Integrating Activities for Advanced Communities

D3.1- TA and VA Quality Assurance Programme

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PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
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Publishable Executive Summary

When large amounts of access are provided in a framework of a major distributed infrastructure, such as INTERACT III, it's crucial to monitor the quality and effectiveness of the whole access provision chain, including all three modalities of access, Transnational (TA), Remote (RA) and Virtual Access (VA), to continuously streamline and improve the access provision processes both during the project life and for the future. The Quality Assessment Programme for access provision in INTERACT III covers the whole access provision chain from access calls and provision of on-line virtual access, to reporting of scientific publications resulting from the access used, including feedback from users of all activities during the access provision chain. The quality assessment includes a variety of on-line tools, performance indicators, evaluations, organizational structures and safeguards, collection of feedback from both access users and providers, and analyzing the information gathered from these at regular time intervals to take corrective actions and improvements in access provision chain where needed. All structures, measures and activities of the INTERACT Quality Assessment Programme are geared to ensure comprehensive, continuous, and sustained quality control, leading to increasingly streamlined, effective and high-quality access provision of TA, RA and VA that benefits both the research infrastructures and their users in Europe and beyond.

1. Introduction

When 6500 person-days of access to 53 research stations are provided in a framework of a major distributed infrastructure, such as INTERACT III, it is crucial to monitor the quality and effectiveness of the whole access provision chain, including all three modalities of access -Transnational (TA), Remote (RA) and Virtual Access (VA)- in a streamlined and transparent way and fine-tune the process where needed along the project life.

The TA/RA/VA work package already employs several best practices of quality control from INTERACT I and II that continue in INTERACT III, such as feedback collected from all TA User Groups and a Complaints Policy for Transnational Access. In INTERACT III, we have now developed a Quality Assurance Programme (QAP) that includes all parts and activities of the TA/RA/VA provision chain, including the coordination and management (WP3), TA/RA/VA providers and access users.

The QAP consists of variety of tools and performance indicators, organizational structures and key persons to safeguard, monitor and support the TA/RA/VA provision, collection of feedback from both access users and providers, analysis of the feedback and performance indicators at regular time intervals, corrective actions where needed to improve the access provision processes, and various activities related to the reporting of used TA/RA/VA. These are all described in detail in the QAP.

The QAP covers the whole duration of the INTERACT III project from 2020 to 2023, continuing the best practices from the previous funding period, and developing and extending the TA/RA/VA quality assurance with new tools and practices. All structures, measures and activities of the QAP are geared to ensure comprehensive, continuous, and sustained quality control, leading to increasingly streamlined, effective and high-quality access provision of TA, RA and VA that benefits both the research infrastructures and their users in Europe and beyond.

2. Quality assurance in Transnational Access and Remote Access provision

The quality assurance includes several tools, measures and organizational structures at all levels of access provision, with a feedback loop to develop the processes and make corrective actions if the quality control measures indicate this.

Figure 1 presents the different tools, structures and activities of quality assessment along the TA/RA provision chain. There is a variety of tools and methods of quality assessment at different stages of the TA/RA provision chain from opening of the TA/RA Calls to reporting of used access. Analysis of the collected feedback and key performance indicators obtained via the various tools, and statistics of TA/RA use is performed at the end of each reporting period, including actions to improve or fine-tune the TA/RA provision processes, if the used measures and feedback indicates this. The analysis and statistics will be included into the periodic reporting to the European Commission (PR1-PR3) and utilized in mid-term evaluation and final reporting.

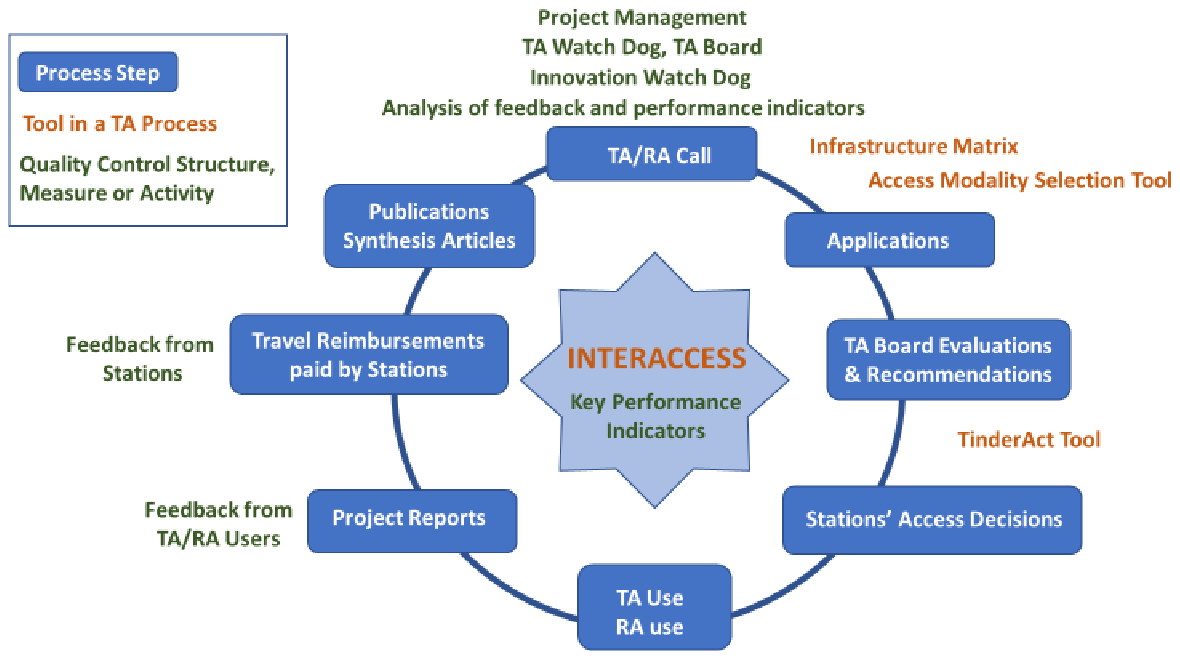

Figure 1. Tools, organizational structures and activities related to quality assessment along the TA/RA provision chain.

2.1. Tools and measures related to quality assurance

2.1.1 Tools embedded in INTERACCESS

The **INTERACCESS** system is an on-line application, evaluation, administration and reporting system used in the management of Trans-National Access in INTERACT. The system also withholds several tools to follow and assess quality and performance of TA/RA provision.

One of these tools is a **feedback form** that is used to collect feedback from all TA User Groups about the different stages of TA/RA provision. **Feedback** including both structured and open questions about different stages of access provision will be collected from all TA Users at the time when they submit their project report on the access use in INTERACCESS. **Feedback related to TA/RA provision** is collected from Station Managers at three times: at the beginning, mid-term and at the end of the project, and analyzed for the periodic reports, mid-term evaluation and final reporting. The feedback statistics functionality embedded in INTERACCESS provides statistics on feedback responses and can be filtered by e.g. TA/RA call, station and reporting period. These statistics include user satisfaction during all processes from the TA/RA application to project reporting. In addition, there is a possibility to give free form feedback in the feedback form. The feedback received is used for improving all stages of TA/RA provision as the feedback is collected regularly and from all TA/RA User Projects as well as from the access providers.

Another quality assessment tool embedded in INTERACCESS is **key performance indicators (KPIs)**. These are formed by time-lapses between different status changes of the TA/RA applications entering the TA/RA process in the system (e.g. time lapse between application to be submitted and access decision to be sent to applicant), measuring the effectiveness of the TA/RA process from opening of the call to reporting of publications derived from used access into the system. KPIs can be calculated as an average per station, per call, per reporting period, etc. to monitor changes over time. KPIs from different stages of the TA/RA process chain indicate the performance of TA/RA Administration (e.g. time from closing of the call to sending applications to evaluation), Stations (e.g. time from access visit to payment of travel reimbursement), and TA Users (e.g. time from access visit to scientific applications).

The KPI's help to monitor the efficiency (time used) of different stages of access provision. Comparison of e.g. station-wise indicators to the consortium average can alert TA Coordination to initiate supportive actions if e.g. some access provider's travel reimbursements are always significantly delayed compared to the consortium average. Similarly, each access provider can monitor their own performance by comparing their KPIs to the consortium average. In addition, the changes in KPI's over time; both consortium-wide, station-wise and by TA/RA Coordination can be used to monitor both the development in the efficiency and speed of administrational processes and as a warning signal if significant delays or deviations occur.

The **TinderAct** tool is based on "flagging" of TA User Groups working on the same topic or at the same station. Identification of the possible synergies between TA User Groups will help to improve cost-effectiveness of the TA/RA provision and reduce the environmental footprint of access provision (e.g. travel to remote locations) by facilitating networking and collaboration between TA User Groups (e.g. group going to one station to study the same topic as another group at another station could help each other by exchanging some samples or data to create comparative studies). The TinderAct tool also helps to anticipate and possible avoid overcrowding at certain stations with limited accommodation capabilities and distribute the used access more evenly during the field season.

2.1.2 Tools embedded on the INTERACT website

The tools embedded on the INTERACT website are innovative in such respect, that they are **preventive quality assurance**, rather than the traditionally corrective and retrospective quality assurance methods, where the quality assurance is obtained after the activities via various feedback methods. These tools, the Infrastructure Matrix and Access Modality Selection Tool help to ensure, that the TA/RA applications submitted in the annual calls would be as suitable as possible to be conducted at the station where the access is applied, and that the access modality chosen by the applicant would be optimal for the planned research and also encourage the applicants to utilize the potential of freely and openly available virtual access alongside with the two modalities of Transnational Access (TA and RA). The TA/RA applicants can utilize the **Infrastructure Matrix** available on the INTERACT website to identify the station(s) that are best suited for their research from the viewpoint of societal challenges their research is addressing. The **Access Modality Selection Tool** is an on-line questionnaire that can be made anonymously to help scientists interested in Trans-National Access to identify the access modality or combination of access modalities that is best suited for their study. The statistics obtained from the Access Modality Selection Tool (% of recommendation to select physical TA, RA or VA) are recorded and can be compared to the percentual distribution of access modalities over the reporting periods.

Synthesis Papers are multi-authored, multi-disciplinary articles in internationally recognized scientific journals. The Synthesis Papers, potentially resulting from the new collaboration and cross-fertilization of ideas initiated among INTERACT TA Users by e.g. the use of TinderAct tool serve as long-term measures of innovation and quality of TA/RA provision and as legacy of INTERACT III beyond the project-life, as identified by the Innovation “Watch Dog”.

2.2.Management structures related to quality control in TA/RA provision

There are several structures in place in the INTERACT III project management to safeguard the quality in TA/RA provision.

Trans-National Access “Watch Dog” will ensure that best practices and knowledge from INTERACT I and II will be continued and improved in INTERACT III. The TA Watch Dog is following the progress of the TA/RA Provision from her location in TA Coordination office on a daily basis and provide consultation when needed to guide the activities. TA Watch Dog is also a member of the INTERACT **Daily Management Group**, and can alert if any deviations in the planned activities are taking place and suggest corrective actions.

Innovation “Watch Dog” has developed - in collaboration with the TA/RA leader and TA Watch Dog-indicators to monitor the cost-effectiveness of TA/RA provision. These measures include the key performance indicators embedded into INTERACCESS as well as a long-term indicator (the number of Synthesis Papers published) measuring the outcome of the excellent science supported by INTERACT TA/RA.

Transnational Access Selection Panel (TA Board) consists of members external to INTERACT consortium and station representatives from different geographical regions and is chaired by the TA “Watch Dog”. TA Board evaluates the scientific quality of the users recommended for TA or RA to the research stations. Standard **evaluation criteria and scoring**, with **evaluation guidelines**, are used throughout the project to ensure scientific excellence of projects granted TA/RA, and coherence across evaluators and between the TA/RA calls.

3. Quality assurance in Virtual Access provision

The quality assurance consists of several tools, measures and organizational structures at all levels of Virtual Access provision, with a feedback to develop the processes and make corrective actions if the quality control measures indicate this (Figure 2).

Analysis of the collected feedback, and **statistics on the VA provision** by partners and through the VA Single-Entry Point is performed at the end of each reporting period, including actions to develop or fine-tune the VA provision if the used measures and feedback indicate this. The analysis and statistics will be included into the **periodic reporting** to the European Commission (PR1-PR3) and to the **mid-term evaluation and final reporting**. In addition, the quality and success of the VA provision will be evaluated in two **VA Assessments**, done at mid-term and in the end of the project by the VA Board, consisting of members external to INTERACT and chaired by the Data "Watch Dog". The results and recommendations of the VA Assessment will be provided in mid-term and final reporting and published as VA Assessment Reports.

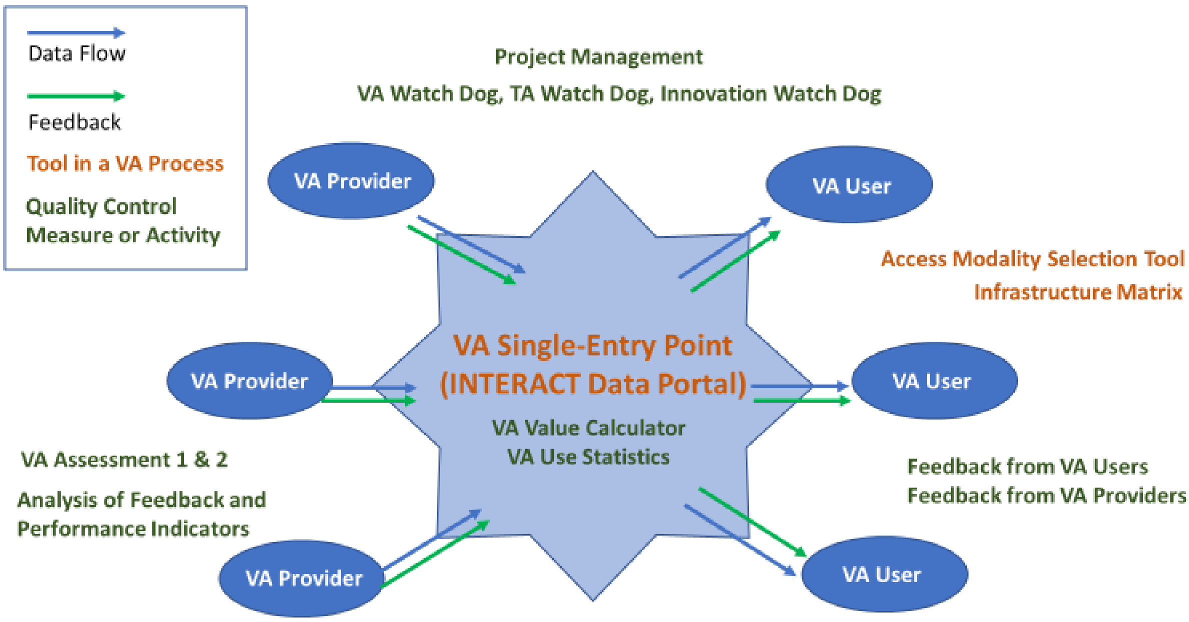

Figure 2. Tools, organizational structures and activities related to quality assessment in the Virtual Access provision.

3.1. Tools and measures of quality control in VA provision

3.1.1.Virtual Access Single-Entry Point metadata portal

The new on-line **Virtual Access Single-Entry Point** v 2.0 (metadata portal) - once launched in 2021 - will provide the VA users an easy and efficient way to access the data provided by INTERACT partners for Virtual Access. There will be several quality assessment tools embedded to the VA Single-Entry point. **User**

statistics are obtained via web-analytical tools for each periodic reporting (PR1-PR3) to monitor the volume of VA use, including the number of site visits, number of unique users, geographical distribution of the users etc., and they are also included into mid-term and final reporting, and to VA Assessments. Similar user statistics are provided by the individual VA providers for the datasets provided for INTERACT VA.

Added value and information on the efficiency and value of VA provision will be gained by the use of **VA value calculator**, developed by the Innovation "Watch Dog" in collaboration with WP3, deployed on the VA Single-Entry Point system backend to calculate the value of each dataset record harvested into the VA Single-entry point proportioned to the cost of a dataset collected via TA/RA.

VA User feedback form will be available in the VA Single-Entry Point front end, and campaigns will be arranged at closing of each reporting period to invite VA users to provide feedback on their experiences.

3.1.2. Tools embedded in the INTERACT website

Two on-line tools, embedded in the INTERACT website, are working to improve the quality in access provision by helping the access users to identify the most suitable access modality for their study. **Infrastructure Matrix**, described in detail earlier in the QAP contains a part specific for VA provision, directing TA/RA applicants to utilize VA in their studies along with the TA/RA. **Access modality selection tool,** described in detail earlier in the QAP, serves the same purpose in the access quality control and assessment, improving the accuracy of selecting the best possible modality of access for the research in question.

3.2. Management structures related to quality control in VA provision

There are several structures and activities in VA provision helping to safeguard its quality. **Data "Watch Dog"** oversees that the VA provision is developed with the FAIR (Findable, Accessible, Interoperable, Reusable) guiding principles in mind, and can alert the Coordinator if corrective actions are needed to stay on the course of development. VA provision is assessed twice during the project life by a **VA Board**, consisting of members external to INTERACT and chaired by the Data "Watch Dog". **TA "Watch Dog"** also follows the development of VA provision, along with the TA/RA provision, and can alert the Daily Management Group if deviations in the work plan are expected. The INTERACT **Data Team** with representatives of several INTERACT WPs and both "Watch Dogs" works together to ensure the interoperability between different INTERACT systems (including INTERACCESS and VA Single-Entry Point related to access provision).

Joint workshops with **Data Managers** from individual INTERACT partners proving VA ensure that the developed VA Single-Entry point, including metadata guidelines, are compatible with the standards used by others. **Feedback related to VA provision** is collected from Data Managers and Station Managers in three time points: in the beginning, mid-term and at the end of the project.