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To:         Members of the Committee on the Budget

From:       The Committee Secretary

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

The attached paper reviewing the information technology strategy will be taken up at a meeting of the Committee on Tuesday, December 8, 1998 at 3:00 p.m. in Committee Room 12-120.

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

Att: (1)

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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

December 4, 1998

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# I. BACKGROUND

1. In 1995, management formed the Fund-wide Information Technology Policy Committee (ITPC) to advise on appropriate Information Technology (IT) directions and initiatives for the Fund. As its first priority, the ITPC undertook a study of opportunities for increasing the effectiveness of the Fund's IT infrastructure and operations, and contracted with Computer Science Corporation (CSC) to conduct this study.

2. The study was completed in June 1996 and recommended a five-year IT strategy comprising three key elements: (i) provide secure anytime, anywhere online access to Fund information; (ii) streamline the Fund's work practices; and, (iii) improve IT decision making, and organize and operate the Fund's IT resources more effectively. 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 This would require the replacement of many of the Fund's outdated major applications, and the development of new applications to improve the management and accessibility of information.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 further define these broad recommendations, 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.

3. 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.

# II. ACCOMPLISHMENTS TO DATE

4. 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.

- 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 prioritization of 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 contractual arrangement to reduce the cost of desktop software and obtain upgrades quickly.

- The **Economic Data Sharing System (EDSS)**, which was released to Fund staff and management in March 1998, gives access to a wide range of economic data resources through a single, easy-to-use interface. 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. 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 that will enable the administrators of the system to specify the databases to which a user may have access. As a result, Executive Directors will have electronic access to the data that have customarily been provided to them. Shortly, users from Executive Directors' Offices will participate in testing this new capability.

- *The study of business processes, work practices, and functional requirements for the* **replacement of EIS** (the central economic database), was completed at the end of November. 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 evaluation of technical alternatives and refinement of development and implementation plans should be completed in early 1999, putting the Fund in the position to move rapidly ahead thereafter.

- A work practice review of present **statistical 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 to implement these new procedures.

- 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. 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 early 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, which will enable staff to capture, file, search, and retrieve documents in electronic form, locate paper documents, as well as maintain and preserve institutional memory in the form of official Fund records. Subsequent efforts will focus on 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).

- **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 by the worldwide web, saving time and paperwork for member countries and Fund staff.

- A longer-term 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 and a number of important successes were realized in the short term with (i) the replacement of one system that was not Year 2000 compliant (the rates maintenance system); (ii) the formulation of an integrated financial data concept that will eliminate fragmented and duplicative financial data sources and processes and; (iii) the introduction of an Internet Web site providing a wide range of up-to-date financial data on the Fund' s and the members' financial position (Members Accounts). Work is progressing on the replacement of core systems and enhanced provision of data to the public.

- Work was started on replacing the Fund's **administrative accounting system (Millennium)** with a more contemporary system that would better meet the Fund's functional needs as well as address the Year 2000 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 Year 2000 deadlines. Instead, it was decided to slow down deployment of the new software and "fix" the Year 2000 problems in the existing Millennium system; this deferral also allowed time for the selected vendor's (PeopleSoft) product offering to better meet the Fund's functional needs.

- A review of work practices conducted in conjunction with the implementation of the Asset Management segment of the new **PeopleSoft Financial System** helped to ensure flawless implementation of the software by enabling early identification of a number of system design and work flow issues.

- 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.

## III. BUDGETARY STATUS

5.     Notwithstanding the progress that has been made under the strategy, 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 development work that was in progress prior to the approval of the IT strategic plan (particularly in the administrative systems area) was suspended. Second, some major IT projects (for example in the documents area) got off to a slow start, 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.

6.      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 (the Fund's centralized economic data base), and Millennium (the Fund's administrative accounting system). 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.

## IV. PROJECTIONS OF MEDIUM-TERM FUNDING REQUIREMENTS

7.    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 projects, 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 needs of departments for applications that will extend the benefits of the Fund's new document strategy, improve the effectiveness and efficiency of administrative activities, and develop or enhance Internet/intranet applications. The estimated costs of work practice reviews and improvements for all projects in the IT plan are also included in the projections.

8.    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 1997 to FY 2004, compared with the preliminary estimate of $46 million (Table 1). The variance in the estimated costs is attributable to several factors:

•    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. Also, in replacing Millennium,[1] the original plan focused on the central system of administrative accounts. However, the project was 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.

- 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; 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.

- The costs for work practice reviews and improvements proved to be considerably higher than the original estimates indicated.

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

9.    The IT strategy maintains 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 conditionality). Projects can be grouped into five broad categories, which aim to improve the management of documents, economic data, and financial, administrative, and general information (Table 2).

- 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

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[1]In addition, the Millennium replacement project estimates assumed that the project would be completed before the Year 2000. As noted above, because of delays in project start-up, it was necessary to expend additional funds to bring the current system into Year 2000 compliance, given the high probability that the original deadline would not be met.

and area departments in electronic form. In addition further improvements will be made to the system for sharing economic databases.

- 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.

- Plans for the development of administrative systems in the travel, technical assistance, administrative 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.

- Projects concerning information services include enhancing the infrastructure relative to news services as well as the Internet and Intranet, improving data collection through the initiation of an Internet-based correspondent system, and investigating and implementing appropriate encryption technology.

10. 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. 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.

11. 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. It is important to note that these revised cost estimates may need to be adjusted 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 fundamental changes 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 a number 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.

12.  A more detailed presentation of the projected medium-term costs of the IT strategic plan together with an analysis of the revised expenditures as compared with the original estimates will be provided to Executive Directors with the final Medium-Term Outlook paper.

## Table 1. 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 2. Revised IT 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.