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Towards a MAP Digital Transformation: Actions pursued in the last biennium

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Towards a MAP Digital Transformation - Actions pursued in the last biennium

Background

The background document "Towards a MAP Digital Transformation", outlining UNEP-MAP digital transformation (UNEP/MED WG.512/5), made clear some basic concepts such as the difference between digitization and digitalization, pointing out that while the first was related to practical actions oriented to specific objects, the second has a broader and more strategic overall view of the objectives and the processes to reach them. Moreover, the document detailed some fundamental aspects to be considered while digitalizing the MAP, in a collaborative framework among INFO/RAC, CU, and all the MAP components.

In particular, it is worth to recall the main digital transformation objectives individuated by the document:

OBJ1. *Re-define digital delivery models*: to increase accessibility of information across and outside the MAP.
OBJ2. *Enhance digital co-creation and collaboration models*: to improve collaboration methods.
OBJ3. *Improve digital partnership, engagement, and advocacy*: supporting communication campaigns and analyzing reactions.
OBJ4. *Unleash knowledge within MAP system*: cataloguing, connection and sharing of MAP knowledge.
OBJ5. *Use the power of MAP data*: ensure quality, usage, and accessibility of MAP data.
OBJ6. *Leverage digital to increase cost effectiveness*: promotion of digital automation actions, self-service, and other technologies to reach flexibility, scalability, and reuse of technological solutions.

Digital Transformation and Knowledge Management in UNEP-MAP

Digital Transformation and Knowledge Management are strictly interrelated as an appropriate Knowledge Management helps pushing the Digital Transformation of the entire organization. In fact, if processes are detailed, data sources are appropriately catalogued and metadated, and data quality is assessed, soon digitalization needs grow. Moreover, digitalization done right implies the facilitation of routine work for people that soon get used to these facilitations and, consequently, asks for even more facilitations. So, digital transformation calls further digital transformation (through the use of always better digital technologies).

Secondly, one of the objectives of digital transformation strategy was the cataloguing, connection and sharing of MAP knowledge. Since knowledge consists in information filtered through experience and information consists in data in context, the first step to organize MAP knowledge is to better characterize data. In the organization of MAP knowledge also digitalization plays a fundamental role. In fact, instruments used to catalog, connect and share data must be as appropriate as possible to work in a networked environment such as the one of UNEP-MAP and the choice must be taken not only bearing in mind the principles of FAIR data management but also minding the scalability and flexibility of the adopted solutions, which are required to work remotely with different centers (such as RACs), institutions and stakeholders. Last but not least, also citizens must be considered as actors when planning knowledge management actions as recipients of ocean literacy activities occasionally put in place by UNEP-MAP.

The initial state of the art

The first main step, at the base of a real digital transformation strategy (UNEP/MED WG.512/5) was to depict the initial state of the art for the digital transformation process. A lot of technological instruments

can be comprehended into the digitalization process, and a certain number of actions could be pursued. Resuming the single objectives recalled in the first section, it is possible to recognize that actions underlying each single objective have two main different natures: some are **directed inward** the MAP (actions to be put in place for cooperation among RACs or CPs, working information management, etc.), some others are **directed outward** the MAP (actions to be put in place to disseminate knowledge, to cooperate with external entities outside the MAP). Tracing the state of the art of the current work management for UNEP-MAP, some actions has been pursued but a real planning for a digital transformation is missing.

In particular, with respect to above-mentioned objectives, some sparse actions have been carried out for what concerns digital partnership, engagement and advocacy (OBJ3). Some other actions have been done individually by the RACs for what concerns data sharing and dissemination (OBJ5) by means, for example, of the adoption of interoperable instruments for sharing geographical data using internationally recognized standards. These kinds of choices are definitely wise steps towards a fair data management, but these efforts shall be extended to all the MAP and actions systematized to achieve tangible improvements.

Practical actions pursued towards digitalization

In this section practical actions pursued to reach digitalization objectives are reported, referring them to the objective list mentioned in the first section. An effort in this sense has been made by identifying the initial state of the art for each one of the objectives and classifying its level of completeness, with respect to the effort in terms of actions taken, after a four levels scale: severely lacking (red), somewhat lacking (orange), sufficient (yellow), good (light green), complete (green). Both the initial state of the art and the current process completion has been described using this scale.

To this purpose Table 1 reports the scale level with colors for each single objective, and each single process will be described hereafter.

Table 1- Completeness level of each objective concerning digital transformation in UNEP-MAP.

Objective	Initial state	Process completion
Re-definition of digital delivery models	🟥	🟥
Enhancement of digital co-creation and collaboration models	🟥	🟧
Improvement of digital partnership, engagement, and advocacy	🟧	🟩
Unleashing knowledge within MAP system	🟥	🟩
Use the power of MAP data	🟧	🟩
Leverage digital to increase cost effectiveness	🟥	🟧

At a first glance, as it is possible to observe from the Table 1, the path towards a complete digital transformation is still long. In particular, recalling the principle that a FAIR data/information/knowledge management pushes digital transformation, on this biennium it has been decided to focus especially on UNEP-MAP data heritage. In this sense a lot of actions have been taken. Some attempts have also been done to improve collaboration models and the results are under review to better understand if the tested instruments/techniques are effectively a valid response to UNEP-MAP needs. Less efforts have been made, since now, on the redefinition of digital delivery models. In fact, if on one hand this objective is partly related to collaboration models, on the other hand it is necessary to build something to be delivered first, to better understand the means and techniques more adapt to deliver the product. In one word, it is maybe preferable to characterize the product first, and shape the delivery model on the product itself.

Going through the objectives one by one, follows the list and brief description of the actions undertaken in this biennium for the pursue of the objective:

OBJ1. *Re-definition of digital delivery models*: as just said, basically no action has been undertaken to redefine digital delivery models. Some ideas to be implemented are in course of definition, but they are still more referred to extemporary actions (e.g. sharing a questionnaire through online forms) than to a scheduled and organic cooperation framework.

OBJ2. *Enhancement of digital co-creation and collaboration models*: for this objective different collaboration platforms have been tested. Based on internal and external partners, Microsoft Teams showed a good flexibility and capacity to interact with other tools. Moreover, a lot of available plugins make the platform quite customizable. More tests are ongoing, and functionalities are being explored, together with the analysis of feasibility (including costs-benefits balance) for UNEP-MAP to potentially acquire the technology. Another action in this sense is the repower of the Moodle platform. The platform has been expanded in capacity and new courses are being inserted. It is planned to integrate Moodle platform inside the future Knowledge Management Platform as the main support for training, webinar and workshop material (slides, documents, videos) for all UNEP-MAP.

OBJ3. *Improvement of digital partnership, engagement, and advocacy*: efforts have been made by INFO/RAC in developing communication campaigns through the creation of a common visual identity for UNEP-MAP. In particular digital campaigns have been pursued and vehiculated through social networks. A complete restyling of UNEP-MAP digital image is in course of design to achieve objectives stated in the "Communication as one" strategy. Some work is still to be done on analytics. Other practical actions put in place are the more systematic use of social media accounts such as Twitter, but also LinkedIn. In particular, this last one showed a good level of engagement if the contents shared are professionally interesting. The presence of attachments, such as slides, schema or links to documents usually rises the attention on the post.

OBJ4. *Unleash knowledge within MAP system*: through the work of Data Management Task Force, and thanks to the efforts put in place by all the RACs, during the last year a deep study of UNEP-MAP data has been carried out. In particular, in March-April of the last year a survey was launched by INFO/RAC where all the RACs were queried to detail their data sources grouping them by type of source (databases, layers, applications, platforms), in October-November a first report with numbers, results discussion and some analyses worked as a baseline to establish the following steps towards the correct cataloguing, harmonization and metadatation of UNEP-MAP data heritage.

OBJ5. *Use the power of MAP data*: once state of the art of UNEP-MAP data was depicted, INFO/RAC worked to ensure and improve, where necessary, data quality, usage and accessibility. All the MAP information sources were better characterized, and the evaluation of a better exploit and valorization of the resource was also carried out. All these actions are pursued in the frame of FAIR data management, stating that data must be Findable (with a unique identifier attached to), Accessible (no barriers are present between user and data), Interoperable (dispatched using internationally recognized standards) and Reusable (shared using an appropriate license) after Wilkinson et al. (2014).

OBJ6. *Leverage digital to increase cost effectiveness*: given that all the actions pursued are framed into a logic of reuse of the solution itself (e.g. the framework of a website, the format of a questionnaire, the architecture of an infrastructure), a real reuse plan for UNEP-MAP products has not been depicted yet. On the other side a first evaluation of possible IT infrastructural and technical solutions (especially standard versus cloud solutions) has been carried out and a first evaluation of a cloud architecture has been made about sustainability of the solution itself. The first results of this evaluation pointed out that a cloud infrastructure is sustainable in terms of costs only if the amount of data stored is not too high. Given the principle of non-duplication of resources also stated in UNEP-MAP data policy (implying that data is managed nearer than the possible to its creation), the actual data storage requirements seem to be compatible with a cloud solution. More and more detailed analyses must be carried out in this sense, but an initial reasoning has been done.

Foreseen and desirable actions to define a Digital Strategy appropriate for UNEP/MAP BC System

As evidenced in Table 1, some work is still necessary in UNEP-MAP for a proper implementation of a real digital transformation.

First of all, a real "plan" must be defined in this sense, considering other than the principles, listed in the above-mentioned objectives also the subjects of this digital transformation, which are data and services currently provided by the MAP. It is understandable that, only bearing in mind both the attended objectives and the data/services it is possible to define a proper plan. At the present time, it is possible to state that the maturity of knowledge management in UNEP-MAP allows to start a real planning activity.

Secondly, a deeper and more detailed study of feasibility (including costs/benefits balance) on the possibility of a cloud solution shall be done considering and re-considering all the UNEP-MAP information infrastructure.

Finally, it is still missing (and highly necessary) an internal documental management software. The actual solution based on Nextcloud seems not to fit the exigences of the MAP. More tests shall be performed in this sense, and a report shall be written in a short-term comparing software and solutions, ranking them in order of desirability with respect to the expected functions.