**3GPP Conference Call on 3GPP Spec Modernization #1 6GSM-2500ZZ**

**Electronic, 6 August 2025, 13:00-15:00 UTC**

**Source: Samsung**

**Title: pCR 21.802 – 4.2 – Shortcomings, pain-points and potential benefits**

**Document for: Discussion, Endorsement**

**Agenda Item: 5.2**

**Work Item / Release: Study on Modernization of Specification Format and Procedures for 6G (FS\_6Gspecs) / Release 20**

***Abstract of the contribution:***

*This pCR lists a set of shortcomings with existing tools.* *There is some reference to the 3GPP stakeholder survey proposed in 6GSM-2500ZZ, as a new Annex A.*

**Discussion**

Issues with use of Microsoft Word as the basis for CRs have been discussed now by MCC for over 10 years. Adrian Scrase pointed out the limits to MCC’s ability to keep up with CR implementation during a ‘crunch period’ after plenary when CR number peak, and the resulting decline in specification quality. Since then, a number of additional problems have surfaced, such as scalability of Word to large tables, large documents and more.

The terminology 'source specification' and 'target specification' used in this pCR is proposed to be added to TR 21.802 in 6GSM-2500ZZ-TR\_21802\_pCR\_Annex A\_3GPP\_stakeholder\_survey-03.docx.

**Proposal**

It is proposed to make the changes proposed to TR 21.802, v0.0.0.

BEGIN CHANGES

## 4.2 Shortcomings, pain-points and potential benefits

Editor’s note: corresponds to objectives 1a/b

Table 4.2-1: Potential Shortcomings, improvement approaches and their feasibility

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| # | Shortcoming / pain-point / potential benefit | Possible improvement approaches with current tools | Pros of possible improvement approaches | Cons of possible improvement approaches | Summary of feasibility of addressing the shortcoming / pain-point / potential benefit with current tools | Applicable WGs and users of the specification |
|  |  |  |  |  |  |  |
|  |  |  |  |  |
| a | In MS Word change marks, removing a change from a previous revision is invisible. | Changes on changes can be used, but these are strongly discouraged. | Not really necessary, this is a minor issue. | N/A | None | All WGsUser: delegate, MCC, Rapporteur |
| b | Changes to figures and tables are shown in coarse granularity - it is not possible to see individual changes. | No. | N/A | N/A | None | All WGsUser: delegate, consumer, MCC/ Rapporteur |
| c | Implementing CRs is a manual process. | Tools can be provided by MCC to automate CR implementation of DOCX format CRs. [NOTE M] | There would be no additional changes to 3GPP ways of working, nor retraining needed. | It is unlikely that this will be able to fully automate the process as DOCX based CRs are messy (see n, o, s below). | This could greatly improve the current process of implementing CRs. It is too early to tell how well this tool will function in real conditions. | All WGsUser: MCC/ Rapporteur |
| d | Checking headers for correctness is a manual process. | Potentially.Best if automatically generated headers are mandatory.[NOTE A][NOTEM] | Limited changes to ways of working (force use of automatically generated headers,) improved quality. | Forcing use of automatically generated headers may be difficult. It is not clear how to automatically update headers (e.g. rev #, changes in list of supporting companies, date, etc. | This would improve CR quality and is feasible to implement. It would have some impact on our current way of working. | All WGsUser: delegate, MCC/ Rapporteur |
| e | Checking CRs for clashes is a manual process. | Potentially.[NOTE M] | This would be very helpful. | There is no disadvantage. | This kind of check is feasible to implement. | All WGsUser: delegate, MCC/ Rapporteur |
| f | Checking CRs for style errors is a manual process. | Potentially automatable, to a certain extent.[NOTE M] | This would be helpful. | This would expose users to more complex conditions, cannot fully be automated.[NOTE C] | Overall this is feasible to implement, but can only serve to provide advice for the reasons given in [NOTE C] | All WGsUser: delegate, MCC/ Rapporteur |
| g | Checking CRs for content errors is a manual process (e.g. references that not used, references used that are not defined, references to clauses that do not exist, etc.) | Potentially automatable, to a certain extent.[NOTE M] | This would be very helpful! | This could be advisory at best, based on heuristics (frequently caught errors). | This would be feasible to implement for some common errors. It cannot replace manual checking by experts. | All WGsUser: delegate, consumer, MCC/ Rapporteur |
| h | Checking implementation of CRs is a manual process | [NOTE X] | This would be very helpful! | There is no disadvantage. | This is feasible: compare the approved CR vs. the target specification to find differences. | All WGsUser: delegate, MCC/ Rapporteur |
| i | Checking whether a CR uses the correct template is a manual process. | Partially. | This would be helpful. | This would be extremely difficult to check in practice except superficially (check CR document parameters, etc.) | Partially feasible. | All WGsUser: delegate, MCC/ Rapporteur |
| j | Checking whether a CR uses the correct basis version for applying a change is a manual process. | Impractical[NOTE X] | A new tool to check whether the basis of a CR is the correct version of a spec would be very helpful. | None | Seems feasible. | All WGsUser: delegate, MCC/ Rapporteur |
| k | Specification errors are possible as a result of manual implementation of CRs. | No solution is known. | No solution is known. | No solution is known. | It is currently not feasible to automate CR implementation of an arbitrary set of CRs applied to a source specification. | All WGs |
| l | MS word does not handle large tables well and large documents well - can cause MS Word to crash or operate slowly. | Already under development. Move large tables to external files. [NOTE Y] | This works well. | The approach reduces cohesiveness of CRs.[NOTE Y] | This is a potential solution only for some specifications (with large tables.) | RAN4, RAN5User: delegate,consumer, MCC/ Rapporteur |
| Break apart large specifications to smaller files. | Faster opening. | Decreased locality of content, more difficult to maintain, read, etc. | Partial solution with significant drawbacks. | Many WGsUser: delegate, MCC/ Rapporteur |
| Move some large content to extenral databases, e.g. RAN4 for CA band compatibility. | Faster opening of specifications that have their large content removed. | Does not help with specifications without content that can be put in a database. | This is a potential solution only for some specifications. | RAN4, RAN5User: delegate,consumer, MCC/ Rapporteur |
| m | MS word styles are very difficult to use, many delegates do not use them properly | EditHelp consulting from ETSI. This is done before entering change control. After change control secretary review is possible but does not scale well. | Current rules require this [NOTE B] | Forcing adherance to rules leads to slower progress. Those who did so were called CR police - respected, not loved.[NOTE B] | Training of authors? Forcing authors by means of tools to comply with drafting rules? | All WGsUser: delegate, MCC/ Rapporteur |
| n | Use of different settings in MS word (e.g. language, but there are many such settings) leads to inconsistent and incorrect formatting of documents / styles that diverges from the official template. | Only very invasively: DOCX files could be analyzed for *anything* that is not in TR 21.801 and complain. [NOTE B] | Issues would be discovered that are currently hidden. | This would have a very large impact on ways of working since authors would need to strictly use MS Word according to rules.  | Some success for some errors are feasible to identify.It may not be possible to enforce this because some tools used by delegates (see (s) below) differ from MS Word. It may be impossilbe to prevent these from diverging from expectations. | All WGsUser: delegate, MCC/ Rapporteur |
| o | Copy / paste of text from one document to another can result in diverging from proper formatitng of documents / styles | No.This is so bad that it is best to copy, paste in a text editor, copy and then paste in MS Word![NOTE B] | N/A | N/A | N/A | All WGsUser: delegate, MCC/ Rapporteur |
| p | Current tools cannot extract code well | Move code to external files or storage in the FORGE.[NOTE Y] | CR usability (to implement products based on specifications) would improve if tools were available to check code quality | Requires code to be separate from CRs, essentially. This reduces CR specification cohesiveness.[NOTE Y] | This is feasible. Some WGs already do this (SA5.) | CT groups, SA4, SA5, RAN groupsUser: consumer |
| q | Current tools cannot check code (syntax, etc.)  | If code is moved to external files or storage in the FORGE is is in principle possible. | CR quality would improve if tools were available to check code quality. | Requires code to be separate from CRs, essentially. This reduces CR specification cohesiveness.[NOTE Y] | This is feasible, though might not be trivial.  | CT groups, SA4, SA5, RAN groupsUser: delegate, MCC/ Rapporteur, consumer |
| r | Current tools cannot check code in context (are identifiers consistent and declarations non-redundant, are all identifiers that need to be declared specified, etc.) | If code is moved to external files or storage in the FORGE is is in principle possible. | CR quality would improve if tools were available to check code quality. | Requires code to be separate from CRs, essentially. This reduces CR specification cohesiveness.[NOTE Y] | This is feasible, but would be complex to implement. What is the 'proper context' for checking code in context? | CT groups, SA4, SA5, RAN groupsUser: delegate, MCC/ Rapporteur, consumer |
| s | Some features of MS Word do not work across all platforms and code that can read and write DOCX format - especially object linking and embedding (OLE). This allows Visio documents to be edited in the context of MS Word. For these platforms and software, this capability does not work the same way or at all. In this case, the work flow has to involve several steps (such as: edit in an external application, paste the result in the word processor app, etc.) This is more complex and reduces the 'convenience' of having a single tool to author (create and modify) CRs and specifications. | No. | N/A | N/A | N/A | All WGsUser: delegate, MCC/ Rapporteur, consumer |
| t | Changes to CR documents (headers especially) are not captured in the CR database automatically. There is a chance of incorrect entries in the CR database. | Potentially possible to check this with a tool.This problem is linked with checking the header content (d), above. | It would be good to update the CR database automatically as a result of each revision of a CR, or at least the final approved version. | Some errors on the header page could find their way into the CR database if this is done automatically. | Yes - there is potential to solve this problem. See (d). | All WGsUser: delegate, MCC/ Rapporteur |
| u | It is hard to update MS Word documents when used to collect input from companies. | Use ftp server to edit / update based on the latest version. | It is based on existing tools. | Simultaneous editing and updating is not possible nor traceable. | Coordination is possible for small topics & number of participants, but not for large topics/#s (e.g. ASN.1 review in RAN2.) [NOTE D] | All except very small WGsUser: delegate, MCC/ Rapporteur |
| v | Lack of WYSIWYG view based on inputs from multiple CRs. There is no automatic way of viewing the final product (TS) based on the set of CR proposals. This leads to lot of manual effort for various tasks like CR clashes (clause impacts and semantic), implementation of TSs, etc. | See c. | Multiple issues could be addressed with this approach. Allowing the various roles (delegates, rapporteurs and MCCs) to work efficiently. | Not readily available tool. Implementation of such a tool is a challenge considering the amount of development / testing effort needed. It is only possible to review the target specification after implementation by MCC (after TSG approval.) | See c. | All WGsUser: delegate, MCC/ Rapporteur |
| NOTE M: ETSI has a project to provide such a tool for use in 3GPP work. The tool is currently under development.NOTE A: Tools already exist to check this to some extent from MCC. Further tools are under development. It is also already supported to automatically generate correct headers.NOTE X: Existing tools allow a 'diff' between two documents but the process is quite time consuming to use for checking CR implementation, since this is a CR by CR checking process. The volume of work at 3GPP meetings does not allow this approach to be used in practice.NOTE Y: Eliminates the advantage of aggregation of all CR content in one file.NOTE B: In principle all authors must use official templates and settings. In practice, no one enforces this.NOTE C: The tool could create spurious errors (e.g. certain content looks wrong because it has a reserved term in it, but this is intended in the context of the CR) and cannot check all error conditions (e.g. does the style begin and end in the right spot?)NOTE D: RAN2 specific issues with ASN.1 review include several aspect that make the procedure inefficient, such as:- Version control is implemented in a manual manner (i.e. check-out/check-in procedure). Only one reviewer can make comments at any given time, so it wastes a lot of time for all delegate.- Microsoft word becomes slow and crash occurs because of huge number of comments using Memos in the document.- Merging agreed ASN.1 and procedural text changes is a manual process.- The initial version of the specification after ASN.1 review seems not stable. |

END OF CHANGES