

WOMEN in the CYBERSECURITY BUSINESS

BE@CYBERPRO
Fostering cybersecurity careers



**Mc
Graw
Hill**



Co-funded by the
Erasmus+ Programme
of the European Union

CONTENTS

• CHAPTER 1

Wanna Be@CyberPro?	3
What's this book about?	4

• CHAPTER 2

Meet the Professionals.....	5
Women in Hungary.....	6
Women in Ireland.....	12
Women in Bulgaria.....	17
Women in Spain.....	23

• CHAPTER 3

What's cybersecurity about?	31
What's cybersecurity for?	32
Who's cybersecurity for?	33

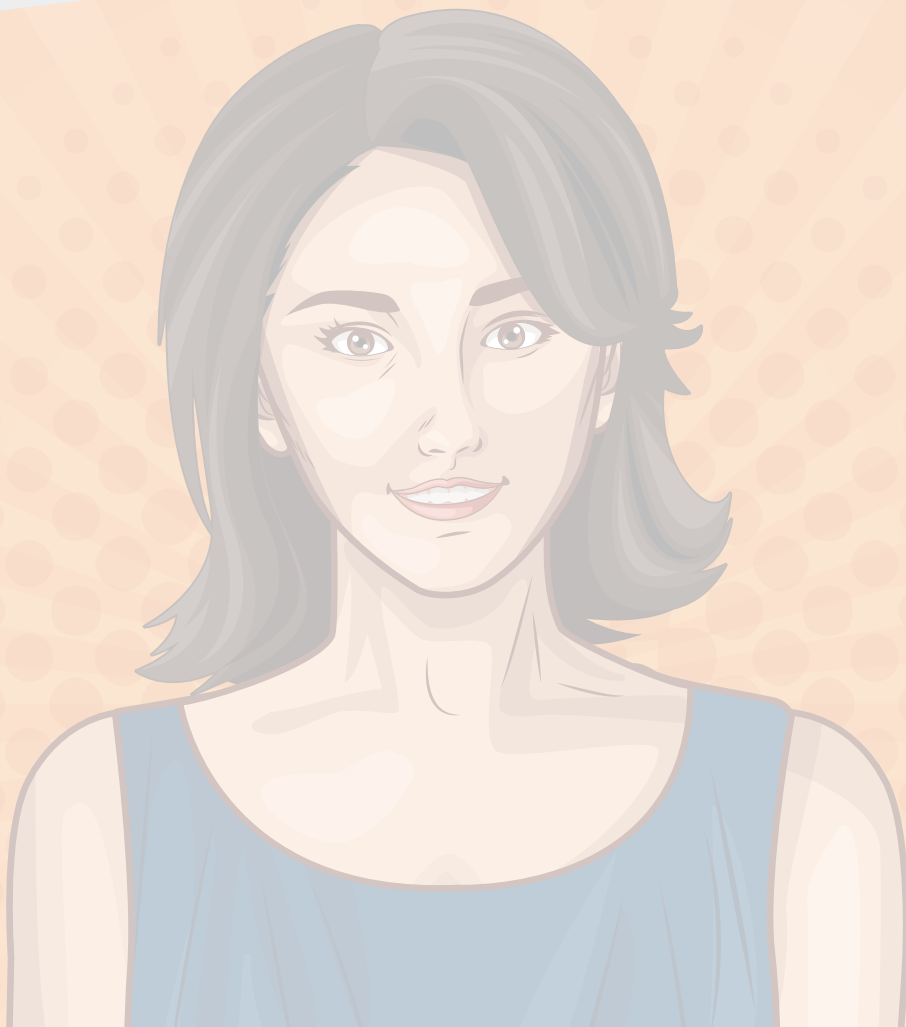
• CHAPTER 4

That's what cybersecurity is all about!	35
--	-----------



CHAPTER 1

Wanna Be@CyberPro?



Co-funded by the
Erasmus+ Programme
of the European Union

Be@CyberPro is a European project aiming to help close the gender gap in the cybersecurity sector. Right now, most cybersecurity professionals are men, so what can we do about it?

First, we'd like to talk to you about cybersecurity – protecting yourself and others from cyberattacks and cyber breaches. We've even created a videogame for you to practice your cybersecurity skills.

Secondly, we want you to know about the different possibilities a cybersecurity career offers. It is not all about being a hacker. Do you know how many things cybersecurity involves?

And finally, we've interviewed quite a few women from several countries who work in cybersecurity. Their experience is so

varied and interesting that we think you'll be able to see yourself in one (or some) of them.

What's this book about?

We want to introduce you to some amazing women who work in cybersecurity and tell you their stories to show how they got there.

Many of them, when they were your age, didn't even know that such a profession existed. They didn't even want to work in computers!

But here they are, making a living in a sector of the future, combining their professional development with their family and their hobbies, travelling and meeting people from all over the world. We find it an exciting world and we think you will too.

*This is what
this book is about.
We hope you'll
enjoy it.*

*Will you come
and discover
it with us?*



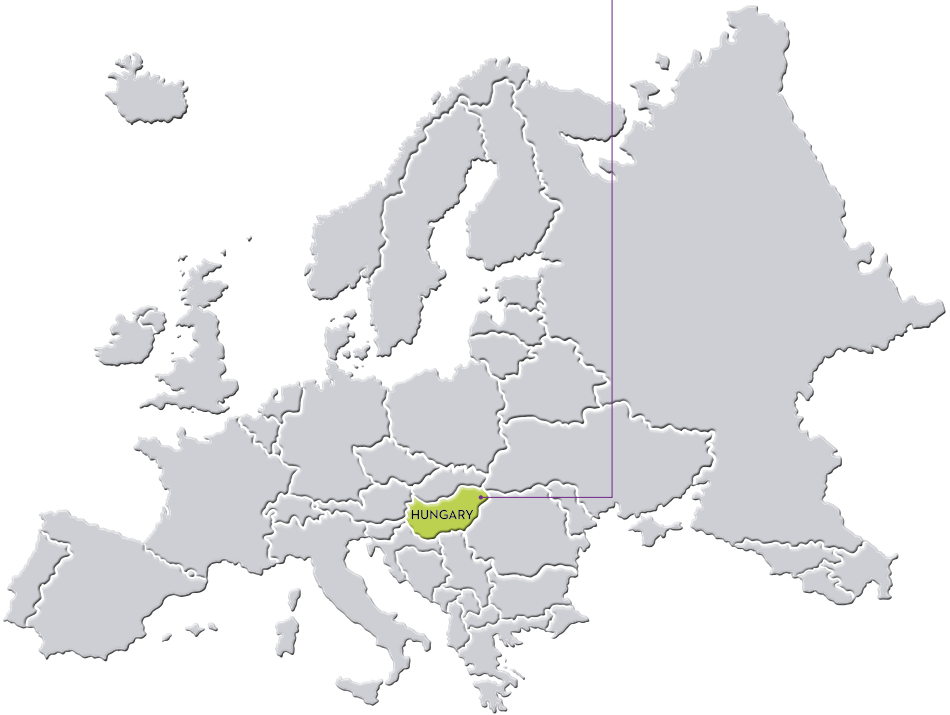
CHAPTER 2

Meet the Professionals

In this chapter we meet amazing women working in cybersecurity as they share their success stories.



Women in HUNGARY



Andrea Szeiler - HUNGARY



- A 49 year old cybersecurity professional having 3 degrees in 3 different fields.
- She has 28 years of experience in IT of which she has spent 21 in the field of cybersecurity.

Andrea Szeiler, Chair of WITSEC (Women in IT Security)
Source: <https://www.witsec.hu/hu>

Andrea was fourteen and finishing primary school when informatics appeared and started to spread worldwide. As the field grew, so did her interest in it: first she wanted to become an agricultural engineer like her father, but when she was given an Atari computer later, she started programming and announced to her parents that she would become a programmer instead.

First, she was studying industrial mechanical engineering and informatics. For programming, they used PASCAL, AutoCad and such, coding in C and her thesis on the environment of that kind won a prize. She continued studying at the International Trading College at the Faculty of Economics and International Communication.

Andrea started working for a newly established company which needed someone with an understanding of informatics to run their whole network. She had to manage the operation of a system and a major application. This career had been fairly interesting until she became an expert of ICT security.

From the beginning of her career, she had to face different problems because she was a woman. She knew very well that she earned much less than her male co-workers even though she was ranked higher.

She recalls when she was offered a job as information security leader by a company and visited the company's headquarters abroad where she was told that they were going to discuss how to reorganize the firewalls within the company.



At that point, they turned to her saying “you know, firewall is the tool that ...” as if the company leaders were convinced that a woman wouldn’t know what a firewall was. It took about 2 years for them to stop behaving like that and start asking for her opinion and involve her in making decisions.

When she was a schoolgirl studying informatics, there were more girls than boys in the class, but this situation has changed since then. Searching for possible explanations, she recalls an article with the title “Age of the Unicorns” (the nickname for women working in ICT) meaning that it was more likely to meet a unicorn than a female ICT professional at that time!

“

I was brought up by my parents convinced that I was good at mathematics basically, and my thinking was fast and logical, so nobody told me “Girl, you are a woman, you’d rather become a kindergarten teacher, because that suits you.

”

“

Can we still remember who were the greatest figures in informatics and computer technology when it started? Who was the first programmer?

Well she was a woman in a world where computer technology were still unknown. Her name was Lady Ada, she was a mathematician and the daughter of Lord Byron and predicted how programming would become easier and better on different semiautomatic devices in the future.

”



“

... it's a fact that a major change occurred sometime around the 80s, and this profession started to be a masculine one and everyone has identified informatics as a job for boys since then.

”

“

Being a server, we should use ICT tools to achieve it, but they are not the core of the business, they are just aides to it, and IT security assists them to do all that safely. We might have collisions and counterpoints as well, but that's the way it has to operate, and if the beautiful new world comes to life and businesses are aware of security not being unnecessary, but a function that is inevitably needed for the stable and safe operation of the company, it will gain higher reputation.

”

“

We should never say that a woman must be treated in another way just because she is a woman. Or we should employ her, because she is a woman. If it gets back to her that she has been employed just because she is a woman, she might be thinking that she may not have met the requirements for the job, and she has been employed only because she is a woman. We should be careful about that.

”



Dr. jur. Katalin Baracsi - HUNGARY



- Katalin is a 37 years old independent expert, internet lawyer. She studied law at university, then later specialized for family law, mediation and storytelling therapy.
- She has no specific ICT degree but yet she has spent 12 years working in the field of cybersecurity.

Dr. jur. Katalin Baracsi
Source: <https://www.witsec.hu/hu>

Katalin has always wanted to work in an area, where there is a permanent human connection and not to deal with company affairs or impersonal things. When she graduated from university and started to look for a job, an EU program called Safer Internet Program was launched in Hungary, so she applied for a position there. It was during the job interviews that she realized that the internet was a hot topic and got very excited about this area.

She usually visits schools where she talks to children, teachers and parents about who does what on the internet, what the consequences of actions there may be, the current trends and what to watch out for. Not to mention that she writes the curriculum. She tries to make them aware that humans are an integral part of cyber defense, as they use, operate or develop these programs. It is important that they

be prepared for what they might do accidentally.

In doing her job, she combines her legal education and ICT knowledge. The lectures she delivers are not just extra ICT lessons for the students. Katalin has realized that basic skills are not enough to answer the kids when they ask these questions about what a hacker is and what they do, or what the dark web is about. These answers also require some serious knowledge of psychology.

Her knowledge of law allows her to see what the Civil Code and the Penal Code provide for these cases, and it is important that in the case of cyberbullying she can declare that bullying is a crime anyway.

She never gets tired of being connected with people because this way she can get constant feedback. She had her choice



from the beginning about which age group she wanted to deal with. Choosing children was obvious for her and she could develop an extremely relaxed atmosphere with them from the beginning.

They are very happy to be given the opportunity to talk about a topic that is part of their daily lives, either in or outside of school. They inevitably ask all sorts of questions and give feedbacks immediately. Katalin meets different

groups of students constantly, which always gives her new impetus.

Katalin admits that there's a stereotype associated with internet security and cyber defense that it's definitely done by guys and that women don't have the knowledge to do it. In fact, many times during her visits to schools ICT professional Dads try to tell her what topics they think she should discuss with the children.

“

The teacher should recognize if there is a girl of special ability around her and create an opportunity to develop her skills.

”

“

The technical explosion that is going on around us and the quality of the equipment at our service make it inevitable to have professionals who can provide guidance in this area.

”

“

I used to work for law enforcement at the Ministry of Internal Affairs, and as there is a serious discipline and hierarchy, it is still a male-dominated world. I started working there as a lawyer, I had very good leaders, and they soon realized that I had a lot of other kind of skills different from men's and these could be put to good use.

”

“

I'm not sure if the words cyber defense and cybersecurity professionals are much part of our everyday vocabulary and everyone knows what they're doing.

”



Women in IRELAND



IRELAND



Joanne O'Connor - IRELAND



- Cyber-security training and education officer at Hewlett Packard Enterprise (HPE) | Ireland.
- While at HPE, Joanne helped found Women in Cybersecurity International (WCSI).
- This is an employee group dedicated to involving more women in STEM subjects and raising awareness of cybersecurity as a profession. The group also aim to achieve proportional gender representation at all levels including leadership.

My background is a mix of technology project management, visual design and communication. My degree was in information systems management. My choices were probably lead more by what courses I could get into based on my points from my leaving certificate as opposed to any Strategic Thinking at the age of 18.

Cybersecurity actually was not my first choice for a career, the very simple reason being was that it wasn't a career that existed in Ireland at the time. Sure we had information security, but that was never on my radar at that young age when leaving school and making those decisions. My choices on my application for college were Business Studies and Civil Engineering.

My motivation to switch to Cyber security from my app development job was simple.

There are limitless possibilities in the cyber sector currently. The industry in Ireland is growing rapidly, we have different initiatives like Cyber Ireland cluster, aiming to bring together the three elements of industry, academia and government to make Ireland a centre of excellence. There are networks and women's networks popping up every day, like the Humans of Cyber network I founded, which is a network for industry professionals, students studying towards a career in cyber and people wishing to step into the sector.

We give them a way to do it more easily through a network and mentorship program. I have also submitted a petition to government to have the first ever International Women in Cyber Day. So, as you can see, the cyber sector is alive with activity, there couldn't be a better time to switch your career.



Once the Cyber defence centre opened its doors in my company circa 2015, I was intrigued. I was pretty sure that my skills didn't fit as an analyst so it was just waiting game. What started as one function quickly grew to 15 functions spanning technical and non-technical roles. That was my time to go for it. I apply for the role of cyber security training and education officer and was successful. The role perfectly aligned my qualifications as a PMP certified Project Manager and my creative background as aux UI designer.

Being a woman did not make it harder. Coming from an IT background I have always been familiar with the heavily male gender office. If anything, the forward thinking mind set of the leadership team in cyber security at HPE made it the easiest career choice to date. Twelve months into my new role I went off on maternity leave, the support was second to none, our male director did everything to ensure I was supported and included during my time off, even creating and piloting a maternity buddy programme which facilitates this time in a new mother's career.

“

I think girls may find it harder to choose a technical path not because they are not able but sometimes there is the influence of other people in their lives like parents or career guidance and they may think more traditional female jobs are the way to go and divert them. I think that is why mentoring even from young age can be helpful, and also the visibility of cybersecurity influencers. People that young girls can look up to and aspire to be like that are killing it out there in the cybersecurity fields, and they can be a positive role model to the Next Generation.

”

“

My advice for girls entering the profession is don't hesitate, jump right in. There are so many women already in the field paving the way for you to address equality balance and pay gaps. It is a highly enjoyable collaborative and fast-moving field, one in which women can really make a difference.

”



Louise Gallagher - IRELAND



- Louise Gallagher is a Cybersecurity Business Process Engineer at Hewlett Packard Enterprise. She started with HPE in 2015 as an IT Support Analyst and began her career in Cybersecurity in 2017.
- She recently completed a MSc Software Design with Cybersecurity and now works on Special Projects as a Process Engineer/Project Manager within Global Security Fusion Centre.

I originally worked in retail for many years, and whilst I don't have a technical background, I have a strong business background. I decided to build on this and go back to University to complete a Masters in Information Systems Management, which combines both aspects of technology and business. From there I moved into a role with Tech Giant HP as an IT support analyst. Cybersecurity wasn't my first choice but it was always something that I really was interested in. When I first started in HP (now HPE), there weren't many roles in Cybersecurity nationwide, especially not in the West of Ireland, however, in 2015 HPE opened a Cyber Defense Centre (CDC) and with it came multiple opportunities for career growth.

In 2017 I moved into a role as an Information Security Analyst in the CDC receiving a strong foundation and understanding of front line defense and response to Cyber incidents.

Building on that, I moved into the Vulnerability and Remediation Management team. Whilst completing a Masters in Software Design with Cybersecurity I moved into my current role, working with Special Projects in the Security Fusion Centre.

In addition to my day job, I am part of various initiatives to promote STEM as a career direction for women, with a specific focus on Cybersecurity.



“

Every problem is so different, every day is different, every attack is different. We only know what we know, not what we don't know yet. That's why we need many different minds to think differently and to approach events with a different mentality. It's so important in Cybersecurity to have as diverse a team as possible, especially across culture and gender.

”

“

A Career in Cybersecurity is for life, it'll be one you'll never regret embarking on.

”

“

If you are interested in Cybersecurity and see a role that appeals to you, apply for it. Even if you don't tick all the boxes, send them your CV. You would be surprised what will come from it.

”

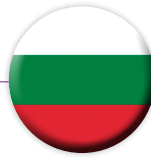
“

Just go and learn as much as you can. Follow as many different avenues on Twitter, LinkedIn etc. as you can. Become as educated as you can. This will help you to have a different opinion, different insight and different way of viewing things. You need to have an ethic and a willingness to learn, take on new things and an ability to pick up things easily. It can be tough, but you really will be rewarded.

”



Women in BULGARIA



D.P. - BULGARIA



- Networks Security Professional, BULGARIA Choosing a Technical Discipline
- D. always had a strong interest and experience in information technology, however, cybersecurity was never a consideration she had.

“I come from a technical background, however, I was interested in working in system administration and never considered cybersecurity. I just was always interested in technology and had a good opportunity for higher education. At my university, I met with a future employer who offered me an internship in the cybersecurity division of a company, where, as part of my training, I took several courses on network security. This is how I got started.

I fell in love with security, as every day, I get to learn new applications of the knowledge on networks. The constant learning of new things, along with the experiences related to helping an actual client and consulting large companies on how to improve their security is the coolest thing about my job. Plus, I get to travel a lot”.

Her Daily Life

D.'s work continues to revolve around networks even when working in a cybersecurity context.

“

I monitor computer networks for security threats and consult clients on how to improve their network architecture, to boost the security of their systems. I also analyze security risks and develop response procedures and stress test software deployment tools, firewalls and intrusion detection systems.

”



D. also spoke about her experience with misconceptions from her friends and family regarding the job she chose.

“

When I started pursuing an education in technology, my grandmother asked me whether I'm doing it so that I can find a good husband who will have a career in technology. I just laughed at that and told her "of course not, but that would be a cool bonus"! I always felt cheered by my friends and family to pursue whatever made me happy and I was never too interested in what anyone thinks or says.

”

About being a woman in a tech-intensive environment, D. had positive things to say:

"I am equally payed and I never felt any discrimination because of my gender. The only thing that matters in my job is

experience, hard work and expertise, and everyone is paid respectively. I have received special treatment in the sense that being a woman in a male dominated area, I feel everyone has been more tolerant of my mistakes and everyone wanted me to succeed. My male colleagues are always ready to go out of their way, so that they can provide me with the support I need and everyone wants me to succeed. I think men like having female colleagues around and I have always felt encouraged and included".

"It's an amazing field! You get to learn a lot every day, you are constantly developing your professional portfolio and you are being paid reasonably well for that. I am very happy! I never think of myself as a 'woman in cyber' or as someone having 'specific problems' that need to be solved - I am a cybersecurity professional, I am well-respected and the way that people treat me depends on the way I perform and act professionally. If someone had problems with me because I'm a woman, they never said anything to me, at least in my face, and I don't see a reason to care for what other people think".

“

I would give young men the same advice I would give young women - be respectful to everyone and get to know the people around you. There is so much more to a person than gender and stereotypes. Just try to be good to others.

”



L.S. - BULGARIA

Head of Cybersecurity Department, BULGARIA



Pioneering the Field

L. has more than 30 years of experience in the field of technology. Starting from her PhD in artificial intelligence, genetics and smart systems, to currently heading a cybersecurity department in a large multinational company, she is one of the pioneers of the field of cybersecurity in the country.

“There was no cybersecurity as a discipline back then. My work in time started involving cybersecurity more and more, and as there weren’t many specialists, I decided to establish and head a cybersecurity department myself.

Cybersecurity was never a choice when I was starting my education or career, about 30 years ago. At a later point, my job just evolved into including cybersecurity more and more, until finally, it became almost entirely occupied by the topic of cybersecurity”.



Her Daily Life

“My work currently revolves mostly around research, team and project management. I love my job as I get to provide younger people with the opportunity to develop in the field of cybersecurity, computer science and artificial intelligence. What I like the least is that I have to get up early most of the time and stay until late - working

with international partners, we have to cater to different time zones, so I work about 12 hours a day. Not complaining, it is not a job, when it is also your hobby”.

When asked whether her friends or family members held any misconceptions about her career, she simply answered: “No, why would they?” We then started talking about career and gender.

“

I had many female colleagues throughout the years and I have never seen anyone treating us differently. Also, the number of women in the sector has increased proportionally with the increase of job openings and employment rates in technology. I have been a subject to stereotypes and prejudices but not in my professional life.

”

Her advice to young men

“Your female colleagues don’t need any special support, they are not sick. We are all here to work, learn and develop personally and professionally, so the way you want to be treated, you should treat everyone else”.

increasing need for cybersecurity professionals. And it is getting more and more important”.

About the cybersecurity sector in general, she had to say the following:

About the importance of cybersecurity

“Cybersecurity is getting more and more recognized, especially with the

“Like every job, there are good things and bad things. Depending on your profile and your responsibilities, you could travel a lot, be able to work remotely from any part of the world, work with people or never having to interact with people. The good thing about cybersecurity is that it offers very diverse opportunities



depending on what your interests are. The bad part, or actually, it is not bad at all, but it just makes it harder, is that it is a very demanding sector, which requires you to work hard and learn all the time. It is not for people who want a calm work environment, but on the flip side, it never allows you to get bored”.

“Cybersecurity is getting more and more recognized especially with the increasing need for cybersecurity professionals. And it is getting more and more important. Not everyone will be passionate about cybersecurity, no matter what applications you present to them. We

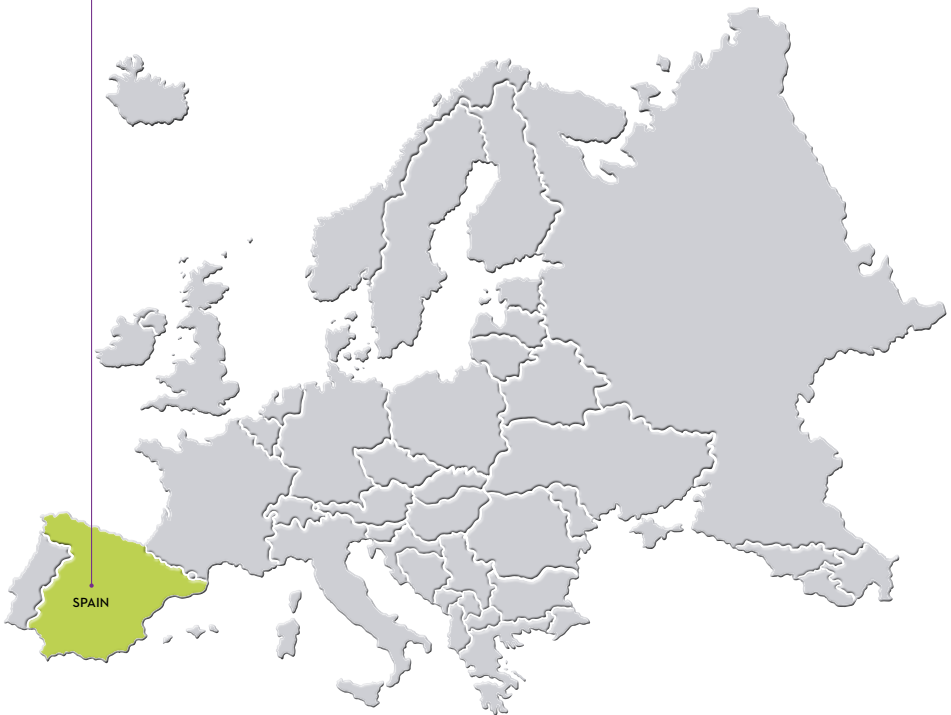
shouldn't pressure girls and boys into technology as well, if that is not their thing. By the time the current high school students grow up, there will be jobs that don't exist as of right now, so if you are a high school student, and you are reading this, know that even if you don't know what you would like to do now, work hard with the things you know how to do and you enjoy doing, and by the time you are done with education, you will be able to find a career where you could apply those skills”.



Keep following your gut. If this is something you would like to be doing, you work hard, and you'll do great. If this is not something you would like to do, find your passion and follow it through.



Women in SPAIN



Selva Orejón - SPAIN



- CEO of onBRANDING, legal expert in digital identity, SOCMINT, OSINT, PRIVINT and online reputation.
- Selva studied Communication Science, Advertising and Public Relations.
- She is a member of National Cyberleague GC, with 20 years of Cybersecurity work experience.

**“I have been so lucky because the companies
I have worked for required people who
were knowledgeable about communication
and security”.**

Selva has been involved in cybersecurity almost since the beginning of her career. She studied communication sciences and always combined it with work to pay for her studies. She learned the more technical part of her job more through experience than through training. It really wasn't very complicated for her to get into the field of cybersecurity because companies were looking for people

with her profile. “I have been very lucky because the companies I have worked for required people who had knowledge about communication and security”.

When she started, there were no official studies in cybersecurity, so she educated herself by doing jobs with colleagues who already had knowledge and experience as well as by taking specialization courses.



Self-taught, she has grown professionally, always looking for contacts with people who could enrich her vision. Teamwork, reading and constant research have been the basis of her learning.

“

Right now we must be around 60 % women and 40 % men. We have very heterogeneous teams.

”

An incident while living in Berlin in 2009, when she was responsible for Spain and Latin America for a social network (SchulerVZ at the time, now called Studivz) led her to begin her journey in cybersecurity.

At a press conference, this social network was defended as the most secure and hacker-proof, but it was not long before it was taken down. The social network was offline for 15 days and everything was broadcast live on YouTube. The young hacker who extorted money from the company was arrested and committed suicide in prison days later.

All this was a tremendous media scandal that generated a lot of mistrust among the users and an important impact on the economy, reputation and staff of

the company. This event was a turning point in Selva's life and led her to focus all her attention on the area of digital reputation.

From that moment on, she began working on communication crisis management because the companies she had worked for had problems with the privacy or security of their information. “This had a reputational consequence: we had to work on it from the communication area together with the corporate security departments”, she explains.

Her work has evolved along with the international regulations that have been updated. “Before, there were machine gun attacks; the legislation has evolved and, with it, hackers have had to find a way to legally hack into the system. But there is still a long way to go before there is complicity on the part of the social networks and platforms which guard our information. It has changed a lot and still has a lifetime to change”.

One could say that attack and defense have been professionalised, and the path that still lies ahead leaves a sector in full growth, which will change a great deal in the coming years.

Selva says that being a woman in this field of work has been an advantage.

This diversity of profiles brings great richness to the sector and allows problems to be tackled from different perspectives; this is why it is very common



“

I have been generating my own work according to what I could take on. Right now, there must be 60 % women and 40 % men. We have very heterogeneous teams.

”

“

The problem is perhaps stereotypes, because cybersecurity brings together very different professional profiles that complement each other and work together.

”

“

In social engineering, private investigation and criminal psychology there are many women, and in the more technological field, in forensic justice or programming, there is a male majority. At least, that's what I've experienced. Perhaps, I could tell you that in the intelligence departments, technological research units and police forces, there are many more women.

”



to work in multidisciplinary teams. As Selva says:

“

What I have always tried is to bring the different disciplines closer together to create value that goes beyond technology.

”

Understanding this helps to go beyond the stereotype of cybersecurity linked solely to technology and hacker culture.

As for stereotypes and the lack of knowledge about the professional profiles working in cybersecurity, Selva's proposal to make the sector better known is to bring technological areas closer to everyday issues through social networks and the media. Dissemination and advice for fiction video makers to demystify the hacker profile would also help to know more clearly what the work carried out in a technological research unit, in a company dedicated to digital reputation or in the cybercrime units of security forces consists of. For this reason, for some time now she has decided to attend the annual Gijón Black Week, the meeting that brings together writers of crime novels.

To be able to decide what to study when you finish school or what to do at any given time, you need to know the reality of the options available and be clear about what you like and where you want to invest your time. When asked where to find more work in the sector, Selva mentions

psychology and criminology as work areas that will be very much in demand in the coming years. This helps to get a broader view of the profiles in demand, beyond the purely technological ones.

The company onBRANDING, of which she is the executive director, works with the victims of cyberattacks which requires empathy and fluid communication with clients. After all, they are offering an assistance service in times of crisis. When we ask her about the best and worst of her work, she says:

“

For me, the most rewarding part of working on this is that you support and help people who are having a very bad time. The most complicated part is the feeling of being in a state of constant alarm. If this isn't handled well, you can get burned. Delegating to people you trust is essential.

”

As for the advice she offers about cybersecurity for any user or regular user of social networks or the Internet in general, she advises working on one's digital identity to get into the searches of companies and become visible, because it helps a lot professionally. Although we think that we are only students and can contribute little, it may be interesting to focus our profiles in some social networks on the area where you want



to work, sharing related information or even work done in schools. Apart from this advice, which is very closely linked to professional projection, she considers it essential to always denounce harassment or cyberbullying and to know how to request that your information be removed from the Net - in addition to the double verification factor - in order to be safe Internet users. In fact, cybersecurity for users is currently a pending subject even for those who are most exposed.

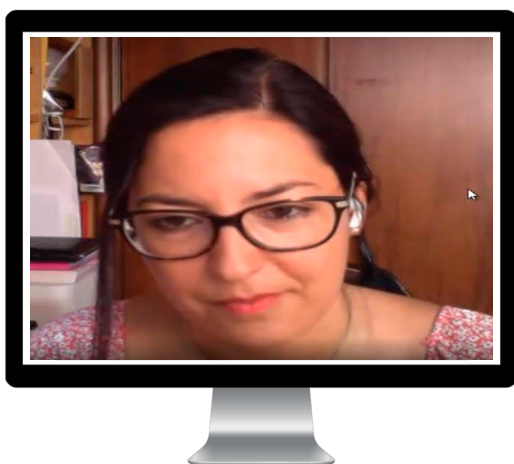
“

There is a fundamental gap, for example with influencers, in providing them with basic cybersecurity measures.

”

With the massive digitisation due to the COVID crisis, she believes that “society has realised that we are more vulnerable than we thought because we have realised our lack of knowledge and digital competence in this regard. We can only hope that this situation has been an excuse to catch up and acquire positive habits in the use of the Net and our information, as well as to learn more about what cybersecurity is and who works in this sector”.

Selva has given us a very broad view of the work in cybersecurity and how it has evolved over the years. There is still much to do and to develop in this area of work.



Eva Suárez - SPAIN



- Eva Suárez defines herself as a “rather resolute” person. She was always convinced she wanted to study a technical degree.
- She has always worked in the field of telecommunications.
- At first, she was more oriented towards network communication; later she did a master’s degree specialised in cybersecurity which opened her the doors to this profession.

Since she started working and during the development of her professional career, Eva confesses to having been lucky enough to work in companies where she has not encountered problems due to the fact that she is a woman.

She remarks that “I have not felt any kind of problem because I am a woman in front of a man, despite working in a more technological area, where it is true that right now there are more men than women”.

With regard to the presence of women in cybersecurity and telecommunications in general, Eva attributes the low presence of women more to a “generational issue”. Despite the fact that when she studied Telecommunications there was also little

female presence, she believes that “this trend may be changing” and that “this tendency will continue and the more people who want to contribute, the better”.

For Eva, being a determined person and having the support of her family has been very important. Besides, she feels reinforced by the fact that she can work every day in what she likes, having also the possibility of researching about new aspects to be solved in the day-to-day, which she finds stimulating. Although she is not able to identify specific negative aspects, she believes that having a family environment where the use of technology is reinforced appears to be important.



As for girls who may consider training in cybersecurity, she believes that it is important that this area be reinforced from an early age in schools, raising awareness of the importance of technology and cybersecurity as much as any other area: “The sooner you get to know it, the better you will be able to choose”. Eva also refers to the role that teachers play at primary and secondary school to encourage girls to participate in science careers and in the technological baccalaureate. As an anecdote, she tells us how difficult it is to have the support of teachers in this area, when we go to ask for their opinion about access to this type of degrees:

Eva also points out that it is necessary to offer formal training at an early age to girls who are interested in the world of technology, providing them with in-depth knowledge of the area.

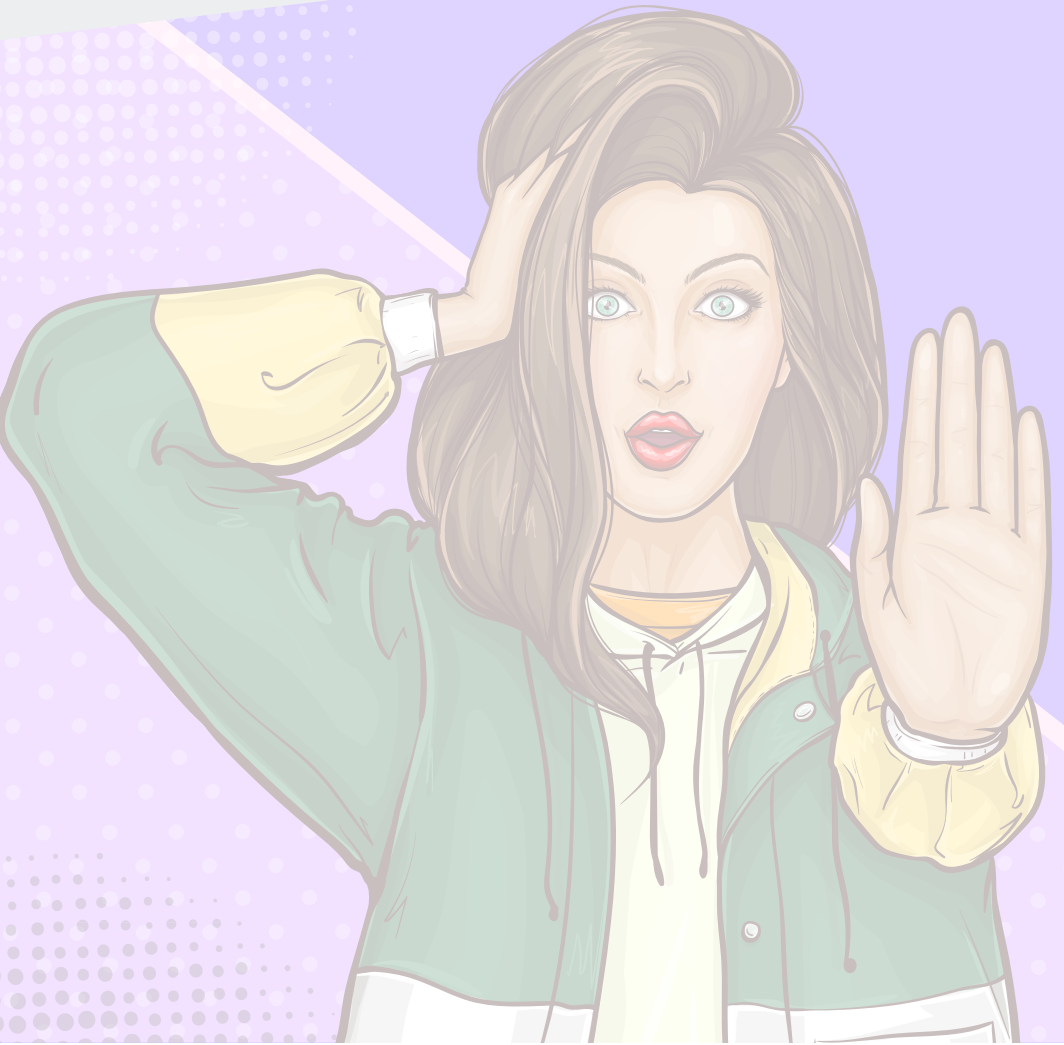
“For girls who decide to take up any technical career or become interested in it, I would say, “go ahead, work hard for what you want and you’ll get it, and if that’s what you like, you’ll also be great, because there’s nothing better than working on something you like.”

“Don’t forget there are a lot of kids in the classes. I don’t mind giving counselling, but I understand that there may be situations where other people might feel a little bit awkward asking.”



CHAPTER 3

What's cybersecurity about?



What's cybersecurity for?

Since 2010, there has been a steady stream of disturbing news about privacy issues: Wikileaks, Cambridge Analytica, the Brexit referendum, the 2016 US elections as well as regular leaks of private and personal information from the social networks of hundreds of thousands of people.

This issue came into sharp focus during the global pandemic caused by COVID 19. During the lockdown, almost everything had to be done online. Schools, higher learning institutes and universities moved

classes online. Entire sectors of the economy switched to remote working and even social events moved online.

Video-conference and file-sharing programmes such as Zoom, Jitsi, Google Meet and Microsoft Teams became essential for everyone, from office workers to families with small children.

Cybersecurity is about making it safe for everyone to do all of these things.

It is about the processes, and practices designed to protect networks, devices, programs, and data from attack, damage, or unauthorized access.



Who's cybersecurity for?

The short answer is – **everybody!**

Absolutely everyone needs to have at least a basic understanding of Cybersecurity. In the world we live in today, information and communication technology (ICT) is simply part of everyday life, no matter what age you are or what you do. And its role will only continue increase.

Once upon a time, if you wanted to put money in the bank, you had to go to the bank. Or, if you wanted to buy something, you had to go into a shop. You interacted directly with a person and you were not required to give them any personal information. Did you ever give a shop keeper your address and phone number to buy a pair of shoes? If you took a photograph you printed it out and there were no copies unless you made them. Nowadays we can do all of these things using a device we carry in our pocket and all of the information is kept in various places.

So, everyone needs to understand who they give information to and what happens to it whether you work in cybersecurity or not.

So, we know cybersecurity is important and we can easily guess that it is a sector that will only continue to grow. In fact, there has never been a better time to have a career in cybersecurity. Today

cybersecurity may be the fastest- growing career field. Why is then that despite all this, there are still not enough people involved in cybersecurity work to meet the demand?

Who's a career in cybersecurity for?

What do you think of when you imagine a cybersecurity professional? Do you think of a woman? Probably not! Did you imagine a lonely hacker in a hoodie in a dark room?

This stereotype has been used so often in the media to represent the cybersecurity industry it's usually what comes to mind. Not only is this unrealistic, but it's damaging too. On top of that, it's usually a guy, so it certainly doesn't reflect what girls would like to be in the future.

In reality, there is a wide variety of professional profiles in the industry: security architects who build a company's security system, digital forensics investigators who process data for a case under investigation, security managers who incorporate security into business objectives, sales, marketing... And jobs we haven't even thought of yet.

In 2017, the Centre for cybersecurity and Education did a survey of 4,001 young people in the UK, USA, France, Germany, Italy, Spain, Israel and the Netherlands. From the results, they have predicted a shortage of 1.8 million information security workers by 2022.



On top of that, 90 % of those that do exist are men, while almost 60 % of the graduates who leave university each year are women.

According to the study, one of the reasons girls are not attracted to the industry is that there are not enough female role models in cybersecurity to inspire girls.

In fact, according to Janice Richardson, Senior Adviser at European Schoolnet: “Most young people (69 %) have never met anyone working in cybersecurity, let alone a woman working in the sector (only 11 % of them have). But, when they do, their opinion changes, and 63 % of young women have a more positive view of cybersecurity”.

That' s why we at
Be@CyberPro have
decided to make
this book.



CHAPTER 4

That's what cybersecurity
is all about!

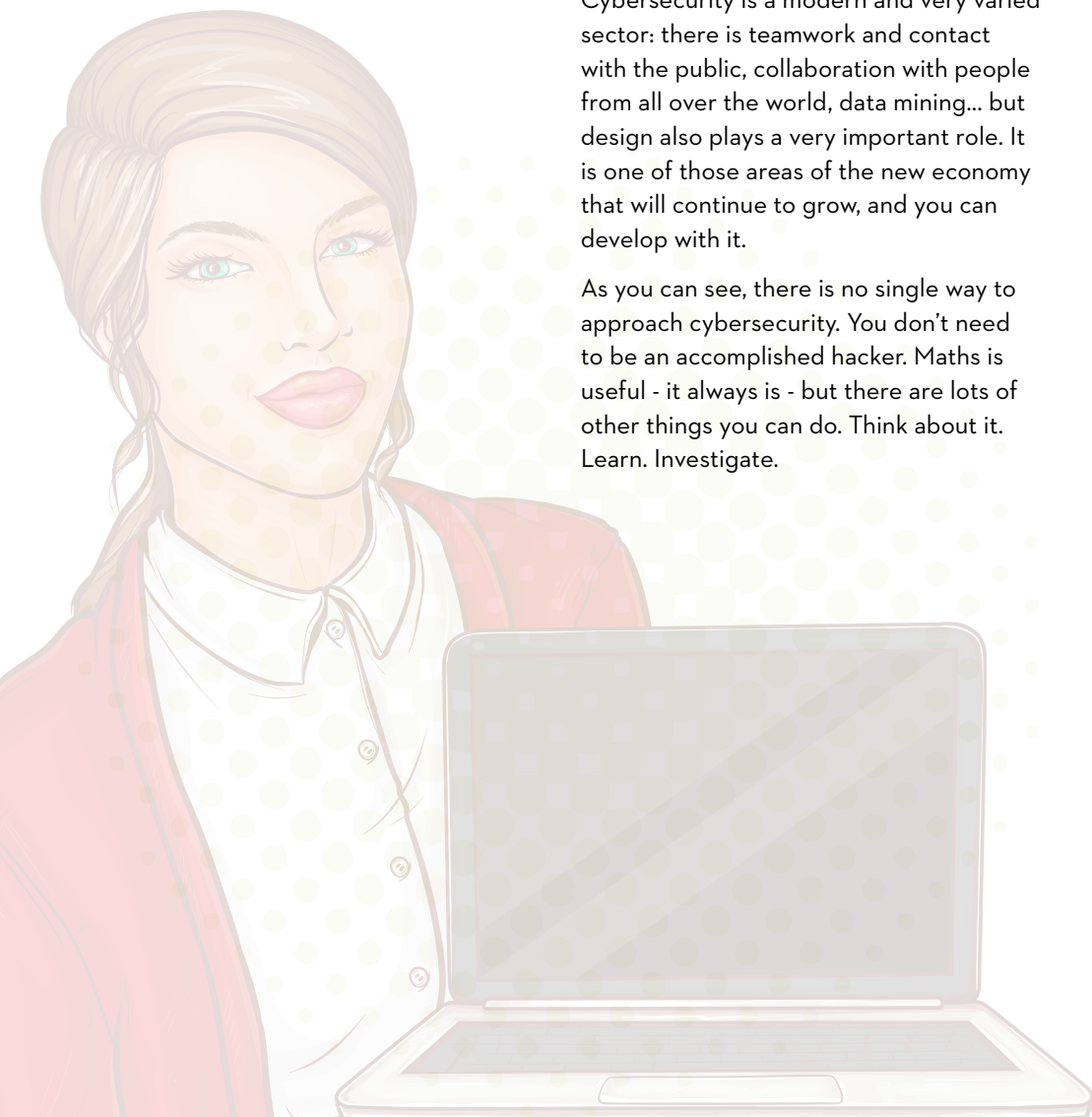


If you've read all these stories carefully, there are two possible outcomes: either you didn't know anything about cybersecurity and

found it to be an exciting profession (or at least we hope so), or you heard something about it, but your perception has changed.

Cybersecurity is a modern and very varied sector: there is teamwork and contact with the public, collaboration with people from all over the world, data mining... but design also plays a very important role. It is one of those areas of the new economy that will continue to grow, and you can develop with it.

As you can see, there is no single way to approach cybersecurity. You don't need to be an accomplished hacker. Maths is useful - it always is - but there are lots of other things you can do. Think about it. Learn. Investigate.



At beacyberpro.eu you
can find all the information
you need. We are at
your disposal.

Do you want to know more?



PARTNERS

Universidad Europea de Madrid (Spain)

- Eva Jiménez García
- Gonzalo Mariscal Vivas
- Javier Fernández Collantes
- Luis Antonio López Fraile
- Sara Esteban Gonzalo
- Sonia Martínez Requejo



Colegio JOYFE (Spain)



Munster Technological University (Ireland)



European Software Institute - Center Eastern Europe (Bulgaria)

- Christina Todorova
- Pavel Varbanov



PARTNERS

The Irish Computer Society (Ireland)

- Liz Mc Carthy



PROMPT-H LTD (Hungary)

- Annamaria Kacsur



SZÁMALK-Szalézi Vocational and Technical School (Hungary)

- Ildikó dr Sediviné Balassa
- Gabriella Kőhegyi



University of Alcalá (Spain)

- Maite Villalba Benito
- Luis Fernández Sanz
- Ana Castillo
- Inés López Baldominos
- Vera Pospelova



125th High School «Boyan Penev» (Bulgaria)



This project has been funded with support from the European Commission. This publication [communication] reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Edited by McGraw Hill, Madrid, Spain

c/ Basauri, 17

28023 Aravaca (Madrid)

Editor: Cristina Sánchez Sainz-Trápaga

General Manager (South Europe): Álvaro García Tejeda

Development team: Diseño y Control Gráfico

ISBN (digital): 978-84-486-2690-7

ISBN (print on demand): 978-84-486-2691-4

MHID: 978-000-85-0303-1

The contents of this report may be downloaded, reproduced, distributed and printed for private study purposes, research and teaching, or for use in non-commercial products or services, provided that authors are adequately recognized as the source and holders of intellectual property rights, without implying in any way that they approve the resulting views, products or services. For those contents in which specifically it is indicated that they come from third parties, any request must be addressed to the original source to manage proper permissions.

