

HERMINE DURAND

Head of division at the French Nuclear Safety Authority

Patrick NICOLET

I am pleased to conclude the presentations with Hermine, who is from the French Nuclear Safety Authority, in charge of nuclear safety and radiation protection in the southwest of France, and she will give us the view of the regulator in a highly sensitive environment.

Hermine DURAND

The French Nuclear Safety Authority is in charge, on behalf of the State, with regulating nuclear safety and radiation protection in order to protect workers, patients, the public and the environment from the risks involved in nuclear activities. The aging of French nuclear power plants is a challenge for the operator but also the regulator. At the same time, nuclear safety inspectors only have access to very basic tools to help them do their job. Going digital is necessary to improve the regulation of nuclear power plants for the benefit of citizens but must be undertaken carefully.

IT should be used to optimise information flows (even have full access to the operator's data), better exploit the huge amounts of data owned by the regulator (as an example, ASN owns more than 20 000 inspection reports) and create new tools to save time (like automatic generation of documents).

Better nuclear safety regulation can bring better protection of the public and the environment. Beyond that, digital transformation can also help improve nuclear social acceptance, for instance by involving citizens in the collection of radioactivity measurements and opening the data to the public.

However, the key condition to get digital transformation bring such benefits to the regulator and the citizens is to ensure full security of information systems, which is a major challenge today.

I am the head of the regional office of the Nuclear Safety Authority in Southwest France. The French Nuclear Safety Authority is an organisation which is in charge, on behalf of the state, of regulating nuclear safety and radiation protection in order to protect workers, the environment, patients and the public in general from the risks coming from the use of nuclear.

I come from Southwest France and am the head of a team of inspectors, because apart from great vineyards, we have three nuclear power plants, four big medical centres, and also two industrial areas using X-rays, so we are the regulator there. My point today is that the regulator does need to go digital to improve the efficiency of the inspection process, and that we are late compared to other companies or organisations, but in the nuclear sector you cannot really afford to move fast and break things.

That is why a few months ago we decided to gather the Nuclear Safety Authority at Station F, which is a start-up campus developed by Xavier Niel, and we started to think about how we can go digital. Firstly, let me give you an insight into the life of a nuclear inspector. Basically, a nuclear safety inspector will have to prepare for his inspection, so he will review all the documentation that the operator will send him, he will review all the incident reports or previous inspection reports, and he will do that almost manually each time.

Then he arrives onsite, and we can call that an unwelcoming environment, because there are heat, noise and radiation, so he needs to act very efficiently while inspecting nuclear power plants. Then he comes back to the office and needs to write a report, and each time he almost starts from scratch, because you have to quote regulatory texts, say what you have seen and what the operator should do. We could and should be more efficient in this inspection process, and IT and going digital will help us a great deal. It is all the more important that we go digital, as we will face huge challenges.

I am sure you are aware that in France, we have 40-year-old reactors, and if we want them to operate beyond 40 years, huge maintenance work and improvements need to be carried out to ensure safety. It was mentioned in one

session that the cost of nuclear was rising, but this is especially true for new reactors. We have these old reactors in France that we are trying to operate a little longer than 40 years, and for that we need stronger regulation and a more efficient regulation process.

Having said that, how could we use IT to improve our inspection process? I can see three ways to do this. First of all, we have to optimise information flows. Nuclear safety inspectors, in some countries such as Canada, have full access to the operator data, which is not the case in France, maybe because we are a very transparent agency and have to publish everything we do and see, but it would really help us to have direct access to the operator data.

Secondly, we should better exploit all the data we have. There are 20,000 inspection reports, and when we need one we just look at it in the database and try to see what trends we can use for our inspection. However, at the moment we are launching a big data-mining project on these inspection reports to see how we could find some trends and maybe be more efficient and relevant in our control of French nuclear power plants.

Thirdly, we should develop new tools to save time. It might seem very simple and basic, but automatic document generation could really help us be more efficient, or having a dynamic phrasebook for our inspections. These are a few things that IT could help us with. What do we need in order to do that? We need human resources and money, of course, but we especially need secure information systems, because we cannot afford to do that if there are unintended consequences.

Digital transformation will not steal the job of nuclear safety inspectors, but will rather help them be more efficient, and given the big challenges we have to face, it is very important. I would also like to say that this will be for the benefit of the citizens, because if you have better nuclear safety regulation you have better protection of the public and the environment. Beyond that, IT will help us improve the social acceptance of the nuclear sector. That is the challenge of open data. The data can come from the operator, of course, it can come from the state, that is the Nuclear Safety Authority, and it can also come from the citizens themselves. An experiment is being made in Japan with a little device that you can connect to your phone and measure the radioactivity of the environment yourself and contribute to the measurement to a big platform. This provides better access to information for citizens, and that could significantly help improve the social acceptance of nuclear.

It was mentioned many times during the World Policy Conference that this is a necessary condition if we want to carry on using nuclear energy. The only condition is the security of information systems, because, again, we cannot afford to move fast and break things.

Patrick NICOLET

You made a very important point that was not mentioned by your predecessors, because they have to develop their businesses and grow as fast as possible, but what Hermine said about security cannot be stressed enough. It goes together, because with the world moving to digital, the value of the economy is moving into that space along with all possible activities that go with it, notably in terms of cyber-criminality. Security is extremely important for protecting it, not only for its own sake but also that of the citizen. That was a very important point. It is not only how fast the regulator can adapt but also how it can be done safely.

Therefore, the message is that we have multiple parallel developments in technology, and no activity is untouched, but it comes from different angles, so there is a high level of complexity. However, all in all, we are moving from what was a process-centric world to a data-centric one, and data is what we should care about. Then we will be able to do a lot of things with this data in very different ways as against what we had before, when we were all focused on the process, which included the data in the system. It is quite a radical change in the way we operate.