**Output from WMO Online Short Course on Education and Training Innovation Implmentation: Participant Exchange Event**

| **Challenges Communicated** |
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| **Challenge raised at least once** | **Potential Solutions** |  |
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| General Challenges to Innovation |  |
| Lack of administrative/ management support | 1. Argentina 2: In our case, convincing them to take up the issue was easy given that when we considered an innovation, we chose an issue that was raised among the objectives of the institution's strategic plan.Thus, in the email that we sent to attract attention, we made mention of this and received a positive response.I also think that it is a challenge to reach the authorities with new proposals, surely raising them from the side of the most visible needs is the appropriate strategy.2. Kenza: Our institution is the headquarters of the Regional Training Center to which we have transmitted our plan and received its support for future development. We have a good relationship with them and that is a very important point because we know that we can take steps forward. We know that as soon as we have the endorsement of the project leader, it will be possible to advance with the following steps, which would be to communicate to the teaching team, generate dissemination materials within the institution, with the internal dissemination magazine or through some multimedia material that serves to be necessary to support a successful implementation. 3. Relationship: ln any organization there must be a cordial relationship between the management and the staff this creates room for understanding and a smooth working environment.4. Rabia: Use a well-prepared presentation of the project to the management team.This requires the preparation of a project presentation sheet in which the emphasis is placed on its relevance, its contribution to the administration work and progress, its cost, its prerequisites, the inherent risks and above all it will be a question of finding the right strategic axis of the administration in which the project can fit.5. Discuss the innovation with colleagues from various departments in your organization. Try to get their support, even if this means only the recognition that the innovation will benefit the department (rather than commitment to help you on the tasks needed to implement the innovation). Having the support of various departments at the time you propose the innovation to administration will help to gather attention. |  |
| Financing risks (Budget for logistics), and for technology | 1. Implementation can begin in steps with incremental but useful outcomes at each step. 2. Partner with neighboring countries and institutions with the same needs to spread the costs between institutions. 3. Look for reusable resources from online portals. |  |
| Resistance to change by collaborators and facilitators (a new form of education is suggested), | 1. Seek opinions: Key stakeholders should be involved and their opinion concerning the innovation and implementation gained.2. There's need for continuous pursuit for the implementation to be achieved.3. One of the reasons of collaborators’ unwillingness is their lack of expertise. Professional development courses, regular webinars will slowly but surely mold a type of mindset to bring major changes. |  |
| Due to Covid19: lack of staff availability, some other projects may be more prioritized, | 1. It is likely that many projects nowadays are going to utilize online teaching, which may contribute to your Innovation Plan. It might be online teaching methods or basic tools for assessment.2. Upcoming projects may enrich your innovation and keep it in demand. |  |
| More time is needed to develop the projects. Creating new learning resources takes significant time.  | 1. Thorough planning of the process, including:several likely scenarios would help stick to the project,approximate deadlines and human resources involved in each stage, making sure there is a team of supporters2. Cooperation with other teams from the present WMO course (especially provided their IIPs are alike) would help maintain ‘discipline’ as well as ensure peer support.3. Partner with neighboring countries that have the same needs.  |  |
| Differences in distance learning require creative solutions to achieve the same learning outcomes as in the classroom, field, or laboratory (technical skills more difficult to teach) | 1. Practical courses that require physical demonstration and practice might be achieved by using simulations. 2. Use the capabilities of smart phones for physical measurements (light angle, accelerometer for distance and velocity, etc.)3. Use video demonstrations4. Send equipment to students if affordable, or ask them to use locally available instruments and computers from their workplace |  |
| Learning resources are not equally available for all regions--for example, tropical islands | 1. Look for resources available from other organizations through online searches, the MetEd website, the WMO E-Library, EUMETSAT, ECMWF, EuMeTrain, Eumetcal, VLab, [climateservices.it](https://climateservices.it/), etc. -- And don't forget to ask your colleagues, the WMO Regional Training Centers, etc.  |  |
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| Conducting assessment of your innovation | 1. Use Impacts Assessment methods, such as Success Case Methodology. 2. Make sure you clearly define what the “success” of the innovation looks like, so you can more easily identify if you have achieved it. (And ask the right questions in your evaluation) |  |
| Existing cultural norms may resist change | 1. Implement an innovation gradually, slowly building trust and acceptance. 2. Try to appeal to the cultural values of stakeholders. Do not push against them. Adapt the innovation to the culture if necessary. 3. Build on the recognized positive qualities of your organization. What makes your organization proud? How can you show that this innovation can add to this? |  |
| Stakeholders are not supportive | 1. Appeal to the stakeholders’ values and needs. Show how the innovation will make their work more effective and/or easier. What do they value and need? Start there. 2. Use meetings, workshops or lectures, in order to present many case studies about the existence of a relationship between the impacts of innovation and valued outcomes. 3. Wait until you have something tangible to show stakeholders. Sometimes what stakeholders need is not an abstract understanding of something which is still in the beginning stages, but something already shaped more or less. However challenging it looks, try to do as much as possible to show an almost-ready project that required a specific list of things to make it happen. 4. Calculate possible financial benefit – the number of students who can be attracted, value of possible projects obtained if the innovation is launched. |  |
| Challenges of Implementing Distance Learning |  |
|  Conducting assessment in distance learning | 1. Use assigned projects for more authentic evaluation of learning, as well as assignments that cannot be easily duplicated by copying from online resources. 2. Require and encourage citations of any outside resources consulted. This is a good thing! Encourage such research. 3. Assessment should be a part of every step – diagnostic, formative (continuous), and summative. Thorough construction of formative assessment techniques (practice or short testing with feedback) might be one of the key factors in the whole course efficiency.4. The role of assessment in distant learning increases giving the teacher/coordinator control, direct and change (if required) the process, and giving the student understanding where they are going and what should be worked on.5. Issue of trust, inability to observe learners—not all skills require viewing learner behaviors.  |  |
| In the current no-classroom period we need to get out of traditional classroom thinking. DL is a cultural change | 1. Use Reverse Engineering to help in converting a classroom course to DL:  <https://etrp.wmo.int/mod/resource/view.php?id=14157>2. Make the classroom and webinar events (live events) active, and not just lectures. You can always record lectures for easier and flexible use by students. But live time is time for interaction.  |  |
| DL Technologies may be new and intimidating. Training (and motivation) for those that will use them is required. Lack of experience in applying the innovation requires training for the teaching staff | 1. CALMet Moodle Course for learning Moodle <https://etrp.wmo.int/course/view.php?id=88>2. Engagement of trainers in a new environment with the support of IT staff and e-learning developers/designers.3. Trainers should take some lessons on how to teach an online course, because the methods for the online are different from face-to-face courses. It should be brief and with a clear structure. 4. Ten key principles for planning distance learning: <https://etrp.wmo.int/mod/resource/view.php?id=14528>5. WMO ETR Office should offer some short workshops on various innovation topics, and also more resources in its Trainer Resource Portal: <https://etrp.wmo.int/course/view.php?id=30> (available in French: <https://etrp.wmo.int/course/view.php?id=136>,)6. Learn from friendly nearby institutions struggling to learn the same things7. Don’t forget that others, besides teachers, may need training (managers, IT, etc.) about innovations |  |
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| Need to learn about and decide which technologies to use  | 1. Use internet searches to compare capabilities of products. Such as <https://www.codeinwp.com/blog/best-webinar-software/> and <https://www.adamenfroy.com/best-webinar-software> (\*)2. Discuss with IT staff in your Institution about available technologies and, possibly, involve them.3. Discussion fora of professionals in educational technology4. Discuss with colleagues in other institutions and in your professional network |  |