#	Category	Location	Comment	Prposed resolution	GMV answer
1	major	5, p14 and general	The conclusion reached in this document is not to externalize the representation information. (“it is concluded that the externalisation of the representation information is not recommended for SAFE”) This is clearly in contrast to what has been discussed and agreed previously in the other meetings (SRR, PDR-C). If that is the case, then the remainder of the document could have been cut much shorter, and specifically the sections about the registry, etc., are not understood in this context. Specifically, all the section talking about the simplification, complete section 4, etc.	Discuss with all stakeholders and reviewers from the previous events (SRR, PDR-C), if externalisation shall be pursued or not.	Those sections about the registry were included trying to cover part of the PDR-C_A02 action: "...given the need to ensure at all times that links to representation information and auxiliary data are valid." In fact, we consider that the proposal of not going for the externalisation is due to the explanations and analysis included in this document. Therefore we don't agree that the document could have been much shorter. In principle, the SAFE wiki forum is the official place to discuss about SAFE and to receive feedback from the reviewers, but considering the impact of the trade-off's outcome we will discuss with ESA the best approach to contact all the relevant stakeholders in order to notify this change in the design and to have feedback from all of them.
2	major	general	This document introduces the need for a registry to map logical and physical paths when externalizing the representation information, and it proposes designs for such a registry on a high level. It is not understood why this document deals with this topic. The trade-off shall be about “simplification”. The registry as presented seems to be in a different context altogether. Moreover, several concepts of the registry are not understood and the presented approaches are partly wrong or not analyzed properly.	Remove content and design for registry from this trade-off.	The registry has been introduced in this trade-off because it has been needed to clarify how the externalisation works, it means, how the references (logical and physical) between different SAFE Packages are resolved. Note that the design described allows full flexibility to place the SAFE Packages in different locations within the archive. In this case, the registry is in charge of managing the references between SAFE Packages. The registry plays an important role in the externalisation approach described in the trade-off and therefore we have considered necessary to done a high analysis about this component. However, we agree, there are several open points that have to be analysed in detail, but it is due because the registry has been only introduced on a high level.

#	Category	Location	Comment	Prposed resolution	GMV answer
3	normal	1.1, p5	“The purpose of this trade-off is to simplify the SAFE structure reducing to a minimum the number of files comprising the SAFE Package”.IMO this is not the purpose of the trade-off.See as well follow on “The aim of this analysis is to evaluate if it is possible to reduce the number of SAFE Packages and files comprising the SAFE Packages[...]”.IMO the latter was what was requested, minimize the number of SAFE packages for the representation information, only.This document then, however, tries to address the question if representation information shall be externalised or not.	Re-consider scope of trade-off	The purpose of this trade-off is "To simplify the SAFE structure reducing to a minimum the number of files comprising the SAFE Package avoiding the production of complex specialisations that could increase the complexity of the management and migration of the archive, given the need to ensure at all times that links to representation information and auxiliary data are valid." (PDR-C_A02)In that sense, the document tries to provide a simplification of the proposed solution presented during the PDR-C. Then, considering the proposed design and taking into account its drawbacks in spite of the real benefits obtained, it is proposed not to go for such externalisation.In addition, we consider that the maximum reduction/simplification of the SAFE packages can be achieved if the externalisation of representation information is not adopted. This in fact is another approach for simplifying the number of packages/files.
4	major	general	As another comment on the topic of SAFE packages for Representation Information: It is to be analyzed if Representation Information needs to be persisted in the archive at all as SAFE packages. SAFE packages are meant to keep all information together which are needed for interpretation of the content, that is, not only the data files, but as well metadata (files) and auxiliary data (e.g. indexes). If now Representation Information as one vital component is handles as SAFE packages as well, it is questioned if this makes sense. Why would one need a manifest for this? Why would one need the Representation Information for Representation Information?	Discuss and possibly re-consider approach of storing externalized Representation Information as SAFE packages.	All the SAFE Packages contain a Manifest file because a SAFE Package is a XFDU Package and therefore the Manifest file is mandatory in the package to comply with XFDU. As a consequence, the SAFE Representation Information Packages contain a Manifest file as well. For example, a SAFE Representation Information Package has a Manifest file which contains the <dataObject> element and <metadataObject> element. The <dataObject> is the own XML Schema file contained in the SAFE Representation Information Package and the <metadataObject> is the representation information of this file, that in this case is the [XML-SCHEMA-STRUCT] (XML Schema Second Edition - W3C Recommendation 28 October 2004) which is assumed to be the Knowledge Base.

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5	normal	2.2.1, p15	"Furthermore, each SAFE Package included in the Representation Information must have a Manifest so that the number of Manifest files will be very high, as many as XML Schema files." Surely, each SAFE package must have a manifest file. It is not understood though why this is mentioned here. As well, in comparison to the number of SAFE packages for the EO products, the number of SAFE packages for representation information files seems to be small (negligible). Reading the mentioned sentence it appears as if this would be a disadvantage, but this cannot be seen.	Consider removing this sentence.	This sentence was introduced as a disadvantage for the SAFE 2.0 Draft approach (presented at PDR-C) where each XML Schema file was located in a different SAFE Representation Information Package in the archive. Note that from the archive point of view the number (and size) of the Manifest files for all SAFE Representation Information Packages is negligible, but from the Specialisation point of view is not the same to create only one Manifest file per SAFE EO Product Package (not externalisation approach) than to create one Manifest file per SAFE Representation Information Package and SAFE EO Product Package (externalisation approach).
6	normal	2.3, p16	"The Simplification trade-off takes as base the SAFE 2.0 Draft. This new trade-off will try to add some improvements proposed during the PDR-C."Looking at the conclusion reached (don't externalize) this seems to be not really met.	Comment, consider re-phrasing.	Not agree. The trade-off document provides a reduction in the number of SAFE packages previously presented at PDR-C and this, in our opinion, is in fact an improvement.The outcome of this analysis is that even considering these proposed simplification improvements, the identified disadvantages discourage to go for the externalisation of the representation of information.
7	normal	2.3, p16	"On the other hand, after the development of the Externalisation trade-off many questions were raised about how the information from different SAFE Packages relate to each other. Thus, a detailed study on different approaches will be developed here" I must admit I don't find those different approaches in this document.	Align document content.	Sorry for that, the sentence "Thus, a detailed study on different approaches will be developed here" was remained from an old internal version.
8	normal	3, p17	"The goal of the Simplification trade-off is to decrease the number of XML Schemas" I'm not sure this is the goal.	Re-consider scope of trade-off.	Agree. The goal of this trade-off is "To simplify the SAFE structure reducing to a minimum the number of files comprising the SAFE Package avoiding the production of complex specialisations that could increase the complexity of the management and migration of the archive, given the need to ensure at all times that links to representation information and auxiliary data are valid." (PDR-C_A02)
9	normal	3, p17	"This document provides: new strategies for versioning, references between components of different packages and simplify the process for the product specialisations" That's all nice to know but wasn't the goal of the trade-off, IMO. Moreover, I don't really see the mentioned topics properly (in-depth) addressed.	Re-consider scope of trade-off.	Agree. These sections about the versioning and references between componentes of different packages were included trying to cover part of the PDR-C_A04 and PDR-C_06 actions and therefore these sections were not analysed in-depth. However, there is a new trade-off (from the PDR-C_A04 and PDR-C_06 actions) that will address this in detail.

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10	major	3.1.1.1, p17	"The main structure of SAFE Packages seen in version SAFE 2.0 Draft is still valid but this one adds a new package to treat the EO metadata Collections and a new Registry Package to treat the references." If the main structure is still valid, then I don't see any simplification. Additionally, it is jumped to a conclusion here that a Registry Package is needed. I disagree with this premature conclusion. Again, IMO, the scope of the trade-off was to simplify the number of Representation Information (Packages) needed. The whole aspect of Registry could have been left out of this document and should ideally go to a separate document, if at all.	Consider comment.	The structure is still valid because the SAFE EO Product Packages, SAFE EO Auxiliary Packages and SAFE Representation Information Packages from the SAFE 2.0 Draft (presented at PDR-C) are preserved in the SAFE 2.0 design (externalisation approach). The solution intended by simplification is grouping as many SAFE Representation Information Packages (from the SAFE 2.0 Draft) into the same SAFE Representation Information Package as possible. "It is jumped to a conclusion here that a Registry Package is needed." The registry was represented as a package only to harmonize the components of the figure 5 (page 18), but this was a bad approach from our side. The registry can be centralized or distributed depending on the meaning given to the registry. Our point of departure is three different approaches: 1. Registry as a XML file encapsulated in a SAFE package (registry package). 2. Registry as a centralized database. 3. Registry as a centralized LDAP.
11	major	3.1.1.1, p19	"The registry could be implemented as a XML file and stored in a SAFE Registry Package, where each one should be based on a XML Schema file to comply with OAIS. Therefore, a new SAFE Registry Schema Base Package should be defined containing the representation information (XSD file). In addition, it is advised to have a SAFE Registry by Mission Level (0, 1 or 2) because the size of the file could grow exponentially."Several aspects are not understood here:1. Why we need the registry in a SAFE package? The registry is IMO not part of SAFE.2. The mentioned exponential growth cannot be seen. However, if done via XML file, it is supported that the information in the registry is separated by some level. To manage this via XML file, though, is not favoured. It doesn't bring any advantage only disadvantages, IMO.	Consider comment.	With respect to the point 1, this option (registry package) was added in the trade-off because this was analysed internally as possible implementation, however, it was seen that the registry as a XML file encapsulated in a SAFE package didn't bring any advantage only disadvantages.With respect to the point 2, note that if only one XML registry file is created in the archive, it should contain all the references (logical and physical) of all SAFE Packages and therefore the size of the file could be huge. As a consequence, it was decided to split the XML registry by mission level (0, 1, and 2). For this reason, the alternative was not recommended.
12	major	3.1.1.1, p19	"For instance, in the database case, this would mean that the registry in this case will be a centralized database (that has to be preserved) with all the mappings between logical and physical paths stored." The mentioned mapping should be part (black-box) of the archive system used and is IMO not a part of the SAFE standard; the "registry" should be disregarded, thus.	Consider comment.	Agree, the mapping should be part (black-box) of the archive system. However, the registry was introduced in this trade-off because it was needed to clarify how the externalisation worked, it means, how the references (logical and physical) between different SAFE Packages are resolved. As a consequence three different alternatives were analysed for this purpose.

#	Category	Location	Comment	Prposed resolution	GMV answer
13	normal	3.1.1.2, p19	"Grouping all DFDL XML Schemas of the Binary files belonging to the same EO Product into one SAFE Representation Information Package." Likely "EO Product Type" is meant instead of "EO Product". Otherwise it wouldn't make sense.	Consider comment.	Agree. This has to be corrected.
14	normal	3.1.1.2, p19/20	"Grouping all OGC EOP O&M XML Schema Base Types (eop.xsd, atm.xsd, etc.) into one SAFE Representation Information Package", etc. This seems to be the solution for the issue discussed at PDR-C, i.e. too many representation information packages, that is: to group the representation information files into meaningful packages. If that is all basically what leads already to a significant simplification, the rest of the document is not understood.	Consider comment.	This is the solution to the issue presented at the PDR-C that leads to a simplification. The rest of the document complements this simplification and introduces how the linkage mechanisms should be defined in SAFE according PDR-C_A02 action: "... to ensure at all times that links to representation information and auxiliary data are valid."
15	major	3.1.2, p25	The document takes it as a given that there will be a registry, discussing pros and cons under that assumption. Again this is IMO a detail of the employed archive system and shall be treated as a black-box, at least from the perspective of the SAFE standard.	Consider comment.	Although the registry is a black-box, we think that this is needed to clarify how the externalisation works, it means, how the references (logical and physical) between different SAFE Packages are resolved. For this reason, the registry is added in the pros and cons section.
16	major	3.2	This section discusses IMO aspects completely out of scope of this trade-off.	Consider comment.	This section about the references between componentes of different packages was included trying to cover part of the PDR-C_06 action and therefore to provide an overall view.
17	normal	3.2.2	The representation storage node (REPSN) is just one possible solution for the storage of a registry. Again, why a specific design is discussed here if the trade-off shall discuss a different aspect in the first view?	Consider comment.	Agree. The REPSN is only a proposed area of the archive where the files should be stored. This is just one possible solution but other alternatives could be implemented (Database, LDAP, etc.).

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18	normal	3.2.3	This whole section is not understood.Does it make sense to assume that auxiliary data is stored in non-SAFE formats? If yes, then IMO one of the aspects why to use SAFE is lost completely.Why now as well a provenance registry is needed? Are the authors clear about the fact that when millions of files are to be connected via such a mechanism the XML approach will be not workable anymore? And again, it should be the task of the archive to provide the linkage, not a task of SAFE. Leave the design to the archive designers.It seems as well that the particular aspect of the governance will be discussed in just another trade-off – why then to mention it here?	Consider comment.	Section 3.2.3 “Accessing to the provenance information” has been introduced to cover part of the PDR-C_A02 action: "... to ensure at all times that links to representation information and auxiliary data are valid."There is a need to assure that once the EO products are converted to SAFE format and stored in a LTDP archive, it should be possible to store auxiliary data in the same LTDP archive without modifying the already converted EO products. To solve this issue, we proposed to include (in the EO SAFE package) references to the auxiliary data independently of if its stored in the LTDP archive or not (i.e. in SAFE format or non-SAFE format). Thus, when a new auxiliary data is decided to be preserved, only the provenance registry would require to be updated.The XML approach for the procenance registry was just one of the options analysed, but it was clearly discarded in the document and it is not recommended to be used as a registry.Probably it is a good idea to have a black-box for this linkage, but we decided to analyse this case to ensure at all times that links to representation information and auxiliary data are valid (as it is stated in the applicable action).The trade-off you mentioned is the PDR-C_A06 and it is intented to provide details and clarifications on how the links are used in detail. These mechanisms depend on the final adopted design, but it was introduced here to show at high level how the references impact in the simplification design.

#	Category	Location	Comment	Prposed resolution	GMV answer
19	major	3.3, p30	"The reference between an XML metadata component and an XML Schema component is defined in the "schemaLocation" attribute of the XML file" This is simply wrong! See W3C definition: "In an instance document, the attribute xsi:schemaLocation provides hints from the author to a processor regarding the location of schema documents. The author warrants that these schema documents are relevant to checking the validity of the document content, on a namespace by namespace basis[...]The first member of each pair is a namespace name, and the second member of the pair is a hint describing where to find an appropriate schema document for that namespace. The presence of these hints does not require the processor to obtain or use the cited schema documents, and the processor is free to use other schemas obtained by any suitable means, or to use no schema at all." It is more true to say that the reference between XML and its associated structure definition is via (versionized) namespaces.	Consider comment.	Schemalocation was used in a general way for this trade-off. We consider that this is not wrong but "not accurate". However, we agree to use "namespace" instead in order to be more accurate.
20	major	3.3	SAFE is about the AIP not the DIP, so the whole discussion presented here about DIP is not necessary and confusing.	Consider comment.	SAFE has been designed to be used as an AIP. The DIP received by the Consumer is introduced (specifically its directories structure) because the *schemaLocation* attribute with the URI value should be created following the directories structure of the DIP. Why? Because the validation of the XML file with your XML Schema file is not needed in the archive but only in the Consumer workspace, and therefore the directories structure to set in the *schemaLocation* should be well-known. This "transformation" of the *schemaLocation* URI according with the DIP directories structure should be performed by the API/Tool in charge of creating the DIP. Although, we know that the DIP structure is out of the scope of this project.

#	Category	Location	Comment	Prposed resolution	GMV answer
21	major	3.3	The purpose of this section is not understood. Shall it propose how to model different versions of each representation information? How to store them? It appears as if the conclusion reached is that we need just 2 representation information packages for the complete SAFE suite, one containing all versions of all DFDL files and one containing all versions of all EOP schema files.	Consider comment.	The recommended solution of this section is to include all representation information files (DFDL and OGC EOP O&M) in separated SAFE Representation Information Packages. That is, one SAFE Representation Information DFDL Package with all schema file versions and one SAFE Representation Information OGC EOP O&M Package with all schema file versions. Therefore the purpose of this section is to store the DFDL and OGC EOP O&M files (per product-type) independently. In addition, the proposed internal structure of the OGC EOP O&M Package is shown in the figure 14 (page 31).
22	major	3.3.1	"Scenario 1: The SAFE EO Product Package is related to different versions of SAFE Representation Information Package (e.g. 1.0, 2.0, 3.0, etc.)." This is simply a non-existent scenario. One EO Product Package can belong to one and only one version of Representation information. Additionally, how this would be modelled in the manifest of the mentioned EO Product Package?	Consider comment.	Agree. One EO Product Package belongs to one and only one version of Representation information, therefore only one reference to the metadata file exists in the Manifest file. Our idea in this scenario was to store the previous versions as well, but note that only one representation information file is referenced from the Manifest file. For example, if the binary measurements file points to the DFDL version 3.0, the previous version 2.0 and 1.0 (previously pointed) will be also stored. Additionally, note that from the LTDP point of view to store the previous versions maybe doesn't make much sense, but from the Operational point of view could make sense. Therefore, this is not recommended solution.
23	normal	3.4	What is this section for, what is its purpose?	Please comment.	Section 3.4 has been included to show that the new approach is still compliant with OAIS and XFDU eveng considering the proposed design.
24	normal	4.1, p36	"1. To avoid breaking namespace-aware applications with each new version of an XML Schema, the same namespace should be used for all versions".Disagreed, it is common practice to include the version in the namespace to be able to clearly distinguish (break the flow) different versions.	Consider comment.	This was a recommendation added from the Externalisation of Representation Information Trade-Off (PDGS-SAFE-GMV-TN-12/0071). This has to be corrected.
25	normal	4.1, p36	"2. Each new version of a XML schema should be located in a different directory in the SAFE Representation Information Package" Disagreed, it's up to the archive to design how and where data is stored, this is of no concern for SAFE.	Consider comment.	This recommendation is referred to the internal directories structure of the SAFE Representation Information Package and SAFE should be in charge of defining it.
26	normal	4.1, p36	Recommendation #3, see previous note on schemaLocation.	Consider comment.	Namespace will be used instead of it. This has to be corrected.

#	Category	Location	Comment	Prposed resolution	GMV answer
27	normal	4.1, p36	"4. It is recommended to store all the SAFE Packages for a specific mission and level (0, 1 or 2) at the same level directory in the archive" Disagreed, it's up to the archive to design how and where data is stored, this is of no concern for SAFE.	Consider comment.	Agree. However, note that this recommendation is based in the hierarchical structure of SAFE 2.0 porposed in Figure 8 (page 22). This has to be corrected.
28	normal	4.1, p36	Recommendation #5, this is just one way of ensuring consistency – up to the implementation.	Consider comment.	Yes, this was a recommendation added from the Externalisation of Representation Information Trade-Off (PDGS-SAFE-GMV-TN-12/0071). This has to be corrected.
29	normal	4.1, p36	Recommendation #6, this is not a recommendation but just a statement of fact / repetition of well known information.	Consider comment.	Agree. This has to be corrected.
30	normal	4.1, p37	"9. It is recommended as well to store in the registry the location and name of the last applicable representation schema version for each product type." It is not understood why this is needed nor recommended.	Consider comment.	Our idea was to store the previous versions as well. For example, if the binary measurements file points to the DFDL version 3.0 (in the Manifest file), the previous version 2.0 and 1.0 (previously pointed) will be also stored. Note that from the LTDP point of view to store the previous versions maybe doesn't make much sense , but from the Operational point of view could make sense. For this reason, this recommendation was added.
31	normal	4.1, p37	Recommendation #10, this seems to be banal.	Consider comment.	Agree. Perhaps this is a consideration instead of a recommendation. This has to be corrected.
32	normal	6.1, p42	The relationship mentioned between logical path and physical path as "0..*" is not understood."it can be zero if the component addressed has not been preserved in SAFE format" → then it is not SAFE compliant, or?"It can be more than one when it refers to a whole set of files of the same type" → how then one can know which one to use?	Consider comment.	There is a need to assure that once the EO products are converted to SAFE format and stored in a LTDP archive, it should be possible to store auxiliary data in the same LTDP archive without modifying the already converted EO products. To solve this issue, we proposed to include (in the EO SAFE package) references to the auxiliary data independently of if its stored in the LTDP archive or not (i.e. in SAFE format or non-SAFE format). Thus, when a new auxiliary data is decided to be preserved, only the provenance registry would require to be updated.Therefore, the relationship between logical path and physical path as 0...* is only used for the provenance information (provenance registry). For example, our idea is to have a *resourceType* metadata in the Manifest file (within the provenance information) that includes a *href* attribute where the logical path is set. This logical path could refer to several physical paths. In this way one change in the provenance information (e.g.: addind new auxiliary files) avoids to do changes in the Manifest file.More detailed information about the access to the provenance information will be provided in the trade-off of the PDR-C_A06: "To clarify the mechanisms used (links) to provide the references for the provenance information".

#	Category	Location	Comment	Prposed resolution	GMV answer
33	normal	6.1.2	The presented DB design models not a 1 to 0..* relationship but vice versa.	Consider comment.	Agree. The idea here is that one logical path can have several physical paths. The figure 23 (page 45) is wrong, the FK in the LogicalReference table should be deleted and one FK to the LogicalReference table should be added in the PhysicalReference table. This should be corrected as follows: