**3GPP Conference Call on 3GPP Spec Modernization #1 6GSM-250042\_Rev4**

**Electronic, 6 August 2025, 13:00-15:00 UTC *merges documents: 14, 18, 25, 27, 37***

**Source: Samsung, Nokia, ZTE, Huawei, Apple, Xiaomi**

**Title: pCR 21.802 – 4.1 – Advantages of Current Tools**

**Document for: Discussion, Endorsement**

**Agenda Item: 5.1**

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

***Abstract of the contribution:***

*This pCR proposes text for clause 4.1, the advantages of the current tools.*

**Discussion**

Some reference to the 3GPP survey helps to clarify the degree to which user needs are well fulfilled by the current tools. Though people may have responded to the survey based on 'what they know' rather than 'what they most intrinsically need', it is still relevant that the responders felt comfortable with a broad set of functions in Microsoft Word.

Changes in Rev4

- I added the disclaimer I failed to add in Rev2, sorry:
"These benefits may in future be achieved by other means than the current tools and file formats used." added to the top of 4.1. [Interdigital]

- I added more detail to NOTE 21 on how cut & paste in Word is messed up. [Nokia]

- Fixed NOTE numbering (5 and 24 were missing, 20 was 20E). [Samsung]

Changes in Rev3

- Curly quotes modified to straight quotes (there were several cases of this.) [Off-line comment]

- Added source companies (from those whose documents have been merged.) [Co-rapporteur]

Changes in Rev2

- Removed YAML in a list under benefit #2, as it was duplicated in that list. [Huawei]

- Diverse wording errors and typographic errors - thanks for catching them! [Huawei]

- Two comments for which I suggested text fixes (these are the only two remaining comments in the document.) [Huawei

- Added NOTE numbers.

- Added a disclaimer - These benefits may in future be achieved by other means than the current tools and file formats used. [Interdigital]

- Clarified text regarding WYSIWYG tools for clarity, and to take into account the comment that figure editing is so prevalent it is not really an exception. [Interdigital]

CHANGES between Rev1 and the previous version v000

- Diverse limitations and clarifications are added as NOTEs. (Apple, Vodafone)

- Additional clarification. (NCSC)

- Correction - removed "even if these are less stable" to MS Word equivalent software text. (NCSC)

- Fixed a double space in the title (Vodafone)

- Added a note that the availability of tools changes over time and that the affordability and stability of commercially available tools depends on the perspective of the organizations participate in 3GPP. (Vodafone)

- Add the benefit of text coloring. [Mediatek]

- Instead of equations and figures **requiring** external tools, rephrase to **support use of** external tools. [Mediatek]
(Figures can be and often are drawn using MS Word drawing tools instead of Visio, etc.)

- Reword 13 to emphasize that current tools, principally MS Word, can be used off-line. [Mediatek]

- Clarified 20 on macros [Mediatek]

- Added benefits 21-23 as proposed [Mediatek]

The following comments were not taken on in the draft:

- On OLE - and its convenience with respect to integration, and its limitation that it only works on Windows: " This limitation is sufficiently strong in my view that the paragraph 2 above, to which it relates, should not be so strongly worded. Embedding is not a benefit. Including source/links is." [NCSC]

[Samsung] I disagree that this is not a benefit. For those working on Windows platforms this is immensely convenient. Your comment that including source/links should be a benefit in clause 41 is not actionable: including source/links is not a benefit of current tools and ways of working. This would be a *new* way of working to be discussed as part of Objective 2 and 3

- On the heading 3 WYSIWYG Editing and Ease of Use - disagrees that current tools are easy to use, only familiar. [NCSC]

[Samsung] There is already a new NOTE (from Apple) that advanced feature are difficult. However, it is very difficult to argue that MS Word is not easily usable. Any tools we propose as an alternative will be judged on the basis of whether they are more or less easily used than MS Word.

- On the claim that WYSIWYG work of content (tables, figures, etc.) is useful: " I disagree this is a benefit. There is no benefit to understanding the \*content\* of a sentence/paragraph/word by having to deal with its presentation at the same time. Ensuring it is formatted correctly is an editorial concern" [NCSC]

[Samsung] The usefulness of WYSIWYG editing of content is only in part to review the understanding of the content. Other uses include whether the edits/additions fit in the rest of the document, to see the context of the changes while making them, etc.

- On the benefit of changing the 'Source' of change marks: " It is \*imperative\* that you change the source, even if it is the same person so you can do tracked changes on changes in a meaningful way. That Word makes this complicated is not a benefit." [NCSC]

[Samsung] This is false. If one is signed into Microsoft's Office account, one has a default user name. Many create CRs without setting this value and use a default name, or just a setting like "User". Whether Word makes this complicate or not is a matter of opinion - the fact is that this feature is used widely across 3GPP in very beneficial ways.

- On the benefit of extensive formatting including table cell splitting and merging: "Merging and splitting cells should be considered bad practice and results in less accessible documents."

[Samsung] This is an interesting point, but it is not borne out by common practice and it is not forbidden in TR 21.801 drafting rules. I am sympathetic to the point that the use of this feature complicates our use of tables, may slow processing of documents with many tables and presents difficulties for Markdown to support tables in a simple way. However, the fact that this feature is used extensively across dozens of 3GPP specifications alone shows that it is a benefit. Perhaps it is a benefit we can live without?

- On limitations to using MS Word to gather comments: " As we don't use a modern CMS to allow concurrent access to documents, this just results in lots of copies being e-mailed around. I've added tect in the NOTE to explain this. "

[Samsung] We have to avoid discussing solutions to problems in this clause. I substantially reworded (adding a lot of detail) to your proposed NOTE, as this is truly a big limitation to the Benefit.

- On the benefit of controlling page orientation: " This assumes pagination is a requirement. And that we should tolerate large tables, as opposed to finding a different solution - below use of Excel is mentioned for example."

[Samsung] 3GPP specifications are paginated. Pagination is a requirement.

- On page orientation: " Is this in line with the drafting rules?" [Vodafone]

[Samsung] it is not disallowed. It is essential for readability of many specifications.

- On the limited benefit of exporting MS Word as PDF "This benefit and this Note are very contradictory. I do not care how easy it is to do X if X fails even a fraction of the time." [NCSC]

[Samsung] The idea that a benefit only exists if it always works is not helpful - we could simply void this clause. Clearly others disagree with the expressed view, nothing is 100% reliable except perhaps death and taxes.

- On simple access to documents: " I don't think this is relevant to Word. It is relevant to our 'ways of working' and I do not agree with the statements that it is simple. ..," [NCSC]

[Samsung] Notes that show the limitation of finding resources were added already. Further, Apple's comment that this is not specific to MS Word has been captured in an additional NOTE.

- Ease of consensus building in meetings end with *is enabled by the WYSIWYG nature of current tools*: "I agree with this up until the last few words - WISYWIG is not relevant to this."

[Samsung] I respectfully completely disagree with you. In my own experience, at least in all SA groups, TSGs and CT groups, CRs are projected or evaluation during the revision phase of meetings to consider them in their latest state. Consensus is declared on the basis of full agreement amongst present participants that all is in order. This is only possible due to the WYSIWYG capability of MS Word. Agreement on revised text, etc. out of context (in any other form than *the CR itself*) does not suffice in current practice to agree to the revision.

- On the benefit of macros: " This may be true, but how widely is it used? I can easily find a lot of errors in our published specs, so do we do this? If we have some can I put in a request to make sure IPsec and OAuth are consistently rendered and neither misspelled or autocorrected?"

[Samsung] The benefit does not state that everyone uses this, only that it can be used.

Notes on preparation of 6GSM-250042 v000

- I changed the section name to **Benefits** from Advantages, responding to a comment from Nokia.

- Where there were *limits* on certain benefits expressed in CC#1, I added NOTEs to the benefit to capture this. Hopefully, we can capture *benefits that are also in some ways pain points* with these benefit disclaimers without being inconsistent.

The following items were ***not merged*** based on comments during the meeting.

1. WYSIWYG - benefits listed for text coloring, strike through were not included. These formats are not allowed in the drafting rules in TR 21.801. Some details (including 'requirements' mixed with the benefits) were also not included. [6GSM-250014]

2. Embedded objects per se are not a benefit (they are not portable to other platforms, may not be readable after the format of the embedded data is a very old version, etc.) The point is captured under Benefit #2 'integration' I hope. [6GSM-250014, 6GSM-250037]

3. Accurate control of headers and footers (point 3 in [6GSM-250037]) is not a benefit: this is fixed by use of templates and according to normal practice and TR 21.801 should not be modified by anyone. I add clarification that headers and footers are covered by templates in Benefit #10 below.

The following were added to the text in 0027.

1. Session notes, meeting reports, discussion papers can use the same content, allowing copy and paste (new benefit #17). I used fewer words to capture the essential point. [6GSM-250014]

2. Highlighting is beneficial, added to benefit 6. [6GSM-250014]

3. Benefit #18 added - on use of git / ETSI Forge.

4. Benefit #19 added - on use of Excel.

5. Some change marks considerations from [6GSM-250018] that were lacking in 0027.

6. The limitation of change marking *when applied to the task of implementing CRs in specifications* was added to a NOTE to Benefit #5. [6GSM-250025]

7. Emphasis of the utility of WYSIWYG editing for tables, equations and flow charts added to 3 and 16. [6GSM-250037]

8. I add that the same format is used by specifications as CRs to the new benefit #17. [6GSM-250037]

9. I add 4c from [6GSM-250037], editable authors for different purposes.

10. Add Benefit #20 - macros for batch processing. I also add a NOTE to explain that the benefit is scriptability not MS Visual Basic. [6GSM-250037]

**Related contribution**

*6GSM-250031 proposes a new Annex A.*

**Proposal**

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

BEGIN CHANGES

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[x] 3GPP TR 21.801: "Specification Drafting rules".

BEGIN CHANGES

## 4.1 Benefits of current tools

These benefits may in future be achieved by other means than the current tools and file formats used.

1. Familiarity

The current set of tools are well known to delegates. 3GPP TR 21.801 [x] captures all requirements and recommendations, accumulated since 1999. Further, there is institutional expertise in checking that this is done properly (each secretary, MCC, other delegates, etc.) There are company internal and external tutorials for new delegates to assist coming up to speed.

There is a complete 'way of working' built around the tools that is well known and stable, including interactions between delegates and group leadership, submission, retrieval during and after meetings, databases to track actions, etc.

NOTE 1: There is a limitation to this benefit as institutional expertise in checking proper use of drafting rules is quite inconsistent amongst those who create and edit CRs. Additionally, features which appear to be simple, such as applying the correct style and verifying the correct style, ensuring the correct style when copying and pasting, and correctly applying changes with track changes turned on, are quite error prone.

2. Integration

(Nearly) all content for CRs and specifications are integrated into a single file that can be edited, viewed, sent to others, without any concern for capturing all of the content of the document (e.g. each figure.) This makes it extremely easy to work collaboratively to incrementally collect feedback and share proposed changes on a document under discussion and revision.

NOTE 2: There is a limitation to this benefit, as continuing work and discussion of a CR involves multiple copies of the document (e.g. in the INBOX DRAFTS folder with only a manual effort approach to keep them in sync.) Discussions on the basis of such divergent documents is difficult to follow.

Content can also be directly pasted into the document from external applications. For some formats, the metadata required to edit the figure is also included, e.g., MSC-Generator block diagrams and call flows include the image representation and the source representation when pasted into a document.

To the extent that there are other files needed, e.g. source code attachment in the form of YAML, JSON, XML, etc., these are collected in the same zip file that is used to store & retrieve, share and review, etc.

NOTE 3: There is a limitation to this benefit as the integration doesn't work well on all platforms. In particular, MSC-Generator diagrams embedded with OLE are not editable on any platform other than MS Windows.

3. WYSIWYG Editing and Ease of Use

The content of the document appears as it will in the final product. This view is exact when change marks are not shown.

When change marks are shown, the document is shown with close to final results, though the removed material is also displayed. Changes on changes, if shown at all, are used only for draft documents, removed in the submitted CR, but this is used in on-line work in some groups (see 16 below.)

NOTE 4: Changes on changes are not trivial to remove once introduced.3GPP delegates, leaders and secretaries are familiar with this view and can work with it rapidly to identify what has changed and whether it is acceptable (especially, whether it addresses past comments.) See Change Marking below.

WYSIWYG editing is easy to use. There is only one tool to learn for most editing tasks, (except for figure and equation editing, which can support use of external tools such as visio.)

Also, WYSIWYG editing in the current tools allows editing *directly in the document* of content that has been embedded, such as equations, figures, diagrams, tables, etc. which is especially useful. This edited content appears at all times as it will in the final resulting version.

NOTE 5: There is a limitation to this benefit as MS Word is in fact a very complex software and even experienced delegates sometimes struggle with some of its features. Furthermore, when something goes wrong (in a large document with complex styles), it is extremely hard to figure out the source of the problem.

4. Proofing Tools

For many delegates English is not their primary language. For them, the spelling and grammar checks are quite helpful, as well as the automatic proposals for replacement of words and grammatical correction of phrases.

5. Change Marking

Change marks show added, removed and moved text. They capture more than one change in a way that makes it immediately visible that changes are distinct. It is possible to view the metadata associated with the change (who did it, when, what the text of the change was, etc.)

It is possible to adjust the 'source' of the change marks, as this could be the name of the delegate, company, work item code, CR number, etc. in different ways of working scenarios, employed in 3GPP groups.

Additionally, draft specifications show change marks and a comment indicating from which CR submitted to plenary a change originated.

NOTE 6: There is a limitation to the benefit of change marking when applied to the task of implementing a CR in a specification on the basis of change marking, which has proven very difficult to automate.

NOTE 7: There is a limitation to the benefit of change marking as it does not capture some changes, especially details of changes to figures, tables and other more complex content. Some formatting changes are also not captured as changes. Removing empty lines can also result in unexpected behaviour such as applying the style of the text beneath the empty line to the text above the empty line once the empty line is deleted.

6. Extensive Formatting

It is possible to format tables, figures, text, text coloring, and other content easily, with integrated help facilities to assist. Some of these operations are complex in principle (e.g. merging or splitting cells, greying parts of cells, etc.) though these are straightforward in terms of usability with the current tools.

NOTE 8: Highlight formatting is not strictly allowed by the drafting rules TR 21.801, but used extensively and found to be highly useful to emphasize certain changes in the drafting phase of a specification and for documents under discussion, etc.

NOTE 9: There is a limitation to this benefit as overly complex text formatting, which a document can end up with (sometimes invertedly), significantly contributes to the slowness of editing and even viewing it.

7. Consistent Output

The current tools and formats have allowed 3GPP specifications to have a consistent appearance across thousands of publications, new and old.

8. Integrated means for collaboration

It is possible to embed comments (also known as 'comment bubbles') and replies to comments directly in documents. This is often used by participants in 3GPP to share their views during the revision and off-line discussion of documents. Though this is not used in any formal 3GPP document process, it remains a useful tool for organizations to share individual comments and questions both internally and externally.

Additionally, online collaboration is possible internally to a company during the drafting phase depending on the docx editing tool and file sharing system in place.

NOTE 10: There are limits to this benefit, as it does not scale up well to allow large numbers of comments or commenters.

NOTE 11: There is a limit to the way of working in which comments are shared in the form of documents with comments using ftp, email, etc. It is very difficult to coordinate this activity and keep track of all comments: either comments are collected in a single document which 'forks' unitentionally, or multiple documents must be collected and read without 'order' in the discussion (making it hard to properly reply to others' comments, be aware of all comments made, etc.)

9. Ability to control the page orientation

For tables that are very wide, it is very useful to reorient specific pages to landscape. This requires insertion of 'sections' in Microsoft Word.

10. Ability to capture significant common information in templates

Templates capture common styles, defaults, page width and height, headers, footers, etc. This makes it possible to achieve Consistent Output (see 7 above.)

NOTE 12: There is some limit to this benefit, since it is possible to ignore the template either through improper configuraiton of MS Word (e.g. the wrong language setting), or unintentionally, through pasting content into a document from a document with different properties and settings, that does not use the template, etc.

11. Product support and licensing

The current tools have professional support, are licensed and sold at reasonable prices globally and are sufficiently stable to work with. There are even (open source tool) options that are available that are compatible without professional support and licensing fees.NOTE 13: There is a limit to this benefit, as some versions of tools used to read and write DOCX work slightly differently. In particular, embedded object editing support and Visio is only available on computers running Windows.

NOTE 14: The availability of some tools over time changes, and the affordability and stability of commercial tools depends on the perspective of the organization that participates in 3GPP.

12. Ease of conversion of format

 It is easy to convert a MS Word document to PDF, among other formats.

NOTE 15: There is a limit to this benefit, as conversion to PDF sometimes fails (for reasons unknown).

13. Offline editing

 Current tools and the associated file formats, principally MS Word and DOCX format files can be used off-line. TDocs and CRs can be downloaded in advance and read and edited locally.

14. Document navigation

 Docx supports hierarchical headings which can be used by many docx editors to show an interactive table of contents for quick document navigation.

NOTE 16: There is a limit to this benefit, as large DOCX documents often need to be split into multiple files, which hampers navigation.

15. Simple access to documents

 Specifications and TDocs, including CRs, are easily accessible through a web portal and through an FTP client. Specifications are also available in a structured way, e.g., by series, which also lists all the version numbers per specification.

NOTE 17: For TDocs and CRs, this benefit is limited to the access, and the benefit falls short when searching for a specific document. That is, searching for the TDoc explaining the reason a change was made remains difficult. There is some disagreement about whether ftp use is 'simple' (it may be difficult to find a tdoc on the ftp file tree for past meetings, etc.)

NOTE 18: This benefit concerns the current 'document-centric way of working' in 3GPP and does not specifically relate to any document format, e.g. DOCX.

NOTE 19: The use of FTP is not allowed by some organizations as it is considered insecure.

16. Ease of consensus building during meetings

During the meetings, both during online and offline sessions a lot of editing of the CRs happens whilst the changes are displayed directly on the screen. This is done by the chairs, rapporteurs and offline moderators to capture comments made on the floor and to display the corresponding changes at the same time on the screen, including figures, equations and tables. This is an important benefit of the current tools that improves meeting efficiency and is enabled by the WYSIWYG nature of the current tools.

NOT 20: There is a limit to the extent that change marks can be captured on figures, equations, tables, etc. Change marking is not the benefit described above, rather collectively viewing and participating in editing sessions to reach consensus decisions on modified draft documents rather than already submitted documents.

17. Copy and paste content from CRs to other documents is possible. Chair notes, session notes, discussion papers and other documents include content from CRs. It is beneficial to be able to reproduce the content of CRs with the same appearance in other documents easily. It is also beneficial (somehow essential) that the same format is used for CRs as specifications.

NOTE 21: There is a limit to this benefit, as the paste of content into a CR sometimes results in unexpected configuration and styles and other diverse formatting issues: MSWord will sometimes apply the style of the area being pasted into. The different options: keep source formatting; merge formatting; and keep text only are not always sufficient for maintaining the correct style, and are complex so easy to apply incorrectly.

18. The use of git brings benefits: testing of cross referencing across YAML files (text only) before publication. Cross referencing has proven beneficial also for the development of OpenAPIs. Use of 3GPP Forge hosting allows content (including OpenAPIs) to be stored without use of zip files.

NOTE 22: There is a limit to this benefit, as it is only used by a few WGs. Tdocs that use solely DOCX format CRs do not benefit.

19. The use of Excel has proven useful for storage of large tables, which have proven problematic when included in DOCX files. It is also possible to include computation across multiple cells in the table, e.g. for test tolerances, measurement uncertainties and link budget calculations.

NOTE 23: Storage of some content of CRs in a separate file eliminates benefit 2 "Integration."

20. Macros for batch processing are beneficial, e.g. to identify style errors, editorial errors, in ASN.1 review for comment collection. Macros are also used for local document manipulation or concurrent manipulation of differnt documents.

NOTE 24: This benefit is present in MS Office applications, but the actual benefit is not the use of visual basic (which has disadvantages as a scripting language.) Rather, the benefit is that there is a means to use scripts to process 3GPP documents, e.g. CRs, TRs, TSs and drafts thereof. Furthermore, as far as VBA macros go, they are hard to code, inconvenient to debug, prone to errors and not cross platform (many Word VBA features are not available on platforms other than MS Windows).

21. The ability to visualize different parts of a document (i.e. Split View) at the same time on the same screen is beneficial.

22. The ability to open and visualize several documents at the same time on the same screen is beneficial.

NOTE 24: One caveat to opening several documents at the same time is that with a popular docx editing tool, every window of the application is associated with all the others, so if one crashes, they all crash.

23. For their intended purpose in 3GPP, MS Office tools can be considered both natively secure i.e. robust to manipulation of source code, and systematically available (i.e. usable)

END OF CHANGES