UNITING A DIVIDED DUTCH CYBERSECURITY LANDSCAPE

By Bennie Mols  Images Shutterstock and Sjoerd van der Hucht
After four years, the Dutch cybersecurity platform for higher education and research dcypher will cease to exist in its current appearance. What legacy does it leave behind?

Threats to the digital security of citizens, companies and governments are commonplace: from computer viruses, computer hostages, hacking, DDOS attacks and phishing to digital espionage. The dcypher platform was established in 2016 to improve knowledge and expertise about cybersecurity in Dutch higher research and education. After more than four years, the platform in its current format ceases to exist in October. What is its legacy for research and education, which a follow up initiative can build on?

For the research field, these are three things, according to Erik Poll, Associate Professor of Cybersecurity at Radboud University in Nijmegen and also a member of the dcypher advisory board: ‘First of all, the cybersecurity field is much more united than it used to be. Second, the field has become more multidisciplinary instead of mainly technology focussed. And finally, a new version of a research agenda has been drawn up, with a lot of attention for this multidisciplinary approach.’

Community building
‘Both within universities, and between universities and industry, people know how to find each other much better thanks to dcypher’, says Poll explaining the community building over the last four years. Annual dcypher meetings brought researchers together in an accessible way. And as soon as research proposals could be submitted, matchmaking events brought together people from universities and industry. In addition, many collaborations between universities and industry started with students who could conduct their graduation research in a company.'
Another great example of community building is the Capture the Flag event “Challenge the Cyber” which dcypher co-organised. It’s a hacking competition for students from universities and high schools that was organised for the first time in 2019. Poll: ‘Thanks to this event I have now more contacts with other educators in higher education. It’s a great initiative that also stimulates cooperation.’

Before the advent of dcypher, cybersecurity was mainly seen as a technical topic. dcypher changed that. Poll: ‘The latest version of the research agenda emphasises that cybersecurity is not just a technical subject, but a multidisciplinary subject that also requires lawyers, economists, psychologists and organizational experts, for example.’

These experts can investigate questions such as: What drives cyber criminals? How does their organisation work? Which cybersecurity standards are needed? What laws and regulations are required? How can the behaviour of IT users be changed effectively to reduce cybercrime?

Education agenda

Professor of Cybersecurity Governance Bibi van den Berg of Leiden University, who is also a member of the Cybersecurity Council, has worked hard in recent years on setting up cybersecurity education. She is particularly pleased that dcypher, after initially focusing on cybersecurity research, has drawn up a cybersecurity education agenda in the last eighteen months. Van den Berg: ‘That is a great piece of work that shows where the needs in cybersecurity education lie. And it runs from primary education to post-university education. Before the arrival of dcypher, we had little insight into how cybersecurity education in the Netherlands was organised.’

The cybersecurity education agenda is in line with the analysis that the Netherlands is training too few skilled cybersecurity professionals and that a lot of talent is leaving and going abroad. Erik Poll has personally seen the brain drain happen a number of times: ‘We see young researchers leaving for Germany or the UK, where there is more money for research. We asked a former PhD student of ours, who now works in the UK, to become a professor in the Netherlands. But he replied that he could get better funding for his research in the UK and therefore did not want to return.’

Van den Berg is pleased that the research agenda aims to increase attention for cybersecurity throughout the entire education chain. ‘We currently have a massive shortage of well-trained teachers. We can only turn that tide by starting early in education. We can already teach children that cybersecurity is a relevant societal theme, that you can do exciting things in it and also get a nice, good job.’ Van den Berg would also like to see the multidisciplinary character of dcypher’s research agenda reflected more in cybersecurity education. ‘Both higher professional education and university education have a number of wonderful cybersecurity courses, some mainly technical, others with a mixture of a technical orientation and an orientation from the humanities and behavioural sciences. But on the whole, I think that the behavioural sciences and the humanities should be given an even greater role in cybersecurity education.’

Given the mission of dcypher, a lot has been achieved in a short time, says Van den Berg. But if she has to mention one aspect that has been less successful, then it is the valorisation of cybersecurity research. ‘The bond between science and industry has become stronger through dcypher, but there are still not many ideas from science that connect seamlessly with industry and vice versa. We can do better there.’ Poll had hoped that dcypher could have secured long-term, structural research funding, but unfortunately that did not work out. ‘The problem here is that cybersecurity cuts across various ministries and that each ministry is an individual compartment.’ Van den Berg agrees that this compartmentalisation is an obstacle: ‘Both our research and education agendas are deliberately integrated and broad. But then things go wrong in terms of financing within a compartmentalized ministerial landscape. We have to find a solution for this.’

Delta Commissioner

Van den Berg sees an opportunity in appointing a kind of Delta Commissioner for cybersecurity, or setting up an umbrella body that falls under the Ministry of General Affairs. ‘Then you can say: this is our leading cybersecurity agenda, this ministry is about this part and that ministry is about that part. We are now making one large multi-year plan with that much budget. However, my most important lesson for the future is: embrace the current dcypher research and education agendas and do not let the networks and collaborations that have been carefully built up go to waste. Whatever platform comes after dcypher, that should be its main mission.’ Poll agrees with van den Berg’s conclusion, adding one final,
optimistic remark: ‘The Netherlands can actually benefit from the fact that it is such a small country. The lines here are short and informal. Within the community dcypher has been able to develop, we have the right expertise together to make a real impact.’

What’s next?

In a letter to the House of Representatives, on 9 April 2020, State Secretary Mona Keijzer of the Ministry of Economic Affairs and Climate Policy announced the establishment of a new cybersecurity collaboration platform as a follow-up to dcypher.

Shortly after, five Quartermasters (representing research, higher education, business and government) started to write an advice, which was submitted to the Ministry mid-August. In their advice, a platform is proposed that on the one hand builds on the dcypher heritage, and on the other hand develops better connections in the chain ‘knowledge-education-innovation-valorisation’. While dcypher established a strong foundation, the quartermasters advise to involve partners from the entire chain more explicitly. This results in the ambition ‘to effectively bring together supply, demand and funding for cybersecurity education, research, innovation and application’.

In addition to an agenda-setting role, as dcypher played, the new platform is therefore also assigned a programming role. That role of translating theme selection into concrete programs and projects must be granted by the funders, including governments, NWO and the business community. Obtaining a mandate for a thematic and chain-oriented approach will be the major challenge for the coming months. The objective is to achieve a smooth transition from dcypher to the new platform.

Bibi van den Berg: ‘Do not let the networks and collaborations that have been carefully built up go to waste’

DCYPHER IN SHORT

The platform dcypher (Dutch cybersecurity platform for higher education and research) was founded in April 2016 by the Ministry of Justice & Security, the Ministry of Education, Culture & Science, the Ministry of Economic Affairs & Climate, together with NWO. In 2018, the Ministry of Defence joined as well. The platform ceased to exist on 1 October 2020.

The goal of dcypher was to improve knowledge and expertise about cybersecurity in the Netherlands by stimulating scientific research and higher education and by bringing all the diverse cybersecurity parties in the country together.

In recent years, dcypher has produced a research agenda and an education agenda, among other things. The research agenda has been drawn up as a guideline for public-private partnerships within national research into cybersecurity. The research is divided into five pillars: design, attacks, defence, governance and privacy. Each pillar requires contributions from computer science, technology, social sciences and the humanities.

Finally, dcypher has succeeded in community building: the previously fragmented Dutch cybersecurity landscape has become far more unified in in terms of research and education.

More information

About dcypher: www.dcypher.nl
dcypher research agenda: www.dcypher.nl/en/research-agenda
dcypher education agenda: www.dcypher.nl/en/education-agenda