ISO/IEC JTC 1/SC24 objection to the proposed cancellation of
Project 1.24.02.09 CD of GKS FORTRAN 90 BINDING

1.   INTRODUCTION

In ISO/IEC JTC 1 N 4503 (List of JTC 1 Projects for Cancellation), JTC1 has
determined that the binding of new GKS to the FORTRAN 90 language be deleted
from the JTC1 Programme of work effective 17 March 1997. The basis for this
deletion is the application of the criteria enumerated in ISO/IEC JTC1 N4302 (List of
JTC1 Projects Proposed for Cancellation) which require that 5 NBs are actively
supporting the work. This contribution explains why these criteria should not be
applied indiscriminately to individual projects without considering the full context
of:

1) the dependencies of other projects on the project scheduled for cancellation; and
2) the market need for the project.

Based on the rationale presented in this contribution, SC24 requests that the 7-11
April 1997 meeting of the JTC 1 Ad Hoc on Reengineering reconsider the decision to
remove this project from the JTC1 Programme of Work.

2.   HISTORY

The original version of GKS (ISO 7942:1985) is still in wide use world-wide. Many
companies have their own implementations (Digital, SUN, IBM, ICL etc.) and there
are many vendor independent offerings from Germany, USA, Canada and the UK.

GKS is a functional definition that needs a language binding to express how the GKS
functionality is accessed from a specific language. Bindings were developed for
Pascal, FORTRAN, BASIC, C and Ada. By far the largest use is made of the
FORTRAN binding. Care has been taken in the definition of GKS originally and
even more so in the new version to ensure that the production of a language
binding is routine work that involves applying a set of language independent rules
to generate the required language binding. The major work is in defining the rules
not producing the language binding.

3.   GKS REVISION

SC24 has completed the revision of the 1985 version of the functional description of GKS. This revised version was published in 1994 as ISO/IEC 7942-1:1995 (GKS-94). The complete new version will have four parts:

(1)   Functional Description
(2)   NDC Metafile Interface
(3)   Archiving Picture Part Store
(4)   Audit Trail

Part 1 is complete and has been published as an ISO/IEC standard. It had more than 5 countries participating in the definition. Parts 2 to 4 are more routine and most of the work for Part 2 has been a liaison between the Editors of Part 1 and the CGM Rapporteur Group to ensure consistency of definition. Part 3 is very similar to Part 2 and will be completed once Part 2 is complete. Part 4 will be completed using ASN.1 as the definition language. It is Part 1 that requires binding to programming languages.

4.   LANGUAGE BINDINGS

The C binding for GKS-94 is complete and has been published as an ISO/IEC standard. The FORTRAN Binding is under development. Whereas the C Binding was able to take the existing GKS C Binding and update it to the new functionality, the FORTRAN Binding has been more time consuming because the FORTRAN Binding is being updated to FORTRAN 90. Bindings can only be defined with current language standards. The additional functionality in FORTRAN 90 means that changes in the approach were required and this has involved liaisons with the FORTRAN Language Group and with the WG in SC24 responsible for Language Bindings. The overall strategy is established by the Language Binding Group. Once this has been agreed, the actual definition is routine. The only delay to progress has been in ensuring that the FORTRAN 90 Language experts are happy with the way the binding has been constructed.

5.   STATUS OF FORTRAN 90 BINDING

The current situation is that the document is currently being circulated to SC24 as a revised CD for progression to DIS. The reason is that the changes proposed from the last SC24 plenary meeting in June, 1996 were technical and it was felt that a second CD round was the correct course of action. (With hindsight going to DIS vote after

Kyoto would have been better!)

During the documents progression the Document Editor have been in close contact with experts from SC22 who have supplied many of the technical comments to ensure the standard is following "good" FORTRAN 90 programming practice.

It is still the only FORTRAN 90 language binding in progression in SC24.

The Editor is quite happy to see the document through to IS.

6.   RECOMMENDATION

It is recommended that Project 1.24.02.09 (CD of GKS FORTRAN 90 BINDING) be allowed to continue to completion for the following reasons:

(1)   It is crucial for the Revised GKS-94 to have a FORTRAN Language Binding.

(2)   It is not necessary for more than one country to be involved in the detailed specification once the overall rules have been agreed (and this has taken place) and the necessary liaisons with the FORTRAN Language community have taken place (this is now complete).

(3)   The FORTRAN Binding is crucial to the success of GKS-94. The companies implementing GKS-94 require a standard language binding for FORTRAN (there are implementations being developed in at least 4 countries). The industrial users of GKS-94 require the binding.

(4)   Most GKS programs are written in FORTRAN and forcing people to change to C to use the new functionality makes little sense especially as the philosophy of the C Binding is different from the one used in the GKS FORTRAN binding.

Some other secondary points are:

(1)   It is providing valuable experience for SC24 (and probably the FORTRAN committee also) on good practice for FORTRAN 90 bindings.

(2)   ISO ought to be unhappy at the prospect of an obsolete FORTRAN language binding standard in their catalogue, following publication of GKS-94 - obsolete for two reasons: obsolete functionality , obsolete language.