Interview ASTRID

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Status

Private company of public law. Operates as a private company but financed and under the control of Ministry of Interior (hereafter "MOI").
ASTRID can only help the public organisations listed in the law + can provide punctual services to specifically identified private companies.
ASTRID cannot make benefits but may recover some of its costs. ASTRID had a budget, organisations making use of the ASTRID services are aware of this: ASTRID takes care of the technical aspect, operational aspect is responsibility of the other organization. Furthermore, ASTRID makes us of a 'service subscription' mechanism, except for dispatching service.

Four basic services of ASTRID

1. **Radio network (TETRA)**

Has to be operational 24/7 – specific for emergency services – used by all emergency services in Europe – always operational, even when mobile phone network is out.

2. **Paging system for fire-fighters (POCSAG)**

Cfr Cartography for Wildfire fighting in cooperation with the NGI.

3. **MVN (Mobile virtual network)**

SIM card which are exclusive for emergency operators – always use the best of the three available networks at all time (Proximus, Mobistar, Orange). For the moment can only do DATA on it. Due to the terror attacks, it will be possible to do VOICE as well.

4. **Computer aided dispatching system**

Encompasses all the 101 (police) emergency systems + 4/10 100 (fire-fighters + medical) emergency systems. There are control rooms for these Belgian emergency services.
At European level, it was decided that number 112 should be used for all emergencies. MOI is still unclear how it is going to work, as, for the moment, 101 and 100 work differently from an organisational and technical point of view.
Now with 112, foreigner should be able to access all three: police, fire-fighter and medical. So idea to have a dispatcher to send to the three of them but they have different ways of working. For example, Police dispatching takes all the info before contacting the relevant police station. Fire-fighters dispatching sends the ambulance as soon as have the address and then keep collecting the information in parallel. So in order to implement 112, MOI tries to integrate infrastructure and software of 101 and 100. As of now, 4/11 control chambers (10 provinces + 1 for Brussels) are 100% integrated. For the rest, still unclear if they will choose for common infrastructure or just an interface between them. Whatever happens, ASTRID will manage the service. ASTRID has a platform managed by a Consortium (Proximus, EADS, Integras…). MOI has its own infrastructure "Citigis" which, in time, is also going to be managed by ASTRID. However, relation between police and fire-fighters / medical aid, still has to be clarified – this is however the task of the FPS Interior Affairs, ASTRID is only responsible for the technical execution. Furthermore, the 6 provinces that make use of MOI transfer data not in an automated way, but always via telephone or fax. This can create time issues, and therefore also higher risks.
For ASTRID way of functioning, police creates an event and then forwards the relevant data via pushing buttons to the fire-fighters and medical aid. Works via ASTRID's own backbone infrastructure. So autonomous from a local level, and strong 100% availability network for inter-province interventions.

During the terror attacks, the network was operational and the "control rooms" were available but people were not aware of the "crisis control rooms" (and the related technical priority) which have a priority above all else so explains that didn't work for those that called the local "control rooms" that did not have the priority. Also, system users were used the tools in a wrong way: system does not react directly, a pause of 1-2 seconds is necessary before the connection between point A and B is launched. So there is a strong need for (practical) education and formation of the system users so that they can exploit it fully.
11 control rooms in Belgium for 101 and 10 for 100 (none in Walloon Brabant so use neighbour provinces control rooms depending on the commune) and use radio system as it is safer than the Internet – radio frequency is changing constantly, and allows a higher level of security and confidentiality. 3000 calls per Province per day. 1st thing to do when a call is received is asking for address so that, in case of doubt, they can send someone, for example if call is cut (other situations: 'fake call'). So cartography is extremely important.
Tracking geolocation: When call via landline, they have a precise address from Proximus but not always correct. If call from cell phone, can use phone towers. Idea now is to create an app for smartphones, which uses GPS so more precise localisation, and also allows disabled users (e.g. deaf and dumb) to use it and also translation for foreigners. Moreover people can pre-enter information about themselves in the app that is available directly for the call. (own services: Police can be tracked as they have tracking systems in their vehicles, fire fighters not – issue with FPS Interior Affairs).
Local police zones are connected to the provincial control room, which receives the call, and this control room will dispatch back to this local zone or to the federal platform if it is an inter-provincial crisis. ASTRID platform is used for these communications (mainly radio + data via applications). Important aspect of this platform is that it has to be available 24/7 and redundancy is essential so strong SLAs with infrastructure providers. ASTRID only operates for emergencies and neutral platform for police, fire-fighters and medical aid!
Use GIS in order to reduce to the maximum the time span between the reception of the call and the contacting of the relevant local emergency operator. For phones for example, the problem is that Proximus has its own list of addresses. Also trackers on the radios of the emergency vehicles to be always able to identify the closest vehicle. So most important is to have the same map for everyone, even if there are mistakes but same mistakes for everyone. Problem is when people don't have the same maps (Tomtom / cartoweb /…) and not same names for the street etc.
Use Spatial Analysis to see if several people call from the same neighbourhood + programming in ASTRID's system of specific police knowledge about specific spots (hereafter "operational data"). This increases the efficiency of route calculation. Also had to customize the maps to adapt from the classic commercial maps (for example can go in walking areas, specific accesses for emergencies, private zones, industrial zones…) and all this has to be integrated in the GIS in order to have the best possible route calculation = operational data.
They don't have "real-time" route calculation but only theoretical route calculation (based on speed limits etc) as they don't want to base their route-calculation on unplanned events, as they fear that someone could manipulate this and say that traffic jams everywhere. So calculate new routes at every map update. Now update every 6 months but starting from next year it will be update every 3 months. For example, update next month in Oost-Vlaanderen with 4600 modifications since last update (for example new street or modification of the street) and they will have to check for each of these modifications if it has an impact on the "operational data" and check with police officers what the best adaptation is if there is indeed an impact. Challenge: find enough staff and financial means to ensure that those updates can be guaranteed.
Thus importance of data quality and update (for example administrative and country borders which don't really matter for TomTom but critical for police, or TomTom cannot guarantee

that is maps are 100% correct or up-to-data). So two people within NGI who work for ASTRID and update their map since 2006 with "operational data" of the emergency operators (more or less 100.000 data).

ASTRID does not produce the data but merely integrates the data produced by the relevant operators and by the NGI updates. In the future, requests for modification of the map will occur through the geo-portal of ASTRID (WEBGIS tool) and the people of the NGI working on the map will see this instantly in order to adapt the map as quickly as possible. Notifications are done via Excel – not very practical –, therefore a new system is launched with automatic data system: GEOCORTEX.
Their big difficulty is that ASTRID has difficulties to present their cartography issues to the operators, which don't always understand that it is not as easy as Google maps. Indeed, all this requires a strategy, a certain logic, a certain way of working. Moreover, there is a strong need for automation, the standard definers (e.g. BEST-address) have to take all of this into consideration and finally, it is necessary to have cooperation between the different services.
ASTRID uses two complementary systems:

- First the CAD system (Intergraph), which is faster, for first localisation and route calculation in order to give an operational response (e.g. for this type of event, the following people have to be contacted) = operational intelligence which is not available in a GIS tool. One operational map, not enough flexibility – based on provincial borders (= weakness)
- Next to that, ASTRID created a GeoPortal (ArcGIS Server & GEOCORTEX) which is slower but is much more elaborated from a geo point of view and allows to specify the CAD system in real-time and include the real-time info (= real time → external data = weakness) + allows to draw on the map and to share this with other platforms, via the webservice, as a communication tool (this is not possible with the CAD system) = cartographic intelligence. Problem: uses external data for real time calculations, however, this data can be influenced – therefore, not 100% trustable → necessary to keep the other system as well. One map, for the whole Belgian territory.

So operational intelligence is used for planning and decision-making and cartographic intelligence is used for real-time support providing to the emergency operators. Both systems are used, and are complementary. Hope/wish: one system within 15-20 years.
CAD system is used by emergency services only and GeoPortal is also used by police for other events (Missing persons, Carnaval de Binche, Fêtes de Wallonie).
Updates to the system are made thanks to the collection of the users needs and then these are translated into objectives of the update by ASTRID. These Requirements are identified in collaboration with the public servants users through continuous involvement in the project. There are two profiles of participants : technical profile that (for feasible requirements) and operational & organizational profile (for functional requirements). So users express operational needs and ASTRID translates it in technical objectives and then execute the solution via projects. This culture of participation is because, in the beginning there were only the direct users (policemen) that were part of ASTRID. Respondent underlines that there are rarely conflict between users' requirements (even though there are many stakeholders involved).
Use of GeoPortal was free until now as a budget had been given by MOI. Right now, no budget planned for local polices zones in the future so might have to ask them to pay a small fee in order to be able to use it.

Complexity for ASTRID and interest in FLEXPUB

ASTRID is interested in FLEXPUB for two reasons. First, they want a confirmation by "experts" to show users that ASTRID is not the only responsible for the current issues. Second, they deal with various location-based data = shows a need for standardization, which is only possible if there is cooperation (Best example: BeSt Address).

Need GIS for localisation, route calculation (recommendation of the closest team) and specific geo-information about the surroundings of the event (walking paths etc.). Users want the best 100% correct map, but it is impossible for ASTRID to know which one is the best (as always some discrepancies between the various maps of Google, TomTom, Information Flanders, NGI…) and to be sure that it is 100% correct. Usually it won't be 100% correct as it will often lack the specific environment information so the solution is the combination of data.
Combination is relatively easy to do in a GIS but not as easy in a GeoPortal + police officers on the field are not connected to the Internet. Problem: connection to the internet is not allowed due to security reasons.
With CAD system, they merge various datasets in a single map but only 95% integration and 5 remaining % have to be done manually which requires an enormous amount of time (for example crossroads turned into roundabout). With GeoPortal, they stack various maps from various sources. Time that is not available!
Practically, their difficulty is that not all communes use the same reference systems for addresses (and it is only the communes who decide of the name of the street and don't want to change the names as it is expensive), or sometimes redundancy in names of communes, which exist in different places. Furthermore, data is most of the time only available to ASTRID when the new street or object has already been created in reality.
So ASTRID developed its own standard, with the police, for the naming of the streets, in order to avoid dispatching mistakes which can be disastrous. But inevitably face issues such as those explained above. So, there is already a certain level of standardisation, but BeSt Address (mainly between the regions – steering role of the federal level) has to improve this situation.
So real difficulty is not the update of the base-maps but the maintenance / transfer of the operational information from previous version to the new version and checking that it is still correct.
Also issue that some of this operational information is confidential and cannot get out of the dispatching systems. Moreover, it is dynamic information and new information added every day.

Cooperation with the regions

Data of the regions is currently used for the visualization, but not yet for localisation. URBIS data (Brussels) is currently integrated into the ASTRID systems to allow for localisation, however, this is a time consuming and expensive work as the addresses are not always the same → explains why there is need for standardization. Problem: local level does not want to change names of streets, as it cost a lot money. Furthermore, regions are prepared to give their data to ASTRID for localisation, but need for standardisation + they are at the same time also worried about the confidentiality and the security of the data. Also, there is need for an automated data transfer system between the regions and ASTRID (e.g. local level updates the CRAB, expects ASTRID to get the data there, but ASTRID has not automated access to CRAB = creates frustration and higher risks).
Final point: cooperation between ASTRID and core actors (i.e. FPS Interior Affairs, Police, Fire Fighters and Medical Aid) seems to be good, relation with partners external to this core circle seems to be more blurred due to insufficient judicial, administrative and technical agreements.