# Supplementary material – Mapping of translations, characteristics and premises.

| **Translation** | **Characteristic** | **Premise** |
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| **[TR1] -** A sustainable SLR aims to **create reliable results** i.e., the threats to the validity of a sustainable SLR must be carefully managed, mitigated, and described so that the stakeholder can judge the quality of the reported results. | **[C1] -** SLR should report reliable results i.e., mitigate threats to validity reducing the uncertainty level of researchers | **[P6] -** SLR should follow a conduction process that reports reliable results, i.e., it mitigates threats to validity by reducing the uncertainty level of researchers. |
| **[TR3] -** A sustainable SLR **complies with conduction standards**, and the quality characteristics that are expected from any SLR developed by professionals. | **[C2] -** SLR should follow a conduction process that complies with conduction standards to ensure quality | **[P7] -** SLR should follow a conduction process that complies with conduction standards to ensure SLR quality. |
| **[TR3]** - In addition, sustainable SLR must prioritize **to cause less changes in protocol during the conduction/reporting** i.e., it maintains the iterative process concentrating the main changes until the pilot test is conducted. | **[C3] -** SLR should follow a conduction process that is iterative and concentrates the main changes in the protocol during the pilot test. | **[P8] -** SLR should follow a conduction process that is iterative and concentrates the main changes in the protocol during the pilot test. |
| **[TR4] -** Sustainable SLR should have **long-term goals** aiming at impacting the research area and the community around including researchers and SE practitioners over a long period of time i.e., and not only satisfy current researchers' needs | **[C4] -** SLR should have long-term goals aiming at impacting the research area and the community around (including SE researchers and practitioners) over a long period of time | **[P9] -** SLR should have long-term goals aiming at impacting the research area and the community around (including SE researchers and practitioners) over a long period of time. |
| **[TR4]** – […] Also, sustainable SLR must also preserve the resources and create methods to **reduce the time and effort needed to conduct/update SLR**.  **[TR5]** - A sustainable SLR should make a **responsible use of financial resources**, for this it must reuse elements from previous SLR and estimate the manual effort involved in SLR (e.g. the time of academics and specialists or practitioners in the SLR domain) always searching for alternatives to switch from manual labor to automated or semi-automated tasks.  **[TR9]** - A sustainable SLR manages resources used in its life-cycle. | **[C5] -** SLR should be produced with responsible use of resources (e.g., time, human effort and monetary cost) and should be conducted aiming at reducing the time consumption (e.g., by adopting automation tools) | **[P10] -** SLR should be produced with responsible use of resources (e.g., human effort, monetary cost) and should be conducted aiming at reducing the time consumption (e.g., by adopting automation tools) |
| **[TR9] –** […] It also must create a documentation that is **detailed, easily understandable, auditable, and accessible** to others (researchers, practitioners, and others). | **[C6] -** SLR should have a documentation that is detailed, easily understandable, auditable, and accessible to others (researchers, practitioners, and others). | **[P11] -** SLR should have a documentation (packaging) that is detailed  **[P12] -** SLR should have a documentation (packaging) that is easily understandable  **[P13] -** SLR should have a documentation (packaging) that is auditable  **[P14] -** SLR should have a documentation (packaging) that is accessible to others (e.g., researchers and practitioners) |
| **[TR9]** – […] Furthermore, documentation should include all relevant data organized to be **easily reused, modified, and adapted by other researchers**. | **[C7] -** Items of SLR protocol (e.g., search string, selection criteria, included studies, etc.) and other elements (e.g., raw data extracted) should be learnable and accessible, reusable, modifiable and adaptable. | **[P15] -** Items of SLR protocol (e.g., search string, selection criteria, included studies, etc.) and other elements (e.g., raw data extracted) should be understandable/accessible  **[P16] -** Items of SLR protocol (e.g., search string, selection criteria, included studies, etc.) and other elements (e.g., raw data extracted) should be reusable  **[P17] -** Items of SLR protocol (e.g., search string, selection criteria, included studies, etc.) and other elements (e.g., raw data extracted) should be modifiable  **[P18] -** Items of SLR protocol (e.g., search string, selection criteria, included studies, etc.) and other elements (e.g., raw data extracted) should be adaptable |
| **[TR8]** - A sustainable SLR is a review that over its whole life-cycle must be continuously assessed and **continuously documented** i.e., it maintains a complete documentation and **keep all relevant data available for possible audition/reanalysis**, consequently, making it **maintainable**. | **[C8] -** SLR over their whole life cycle (i.e., while the SLR is conducted, update and/or replicated) should be continuously assessed and continuously documented, i.e., SLR should be continuously updated | **[P19]** - SLR over their whole life cycle should be continuously assessed and continuously documented, i.e., SLR should be continuously updated. |
| **[TR8]** – […] In addition, all elements from previous SLR (including implicit knowledge) should be reused in further update/replication of SLR. | **[C9] -** Components of SLR (e.g., search string, selection criteria and other elements like raw data) should be reused in the update of SLR | **[P20]** - Components of SLR (e.g., search string, selection criteria, quality criteria, and other elements like raw data, extraction forms, and set of studies selected) should be reused during the update of that SLR. |
| **[TR10]** - A sustainable SLR keep information organized and accessible to **maintain its viability in update/reconduction.** | **[C10] -** Researchers should make accessible all evidence found in the SLR (i.e., selected studies) as well as all associated data (e.g., raw extracted data) aiming to keep the viability of future SLR updates. | **[P21] -** Researchers should make accessible all evidence found (i.e., selected studies) in the SLR as well as all associated data (e.g., raw extracted data) aiming to keep the viability of future SLR updates. |
| **[TR1]** – […] Furthermore, SLR must **meets to stakeholders needs** i.e., stakeholder needs must be translated into research questions to be answered by SLR. | **[C11] -** Stakeholder needs should be translated into research questions to be answered by SLR. | **[P22] -** The needs of stakeholders should be translated into research questions that the SLR will answer. |
| **[TR2] -** Sustainable SLR produces results that are agnostic of purpose, i.e., SLR provides results that are **useful to a wider community**. Sustainable SLR must consider the applicability and generalizability of results prioritizing that it can be reasonably applied to a definable group of researchers and/or practitioners and/or to the wider community.  **[TR5] –** […] Furthermore, it **must provide information for**  **a broad community**, including academy and  industry, and not just fulfilling their particular needs or from specific research groups. | **[C12] -** SLR should provide results that are useful to a wider community not just fulfilling their particular needs or from specific research groups | **[P23] -** SLR should provide results that are useful to a wider community, not just fulfilling particular needs of the authors or specific research groups. |
| **[TR7]** - A sustainable SLR aims to identify, manage and mitigate threats to validity and provide means for researchers **to make decisions that reduce the negative impact on other researchers making them minimal**. For this, SLR must be compromised in ensuring the credibility of the results, generating a careful report to ensure that efforts needed to replicate or update SLR is minimal. | **[C13] -** SLR results should positively impact a research area | **[P24] -** Results of SLR should positively impact a research area. |
| **[TR6] -** A sustainable SLR should avoid research waste by publishing results and outputs that are useful for its target audience; and, allowing that its components (protocol elements) and other artifacts generated during its conduction **be reused to avoid waste of information and effort.** | **[C14] -** Researchers should avoid research waste: (i) evaluating if an updated SLR already exists on the same topic, (ii) reusing components from previous SLR; and (iii) publishing outputs that are useful for target audience | **[P1] -** Researchers should avoid waste of their efforts by checking if an SLR already exists on the same topic before starting a new SLR.  **[P2] -** Researchers should avoid waste of their efforts by reusing components (e.g., search string, selection criteria, quality criteria, and other elements like raw data, extraction forms, and set of studies selected) from previous SLR.  **[P3]** - Researchers should avoid waste of their efforts by publishing outputs that are indeed useful. |
| **[TR7] -** Sustainable SLR should have a **positive effect** in research development minimizing the cost and maximizing results usability. | **[C15] -** Researchers while conducting SLR should make decisions and adopt practices that minimize the negative impact in current (e.g., saving efforts automating tasks) and future researchers (e.g., documenting correctly and providing accessible recommendations for practitioners) | **[P4] -** While conducting SLR, researchers should make decisions and adopt practices that have a positive impact (or minimize the negative impact) in current research team (e.g., saving efforts automating tasks, selecting optimized search engines/electronic databases).  **[P5] -** While conducting SLR, researchers should make decisions and adopt practices that have a positive impact (or minimize the negative impact) in future researchers and SLR users (e.g., documenting correctly in compliance with open science principles, and providing accessible recommendations for practitioners). |

| **Translation** | **Critical factor** | **Premise** |
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| TR11 - Rich communication and collaboration among researchers and stakeholders of SLR | CF1 - Rich communication (i.e., communication among researchers and external collaborators (e.g., industry practitioners) while they conduct/update an SLR, e.g., communication to elaborate the SLR protocol or during consensus meetings to resolve disagreements in tasks like studies selection or data extraction/summarization). | Idem to “critica factor” |
| TR12 - SLR stakeholders (researchers and industry) effective participation | CF2 - Effective participation of stakeholders (researchers and SE professionals) in the SLR process (i.e., usage of stakeholder's opinions to adjust SLR planning items (e.g., aims, scope, restrictions, etc.) and to validate the findings to be helpful in real-world scenarios aiming to uptake SLR evidence into practice improving the usage of research findings into real scenarios). | Idem to “critica factor” |
| TR13 - Knowledge of Stakeholders about SLR process and about the research domain | CF3 - Knowledge of stakeholders about the research domain (i.e., knowledge about previous solutions proposed, current research gaps, important open issues, trends from industry/academia, and other aspects that could guide researchers to address important research topics and provide helpful evidence to SE community) | Idem to “critica factor” |
| TR14 - Experience of team members and stakeholders | CF4 - Experience of team members in SLR conduction (i.e., experience includes knowledge about the scientific research process, mainly regarding the best practices to conduct/update SLR; consequently, the experience can support researchers to minimize bias, improve transparency, replicability, overall quality and avoid well-known pitfalls in the process) | Idem to “critica factor” |
| TR15 - Improvement of SLR reusability | CF5 - Improvement of SLR reusability (i.e., it refers to the careful documentation that allows researchers to reproduce/replicate SLR results and reuse any components of the previous SLR (e.g., SLR protocol items like search string, inclusion/exclusion criteria) or adapts research efforts like studies selection or data extraction to create new evidence.) | Idem to “critica factor” |
| TR16 -Usage of refactorting techniques | CF6 - Usage of refactoring techniques (i.e., refactoring refers to using different ways to conduct SLR steps prioritizing the reuse of elements, and avoiding starting from scratch. A refactoring technique refers to a systematic way to reuse elements from the previous SLR (e.g., search strategy, set of studies selected, quality assessment criteria, data extracted) that ensure the reliability of this process and allows that former data to be used as a baseline to answer new research questions.) | Idem to “critica factor” |
| TR17 - Efficient knowledge sharing | CF7 - Efficient knowledge sharing and transfer (it involves knowledge sharing in three different moments: (i) when researchers share their experience during consensus meetings; (ii) when researchers provide open access to data extracted (including raw data) and report carefully all decisions taken in the SLR process; and (iii) when researchers report lessons learned, their insights about the applicability of results in practice and provide recommendations for SE professionals.) | Idem to “critica factor” |
| TR18 - Usage of tools to support SLR | CF8 - Usage of tools to support SLR (i.e., it involves: (i) tools to support the whole SLR process (StArt, Parsifal, SLuRP); (ii) tools to support specific tasks and save efforts by avoiding manual work (e.g., reference managers, text editors, spreadsheets); and (iii) automation or semi-automation tools, e.g., for search string calibration, studies selection review) | Idem to “critica factor” |
| TR19 - Maturity of support technology | CF9 - Maturity of support technology (i.e., maturity refers to producing support tools that are more than prototypes or proof of concept tools. Mature tools should be intensively tested and assessed in a wide range of scenarios (e.g., different domains, using qualitative and quantitative data, using heterogeneous data sources, etc.) aiming to deliver a mature product with (i) long-time support, (ii) solutions for complex SLR tasks (e.g., data summarization), and (iii) integration with other tools.) | Idem to “critica factor” |
| TR20 - Accessibility of support technology | CF10 - Accessibility of support technology (i.e., accessibility refers to developing tools that are easy to use (including an intuitive user interface/experience, comprehensive documentation/tutorials) and preferably being open source and supported by the community.) | Idem to “critica factor” |
| TR21 - Development of methods to consistently minimize the resources consumption (reduce the workload, time and efforts) to conduct and update SLR | CF11 - Usage of techniques that minimize the resources consumption (i.e., it prioritizes the use of techniques that require less effort to produce high-quality output (e.g., usage of snowballing to update SLR). While conducting/updating SLR, researchers should design SLR to comprise techniques that automate time-consuming tasks (e.g., using techniques like machine learning). | Idem to “critica factor” |
| TR22 - Efficient utilization of resources | CF12 - Efficient management/usage of resources (i.e., "resources'' refer to (i) physical resources (e.g., computers, Internet access, access to bibliographic bases, office supplies, and space or tools to manage virtual meetings); and (ii) intellectual/human resources (how many and which researchers compose the review team). `"Efficient management'' means providing review teams with the necessary environment and resources (physical or intellectual) to execute tasks, which are according to the capacity of each researcher in the review team.) | Idem to “critica factor” |
| TR23 - Usage of feasibility studies (pilot studies) to assess the presence of sustainability characteristics on SLR | CF13 - Usage of feasibility studies (``feasibility studies'' refer to a more complete version compared with ``pilot studies'' and should include other aspects (beyond the protocol) to appraise the viability of conducting an SLR. Feasibility studies should comprise a deeper investigation of: (i) the existence of previous SLR in the same area and the possibilities of reusing its data; (ii) the expected effects of results on the practitioner's decision-making process; (iii) the capability of SLR of identifying gaps and trends in the current evidence to underpin future research in the area; (iv) the availability of resources to support SLR from its conception to update.) | Idem to “critica factor” |
| TR24 - Sustainable maintenance of SLR | CF14 - Maintenance of SLR (i.e., before updating/reconducting SLR, researchers should check the relevancy of the topic and evaluate the impact of providing up-to-date information for readers. During the SLR update, researchers should reuse as much information as possible (such as protocol, data, etc) and minimize efforts to update it) | Idem to “critica factor” |
| TR25 - Usage of iterative process to conduct SLR | CF15 - Usage of iterative process (i.e., use iterations to comply with the need for changes, for instance, adjusting research questions as the knowledge of researchers about the area grows. Iterations lead the research team to revise the SLR protocol items multiple times before undertaking the full review; in addition, the iterative processes aid researchers in identifying new important studies in each iteration and collecting relevant information as much as the knowledge of the research team increases.) | Idem to “critica factor” |