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Information Document: **Status Report on the Information Management Systems Initiative in the World Heritage Centre**

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1. BACKGROUND

In 1998, the Word Heritage Centre convened a meeting of an Expert Group of professionals in the field of data and information management to evaluate the data and information infrastructure of the Centre. This was with a view to addressing concerns about the management of information identified in-house and further highlighted as an area in urgent need of streamlining in the Report of the External Auditors on the Management of the World Heritage Convention (1997). The Expert Group produced a number of recommendations relating to the implementation of an integrated information management system in the Centre and laid out a phased implementation plan, beginning with (1) Definition of Requirements, through (2) High Level Design to (3) Implementation.

To implement certain of the recommendations of the 1998 meeting, in July 1999, the Centre reached an agreement with the European Space Agency (ESA) to undertake development of one or more prototypes to address some selected parts of the Centre's overall needs. The Expert Group met again in February to review the results of the first segment of ESA's work and the progress on the implementation of their recommendations as a whole.

Although the Expert Group agreed that ESA had done a thoroughly competent job in identifying needs and had met their contractual requirements in developing a prototype, they felt that the investment in hardware now suggested by ESA was premature given that there was not yet a detailed plan of implementation in place. They reiterated the need for the development of a Master Plan through a clear definition of total requirements. They repeated their recommendation that this was best achieved by enlisting a senior information specialist to work with Centre staff for three months.

In their report ESA also stated that the information needs of the Centre were probably larger than those covered by their own study and recommended further analysis of requirements to ensure the system planning addressed all the Centre's needs.

The Centre has now recruited a consultant to act as Senior Information Advisor (SIA) with the objective of producing, at the end of a three-month consultancy, a "Master Plan" for the implementation of an integrated information system for the Centre. A contract for a Junior Information Officer was also established to provide support to the SIA, and to the Centre as a whole.

This information document is a report on work in progress, summarising the activities and findings of the two consultants from their first 4 weeks of effort.

2. APPROACH

The definition of requirements involves:

- examination and analysis of the way in which the Centre does business i.e. the processes to be served by the system
- identification of the output requirements i.e. what types of information "products" are needed for what "audiences"
- information input requirements i.e. what information is needed by the Centre to carry out its functions
- detailed definition of the data elements and the data and information flow
- documentation of the above.

The approach adopted is to gather information through:

- review of relevant reports and written materials
- informal interviews with WHC staff to define the processes, data flows and needs
- consultation with the Expert Group and ESA staff
- iteration and confirmation as further levels of detail are examined.

This will give the basis for the conceptual design of a system, and planning of development and implementation activities.

Two factors became apparent very quickly.

1. WHC staff have been actively involved in studies related to information systems (Expert group meetings, ESA and other consultants) over the past two years but have seen few concrete results. Before the arrival of the SIA, WHC staff had already explained their concerns to at least one other consultant.

2. There is no overall information technology strategy in place in the Centre i.e. little in the way of documented standards, a lack of acquisition strategy, and of organisation-wide good practices for information management or computer and network usage.

Consideration of these factors led to modifying the "top-down" approach outlined above to include, at the same time, a "bottom-up" element with the goal of establishing a better environment for the successful implementation of an overall system (see section 3.2 IT Strategy).

3. PRELIMINARY FINDINGS

3.1 General Observations

Consistency of operations

Examination of the processes i.e. the procedures executed by Centre staff to carry out their functions, has progressed most in areas related to sites - the life-cycle from tentative list through inscription and monitoring, etc. Despite the existence of the Operational Guidelines (which are currently under review), there is considerable variation in the information content, the way it is presented by State Parties and the manner in which information is handled. The operations are heavily dependent upon individual Desk Officers. System components need to be applicable Centre-wide.

Output-driven approach

The Centre is using IT to produce required outputs in several instances, for example, for the distribution of statutory documents, the visibility of the Centre through the Internet, and the use of Access databases. However these initiatives have been very much output driven, targeted to a specific end-product, and not giving consideration to robust system design and to production of maintainable systems. There is very limited linking or exchange of information between the applications, and procedures are, in the main, ad-hoc. This makes it difficult to extract or summarise information to meet any new requirements.

IT resources

Prior to the recruitment of the current information management systems consultants, there were no professional IT staff in the Centre. IT operations are supported to some extent by the central UNESCO Department of Information Technology. Their role is to provide the basic infrastructure - they support and manage network operations, including provision of help for basic functions. Development and maintenance of sector-specific applications and operational procedures are the responsibility of the individual sectors. DIT has no resources for this.

3.2 Information Technology Strategy

As noted above there is no solid IT infrastructure. A brief IT strategy document was drafted for WHC management approval. This included the following:

- principles regarding the management of IT infrastructure
- policy elements required
- practical recommendations for moving ahead in the short-term.

This, in particular the practical recommendations, has established a foundation for the bottom-up approach mentioned above. With inputs from all WHC staff, mechanisms such as informal work groups, and WHC-specific help functions are being initiated. These are aimed at building capacity of Centre staff - raising skill levels and awareness - to ensure a firmer foundation for the introduction of systems.

3.3 ESA Contract

In 1999, with a limited budget to follow-up the actions recommended by the Expert Group and given that there was still no professional information systems expertise within the Centre, the Centre entered into a contract with ESA, primarily to develop some prototypes to facilitate the definition of requirements. The areas to be addressed by these prototypes are first, the identified need for generic document management functions and second, some aspects of management of site-specific information. This latter was clearly identified as being only a partial view of the requirements since, at that time, the Centre had no information systems expertise in-house to provide a detailed analysis.

The deliverables to date as expressed in reports[1] have been reviewed and discussed in detail with ESA Staff. Although the outputs are of high quality, it was agreed that there is a mismatch between what is really required and what is addressed in the ESA work.

Expenditures to date are approximately 50% of the contract total. ESA have agreed to effectively put the work on hold until the WHC in-house consultants have completed their initial fact-finding and developed a strategy for using the ESA development work. Contract amendments will be made in order to ensure that final deliverables contribute to the overall plan being formulated.

3.4 Definition of requirements

An initial list was made of nine processes to be examined.

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[1]UNESCO WHC Current IT Situation and Outlook, June 1999
World Heritage Centre Information Systems Infrastructure, December 1999
World Heritage Centre Information Systems Improvements - Final Report, May 2000.

- Site nomination and inscription
- Management of the tentative WHL
- Periodic reporting
- Reactive monitoring
- Inscription on the WH in Danger List
- Project management (starting with Management of International Assistance)
- Management of statutory documentation
- Managing Member State information
- Global Strategy implementation.

This is neither a closed list nor are the processes completely separate, for example, the first five may be grouped together as representing a site life-cycle.

The processes are all related in that they depend upon on an overlapping base of data and information. This is shown in Appendix 1, Figure 1 which gives a view of a potential structure for the system. The "index-level" is seen as consisting of primary data items identifying entities and establishing their relationships, with metadata facilitating location of relevant information at the "detail-level". The index level will be defined in such a way as to allow access and summarisation from a variety of viewpoints.

In addition, there are cross-cutting functionalities (such as document management and usage of the Internet) to be established to support the processes and maintain the base of data and information.

The majority of effort to this point has been addressing internal Centre requirements though there has been contact with ICOMOS on their approach to information management. However the system must take into account requirements of the Bureau, Committee, Member States, Advisory Bodies, and UNESCO. The Advisory Bodies in particular play a key role in provision of documentation.

3.5 Anticipated resource requirements

While it is still premature to quantify the resources required to develop and implement an integrated system in the Centre, the type of skills required can be mentioned. It is clear that the development of the system will likely need contract resources to supply a significant proportion of the required information system expertise. Since development is a distinct phase needing specific skills for a finite period, contracting out is appropriate. There **does** need to be in-house capability to manage such contracts.

On a continuing basis there needs also to be increased skills in-house for implementation and operation of the system. This includes capabilities in network management, system maintenance, data management, database administration, and other aspects of informatics, as well as general user support and training. To ensure successful system operations, staff IT skills need to be built, in-house resources solidly established (possibly through new contracts), and roles and responsibilities for information management clearly defined and understood.

4. PLANNED ACTIVITIES AND OUTPUTS

Activities for the remaining two months of the SIA consultancy are anticipated to be:

- continuing information gathering to define further detail of processes, data flow and content
- development of a data model to support the identified processes
- analysis to produce a conceptual design for the system
- identification of possible scenarios for system architecture
- liaison with ESA on the continuation of their contract work
- preparation of a plan for system development and implementation including estimates of resource requirements.

All of the above will be documented. It is expected that the Expert Group will meet in August to review a draft plan and contribute to a complete report on which future actions will be based.

The tasks laid out are for the production of a plan for an integrated system of data and information to serve the various potential users. At the same time it is intended that effort will be made to initiate specific development efforts to give operational benefit in the short-term as well as contributing to elements of the overall plan.

It should also be noted that organisational change is often inherent in the introduction of new information systems and such change will have to be considered once the plan is ready, approved and tested.

ANNEX 1

Figure 1. Potential structure for WHC Information Management System