

OpenRiskNet

RISK ASSESSMENT E-INFRASTRUCTURE

Deliverable Report D3.3

Fully functional support
infrastructure



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OpenRiskNet: Open e-Infrastructure to Support Data Sharing, Knowledge
Integration and *in silico* Analysis and Modelling in Risk Assessment

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www.openrisknet.org

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Description	Section
The platform was updated with additional information (OpenRiskNet User Support / FAQ). Ways to monitor the usage are proposed.	OpenRiskNet Helpdesk
New section on the functionalities offered by the service catalogue on the training and user support	OpenRiskNet service catalogue
New section on the Library, as support feature of the e-infrastructure	OpenRiskNet Library dedicated to users
Proposed KPIs and statistics	Key Performance Indicators (KPIs)

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Summary

OpenRiskNet is developing an e-infrastructure for predictive toxicology and safety assessment (of chemicals, pharmaceuticals, nanomaterials etc.) in the form of virtual research environments (VREs) and data, analysis and modelling services coming from the consortium but also from third parties, which can be deployed to these. This deliverable describes the support functions set up and how they were customised for specific user groups. Due to its specific purpose of being an infrastructure where public and commercial services are offered to the community, OpenRiskNet services different types of users and roles, which can be grouped into:

- **End users** (e.g. members of academia, industry, and regulatory agencies) who are defined as users who log into an OpenRiskNet VRE and consume one or more services or applications
- **Developers** who are involved in developing or setting up parts of the OpenRiskNet VRE, such as middleware, frameworks, data, or tools packaged as services or applications; in the latter case also referred to as **tool provider**
- **System administrators**, who are in charge of creating and managing the OpenShift environment for the VRE and deploying the basic services.

We note that there will in many cases be an overlap between these roles, so that e.g. a Developer might also play the role of a System Administrator, but we will use these definitions in this document for clarity.

For all these users, we provide user-driven website content, a virtual help desk and an issue tracker for technical matters and case study related information as well as an option for feature requests, all structured around specific user roles. The helpdesk offers frequently asked questions (FAQ), a Getting Started guide, and a way to ask questions in the form of filing support tickets, which are serviced by specific OpenRiskNet staff responsible for handling and delegating issues. Additionally, a wiki specifically designed for developers, service providers and system administrators is provided with information on the deployment of the infrastructure and the development of OpenRiskNet-compliant services. A newly established services catalogue offers functionalities that integrate the services description with training and user support. The support infrastructure is fully functional and in operation. A set of Key Performance Indicators are proposed, including the statistics so far. An updated status report on the KPIs will be included in the next relevant deliverables.

The direct access to different support functionalities:

- OpenRiskNet Helpdesk: <https://openrisknet.freshdesk.com>
- OpenRiskNet Wiki: <https://github.com/OpenRiskNet/home/wiki>
- OpenRiskNet Issue tracker: <https://github.com/OpenRiskNet/home/issues>
- OpenRiskNet Services catalogue <https://openrisknet.org/e-infrastructure/services/>
- OpenRiskNet Library: <https://openrisknet.org/library/>

The website homepage (<https://openrisknet.org/>) offers a single entry point access to all these functionalities in a simple and user friendly manner.

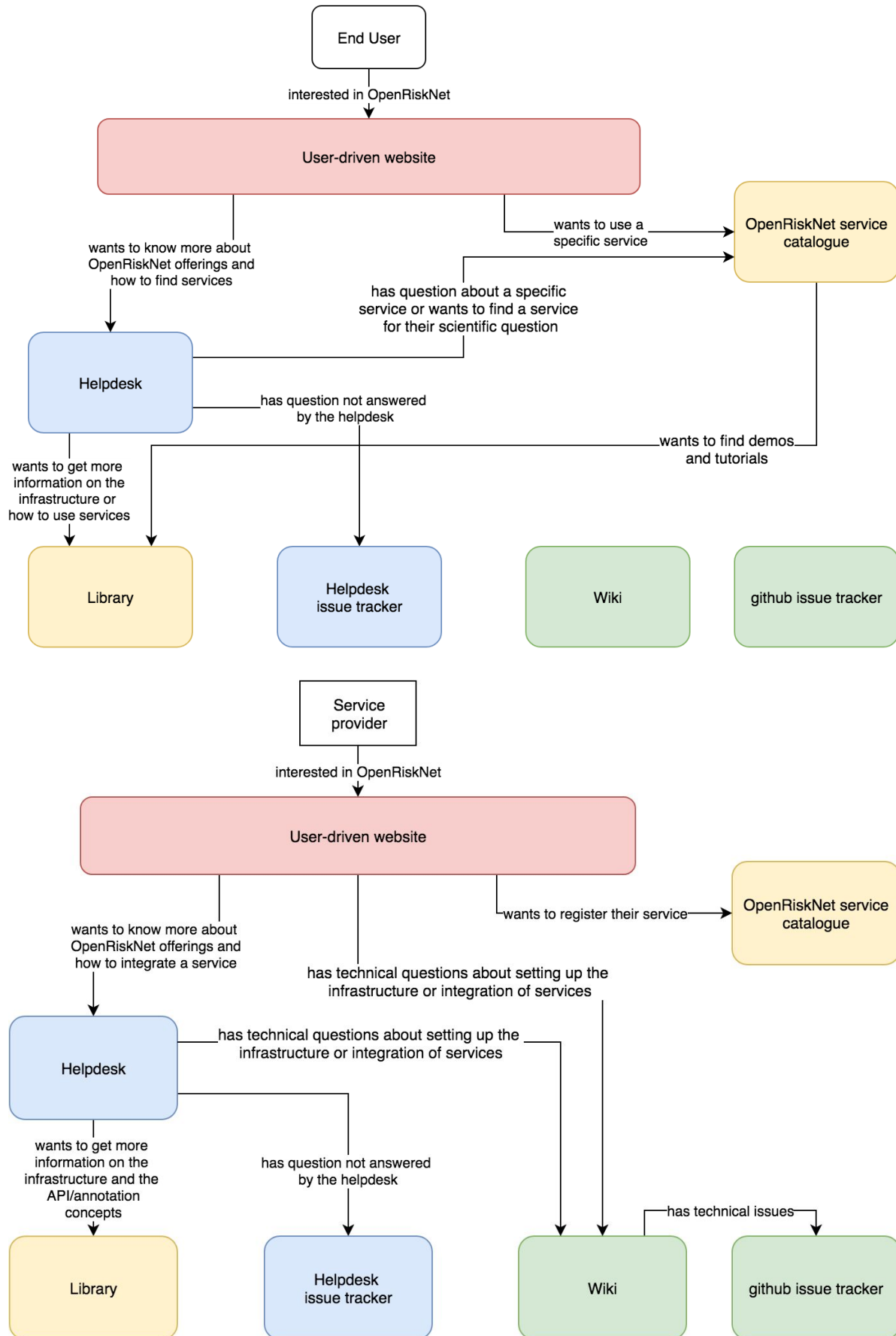
Support Infrastructure Description

OpenRiskNet is developing an e-infrastructure for safety assessment that will service different types of users and roles. Besides providing data, analysis and modelling services running on the virtual research environments as well as development tools and design concepts to bring additional service onto the infrastructure, OpenRiskNet also offers a rich support and help options, which are described in this Deliverable 3.3 report in the form of a Demonstrator. OpenRiskNet serves two distinguish groups of users, end users of the services (academic and industry researchers, risk assessors, etc.) and service providers (software developers and database managers), even if it is not unexpected that one user belongs to both groups to some extent. Both groups have different expertises, expectations and requirements, which have been considered in the selection of the support offerings summarised in Table 1 and described in more detail in the following sections. Besides these main users, infrastructure providers and system administrators are another group to be considered in the support offerings since they will be in many instances be responsible for setting up and administering the infrastructure and deploying the OpenShift and scientific services.

Table 1. Mapping of user activities to suitable support functions in OpenRiskNet

User activity	Main support functions
Developer integrating their services into the e-infrastructure	Wiki, Issue tracker
Administrator integrating a VRE	Helpdesk, Wiki, Issue tracker, OpenRiskNet Service Catalogue
Administrator managing a VRE	Helpdesk, Wiki, Issue tracker, OpenRiskNet Service Catalogue
Scientist interacting with deployed applications via GUI and Dashboard	Helpdesk, OpenRiskNet Service Catalogue, Resources & Training Library

In Figure 1, workflows are demonstrating how these support services will play together to address common questions and issues posted by the three different user roles: end user, developer and system administrator.



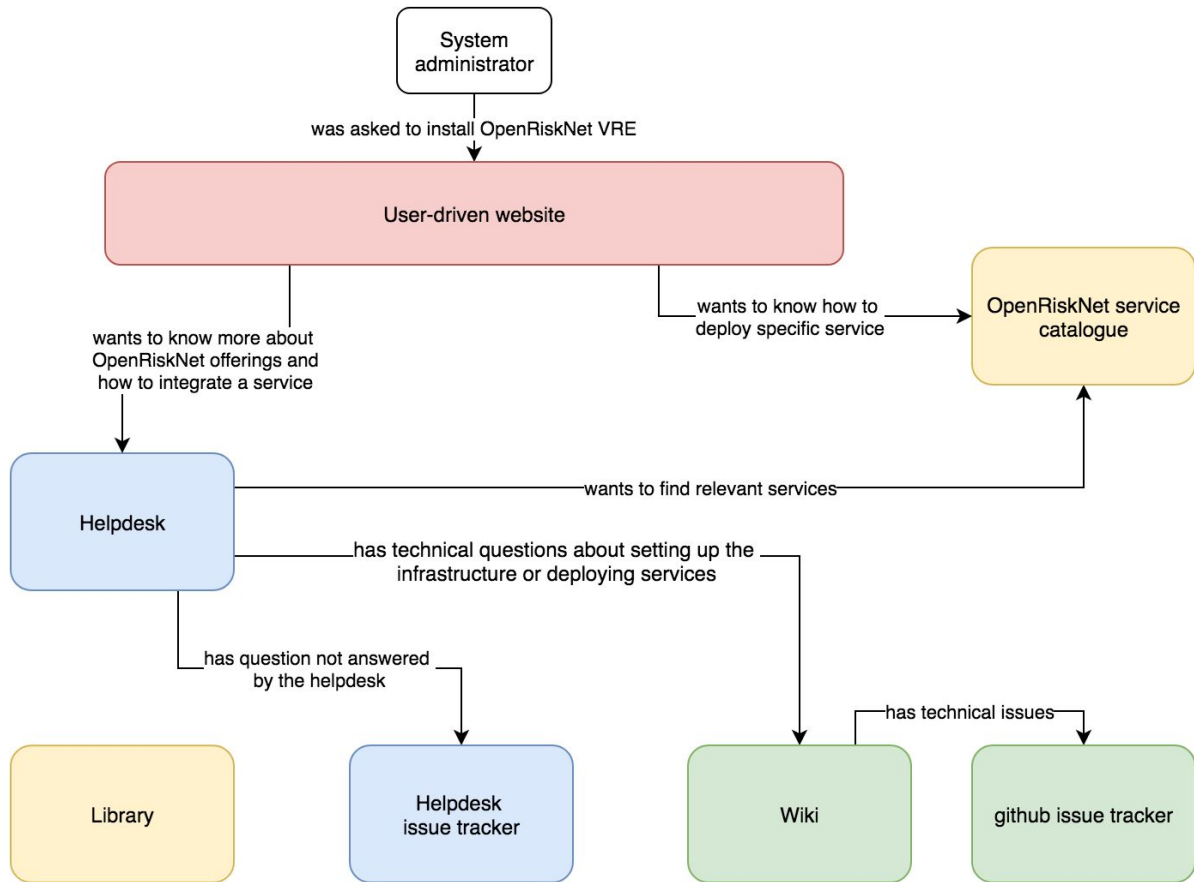


Figure 1. Interplay of the different support options for specific user roles demonstrated with some frequent questions and issues to be served

User-driven website

The public website is in most cases the entry point to get more information on the project and access to the offered services including support. Therefore, it offers features that aim at supporting all users in filtering and accessing necessary information and documentation on installing and administering the e-infrastructure as well as deploying and running scientific services and applications. To improve the user experience, these tools are organised, similar to many other areas of the website, to match specific user profiles (user-driven), separating the two general user groups end user and service provider or more specific subgroups of these. Besides the specific support tools, good starting points to get information on the general progress of the project can be accessed via

- the OpenRiskNet Service Catalogue;
- the OpenRiskNet Library, and
- a list of events organised or attended by OpenRiskNet members

A function email address (openrisknet@douglasconnect.com) was implemented, in order to collect eventual questions that cannot be addressed using the other tools available.

The direct access to all support tools is easily done from the website home page (Figure 2). Also, single entry points were enabled for different type of users (end-users or developers), giving the possibility to access all the information and resources from one page.

The screenshot shows three main content blocks on a light gray background. The left block contains 'Try It out' with a link to 'list of available services' and 'your own VRE', and 'Tutorials and feedback' with links to 'Webinars', 'Requirements survey', and 'Help desk'. The top right block is 'Resources for end-users' with a 'MORE →' button. The bottom right block is 'Resources for developers' with a 'MORE →' button.

Try It out

Feel free to test out one or multiple of the available services. The list of available services is constantly updated.

- Have a look at the [list of available services](#)
- Learn how to set up [your own VRE](#)

Tutorials and feedback

- [Webinars](#) – Sign up for webinars introducing the infrastructure.
- [Requirements survey](#) – Help us optimize the infrastructure according to your needs by filling in this short survey.
- [Help desk](#) – Report issues, give feedback and browse our knowledge base.

Resources for end-users

Scientists and members of academia, industry or regulatory agencies who would like to use the infrastructure for their predictive toxicology and risk assessment tasks.

[MORE →](#)

Resources for developers

Service developers, infrastructure providers or data managers who would like to integrate their databases and software tools into the OpenRiskNet infrastructure.

[MORE →](#)

Figure 2. The website features summarising the information dedicated to different type of users

OpenRiskNet Helpdesk

The OpenRiskNet helpdesk (<https://openrisknet.freshdesk.com>) is the first point to which end users are guided if they have general questions to the infrastructure. There, they are provided with a set of services (see Figure 3):

- **Support ticket function**, where users can ask questions about the general e-infrastructure and its specific functionalities in a way serviced by OpenRiskNet staff with specific responsibilities to respond;
- **Frequently Asked Questions (FAQ)**, where users can read about common problems encountered by Users and their resolution. This will be continuously updated during the project when new problems are reported and resolved;
- **Getting Started** guides and tutorials which guide the users through their first interactions and for specific use cases.

The screenshot shows the OpenRiskNet helpdesk interface. At the top, there is a navigation bar with the OpenRiskNet logo and the text 'RISK ASSESSMENT E-INFRASTRUCTURE'. To the right of the logo are 'LOGIN' and 'SIGN UP' buttons. Below the navigation bar, there is a search bar with the text 'How can we help you today?' and a search icon. Below the search bar are two buttons: '+ New Support Ticket' and '+ Check Ticket Status'. The main content area is titled 'Knowledge base' and lists various FAQ categories:

- Getting started (5)**
 - Before you start, watch a brief introduction to the OpenRiskNet project
 - What is OpenRiskNet?
 - How can I access OpenRiskNet?
 - How can I partner with OpenRiskNet?
 - How can I interact more with OpenRiskNet members?
- FAQs end users (5)**
 - How do I login in order to access OpenRiskNet services?
 - What services are available within OpenRiskNet?
 - How can I search among the services?
 - Where can I learn more on the OpenRiskNet case studies?
 - Jupyter hub does not start properly or gives "400 Bad Request jupyter is pe...
- FAQs developers and service providers (3)**
 - Are there developer documentation and resources?
 - How do I report problems/bugs/requests?
 - Is OpenRiskNet open source?
- FAQs infrastructure providers and system admins (3)**
 - Watch an introduction on how to administer a OpenRiskNet virtual researc...
 - How can I create my own VRE?
 - How can I integrate a VRE into my organisation's security infrastructure
- FAQs public website (4)**
 - How can I access the public website of OpenRiskNet?
 - Where can I find the catalogue of OpenRiskNet services?
 - Where can I find training materials and dissemination resources related to ...
 - I am a Partner or Associated Partner in OpenRiskNet. How do I add and des...

Figure 3. Screenshot of the OpenRiskNet helpdesk tool

The statistics from the Helpdesk enables us to monitor the usage and evaluate how the project is coping with their resolution. As such, these measures constitute important key performance indicators to monitor and report on during the remainder of the project

(Table 2 and Figure 4 showing an example ticket). Since the reference instance was open for public access only recently and the deployment of VREs at associated partners has just started, the number of support tickets is limited (see Figure 5 and Key Performance Indicators below). With the good attendance of the introduction and demonstration webinars and the interest also seen at other occasions, we expect that this will change in the near future and the activities will be monitored and documented thoroughly.

Table 2. The fields accessible from FreshDesk tool

Ticket ID	Subject	Status	Priority
Source	Type	Group	Created time
Resolved time	Closed time	Last update time	Time tracked
Agent interactions	Customer interactions	Tags	Full name

← Reply | Add note | Forward | Merge | Delete | ⋮

Closed
3 days ago (Mon, 19 Nov 2018 at 8:02 PM)
[Add tags](#)

Prototype web portal query tool?
[REDACTED] reported an issue | META | 8 days ago (Wed, 14 Nov 2018 at 12:31 PM) ⋮

If this webpage <https://orn-query-test.cloud.douglasconnect.com/> relevant to the name of the FAQ "How can I search among the services?"

[REDACTED] replied to [REDACTED] | 3 days ago (Mon, 19 Nov 2018 at 10:54 AM) ⋮

Hi [REDACTED]

I am sorry I don't fully understand what you mean. Can you elaborate a bit more on your question?

Kind regards,
[REDACTED]

Ticket: <https://openrisknet.freshdesk.com/helpdesk/tickets/14>

Figure 4. Screenshot of one question posted in the support ticket system and part of the response from the assigned support staff

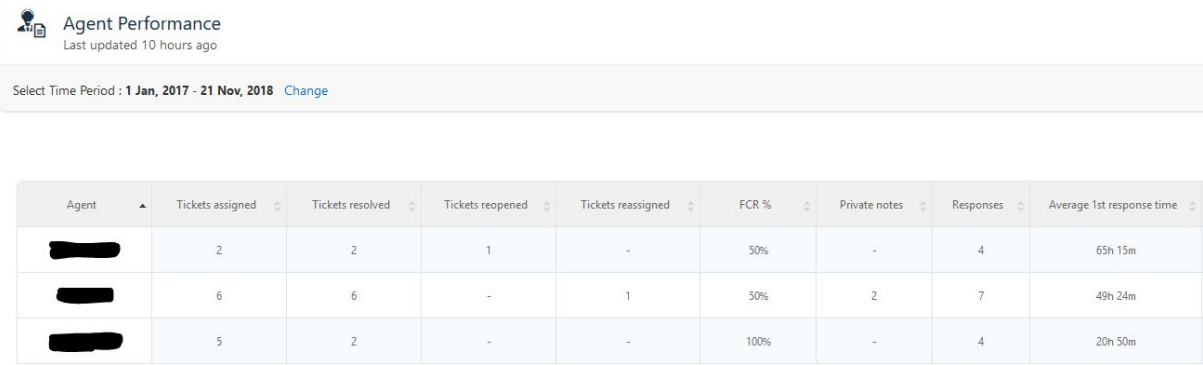


Figure 5. Statistics of the support provided via the ticket system. These performance measures will become more important now that the OpenRiskNet reference environment and more and more in-house deployments are fully operational

OpenRiskNet Wiki

The OpenRiskNet wiki (<https://github.com/OpenRiskNet/home/wiki>) is the key resource for supporting developers, both internal and external to the project, and system administrators. The page contains guides for how to integrate services, work with the continuous integration and continuous deployment (CI/CD) system, Docker containers, etc. It is open for editing by OpenRiskNet partners and will be continuously updated as the project evolves. The main page of the wiki is shown in Figure 6 and an example page for a deployment guide in Figure 7.

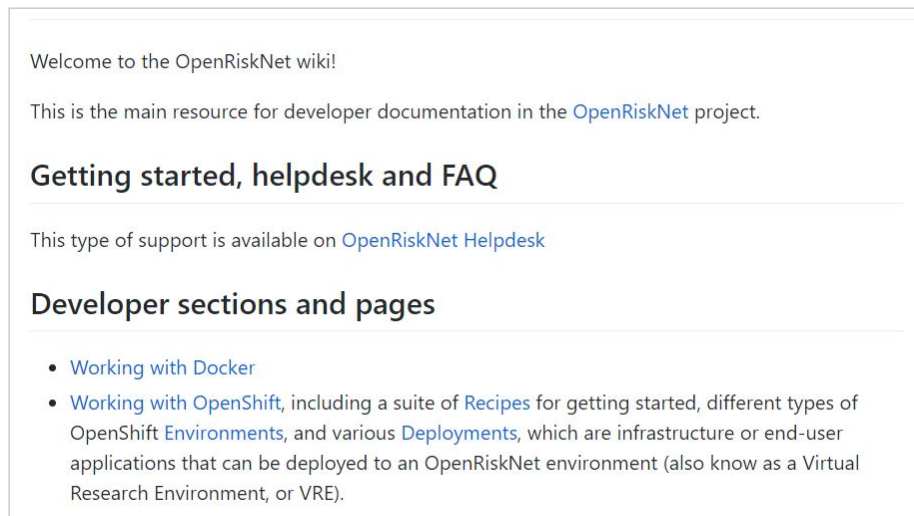


Figure 6. Screenshot of the OpenRiskNet Wiki

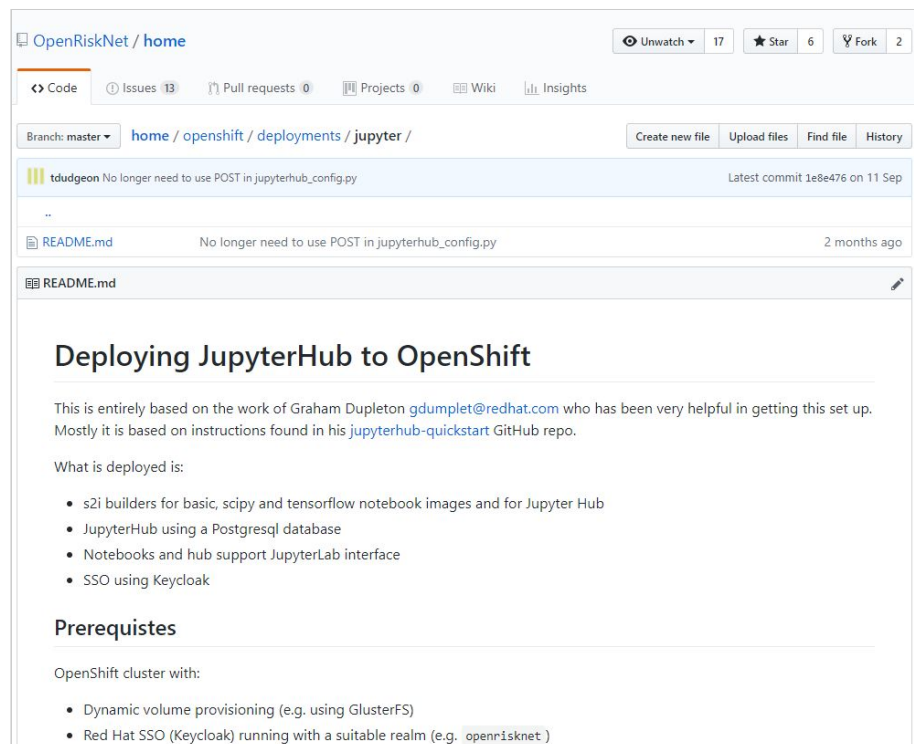


Figure 7. Screenshot of the deployment guide for JupyterHub in an OpenRiskNet VRE

OpenRiskNet Issue tracker

The OpenRiskNet issue tracker (<https://github.com/OpenRiskNet/home/issues>) is the place where the project tracks technical issues, and where users can report bugs and file feature requests (i.e. requests for tools or supports that they would like in order to support integration of their tools). It is mainly targeting developers. For faster communication and feedback, the issue tracker in GitHub is also integrated into the OpenRiskNet Slack channel used for internal project communication (Figure 8).

The screenshot displays the GitHub issue tracker for the repository 'OpenRiskNet / home'. The interface includes a search bar with the query 'is:issue is:open', a 'New issue' button, and a list of 12 open issues. The issues are sorted by date, with the most recent at the top. Each issue entry includes a title, a status icon (e.g., 'bug', 'question', 'enhancement'), a label (e.g., 'jupyterhub', 'serviceregistry', 'cdkdepict'), the date it was opened, and the number of comments.

Issue ID	Title	Labels	Opened	Comments
#20	Spawn Custom Jupyter notebook environments	jupyterhub	2 days ago	0
#19	Memory leak in dotnet process	serviceregistry	10 days ago	0
#18	Pulling docker images on prod env can lead to timeouts	question	20 days ago	7
#17	Switch JupyterHub to use the Postgres database in the openrisknet-infra project	jupyterhub	24 days ago	0
#16	Create Notebook image for RDKit	jupyterhub	24 days ago	2
#15	Upgrade OpenShift version on prod site	enhancement, infrastructure	29 Jul	0
#13	CDKDepict recipe no longer working	bug, cdkdepict	27 Jul	0
#12	Font problem with Jupyter notebooks	bug, jupyterhub	26 Jul	3
#11	Backup and restore for PostgreSQL	enhancement, infrastructure	23 Jul	2
#10	Jupyter PDF export not working	bug, jupyterhub		1

Figure 8. Screenshot of technical support request posted via the github issue tracker

OpenRiskNet Services Catalogue

The catalogue of OpenRiskNet services established recently aims to support the users (end user and system administrator) in finding information, deploying, accessing and using the infrastructure functionalities and especially individual services through an integrated information and support system.

The catalogue (<https://openrisknet.org/e-infrastructure/services/>) provides a detailed description (Table 3) of the available services integrated or in process to be integrated, provides direct links to the service environment and/or to the API definition and also to all related support resources provided by OpenRiskNet or the original service provider. The services can be filtered by application area, service type and user role. Moreover, the catalogue features tags describing the different status of the integration into the OpenRiskNet VRE.

Table 3. The structure of service description

<p>Service identification</p>	<ul style="list-style-type: none"> ● Date of Creation ● Date of updates ● Service name ● URL ● API URL ● API Type ● Provider name ● Provider contact ● Provider organisation ● Origin of the service (e.g. provided by OpenRiskNet partners or third parties) ● Category of service ● Service type ● Integration status ● Implementation status ● Licence type ● Licence ● Information if login is required
<p>Service description</p>	<ul style="list-style-type: none"> ● Short description ● Applicability domain ● Topic ● Biological area covered ● User type (developers or end-users) ● Targeted industry ● Targeted users ● Relevant case studies
<p>Training and user support</p>	<ul style="list-style-type: none"> ● User support service ● User support contact ● Documentation ● References ● Link to the resources from the OpenRiskNet library

An important part of the information related to the services is on the “training and user support” that integrates all available resources on the respective service (tutorials, video demonstrations, publications, etc.). Moreover, the relevant resources and training materials from the OpenRiskNet library are directly linked to the services. Using this approach, OpenRiskNet platform offers an integrated information and support system to satisfy all type of users and different audiences (see an example in Figure 9).

To facilitate even more the use of the catalogue the categorisation shown above is used for filtering and selection of appropriate services by the users.

More functionalities will be added in the near future in order to support even more the access to services and to all their resources available.

The description of services is aligned also to the eInfraCentral templates, in order to fulfill as much as possible the requirements of the this central database.

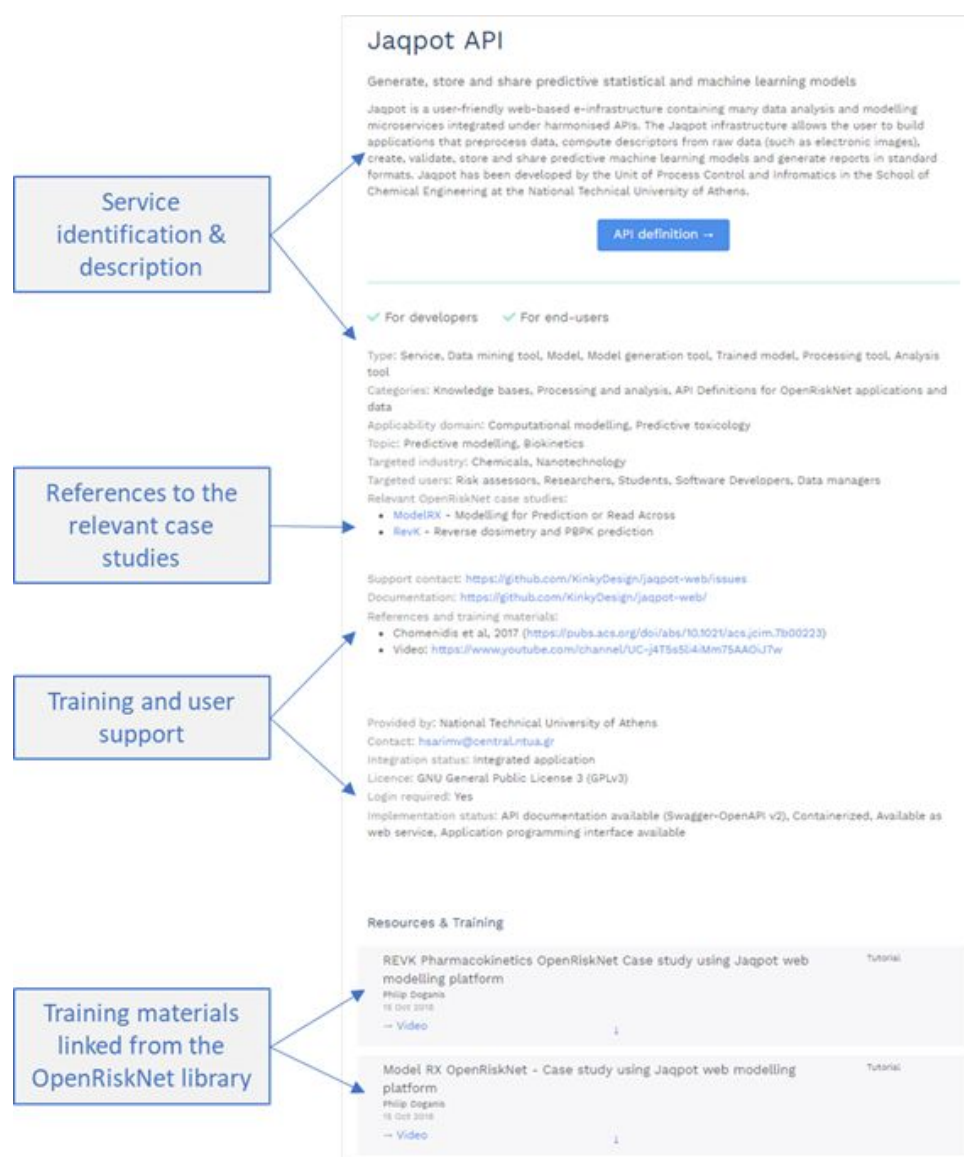


Figure 9. Example on the integrated information and support system implemented in OpenRisknet

OpenRiskNet Library dedicated to users

The library of OpenRiskNet enables the access to all available resources and training materials and represent an important support feature of the e-infrastructure. The source of information aims to support OpenRiskNet users in getting familiar with the project concepts, consult existing publications and reports and learn on specific services and tools available in the e-infrastructure. As mentioned above, all relevant training materials relevant to the services can be accessed directly from the services description.

All existing resources are available in the dedicated page in the OpenRiskNet website: <https://openrisknet.org/library/>. The library can be easily filtered and browsed, using a set of descriptors on the category of resources, the targeted audience and OpenRiskNet partners involved (Figure 10). The following categories of resources are currently available:

- Peer-reviewed publications
- Posters
- Presentations
- Public communications
- Reports
- Tutorials
- Webinar recordings

These resources are addressing the needs of different targeted audiences:

- Data providers
- Software developers
- Bioinformaticians
- Data modellers
- Regulators
- OpenRiskNet stakeholders
- General public
- Nanosafety community
- Data owners
- Data managers
- Developers
- Students
- Researchers
- Risk assessors

The additional description of each resource and training material refer to (where relevant and available): contact, authors, OpenRisknet partner organisation involved, abstract, DOI, URLs, title of the journal, publisher, date of publication, access and license type, associated events and additional documents. These descriptors aim to offer the users a complete set of information covering different aspects on the materials that are available and produced within OpenRiskNet.

An important feature of the library is represented by the direct link created between the training materials, the relevant events and the services.

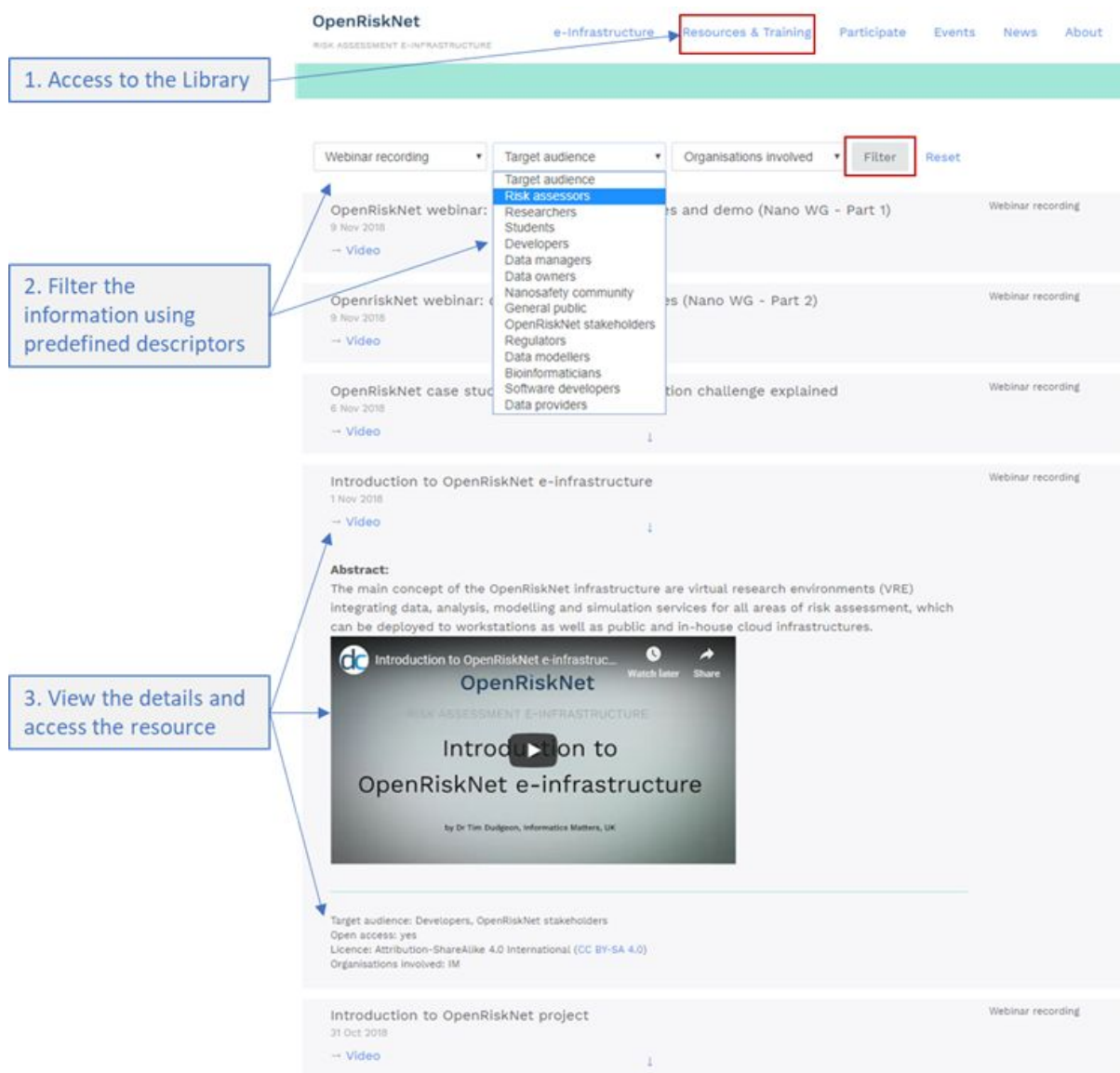


Figure 10. Functionalities of OpenRisknet library to support users in filtering and accessing the relevant information¹

¹ <https://openrisknet.org/library/>

Responsibilities

There are specific OpenRiskNet consortium staff that are responsible for the different support functions, see Table 4. The responsibilities include to handle queries and requests, e.g. delegate requests to other members of the consortium, and to ensure that all issues are followed-up and resolved in a timely manner. This list of responsibilities will be updated as the project continues.

The addition and update of the resources to the OpenRiskNet library and service catalogue is done by each member of the consortium, using the new functionalities offered by the public website. A dedicated tutorial was implemented (see Milestone 1 Annex).

Table 4. Support functions and responsible staff within the OpenRiskNet consortium

Support function	Responsible consortium member
Helpdesk	Lucian Farcal (DC)
Wiki	Ola Spjuth (UU)
Issue tracker	Tim Dudgeon (IM)
Public website	Maja Brajnik (DC)

Key Performance Indicators (KPIs)

Statistics on Github Issues

Number of issues: 13 Open / 10 Closed

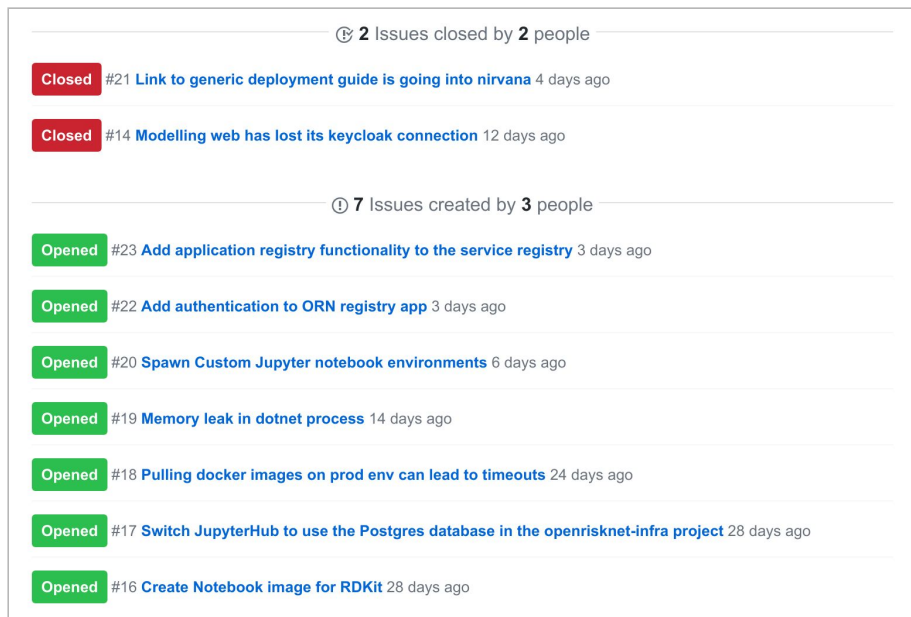


Figure 11. Statistics on the Github issue tracker

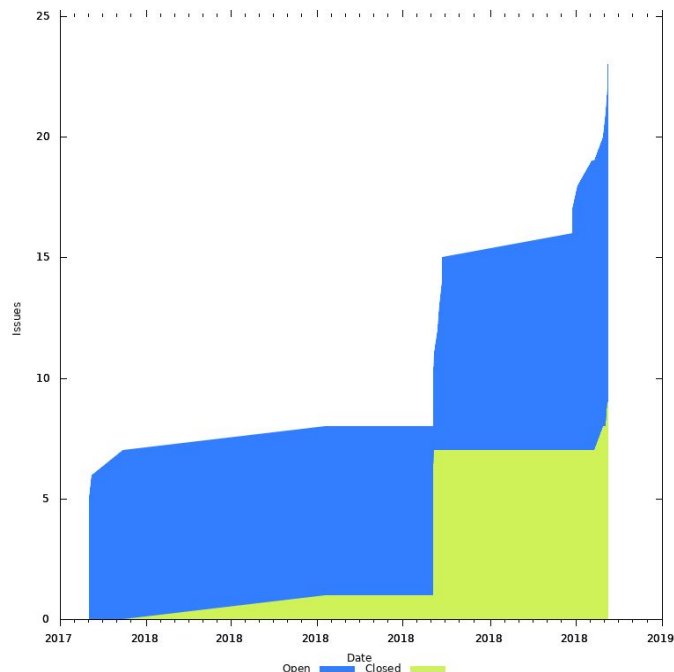


Figure 12. Statistics on the Github issue tracker: The first (June 2018) and second (October 2018) large jump in the number of issues correlate with the adoption of the reference environment project internally and making it publicly available, respectively.

Statistics on Helpdesk tickets

With the recent first public release, we have not received a large number of questions on Helpdesk; only 13 tickets received so far - including tickets raised by consortium partners.

Important to notice here is that the technical issues on the OpenRiskNet development are raised, discussed and solved using the internal Slack tool combined with GitHub, therefore they are not visible in the Freshdesk tool.

Statistics on public website

Google Analytics tool was implemented starting with 20 November 2018 in order to monitor and analyze the use of the public website and its functionalities (Figure 13).

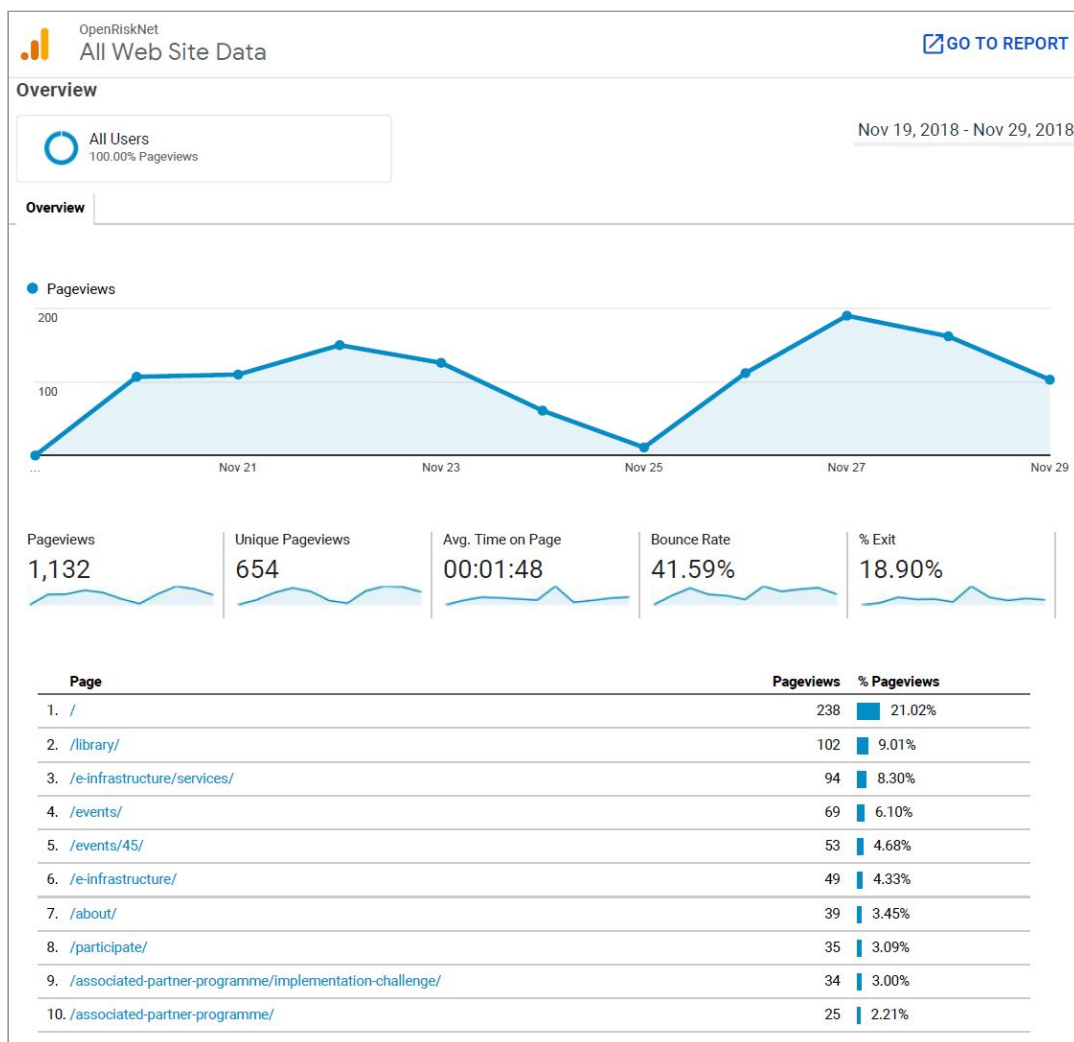


Figure 13. Analytics report on the usage of openrisknet.org

Conclusion

The support functions for OpenRiskNet are fully functional and available in the form of a demonstrator consisting of a user-driven website, a helpdesk, a wiki, an issue tracker and the services catalogue functionalities that offer together a rich integrated support system. So far, the number of tickets and issues are mainly raised internally, but this will change now that the reference environment is publicly available and more and more VREs are deployed in-house. Systems are in place to monitor the usage of the support options and use these measures as key performance indicators for the remainder of the project.

Glossary

The list of terms or abbreviations with the definitions, used in the context of OpenRiskNet project and the e-infrastructure development is available:

<https://github.com/OpenRiskNet/home/wiki/Glossary>