

Supporting Law Enforcement in the Fight Against Cybercrime – Tools, Techniques and Training

CCI Team

UCD Centre for Cybersecurity and Cybercrime Investigation (CCI)



SOCIAL



TECHNOLOGICAL



TRAINING

SUMMARY

Cybercrime is a global criminal phenomenon with the capability to impact on all levels in society. It can pose a threat to lives, disrupt business activities, and damage economies. While the speed of evolution in ICT has created an online marketplace and a social playground of global proportions for the ordinary citizen, it has also facilitated the growth of a cybercrime industry that employs sophisticated techniques and technologies to achieve its unscrupulous aims. Within a maelstrom of legitimate commercial and social activity, the law enforcement community is struggling to keep pace with a technologically advanced and well-resourced criminal fraternity.

To date over 500 law-enforcement agents worldwide have downloaded and used the forensic tools.

DESCRIPTION

UCD Centre for Cybersecurity and Cybercrime Investigation (CCI) was established in 2006 with the specific goal of supporting the police in the fight against cybercrime. Its aim was to work on solutions to assist law enforcement agencies to successfully investigate and prosecute cyber criminals. In the early years, the focus was mainly on building capacity through building knowledge, and CCI developed and delivered a range of specialist training courses in subjects such as digital forensics, internet investigations and malware analysis.

In 2013, CCI decided to explore other ways in which capacity could be developed, and so the FREETOOL project was born. The development of forensic tools is a multi-million euro industry, and the high price tag makes the purchase of such tools prohibitively expensive for police forces on restricted budgets. As a workaround, police officers were developing their own software solutions.

The objective of FREETOOL was to create a proof-of-concept development environment where experts from law enforcement could collaborate with the academic community on the creation of digital forensic tools, which could then be made freely available to the law enforcement community.



The two year project received just under €1 million in funding from the European Commission and this has resulted in the development of six tools, all of which are distributed via the Europol electronic platform for experts. To date over 500 law-enforcement agents have downloaded and used the software.

At the beginning of 2016, the European Commission provided a further €1 million to support the implementation of FREETOOL v2.0. This next iteration will see the project extended to include the development of open source intelligence gathering (OSINT) tools. The need for OSINT tools is particularly well-timed, as they can be used to assist in building up intelligence pictures of online terrorist and extremist activities.

DETAILS OF THE IMPACT

The establishment of a centre with the specific goal of supporting law enforcement was a unique concept, and the outputs from the CCI have had a significant impact on the ability of law enforcement to investigate cybercrime and prosecute cyber criminals. An early initiative was an EU funded study on the state of cybercrime training in the EU, the results of which informed CCI's decision to focus on capacity building projects.

A range of education opportunities have been provided for the law enforcement community, from foundation level (First Responder) training through to a Master's degree in Forensic Computing and Cybercrime Investigation. Working in cooperation with international agencies, including INTERPOL, Europol, the United Nations Office on Drugs and Crime, and the Organisation for Security and Cooperation in Europe, CCI staff have worked in places such as Syria, India and the Balkan States delivering training to over 4,000 police officers. In addition, over 600 law enforcement students from over 60 countries have passed through the Master's degree. Furthermore the benefit of education becomes exponential as law enforcement agencies share their acquired knowledge.

"The UCD Master's programme has helped me to solve several forensic cases that I would never have been able to address previously. In deploying the learning from this course on a national level, I have succeeded in creating a full IT forensics training for specialist police officers, focused on concepts and practices, rather than using push button commercial products, therefore making my agency more independent from software companies, and my colleagues more skilled in tackling cybercrime." Yves Vandermeer, Superintendent in the Belgian Federal Computer Crime Unit, and Chairman of the European Cybercrime Training and Education Group.

In 2015, the number of home internet users exceeded 3 billion. 40% of the world's population is now digitally connected, and e-commerce is Europe's fastest growing retail market, with online sales expected to exceed €185 billion in 2015. There are now over 2 billion active social media accounts and over 1 billion individual websites. The internet is borderless, and so is cybercrime.

The FREETOOL project has enhanced the ability of police forces to work together to investigate cybercrime by removing the financial barriers to accessing necessary technology. A single commercial forensic toolkit may cost in the region of €120,000. The tools developed under the FREETOOL project will be provided for free. Furthermore, comparison tests conducted by law enforcement agents have found that these tools were more thorough and faster in detecting digital evidence. In a recent test, FREETOOL uncovered 30% more indecent photographs and videos of children than had been found using the commercial equivalent.

The work of the CCI was acknowledged in 2010, when it was asked to lead an EU-funded project to develop a network of Centres of Excellence based on the UCD CCI model. Today, more than 15 similar centres have been established across Europe.

"The concept and the work of CCI has had a significant and material impact in improving the ability of the police to investigate cybercrime. Not only in catching and prosecuting criminals, but also in saving the lives of the young, old and vulnerable people that are preyed on." Paul Gillen, ex Head of Operations at the European Cybercrime Centre in Europol, and now Managing Director of Global Cybersecurity Operations at Barclays.

RESEARCH REFERENCES

Websites

www.ucd.ie/cci

<http://www.eolasmagazine.ie/responding-to-the-growing-cyber-threat/>

Funding

€2 Million in European Commission funding

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