Exchange of best practices
Designing a PSAP

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Should you like to receive more information on how the possibility to contact PSAPs from abroad works in a specific country (based on responses to the EENA survey), please feel free to contact Rose Michael at rm@eena.org, who will liaise between you and people who responded for this country. Note that the information in this document is based on answers provided by individual members of EENA. EENA shall not be held responsible for any false or incomplete information. Corrections or complementary information can be sent to rm@eena.org.
When designing the layout and organisation of a Public Safety Answering Point (PSAP), there are many aspects to consider. Decision-makers should consider the working conditions of emergency call-takers, communication of information, integration and running of technology, and other important practicalities. In this document, we look at recommendations from PSAPs in different countries about ceiling height, use of video walls, general PSAP set-up and other lessons learned during implementation.

Ceiling height & use of a video wall
Countries demonstrated different opinions on ceiling height (whether it should be normal height or double floor height). Some PSAPs, such as in Lower Austria, showed a preference for a normal ceiling height. This was also the case in Slovenia, where PSAPs are smaller centres with a maximum of three operators, therefore having a normal ceiling height.

One reason that some PSAPs choose to have a higher ceiling is to install a video wall. Romania highlighted the importance of a video wall to display information to all call-takers.

In contrast, other countries, such as Sweden, Lower Austria, and Lithuania, prefer to have all the necessary information available at the call-takers’ workstations. The UK noted that a good video wall is often used, but the information is also sometimes used on a screen next to the advisor.

Even if a video wall is not installed, many countries emphasised that a higher ceiling can help improve ventilation, temperature control, lighting, acoustics, and with making the space more visually ‘open’. The height of the ceiling is therefore often considered a tool to improve the working conditions of call centre staff.

Finland
To show information to many people, it is good to have a high ceiling. The role of the Finnish control room is to handle calls, dispatch, and support, not lead operations in the field. Therefore, the need for video walls etc. may be different in centres that have a different role. In Finland, there is a preference for having the necessary information available at the workstation. Information on video walls is normally linked to a specific incident/general information for shift supervisors.

Germany (Hamburg)
For operational premises, a higher ceiling is considered fundamentally important, mainly for cooling and acoustics.

Iceland
The control room needs to be designed for the well-being of the staff: good ceiling clearance, sound, temperature control, and lighting should be key elements.

Italy (Genoa)
Preference for a high ceiling, not only for the implementation of a video wall, but also for air circulation and visual space.

Lithuania
High ceilings are implemented primarily for air circulation and ventilation, better acoustics, and to make the space more open so that people do not feel visually constricted by a low ceiling. A large video wall is not installed, since call-takers should concentrate on their screens rather than on the space around them. Individual screens have been installed to display information on changes, news, statistics etc.

Romania (Bucharest)
A high ceiling and a big video wall are necessary to display important information for call-takers, dispatchers, and the coordination team. This includes dashboards, resource statistics, maps showing ongoing cases and resource positions, and call lists (e.g. abandoned calls).

Sweden
Preference for normal ceiling height. Currently, 5 PSAPs are being built/renovated. All will have a normal ceiling height, whereas previously two had a double floor height. Large video walls are no longer used, with a preference for gathering information on the screens at the workstations. The current main reason for a high ceiling is for ventilation.

United Kingdom
Preference for high ceiling for improved acoustics, providing more space, and minimising echo. A good video wall is often used but sometimes the information is on a screen next to the advisor.
Most countries highlighted the importance of designing the PSAP to be ‘people friendly’ so that working conditions are as pleasant as possible for call centre staff. As noted above, considerations such as lighting, ventilation/air circulation, temperature control, visual space, physical space between workstations, ergonomics, and acoustics are particularly important. As noted by Romania, it is important to ensure that workspaces are placed in a way that will not allow light sources (or transparent, translucent, or brightly coloured walls) to reflect directly onto screens.

It was also highlighted that many of these points are also fundamentally important to the safe and reliable running of the technical equipment (as well as oxygen supply, safety conditions, etc.). Technological considerations were emphasised by several countries, such as Romania and Germany (Hamburg), which mentioned self-sufficient power supplies and redundancy of equipment, both of which should be considered in the design of the PSAP.

As highlighted by Finland, data protection and Next Generation 112 service requirements should be paid particular attention. For example, what data should be shown on the different screens? How should the space be designed so that personal data is accessed only by those who need to access it? NG112 considerations are particularly important with regards to future-proofing the PSAP. This may involve, for instance, considerations about different types of data coming into the PSAP (video-conversation between PSAPs and units, live video from drones etc.)
Several countries, including Iceland, highlight the need for flexibility, which is key to ‘future-proofing’ the design. This may involve changing the layout if needed.

The need for flexibility has become clear during the current COVID-19 pandemic. Italy (Genoa) mentioned the need to adapt call-handling procedures in times of large-scale emergency, with the possibility of changing roles or adding members of staff. It was also highlighted by Lithuania that the operators’ room should be planned for a larger number of staff than currently needed. Romania suggested that future PSAPs should learn from the pandemic by creating spaces where physical distancing can easily take place.

In terms of the location of different rooms, several countries gave important recommendations. Iceland suggests that the technical room be located directly beneath the floor of the control room, with regularly spaced access holes. The UK notes the importance of call-takers being able to make eye contact with each other, so that they can non-verbally ask for help if needed.

In addition, the UK suggests that the PSAP manager’s office is located so that the manager regularly crosses to PSAP, allowing call-takers to informally intercept the manager if needed.

Some countries have specific configurations with regards to the PSAP layout. Romania highlighted that if several agencies share a PSAP, it is important that each agency has a designated area, but that communication between coordinators is still easy. Finland established a separate command and control centre to fulfil specific purposes (e.g. public warning, international contacts, operational communications, etc.).
Conclusions & recommendations

- Design the PSAP with people’s working conditions in mind.
- Listen to users: small changes can make an important difference.
- High ceilings can help to improve ventilation, temperate control, visual space, and acoustics.
- While some PSAPs use a large video wall, others prefer to have all necessary information displayed on individual screens at workstations.
- Designs need to be ‘future-proof’ by taking into consideration technological requirements such as Next Generation 112, as well as the need to be flexible in times of large-scale emergency.
- Supervisors/management should be in regular contact with other call centre staff so that they can easily be approached for assistance.
- To ensure consistent and safe running of technological systems, redundancy of equipment and self-sufficient power supplies should be considered.