and for training.

Table 1. Revised Information Technology Strategic Plan

(In millions of U.S. dollars)

Project Name	FY1997 Expend.	FY1998 Expend.	FY1999 Budget	FY2000 Estimate	FY2001 Estimate	FY2002 Estimate	FY2003 Estimate	FY2004 Estimate	Total
Documents and Publications									
Documents and Publications	0.2	0.3	4.4	7.7	3.7	0.8			17.1
Economic Information									
Data Sharing Architecture	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	1.7
WEO Restructuring				0.3	0.3	0.3			0.9
EIS Replacement		0.4	1.6	2.0	2.0	2.0	2.0	0.2	10.2
Other Economic Information Systems	0.2	0.1	0.3	0.8	0.7				2.2
	0.4	0.8	2.1	3.3	3.2	2.5	2.2	0.4	14.9
Financial Information									
TRE Integrated Financial Systems	0.2	0.1	0.4	2.0	2.0	1.0			5.7
Administrative Information									
PeopleSoft HRMS Development/Integration			0.3	1.2	1.4	1.0	0.8	0.3	4.8
Millennium Replacement	0.8	1.3	0.5	3.0	4.0	1.5			11.1
Planning and Coordination of Technical Assistance				0.4	0.4	0.4	0.2	0.2	1.5
Annual Meetings/Locator System		0.3	0.3	1.0	1.0				2.6
Other Administrative Information Systems	0.1	0.6	0.4	0.4	0.1	0.1			1.6
	0.9	2.2	1.4	6.0	6.9	3.0	0.9	0.4	21.6
Information Services									
Enhance News Service - Technical Environment				0.4	0.4	0.4			1.2
Internet-based Correspondent System		0.1	0.2	0.6	0.4	0.3			1.6
Enhance the Internet/Intranet	0.2	0.3	0.2	0.6	0.7	0.8	0.4		3.1
Encryption/Digital Signatures Technology				0.4	0.4				0.7
Other Information Services	0.4	2.5	0.3	0.1	0.1				3.4
	0.6	2.8	0.7	2.0	1.9	1.5	0.4	0.0	10.0
Total	2.3	6.3	9.0	21.0	17.7	8.7	3.5	0.8	69.3

Note: Amounts may not add due to rounding.

Table 2. Revised Information Technology Strategic Plan

(In millions of U.S. dollars)

	Financial Year								Total
	1997	1998	1999	2000	2001	2002	2003	2004	
Original IT Strategic Plan (10/96)	6	13	13	10	4				46
Revised plan (11/98)	2 1/	6 1/	9 2/	21	18	9	3	1	69

1/ Actual

2/ Budgeted

Table 3. Annual Comparison of EDP Budgets

(In thousands of U.S. dollars)

Project Type	Year								
	1996	1997	1998	1999	2000	2001	2002	2003	2004
Development	1,226	2,675	6,161	8,339	21,556	18,760	10,529	4,999	2,341
Work Practices			720	1,342	3,740	1,759	468	200	
Enhancement/Minor Development	485	326	1,348	1,210	2,000	2,000	2,500	2,500	3,000
IT Management & Planning	2,327	2,306	2,677	2,891	3,000	3,200	3,300	3,500	3,700
Production	7,389	8,651	7,118	7,373	8,223	9,959	11,662	13,034	13,961
Infrastructure	11,869	12,288	12,341	12,665	13,298	14,963	16,961	16,694	17,464
User Support	3,669	3,555	3,400	4,305	4,500	4,700	5,000	5,200	5,500
Total Administrative Budget	26,965	29,801	33,765	38,125	56,317	55,341	50,420	46,127	45,966
Capital Budget 1/	7,240	9,930	7,970	7,850	9,652	8,437	6,744	9,956	7,735
Total EDP Budget	34,205	39,731	41,735	45,975	65,969	63,778	57,164	56,083	53,701

Budgets for prior years are end of year budgets. Budget for FY1999 is the approved budget which includes an over-budget amount of \$1.6 million. Budgets for years 2000-2004 are BCS's estimates of funding levels needed to support existing activity, to provide additional funding for minor development/enhancements, and to continue development of IT strategic initiatives.

1/ EDP Equipment program of the capital budget. Does not include any major software development costs.