eMS*

electronic
monitoring
system

Questions and Answers on the eMS

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1. What is the eMS?

The eMS is a programme monitoring system with a communication portal. It which allows programmes to collect and store all necessary project and programme information and communicate with beneficiaries electronically via a secure online communication portal. Interact develops this software together with, and for the benefit of, Interreg (ETC[1]) programmes.

The system was built in milestones, which contain several modules. The modules were prioritised according to the programme lifecycle (e.g. the delivery of the application form and assessment modules was scheduled before the project progress monitoring module). This allowed programmes to use eMS in productive environments even before the software was finalised.

The software is built using as much as possible free-to-use technologies and where license fees apply, those were covered by Interact. Programmes can use the eMS free of charge and are allowed to adapt it to their needs, if necessary.

The initial development phase was finalised in September 2015. The testing and improving of the system continues also after acceptance. If needed, new functionalities are being developed.

2. What is covered by the eMS?

The eMS covers the entire project and programme. The following modules are available[2]:

1) Core database, 2) Communication portal, 3) Application form module, 4) Assessment and decision module, 5) Contracting module, 6) Project modifications module, 7) Project partner progress reporting / FLC module, 8) Project progress reporting module, 9) MA module, 10) CA module (incl. payments to projects, interim and final applications for payment to EC, accounts for accounting period and payments from EC)[3], 11) Programme progress module, 12)

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1 European Territorial Cooperation, according to REGULATION (EU) No 1299/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 on specific provisions for the support from the European Regional Development Fund to the European territorial cooperation goal. As far as the same provisions apply, e-cohesion requirements apply also to IPA II CBC programmes with Member States according to REGULATION (EU) No 231/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 March 2014 establishing an Instrument for Pre-accession Assistance (IPA II).

[2] A technical assistance module was developed and is fully functional to the extend initially planned. However, as it turned out that programmes need to monitor TA in a very similar way to other projects, the TA module might not be detailed enough for many programmes. We therefore recommend to monitor the TA projects as normal projects within a dedicated TA call for proposals and not to use the TA module or use it for information/statistics purposes only. This module will not be developed further.

3 Please note that the CA and Corrections and audits modules are currently being revised due to recent publication of CA guidance. The new version is expected by mid-2016.

Corrections and audits module (incl. reporting on recoveries, withdrawals, amounts to be recovered, recoveries according to art. 71 and irrecoverable amounts)[2] . In addition, there is some functionality for audits such as read-only access to user interfaces and a list of project reports for sampling.

In addition, Interact continued to develop additional functionalities such as a simplified budget for project applications, which does not require allocation of budget items to reporting periods. New functions will be added in 2016 and possibly in subsequent years as well.

3. How can a programme know that the eMS fulfils the legal requirements for a monitoring system of Interreg programmes?

Interact cannot guarantee that the system is fulfilling all legal requirements and it will always be the Managing Authority of the programme to take the responsibility. However, Interact carefully analysed all available Regulations and guidelines and developed the system according to our best understanding. To make sure that the system is in line with regulatory requirements, Interact contracted an external audit company to perform an audit of the eMS.

The audit was finalised in November 2015 and confirmed that the system is in line with the regulations. The audit report is available to programmes that are using the eMS but cannot be distributed to third parties. The audit report is meant as a support for Audit Authorities of Interreg programmes in auditing the monitoring system. It cannot replace entirely the work of AAs, as there are certain aspects of the system required by the Regulations which depend on local installations of the eMS and must be checked for every programme separately.

4. Who is developing the eMS?

Interact covers the development costs and coordinates development and testing of the software. Interreg programmes are supporting Interact in the process. In 2014 Interact selected an external IT service provider to build the system and continues working with the same company also after the initial development phase is finalised. Interact intends to develop and maintain the eMS during the whole 2014-2020 period.

Interact is not an IT company and it cannot provide services like direct software maintenance to Interreg programmes. However, Interact offers some limited support to production systems during the production deployment of the eMS. E.g. Interact tries to reproduce and correct errors in the testing environment and maintains a "central" instance of the eMS system.

5. How was the service provider selected?

In 2014, Interact Office Vienna selected a service provider in a public procurement procedure according to Austrian Law. Interact used a negotiated procedure to select a provider within an existing framework contract of the Austrian Central Purchasing Agency. All the companies in the framework contract were invited to submit offers.

After a round of negotiations and a second round of offers the contractor was selected and the contract was signed.

6. How was the cooperation with Interreg programmes organised in the development phase?

Most programmes interested in using eMS participated in one of two groups: the core group or the observers group. The core group cooperated closely with Interact in defining the final requirements for the system. Being a part of the core group meant a programme needed to commit substantial human resources to intensive cooperation with Interact (frequent meetings, commenting of documents, testing deliverables, etc.). They continued shaping the system and were actively involved in the testing phase. Four programmes supported Interact in the core group - two transnational and two CBC programmes: Central Europe, North West Europe, CBC Austria Hungary and CBC Central Baltic. As only Interact has a legal and financial relationship with the service provider, all final decisions were always left to Interact.

Programmes in the observers group received all relevant information and documents and were invited to comment online or during meetings of the observer group. They were also encouraged to test the system after it was delivered.

Additionally, there is an existing Monitoring Systems Network managed by Interact, which continues exchanging experiences between users of different systems across Interreg programmes.

7. Are there any changes in the cooperation structure after the acceptance of the system?

After the system had been accepted (September 2015) and many Interreg programmes had decided to use it (see question 9), Interact invited all the programmes who signed the license agreement (see question 15) to join the eMS User Group. This group communicates daily on Basecamp and meets from time to time. The aim of this group is to exchange programmes' experiences on the system and to specify further development needs.

8. Who can use the system?

Any Territorial Cooperation Programme (Interreg, IPA CBC, ENI CBC) can decide to use the system developed by Interact. Interact will not, however, adapt the software to the needs of

individual programmes. The system is based on HIT templates and agreements within the eMS core group (taking into account also input by the eMS observers group). It is mostly developed based on the needs of ERDF and IPA programmes, therefore ENI programmes wishing to use the system need to first test the system thoroughly to check if it fulfils their needs. Interact makes sure that all ERDF legal requirements and common needs are covered and that the system allows for as much flexibility as required.

9. How many programmes have decided to use the eMS?

There are currently 31 programmes (including the four programmes who supported Interact as a part of the core group), who signed the license agreement (see question 15). More than half of them already have the eMS in live use with projects. Some eMS programmes have already conducted more than one call for proposals. Also the reporting and FLC modules are in production use already.

10. Can future interpretations of the Regulations (and acts) lead to changes of the eMS?

Interact tries to keep the system up to date with all common legal requirements. Therefore in case of e.g., a new implementation guidance, Interact will analyse if there is a need for a system revision. However, it's not possible to foresee all possible interpretations of the rules by MS authorities (CAs, AAs,) as well as by EC. Different interpretations can lead to additional requirements such as additional data to be collected for the MAs as well as for the beneficiary.

As stated in the license agreement, the system is delivered as it is and the MAs have the obligation to check whether it is suitable for them, also in relation to the interpretation of the rules.

Interact encourages all eMS programmes to set aside some budget for programme-specific updates such as those that could be necessary due to different interpretations of the rule, Programme-specific reports and/or data needs.

11. Is the system ready to use once finalised by Interact or does it require additional work from programmes?

The eMS is developed as a ready to use solution, which of course requires installation and some configuration but in theory can be used right away. It is up to every programme to decide how far they want to go in configuring the system. Without any specific IT development skills, programmes can configure certain functionalities to meet their needs, translate user interfaces and application/reporting fields, add descriptions, allocate user rights, etc. It is possible to configure the system further, e.g., by adjusting the PDF templates and adding validation plugins but this already requires a specific IT qualification.

If programmes wish to change the system more than it is possible via the foreseen options, it is necessary to modify the source code. Therefore programmes might need to contract a service provider to take care of additional software development and its maintenance. Interact will continue improving the system and therefore there will be a few releases of new versions per year.

Changes of the community eMS can be done by third parties only after acceptance of Interact (see question 12).

12. What is the 'community eMS'?

Community eMS refers to the one central version of the eMS, which is maintained and further developed by Interact. Every programme joining the eMS family receives the most recent version of the source code of the community eMS.

The community eMS is already complex software. All new additions to the community eMS make the system even more complex and potentially less stable. New additions also need to be thoroughly tested as they can lead to new bugs in unexpected places.

For these reasons, no programme can make changes to the community eMS without prior approval by Interact. If Interact does not approve specific changes of the community eMS, such changes can only be realised in Programme-specific copies of the software and will not become part of the community eMS.

If a programme decides to modify the source code without approval by Interact, the programme creates a programme-specific branch eMS, which is different to the community eMS. The advantage of doing this is that a programme can do whatever changes are deemed necessary without having to worry about the needs of other eMS programmes. The disadvantage is that new developments by Interact might not be compatible with the branch eMS.

13. What are plugins?

Previously, it has been possible to build on the plug-in system implemented in the eMS in order to avoid modifications of the source code. If a programme wants to modify the eMS, plug-ins should be used in order not to modify the code. Examples of existing plugins are the various validation plugins (for specifying programme-specific error checks and flexibility rules), the specification of reporting periods, PDF extractions of documents like the application form and the CUBE to extract data from the eMS.

14. What to do in order to use the eMS?

To install the system in your programmes' servers and make a configuration suitable for your programme, please:

1- Download the license agreement templates in word from basecamp,

2- Fill it in with your programme details (fields marked in yellow),

3- Get the signature of the person legally representing the MA,

4 – Identify an IT-person in your organisation, who is able to install a Java web application on a Linux environment, if you have not done it yet,

5- Request to us the files you need (either binaries or source code), by sending the scanned signed agreement to ip.vienna@interact-eu.net, and the email of your IT person (see point 4),

6 – Send the original per post to Interact Office Vienna Kirchberggasse 33-35/9, 1070 Vienna (Austria),

7 – We will send your IT-person the credentials to download eMS from our FTP server.

While using the eMS, remember to report any bugs/errors you detect to the Interact eMS Team.

15.   What is a license agreement and why do I need to sign it?

A license agreement is a legal contract between the City of Vienna (Hosting institution of the Interact Office Vienna) and the Interreg programme willing to use the eMS. The agreement regulates the rights and obligations of a programme using the eMS. Among others, it allows the programmes to use and modify the system but does not allow for any commercial use of the software.

Signing the license agreement is a prerequisite to use the eMS, no programme can get access to the installation files without signing it. For legal reasons the agreement needs to be signed in German, Interact provides courtesy translation into English (for information only).

16.   Can I only test the system and then decide not to use it?

In October 2014 a demo installation was made available for the communication portal and application form at http://ems.interact-eu.net/demo.

In this way, programmes can view/test the system from the perspective of an applicant. The maximum and minimum option calls are configured to show best the system possibilities.

Moreover, signing the license agreement does not oblige a programme to use the system. It only defines programmes' rights and obligations and is a necessary step to receive the installation files. Programmes can sign the license agreement, install and test the system and then decide against using it in productive environment.

In case a programme that signed the license agreement decides against using the eMS, please make sure to inform Interact.

17.   What support is Interact offering to programmes using the eMS?

Interact supports the eMS users as much as possible within the limited resources available. The support includes replying to questions, writing and constantly updating the eMS manual, organising eMS User Group meetings and trainings and providing training videos (Screencasts).

Moreover, all programmes that sign the licence agreement are entitled to a so-called setup support by the company who developed the eMS. This support is a one time offer by Interact and can be up to 8 working hours.

Programmes can use it e.g., to install and configure their system. A programme who wishes to use the setup support should get in touch with Interact.

18.   Does the eMS require programmes to use all of the HIT tools?

Interact has worked with programmes over a period of two years to develop a set of harmonised implementation tools (HITs). Naturally the eMS is going to use these HITs as a basis for e.g., application form or assessment criteria, etc. HITs also include optional fields in the application form, which are mostly included in the eMS where they can be turned on/off as desired. Furthermore, it is possible to add up to three additional text input fields to certain forms (e.g. to the application form). The wording of the fields can be changed/translated as needed.

To make the development of the eMS possible, Interact closely cooperated with the four programmes of the core group, i.e., specific options, data fields and features were agreed with them. Even among the four programmes, many compromises had to be reached. However some programmes might have specific needs that require programming (e.g., additional fields that require calculations) and Interact can neither foresee nor cover these or the related maintenance.

As eMS is built using the HIT templates, programmes decided to use eMS as a consequence, to use the HIT templates as well. For programme-specific changes of the source code please see also question 12.

19.   What else needs to be harmonised if a programme wants to use the eMS?

It is not possible to meet the needs of everyone and therefore certain harmonisation is absolutely needed as regards not only the templates (HITs) but also procedures and rules used by programmes. The system has to follow one common workflow, agreed within the core group and any programme wishing to use the eMS needs to consider adjusting to this workflow. Interact and the core group have had to keep exceptions to an absolute minimum as every alternative step in the work flow would have increased complexity and cost of the eMS beyond reasonable effort.

It has also not always been possible to provide all possible solutions offered by the regulatory framework. For example, in case of currency exchange, only one option was found feasible by programmes to be used (time of submission to FLC) and at this point Interact cannot guarantee that other conversion options will be supported by the system.

20. In our programme the role of certain actors (e.g., Contact Points) differs from some other programmes. Will it be possible to adjust user rights in the eMS to our needs?

One very important aspect of adaptation to programme needs is the possibility to assign detailed user privileges not only to specific steps in the workflow but also to read and write individual sections. In this sense the eMS is striving for maximum flexibility.

The different needed privileges have been identified in HIT and in the following specification phase of eMS. User privileges in eMS can work on very different levels (e.g. turn on/off whole sections or only single fields). eMS contains only a limited set of user privileges with their defined scope. If Programmes need user privileges on a more detailed level, please contact Interact.

21. Will it be possible to customise the eMS user interface?

eMS comes with the eMS style. This style was developed by Interact together with a graphic designer and follows specific rules, e.g., minimum contrast.

Within this style, customisation of the user interface is possible, but it is limited to certain aspects (e.g. the programme logo, etc.). The user interface library used in eMS contains a number of predefined default styles (http://primefaces.org/themes). Programmes are free to define new styles or change the proposed Interact style according to their needs by creating a new CSS theme. To do that software development skills are needed. Please know that the arrangement of elements in the user interface is not possible without changing the code of the eMS! Therefore changing the arrangement of elements in the user interface is not foreseen by us.

Moreover, the customisation of many fields in eMS is possible by using the switch on/off function for certain fields. Many sections in the application form of eMS allow adding up to three custom text fields and to define the questions or texts for the corresponding labels.

22. Is it possible to use only some parts of the system?

The system is being built in modules and programmes can decide to use just some of the modules and not the others. For example, programmes may decide to use all modules except for those related to the functions of the CA. In this case the link to an external system (e.g. an external CA system) can be implemented by the Programme. As eMS is built using standard storage technologies like a relational database and a file system, it is possible to extract data

using reporting servers or custom web services. Such a reporting server or the web services are not in the scope of the Interact eMS project.

Without an additional reporting server (to be installed next to the eMS to extract data from the database), only the existing eMS tables can be exported. Reporting servers are available for free and can be added by a skilled IT professional and some eMS programmes have already done so.

It might also be necessary to add capacity to the receiving system to handle eMS data (e.g., in terms of data format) since it is not possible for the eMS to cover all data formats and system requirements that external systems might have.

Skipping modules which are needed in the middle of the workflow of eMS (like e.g. the FLC module) is not foreseen. At least minimum information is needed in the FLC module to be able to process the reports further.

eMS does not contain functionality to import data from remote systems.

Using just some of the modules could also require adaptations of the source code of those modules, which are used. This will be the case if core functions of the eMS are omitted. Interact cannot take any responsibility for functioning of a modified system.

23.   Will the eMS be linked to Arachne?

As none of the programmes using the eMS so far made a final decision whether or not to use the Arachne system of the European Commission, there are no plans to build a direct link to Arachne at this point. In the case that many of the eMS users decide to use Arachne, Interact will of course consider programming the link.

24.   Is there a direct link between the eMS and the SFC?

At the development stage of the eMS, SFC was not finalised and it was not possible to link the eMS to SFC. At that stage the core group programmes decided not to implement the link and it was replaced with a different functionality. Currently, we are again investigating the possibility of a direct link.

25.   How can a programme introduce new functionalities in the eMS?

If programmes wish to change the system more than it is possible via the foreseen options, they might need to contract a service provider to take care of additional software development. In some cases this additional software development will change core functions of the eMS. Maintenance of the changed system has to be foreseen (see also question 11).

Currently foreseen are plugins for validations of different forms (e.g. application form, progress report, etc.) and additional reports (like e.g. partnership contract). Interact will

provide the plugin interfaces, descriptions and dummy implementations, the concrete plugins can be developed by the Interreg programmes.

Programmes are free to modify the system as they wish, but as already mentioned in case of a modification of the source code the system is no longer compatible with the Interact community system.

In order to stay in the core, programmes need to get an **approval from Interact** to do some changes. Then the changes are integrated in the community system and available to the entire eMS community. Interact analyses all ideas and agrees only to those which are useful for more than one programme. Programmes need to remember that the more options present in the system the bigger the risk of errors and underperformance.

The same rule applies to all programmes, using the same IT service provider as Interact and those using different software developers. In case changes are done by a different company but are considered useful for the entire community, Interact will cover the cost of integrating them into the core system.

In the spirit of harmonisation and of simplification for the beneficiaries, however, all programmes should carefully evaluate, whether a specific feature, data field or requirement, is really compulsory.

26. Can a programme take the eMS delivered by Interact and develop its own eMS based on it?

Yes, it is possible to take eMS as a starting point for the own system. According to our licence agreement you only need to inform Interact about the modifications. However, deviating significantly from the community eMS is obviously not helping in the process of harmonisation.

Besides the legal situation, Interact would prefer to keep as many programmes using one system as possible.

Interact intends to continue to collect all updates, improvements, developments and bug-fixing of the eMS made by every single programmes also in the 2014-2020 period and to share them with all other programmes. Therefore, a specific requirement for programmes is included in the license agreement. This is of course for the benefit of the whole eMS community, which can then profit from a harmonised approach and better system. To do that, and in order to make these modifications of the source code compatible, we additionally foresee some budget to integrate new developments in the community system. But we only do this in case the change was previously agreed with Interact.

27.   Will Interact ensure warranty and provide maintenance of the system?

Interact cannot ensure warranty and timely maintenance (including debugging), because it is not an IT-company that has contractual obligations towards Interreg programmes. The system is provided free of charge as it is.

Nonetheless, Interact runs a reference system in its own server, which is maintained by the provider. This means, programmes should inform Interact about any errors they detect, in order to reproduce and correct these errors (through instructions or software updates). There is however no guarantee that these errors can be timely and effectively reproduced, as sometimes they depend on the configurations and the work environment used by the programmes.

Therefore it is highly recommended that programmes make sure they have their own maintenance service (internal or outsourced). If needed, Interact can indicate examples of how programmes have done this.

In any case, all programmes that decide to modify the source code need to have their own software development and maintenance services. Interact can provide support in the form of system's technical documentation (source code description) and advice.

28.   What is covered by warranty?

Warranty is a special kind of maintenance, where the service provider guarantees functioning of the system and fixing of all errors within a certain amount of time. The exact warranty is a subject of agreement between the contracting party and the service provider. The maintenance with the service provider covers only errors which are reproducible on the Interact reference system.

Interact is not in the position to provide any warranty to programmes, but can support through reference system corrections (see question 11).

29.   Is it possible to transfer maintenance and/or warranty to another provider?

It is possible to purchase maintenance services from a provider different to the one who developed the system. The eMS is built using well known, widely used technologies, and free-to-use and state-of-the-art software architectures. As programmes have full editing rights of the source code, it is possible to find a different service provider for maintenance/warranty. This new provider will need some time to analyse the eMS (technical specification, documentation, source code).

However, since a warranty is usually just another form of maintenance (see question 27), every programme would need to decide what kind of maintenance requirements they have and procure services as needed (e.g., fixing of errors within a maximum period of time, fixing also on holidays and weekends, consequences/penalties if the service provider does not perform as agreed, etc.).

30. Do programmes have to test the eMS?

Interact devotes some internal human resources to functional software testing (two part-time students, our project and IT managers).

On the other hand the configuration options and the environment where the eMS will run can be so different that only programmes might find some specific bugs and errors. The more the eMS is tested, the more all bugs/errors will be detected, the more stable and better the eMS will be. Therefore, testing by the programmes is absolutely important.

Additionally, Interreg programmes are the best experts on their own requirements and ways of working. Testing will be also a perfect way for Interreg programme managers to get familiar with the system and ready to launch a call, monitor projects, report to CAs/AAs/EC, etc.

There is already a live test of the eMS going on by programmes who use the system in the production environment. Their feedback is very important for us as many opportunities for improving the system appear only when the system is used by the actual end users. Testing is also a legal obligation of the MA, which intends to use the eMS (see question 15).

31. Which costs will programmes using the eMS need to cover?

Programmes will have to cover certain costs if they decide to use the eMS. This includes:

- Cost of purchasing or renting the server and its environment.

- Additionally, if a programme implements changes to the system which influence the source code, programmes will need to take over the maintenance costs. It is difficult to estimate the price of the maintenance services since it will depend on the agreement between a programme and a service provider. It is in any case highly recommended to acquire a maintenance service (internal or outsourced).

- Any additional software developments in this case must also be covered by a programme. Once a programme decides to modify the system, it is probably best to select the same provider for additional developments and for maintenance as both services require an understanding of the initial source code.

- In any case, sufficient budget should be set aside for server purchasing/maintenance of the server, as well as for maintenance services of the software, according to a programmes' requirements (service contract foreseeing e.g. a ticket system with a certain response time, 24hrs coverage etc.).

32. Will there be any contract between programmes (system users) and Interact?

Like any other Interact product, the eMS is provided for free to Interreg programmes. It is necessary to make sure that it cannot be used for commercial purposes. To regulate this and other legal aspects of software use, Interact prepared a licence agreement for the users of the eMS. The licence agreement is the same for every programme. It covers issues like right to use and modify the source code, limitations in terms of warranty, etc. It also explains to programmes what to do in case of additional developments.

33. Who will own the eMS?

The eMS software is developed by an IT company on the basis of a contract with the institution hosting Interact Office Vienna (city of Vienna). The rights to use and change the source code is given to Interact and all Interreg programmes with the limitations outlined in the licence agreement. (see question 31).

Many parts of the source code are also open-source, as stated in the license agreement.

34. Our programme intends to further develop the eMS with the help of a service provider. Who will own the system?

The intellectual property rights for the eMS will not change and it will not be possible to sell adapted versions of the eMS on a commercial basis. Interact foresees that also add-ons which programmes develop to the eMS will be freely accessible and made available to use by other eMS users. Therefore add-ons should not have a proprietary license. This helps programmes to harmonise even further and to collaborate in the advancement of the eMS.

35. What does functionally independent add-on mean?

Functionally independent add-on means something that does not require changes to the source code of the core community system. If there must be some programming work done in the core, then we talk about functional dependency. An example of a functionally independent add-on can be a geographic information system, which takes only information from the system but does not provide any information back. This example could be seen as a separate application using the same data. If you want to use an add-on, we provide a certification mechanism. Our service provider can approve the safe use of your piece of software. After the certification you are free to use it and any software updates by us will be compatible as well.

36. How many parallel users will the eMS be able to handle?

Performance testing of the eMS has been done with 50 or 100 parallel users, who were concurrently logged into the system. The system passed the performance test. eMS already demonstrated its ability to handle many parallel users (even more than 100).

If your system must handle more than 100 parallel users you can increase the hardware or run the system as a cluster with parallel application servers.

The real life experience shows that in the peak times (e.g. at the application deadline with around 200 parallel users) the system response time might decrease significantly. Therefore, it is recommended to install two parallel Tomcats to avoid performance issues.

37. Will the eMS be able to generate customised reports?

It is planned that certain users will be able to configure report templates (e.g. for contracts, progress report forms, etc.) to allow other users to generate reports pre-filled with data that are already in the system. It is planned that these reports will be editable and exportable.

If a programme needs more statistics than offered by the eMS, it is recommended to install a parallel reporting server. The reporting server uses the data stored in the database and can create any report using a combination of available data. There are many reporting servers available on the market, some of them require a license fee and some are open source solutions.

38. Will eMS be linked to the future Interact KEEP system?

eMS is able to provide data to KEEP (http://www.keep.eu/). The link to this external system is currently implemented by sending an extraction of data periodically to KEEP. The data afterwards will imported in to KEEP by the KEEP team.

As KEEP data might need additional work before being published, Interact will implement a functionality for review and manual correction before sending the data to KEEP.

39. Our programme is using a 6-eyes principle when confirming certain important steps in the work flow. Will the eMS be able to handle this?

eMS supports multi-eye questions in checklists (like eligibility or quality assessment). Final decisions in the system are done by one user with the relevant user privileges.

40. What IT components are used in the eMS?

The eMS is implemented using Java technologies. It uses PrimeFaces as a user-interface, Hibernate for persistence and the Spring framework to wire the layers. It will run on Apache Tomcat, uses Mariadb as relational database and will run on CentOS.

41. Can I run the eMS on another database, e.g. Oracle? Can I use a different operating system, e.g. MS Windows Server?

It is recommended to stick to the tested operating system and database. Interact tests the software only on one environment. Therefore we cannot guarantee the functionality of the eMS on other systems or with other databases.

eMS is built using platform independent functionalities. Therefore it should be possible to run eMS on other operating systems as well. Please keep in mind that running eMS on another operating system is not tested by Interact.

Using different databases like Oracle is not tested either. It might be possible, because of the use of Hibernate. But in these cases, Interact support is not possible.

42. Will the system be installed centrally on the Interact server?

No. Programmes will receive their copy of the system and will have to install it locally on their own servers. Interact will provide information on recommended server configuration environment. One operational programme will need at least one installation of the eMS (we recommend installing at least two parallel instances, one for testing purposes). Managing Authorities with more than one programme will need more than one installation.

Interact hosts the reference system, which is used for testing, for reproducing errors and for testing new versions/add-ons.

43. Which hardware will programmes need to run the eMS? When is it needed?

Bidders participating in the public procurement were asked to recommend the best hardware configuration for the proposed system. Once selected, the service provider guarantees that the eMS runs on the recommended hardware. For this reason, programmes using the eMS should use the recommended configuration.

Currently it is quite rare that someone actually purchases the servers as it is more popular to use secure data centres. These data centres usually have a monthly price for data storage, backup, etc., which programmes should take into account. The costs can be estimated based on the bidders' proposals and the actual costs will depend on the agreement between a programme and a data centre where the server is rented. Such an agreement usually also includes certain additional services according to the Service Level Agreement.

The eMS does not need dedicated hardware and can run on a virtualised environment. It is possible to run the different servers on different machines. If you do so, you can run the eMS as a cluster of different Apache Tomcat Servers as well.

The bidder guarantees the software can run on the following hardware:

Server	50 concurrent Users	100 concurrent Users
Apache Webserver (HTTP)	4 GB RAM/1 Core	8 GB RAM/1 Core
Apache Tomcat	12 GB RAM/2 Cores	24 GB RAM/4 Cores
Mariadb Database	16 GB RAM/ 4 Cores	32 GB RAM/4 Cores
Total	32 GB RAM/7 Cores	64 GB RAM/9 Cores

44. Is it possible to run the system in a clustered environment?

Yes. It is possible to run several nodes of the application server with the usual cluster configuration (sticky session on the load balancer, etc.). Currently we do not foresee clustering of the database.

45. When two users are doing simultaneous updates, what kind of locking mechanism does eMS include?

eMS implemented the "optimistic locking" concurrency control method.

46. In the application phase, if the same lead applicant is applying for more than one project, will it be with same username and password or one login per project application?

One user in eMS could have access to different projects in different status. This means she could be applicant in the first, partner in the second or have only read access in the third.

47. Can the project numbering scheme be altered to include for example the thematic objective number? Is it possible to have another numbering for different projects?

No. Currently we have only the specified numbering in the format *"Programmeacronymconsecutivenumber"*.

48. We will have two different kinds of applications – small and regular, where small projects use a lighter application form. How can we handle this in the eMS?

It is possible to have two calls open at the same time with different timeframes. For small projects you could use also the "minimum options" call - i.e. you select the minimum options in the call wizard, and launch the call as simplified version of the application form. Interact recently developed a new call option called 'Simplified budget', which might be useful for programmes managing small projects. The simplified budget does not include periods as a third dimension and is based on budget line/workpackage only. The spending forecast per period is a separate table not linked to the main budget table.

It is even possible to run a one-step call and a two-step call in parallel.

49. Is it possible for JS to see data filled in incomplete AF's before the application is actually submitted? This would be useful during the call for consulting and not having to ask for the information.

This is related to user rights. Depending on the configuration of the user rights, the JS could see all projects – even if the ones not yet submitted.

50. If the application is rejected, it is referred to as a final state. Is it possible to re-open if rejection was done with a wrong decision after applicant has appealed?

The administrator will have the right to assign another state to the AF. He could push a rejected AF back to MC decision. Afterwards a new status could be assigned.

51. Is it possible in workflows to define backup persons for people in case they are on holiday or something or are they just role/group based?

The profiles are role based - i.e., you might have e.g. an "applicant", "admin" or "JS" profile. You can assign these profiles to multiple users. This way it is possible to assign a user role to more than one user.

Where can I get more information?

Please also note that the answers we provided here reflect the current state of development of the eMS and our understanding on specific issues discussed with Interreg programmes. This document has no ambition to be complete or exhaustive, but it intends to shed some light on a complex endeavour such as the eMS.

For more information, please feel free to contact Bogusława Łukomska, Christoph Werner or Katrin Stockhammer from Interact Office Vienna (firstname.lastname@interact-eu.net).