



Delft University of Technology

SimEx 2018 - Digital Exercise Environment

Meesters, Kenny; Wang, Yan

Publication date

2018

Document Version

Final published version

Citation (APA)

Meesters, K., & Wang, Y. (2018). *SimEx 2018 - Digital Exercise Environment*.

Important note

To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Copyright

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

Takedown policy

Please contact us and provide details if you believe this document breaches copyrights.
We will remove access to the work immediately and investigate your claim.

*This work is downloaded from Delft University of Technology.
For technical reasons the number of authors shown on this cover page is limited to a maximum of 10.*



SimEx 2018 Digital Environment Report

During [SimEx2018](#) the large-scale field exercise was augmented with a digital environment. This digital environment consists of the digital presence of role-players on social media, the use of modern web technologies and the involvement of the Digital humanitarian Network (DHN). In SimEx2018 the DHN, specifically the Standby Task Force (SBTF) was activated and collaborated closely with UNDAC team. The value of DHN involvement was well recognized and proved to contribute to the response operations during the exercise. This report highlights the setup of the digital environment of SimEx, the activities executed prior and during the exercise, the management of SimEx digital environment and the lessons learned / reflections for future exercise and DHN development.

[1. Exercise design / organization](#)

[1.1 Exercise preparations](#)

[1.2 Exercise precautions & briefing](#)

[2. Exercise execution](#)

[2.1 Activation](#)

[2.2 During exercise](#)

[2.3 Stand down](#)

[3. Exercise management](#)

[3.1 Digital environment injects](#)

[3.2 In-exercise platforms and tools](#)

[3.3 RP management](#)

[4. Lessons learned \(Summary\)](#)

[4.1 Exercise design and engagement \(preparation\)](#)

[4.2 Control mechanisms](#)

[4.3 Tools used \(slack / qdrive\)](#)

[4.4 Critical success factors](#)

[4.5 Added value of digital environment in exercise](#)

1. Exercise design / organization

The digital environment of SimEx2018, is designed to supplement the field exercise, and replicate aspects of the digital aspects of real-world deployments. The environment is build around three components:

1. **Input channels** consisting of input and data provided by individual and organizational roles players via social media (Twitter), updates and information provided through websites (VOSOCC, news sites of MAS), emails.
2. **Information Management and Information Technologies.** These are filled with the inputs from received from the roleplayers. They encompass existing (e.g. Kobo) and novel online IM tools including Slack and Trello). But also the Digital Humanitarian Network (i.e. SBTF) to remotely support the IM process.
3. **Information platforms and dissemination:** Platforms and channels that are used to shared information products and updates to both the public, and other humanitarian actors. Including Humanitarian Response.info, the VOSOCC, and the Humanitarian Data Exchange

More info: [Details on Digital Environment Setup](#)

Overall, Four types of activities were designed for the experiment of the digital environment, including the information requesting, content providing, data scraping and information receiving. During SimEx specifically the UNDAC team and NGOs sought information on the disaster situations through the digital environment. This information, specifically the data available on social media is provided by the DHN member (SBTF) from scraping, analyzing and communicating the resulting information from the digital resources. Table 1 below shows the overview of these activities and the people/organizations who perform them at SimEx.

Table 1 Overview of activities and actors in SimEx digital environment

Activities	Actors
Digital content providing	Individual & organizational role players
Formulating information request	UNDAC IMO
Data scraping & analysis	SBTF
Information provisioning	SBTF, UNDAC IMO

1.1 Exercise preparations

(Roleplayers) Ahead of the exercise, individual role players received [pre-exercise training](#) on how to use social media during the exercise. For the organizational accounts, SimEx ExCon prepared scenarios and news injects as inputs for the MAS NDMA news sites. An additional role-player was operating social media accounts for these organizations and providing injects and feedbacks based on the overall exercise scenario and specific developments triggered by roleplayers and participants. The accounts were all set up as shared (delegated) accounts and imported in Tweetdeck.

Exercise controllers:

- Yan Wang (TU Delft): Instructions, monitoring social media, inject management
- Per Aarvik (SBTF): Coordination, coaching of volunteers
- Benjamin French (Torch Light Heritage): NDMA (LEMA), roleplayer management
- Kenny Meesters: IT support / administrator

(Participants) Leading up the exercise, the SBTF agreed to participate as a participating DHN organization. Furthermore the role of liaison officer was assigned to the Information Management officer participating in the

exercise. Ahead of the exercise, the SBTF set up slack channels 'simex-2018' and 'sim-ex-2018-coord' for respectively in- and out-exercise communication.

Exercise participants:

- Kenny Meesters (Information Management Officer)
- Marlita Reddy-Hjelmfelt, Alexander Lee (SBTF Deployment leads)
- Liz Duffell, Wendy Norris, Holly Torpey (Coordinators)
- Per Aarvik (Support, Coordination)

1.2 Exercise precautions & briefing

(Briefing) All role players received the instructions on using social media in the exercise: <https://drive.google.com/open?id=1dKzd9seORJ3sGXiXiAwyeAq1xCTefR9A>. Key points included in these instructions were:

- #SimEx2018 was used in all tweets coming from role players, NGO and exercise accounts.
- At the start of the exercise, every account must post the mandatory tweet indicating exercise.
- Whenever something uncertainty, confusion or doubt occurred account operators were asked to clarify immediately that the tweets related to exercise (i.e. were not-real).

(Social media control) Continuous monitoring on the social media was carried out throughout the exercise period. Attention was paid on the tweet contents in order to (1) facilitate the online interactions, including information sharing and team coordination for the progress of the exercise, and (2) to identify false information about the exercise and control rumour dissemination. When an uncertain information about the exercise was detected, first verify the information with Ex-con to identify it was a part of the injects or false information. Once a rumour/false information about the exercise was identified, the following actions should be taken:

- Report / Flag the relevant tweets to twitter
- Contact the role players who were involved in this information and (re)brief them about using social media in the exercise.
- Reply to all the role players individually and dispute the rumor via both within and out of the exercise accounts.
- Public information update through official (out of ex) channels (simex account).

2. Exercise execution

The process and activities of DHN deployment during for SimEx includes the activation prior to and at the start of the exercise, the execution throughout the exercise and the standing down at the end of the exercise.

2.1 Activation

The activation of the SBTF was done in a series of steps:

1. Based on the warnings injected by MAS NDMA on VOSOCC, a [pre-alert](#) was sent out by the IMO on May 13th to inform the digital humanitarians about the possibility for activation.
2. SBTF leads prepared for the deployment and setup worksheet.
3. On the evening of May 14th, the SimEx call for [activation](#) was officially sent. The SBTF core team made a plan regarding how to respond to the call.
4. On May 15th, SBTF officially deployed for MAS, at the same time as the start of the field exercise.

2.2 During exercise

Data collection

Updates on VOSOCC, Twitter and other reference links were monitored and collected by the SBTF team. A twitter scraper was set up for the key hashtags #SimEx2018 and #MASHelps. Additionally, other keywords and hashtags were also used, such as the regions in MAS, #simexercise2018, #Mas, #SimExercise.

Communication

SBTF deployment leads and the IMOs constantly communicated in the slack channel to exchange important information or flag points of attention, as well as checking with each other for all kind of issues. When an urgent issue that required immediate action was captured from digital information sources, message starting with an 'ESCALATION' was posted on the slack channel and a private message to notify the IMO. Issues that were flagged in such way included urgent call for assistance from the MAS government, secondary disasters and incidents, capacity status and many others.

Reporting

The IMO acted as the information broker between DHN and UNDAC & other NGOS. In addition to provide messages that require immediate actions, SBTF also provided a situational overview of requests of assistance per category and/or location to the IMO. The IM focal point further forwarded the information to UNDAC members to contact operations teams or produce information products.

2.3 Stand down

The DHN deployment was standing down at 14:00 on 17 May, at the same time of the end of the field exercise. The UNDAC IMO informed SBTF by sending a message with 'END EX' on slack channel 'simex-2018' and 'sime-ex-2018-coord'.

3. Exercise management

3.1 Digital environment injects

Social media (Twitter)

Official accounts were created for the local government and 2 local NGOs. Situational status and progress, decisions, practical information and requests were published through these accounts to the public, i.e the affected communities and aid organizations. Additionally, an account was setup for exercise control. This account was followed by the various roleplayers and used to provide (out of exercise) instructions and updates to the roleplayers and post updates for the general public.

All these accounts were set up as 'team' (delegated) account in Twitter, so that multiple people could operate the account with running into permission issues. Furthermore several lists were created in Twitter making it easier for the controllers to monitor the various accounts and messages. The lists and accounts were then imported in Tweetdeck for easy operations and monitoring during the exercise. Finally, scrapers were set up to log all the tweets and their metadata to a spreadsheet for future analysis.

NDMA websites

All the prepared news injects were scheduled to be posted throughout the exercise period on various websites. The social media accounts controlled by the roleplayers supported the spread the information from and to these websites, in line with the overall scenario developments of the exercise control.

- The Mas Government <http://mas.simex.online/About/>
- Fly News <http://news.simex.online/LIVE/>
- MAS NDMA on IDPs <https://ndma.news.simex.online/>
- MAS Ministry of Health on hospital status <https://ministryofhealth.news.simex.online/>

In addition to news updates, some of the website also provided additional information and data, relevant to the participating organizations in the exercise. Examples included locations of hospitals, infrastructural information (e.g. road and airport closures), and IDP camp information.

3.2 In-exercise platforms and tools

In addition to the roleplayer specific account and tools, various tools were used throughout the exercise by the participants. These in-exercise tools used are the real-world tools that are also used during real-world deployments. During SimEx separate missions and instances were setup on these platforms to be used in the exercise.

VOSOCC: A simulator VOSOCC was set up for the exercise. The local government and all organizations can post announcements, requests and updates of operations, as well as assessment and reports. During the SimEx the VOSOCC was used as a communication and information sharing platform both between the exercise participants (Such as UNDAC, the (i)NGOs, and S&R modules) as well as the roleplayers (including the LEMA). The platform was initially also used to share information but throughout the exercise alternative channels for communication and information sharing were used (see below).

Humanitarian Data Exchange: On the Humanitarian Data Exchange (HDX), a faux OCHA organization for the Country of MAS was set up in the demo environment. This environment was used to share data-sets generated during the exercise, for example the data resulting from the joint assessment. Throughout the exercise different features of the platform were explored such as the possibility to share confidential data-sets.

HumanitarianResponse.info: An country-instance of HumanitarianResponse.info was created for the Country of MAS. The HR.info site integrated various other services such as the HDX and Humanitarian.id. Throughout the exercise the HR.info website was increasingly being used by the UNDAC team to share information and liaise with the various (real and faux) NGOs operating in the exercise. That includes the use of the portal to share information

products, provide a meeting schedule and maintain operational overview (3Ws). Eventually more communication and information was shifting from the VOSOCC to HR.info.

Humanitarian.id: Humanitarian.id was used in the exercise for maintaining and exchanging contact information. Several (public) lists were created for organizations and participants to register on, and find the contact details. Again, humanitarian.id (integrated with HR.info) was increasingly used throughout the exercise, moving contact information from the VOSOCC to HumID. However most contact information was exchanged via alternative tools (see below).

KOBO: Furthermore KOBO was used as a data collection tool. KOBO was set-up and filled with template forms prior to the exercise. Containing the forms that were designed by INSARAG for the USAR teams, KOBO enabled teams to quickly capture and share information in digital format. Additionally direct observation, and joint assessment forms were designed and used by the NGOs to do on-site (MIRA) assessments.

Generic tools: In addition to specific humanitarian tools, other tools were used and introduced throughout the exercise. These tools proved crucial to involve and communicate with the wide range of actors involved in the exercise, specifically the DHN (SBTF). Throughout the exercise these tools were increasingly adopted and used by the participants, sometimes even leading to reduced use of the above mentioned humanitarian tools.

- **WhatsApp:** Various WhatsApp groups were created to communicate with each other. Groups were created to communicate within teams, communicate for specific purposes (e.g. a 'security group') and for general communication. Specifically for quick updates from the field, including pictures and videos, WhatsApp proved valuable to quickly share information and inform others.
- **G-Suite:** The UNDAC-team used a shared Gmail-account, along with Google Drive for communicating and sharing information. The mailbox was shared by all UNDAC members, and various labels were used to track the various messages and their status (i.e. 'to follow up', 'done'). The Google Drive was used to store and share documents. Several folders were created and shared with other teams in the exercise (for example 'mapping' with the MapAction team). GDrive effectively replaced the UNDAC mission software.
- **Slack:** Slack was initially used to communicate with SBTF during the exercise. Through the integration with Google Drive and Trello, Slack was also used as communication with the UNDAC-team and eventually expanded to also include the Search and Rescue teams. Various channels were set up (akin to the WhatsApp groups). Towards the end of the exercise the use of Slack was increasing and more users were added.
- **Trello:** Trello was used to organize the information flowing through the OSOCC. Boards were setup to support the MIRA process (capturing information that was incoming through email, meetings, WhatsApp and other updates), security reporting, and the 3W (mainly to track modules and teams). These Trello's boards were shared publicly and integrated with Slack, enabling everyone in the exercise to get a quick overview of the latest status. Serving as a digital extension of the information in the OSOCC.

3.3 RP management

There were trainings for role players on using social media in the exercise both before the exercise (briefing and instructions) and during the exercise (re-briefing based on social media monitoring). Those instructions were provided in the [Initial role players briefing](#).

The information on the IDP information and hospital status were injected by the ex-con on the website over the period of the exercise. This information was picked up by the DHN and thus facilitated the disaster response.

4. Lessons learned (Summary)

4.1 Exercise design and engagement (preparation)

The DHN exercise was well engaged with other exercise participants:

- NDMA members were informed and introduced with the online activities before the exercise.
- The UNDAC team agreed to have the embedded role of IMO and supported the implementation of the IM process throughout the exercise.
- The SBTF team was invited to join the DHN exercise and actively discussed the deployment plan and execution with the IMO before the exercise. New members of SBTF coordination team also took this opportunity to learn and train their skills.
- Local NGOs: 2 local NGOs were approached at the start of the exercise about relevant online activities. They were informed about their social media account info and collaborated closely with the DHN during the exercise.

4.2 Control mechanisms

- The close collaboration between UNDAC IMO and SBTF worked very well during the exercise. The UNDAC IMO was active and kept the communication loop with SBTF team completed throughout the mission. It was effective and efficient to generate important information via the DHN for the disaster response.
- The social media monitoring was necessary and effective in detecting false information in public digital platform. The response actions on the rumour were taken immediately and prevented potential influence / damage on the exercise.

4.3 Tools used (slack / gdrive)

Throughout the exercise various tools were used (see above), which were partially tailored towards civil protection operations and others more towards humanitarian operations. The combination of activities in the exercise, (in contrast with real-life where the focus would have shift over the days) made the exercise an interesting testing ground for using various tools and services at the same time. Throughout the exercise several shifts in the use of tools and the choice for certain tools was clearly noticeable. Additionally, SimEx provided a good opportunity to experiment and examine new tools and services to support the IM process. Several observations include:

Integration in the OSOCC IM process: A key aspect of successfully using various tools, services and opportunities that a digital environment provides in an exercise, is the integration of all the various tools, services and options in a meaningful way. While individual tools and services have been tested and evaluated, the combination of such tools provides certain challenges (for example preventing discrepancies or duplication). It also requires IMOs to think about IM-tools more in terms of an ecosystem that constantly evolves. However in order for this to work, it is important to design and integrate these tools in an overall IM process. Such process would be agnostic to specific tools but rather allow 'plug-n play', adding and removing tools/services as the situation evolves. Such process was put in place during SimEx 2018 and enabled participants to fully explore and experiment the digital environment.

Changes throughout the exercise: Due to the time compression of the exercise and the combination of (initial) humanitarian operations alongside civil protection operations, SimEx provided a comprehensive IM environment. Throughout the exercise, the use of tools changed. Initially starting from bespoke and tailored system but eventually moving towards more general services and tools (such as Trello and Slack). The choice, setup, configuration and support for the various platforms therefore constantly changed through the exercise and was constantly adapted to the needs, capabilities, skills of the participants as well as the operational environment. This constant managing of the 'IM eco-system' (including the users, organization's, external stakeholders and technology) requires constant attention and evaluation. For exercise organizers it is important to note that people will bring in and choose technologies that may not be per se a part of the exercise design, which can provide challenges for data protection (or secluding the digital environment from real-life).

Adoption: A key success factor in the information management processes was the adoption of the various tools and processes. Supported by the UNDAC team-leader SimEx 2018 provided ample opportunity to use and try the various tools and information management practices throughout the exercise. This was further supported by the participants who were willing to try new approaches and/or provide suggestions to improve the tools used, the processes and approaches taken. Additionally building on tools that participants were already familiar with (Slack, G-Suite) also supported the quick adoption of the IM process and services.

Training & Support: A key aspect of effectively using Information Management and the digital environment in an exercise is the training needed to effectively use the tools and services. Akin to tools used by rescue workers, training is crucial to be an effective user of tools in an operational (exercise) environment. Therefore pre-exercise training in both IM-tools as well as processes is critical for an effective exercise. Alternatively the exercise could also make IM training and the use of the digital exercise environment part of the exercise but this requires an alternate mode of running the exercise (reduced pace, more time for reflection and coaching etc). Finally support is a key aspect in the success of the digital aspect of the exercise. For many participants the use of the tools (such as KOBO) were new, in order to encourage experimentation and support learning it is important that (in or out of exercise) support can be given to encourage participants to learn and use these tools.

4.4 Critical success factors

For successfully integrating the various elements of digital environment in an exercise, SimEx 2018 has provided some valuable insights and critical success factors that would be important to consider when setting up such an environment in future exercises.

Close involvement in IM process: For maximizing the effects of the DHN exercise, it is imperative to engage different DHN stakeholders and interact closely in the IM process. The stakeholders do not only include the DHN members, but also the communities (role players), NDMA, UNDAC and NGOs who are represented by IMOs. The tools and technical set up aim to facilitate the collection and processing of disaster information. The value of such digital environment can only be realized by close involvement and collaboration so that critical decisions and response can be made based on timely and correct information products.

Integration and alignment of the exercise objectives: For successfully carrying out the DHN exercise, mutual understanding of the digital environment workflow should be shared among the stakeholders involved. Knowing the purpose of the exercise and the consequences of their own actions in the exercise help to make the stakeholders be more conscious about the operations. They would also become more aware of and benefit from interacting with each other. This leads to very active participation in the exercise.

Precautions: Real-life vs. closed twitter environment: there is always a trade-off in using real-life or closed twitter environment in exercises. In general using closed twitter environment is safer, easier to control therefore can prevent any unnecessary confusion to people who is not aware of the exercise. On the other hand, using real-life twitter does not require any technical capacity to set up the environment and the background 'noise' is more realistic for the purpose of training.

To balance the risks and benefits of using real-life twitter environment, it is important to set up additional precautions and provide extensive role player trainings. Special attention should be brought to role players in order to avoid mentioning accounts that are not part of the exercise, and to avoid using hashtags commonly used by people who do not participate the exercise. It should be also very careful in using personal/official accounts, posting identifiable brands and other logos.

4.5 Added value of digital environment in exercise

For DHN organizations and digital service providers: Participating in exercises offers visibility and advocacy opportunities for DHN services: exercises create opportunities to know the work of other humanitarian responders and to practice collaboration and the integration of services. At the same time it offers an hands-on, realistic

experience for (new) deployment leads and focal points: as a training instrument, exercises provide a realistic yet safe environment for capacity building.

Furthermore, exercises offer the a great opportunity for evaluating new innovations and services. More and more new innovations and developments are available to disaster responders. Many of them focussing on data-collection, analysis and processing. However the possibilities to test these developments is limited. Exercises like SimEx provide an 'as-close-to-real-life-as-possible' testing and evaluation environments for these new tools and processes. Providing feedback to both the (potential) end-users and developers.

On-site responders: Faster information management cycle: IM is crowdsourced by a group of experts and volunteers who focus on data collection, analysis and GIS mapping. The DHN members can produce information product within short time frame, thus the field responders could be better informed and make timely operational decisions. Furthermore including DHN and online environments in the exercise offers more insights into communities: social media is an important part that connects DHN with the local communities. More situations can be collected and analyzed directly from the communities via digital platform.

In addition to the DHN involvement, extending exercises to include digital environments offers a valuable opportunity for disaster responders to gain experience with the new tools, data-sources and processes that developments bring to responders to improve their responses. As the possibilities, potential and importance of digital developments in disaster response grow, it becomes increasingly important for practitioners to get familiar with these tools and assess their value. As these services and tools become increasingly available and important, experience and practice with them becomes as important as all other tools, process and capacities that responders utilize during a deployment.

Exercise organizers: Including a digital environment provides a more comprehensive exercise: social media and digital environment is an important part in modern society and have been integrated in the daily life at community level. During recent disasters data capturing, analysis and using the resulting information in the decision making process has become a critical part. Including this aspect, both the tools, processes, and involving the DHN allows disaster response simulations to have a more comprehensive coverage. It provides an more comprehensive and realistic training environment in crucial competences that are required in modern-day responses.

The inclusion of the digital environment (and thus the additional role players and participants with the necessary background). Also adds extra IM capacity to the exercise without disrupting the exercise. Throughout the exercise, ample learning opportunities for the participants, roleplayers were created, both for those familiar with Information Management, tools, platforms and services and those who are new. Furthermore additional information management capacity to the exercise (in preparation and execution) can also benefit the exercise organizers, as improved information management also support organizers in controlling the exercise.