

CYBECO

Supporting Cyberinsurance from a Behavioural Choice Perspective

Codebook - Experiment 1: Behavioural insights of CYBECO model.

Date: April 2019

Abstract:

This document presents the description of all the variables contained in the dataset collected in the Experiment 1 of CYBECO project as well as its rationale and the screenshots of the experimental software.



Codebook - Experiment 1: Behavioural insights of CYBECO model

Table of Contents

1	Introduction	4
2	Rationale of Experiment 1	5
2.1	Experimental Conditions	5
3	Screenshots of the experimental software	8
4	Description of the variables in the dataset	25
4.1	Subject	25
4.2	Socio-demographic questionnaire	25
4.3	Phases 1 and 2	26
4.4	Phase 3	28
4.5	Final questionnaire	29

Codebook - Experiment 1: Behavioural insights of CYBECO model

List of Figures

Figure 1. C1: The attack is random.....	6
Figure 2. C2: The attack is intentional	6
Figure 1. Welcome page	8
Figure 2. Socio-demographic questionnaire	8
Figure 3. Stage 1 and 2 instructions when the context is random, Factor C1	9
Figure 4. Stage 1 and 2 instructions when the context is intentional, Factor C2.....	10
Figure 5. Cibersecurity shop when there are not price dependency and the prices of insurance are medium, Factor P1 and I1.	11
Figure 6. Cibersecurity shop when there are price dependency and the prices of insurance are medium, Factor P2 and I1.	12
Figure 7. Cibersecurity shop when there are not price dependency and the prices of insurance are asymmetric, Factor P1 and I2.....	13
Figure 8. Cibersecurity shop when there are price dependency and the prices of insurance are asymmetric, Factor P2 and I2.....	14
Figure 9. Cibersecurity shop when there are not price dependency and the prices of insurance are high, Factor P1 and I3.	15
Figure 10. Cibersecurity shop when there are price dependency and the prices of insurance are high, Factor P2 and I3.	16
Figure 11. Purchase summary.....	17
Figure 12. Event website.	18
Figure 13. Event registration.....	19
Figure 14. Event website - Logout.	20
Figure 15. Cyberattack simulation.	21
Figure 16. Access to Stage 2.....	21
Figure 17. Stage 3: Holt & Laury	22
Figure 18. Stage 3 results	22
Figure 19. Final questionnaire	23
Figure 20. End page.....	24

1 Introduction

This document presents the description of all the variables contained in the dataset collected in the Experiment 1 of CYBECO project as well as its rationale and the screenshots of the experimental software. Deliverable 6.3: Report with Findings of Experiments and Policy implications¹ of CYBECO project presents the details of the implementation of the experiment, the results obtained and its implications for the validation and potential improvement of CYBECO model.

The document is structured as follows. Section 2 presents the rationale and the experimental conditions of Experiment 1. The experiment covers the purchase decision of the different components of this strategy (protection measures, cyberinsurance products and actual online behavior), as well as the process of updating of beliefs under different experimental conditions. Section 3 contains the screenshots of the experimental software. Finally, section 4 lists and describes the variables collected in the dataset.

¹ <https://www.cybeco.eu/results>

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2 Rationale of Experiment 1

Experiment 1 will analyse the ‘human actual behaviour’ when purchasing cyber protection and insurance. The information of this experiment will be applied to identify effective behavioural levers in the design and communication of these types of products.

The rationale of this experiment is as follows. Participants were invited to make decisions related to the purchase of cyber insurance and protection products in an online controlled economic experiment. In a role of IT heads in a SME, participants were offered the chance to buy a protection measure (to reduce the probability of suffering the attack) and/or a cyberinsurance product, that will pay back in case of cyberattack. After voluntary purchasing of these cybersecurity products (protection measures and cyberinsurance policies), participants were required to perform a simple task consisting of an online registration for an event of cybersecurity. To register the comparison website, they were required to create a password, to provide some personal information (compulsory and non-compulsory fields) and to log out after completing the registration. Before accessing the registration website, participants were informed that they may suffer a cyberattack, depending on how safely they behave when browsing.

The experiment contained two independent phases, each of them presenting the opportunity to buy cyberinsurance and protection measures and to register online. At the end of each phase, participants were informed if they have actually received the random cyberattack, and informed of their payoff for the phase, which depends on all their decisions during the experiment and the fact of suffering or not the cyberattack.

Experiment 1 was run with a total sample of 4.800 subjects from four different countries (Germany, Poland, Spain and UK). The fieldwork of the experiment started on June 2018 and ended in August 2018 in the four countries. The distribution by age and gender reflects Eurostat’s data from the 2017 survey on ICT, Table 1.

	<i>Germany</i>		<i>Spain</i>		<i>Poland</i>		<i>UK</i>	
	n	%	n	%	n	%	n	%
Male	617	51.42	600	50.00	552	46.00	595	49.58
Female	583	48.58	600	50.00	648	54.00	605	50.42
16 – 34 years	932	77.67	842	70.17	713	59.42	844	70.33
35 – 74 years	268	22.33	358	29.83	487	40.58	356	29.67
<i>Total</i>	<i>1200</i>	<i>100.00</i>	<i>1200</i>	<i>100.00</i>	<i>1200</i>	<i>100.00</i>	<i>1200</i>	<i>100.00</i>

Table 1. Distribution of the participants by gender, age and country.

2.1 Experimental Conditions

Experiment 1 implements a full-factorial design with the following three factors and 2 x 2 x 3 levels, respectively:

- Context of the cyberattack (C)

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- C1: The attack is random (there is a virus in the Internet that may affect randomly to any user). Subject is informed of the average probability of suffering an attack as the percentage of similar users that have suffered the random virus attack in the last week. *“You are aware that there is a computer virus going around the Internet, that may affect your company. We can estimate the probability of this threat by measuring the percentage of similar attacks in the last week.”*



The initial probability that CYBECORP is randomly affected by the virus is 40%

Figure 1. C1: The attack is random

- C2: The attack is intentional (in an adversarial analysis framework, the attack is intentionally launch by a cyber-criminal). Subject is informed of the average likelihood of suffering an attack as the percentage of similar users that have suffered the intentional attack in the last week. *“You are aware that a cybercriminal might deliberately target your company. We can estimate the probability of this threat by measuring the percentage of similar attacks in the last week.”*



The initial probability that CYBECORP is attacked intentionally by the cybercriminal is 40%

Figure 2. C2: The attack is intentional

- Relation of the protection measure and the price of the cyber insurance product (P):
 - P1: The price of the insurance does not depend on the protection level
 - P2: The price of the insurance does depend on the protection level

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- Features of the cyber insurance product (I) :
 - I1: Medium price
 - I2: Asymmetric price
 - I3: High price

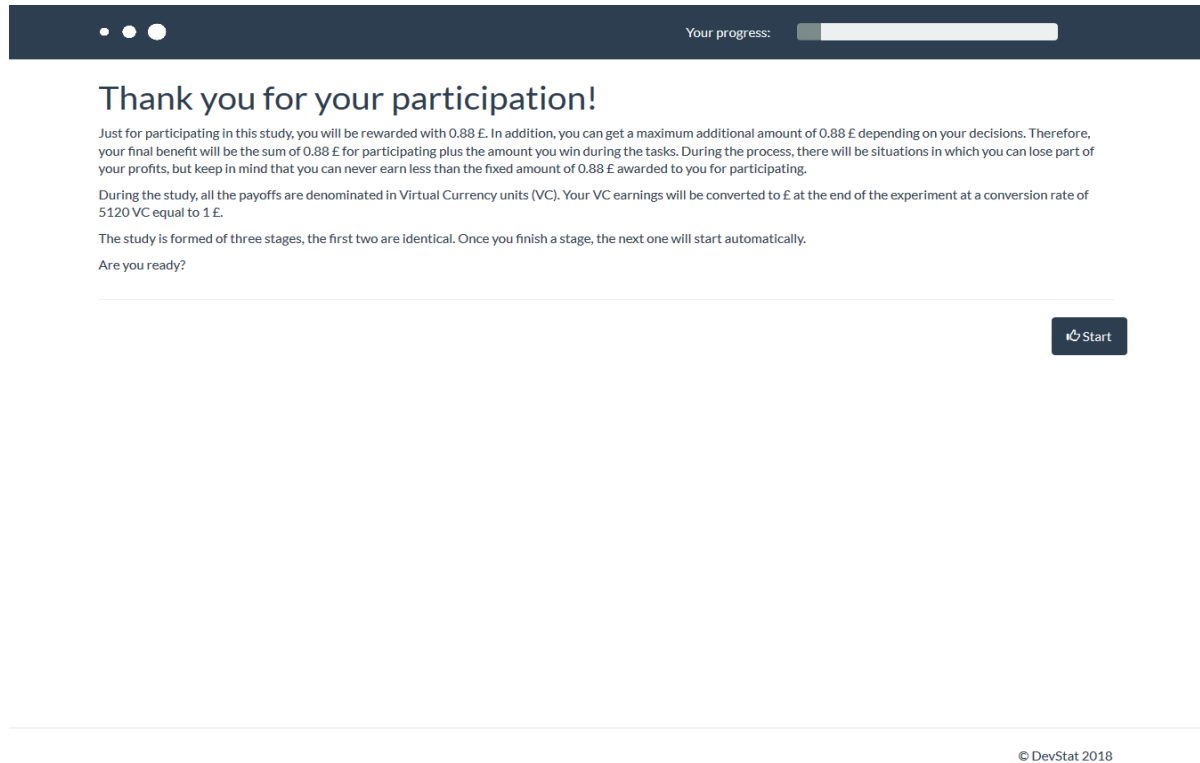
Notice that the cost of the insurances depends on two factors: the relation of the ASMs and the price of the cyber insurance product (P) and the features of the cyber insurance product (I). If c_{11}^i is the price of an insurance given by its expected value (i. e. the product of the initial probability of a cyberattack and the coverage of the cyber-insurance), the different insurance prices are represented in Table 2.


	P1 – Price does not depend on the purchase of the antivirus	P2 – Price does depend on the purchase of the ASMs (prices if the ASMs is purchased, if not they are the same as in P1)
I1 – Medium price	c_{11}^i	$c_{12}^i = (1 - 0.5)c_{11}^i$
I2 – Asymmetric price	c_1^1 $c_{21}^i = (1 + 0.2)c_1^2$	$c_{12}^1 = (1 - 0.5)c_{11}^1$ $c_{22}^2 = (1 - 0.7)c_{11}^2$
I3 - High price	$c_{31}^i = (1 + 0.2)c_1^i$	$c_{32}^i = (1 - 0.3)c_{11}^i$

Table 2. Cyber insurance prices

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3 Screenshots of the experimental software



• • • Your progress: 


Thank you for your participation!

Just for participating in this study, you will be rewarded with 0.88 €. In addition, you can get a maximum additional amount of 0.88 € depending on your decisions. Therefore, your final benefit will be the sum of 0.88 € for participating plus the amount you win during the tasks. During the process, there will be situations in which you can lose part of your profits, but keep in mind that you can never earn less than the fixed amount of 0.88 € awarded to you for participating.

During the study, all the payoffs are denominated in Virtual Currency units (VC). Your VC earnings will be converted to € at the end of the experiment at a conversion rate of 5120 VC equal to 1 €.

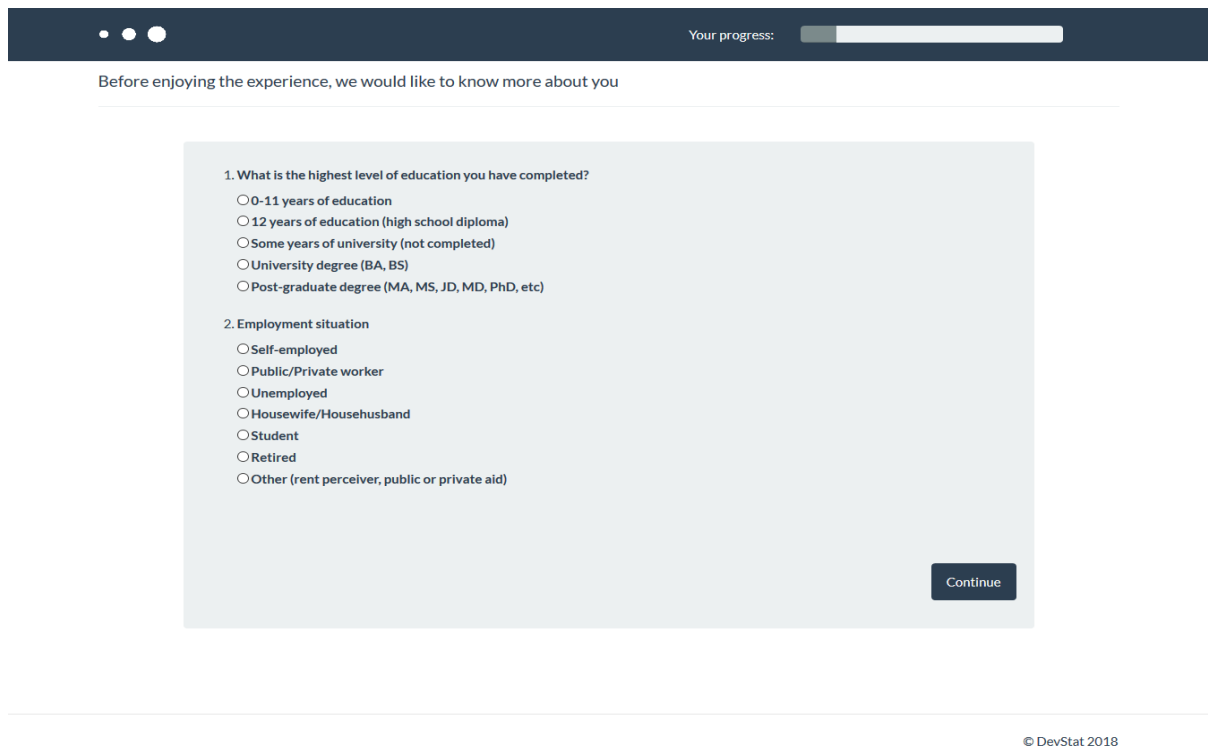
The study is formed of three stages, the first two are identical. Once you finish a stage, the next one will start automatically.


Are you ready?



© DevStat 2018

Figure 3. Welcome page



• • • Your progress: 


Before enjoying the experience, we would like to know more about you

1. What is the highest level of education you have completed?

- ☐ 0-11 years of education
- ☐ 12 years of education (high school diploma)
- ☐ Some years of university (not completed)
- ☐ University degree (BA, BS)
- ☐ Post-graduate degree (MA, MS, JD, MD, PhD, etc)

2. Employment situation

- ☐ Self-employed
- ☐ Public/Private worker
- ☐ Unemployed
- ☐ Housewife/Househusband
- ☐ Student
- ☐ Retired
- ☐ Other (rent perceiver, public or private aid)



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Figure 4. Socio-demographic questionnaire

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Your progress:



Stage 1

You are the cybersecurity manager of a small business, called CYBECORP. You are aware that **there is a computer virus going around the Internet, that may affect your company**. You know that 40% of companies like yours have suffered this virus attack in the last week.

We will now ask you to make some decisions that will affect the cybersecurity of CYBECORP.

Read the following instructions in detail and press "Continue" when you are ready.

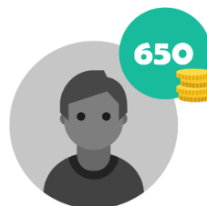
Note: You do not need to have any knowledge about computer systems or cybersecurity for complete the study. There are no right or wrong answers please just answer honestly. Whatever the result, you are guaranteed a minimum of the fixed participation rate at the end of the study.

1. Initial State

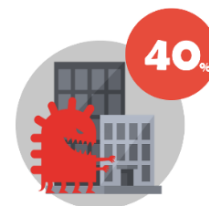
Your initial state is the following:



The profit that CYBECORP obtains from its commercial data is 1400 VC



You have a budget of 650 VC to buy security measures



The probability that CYBECORP is randomly affected by the virus is 40%

2. Purchase of security measures

At the beginning of the stage, you will have the opportunity to spend your budget on an advanced security measure and/or insurance against cyberattacks.

3. Registration for a conference

You will then be asked to register CYBECORP for a conference and asked to complete the online registration form (you will have a employee card at the registration page with all the necessary information). As in real life, the probability of CYBECORP suffering a cyberattack may increase depending on your way of surfing the Internet.

4. Results

Once you have registered for the conference, CYBECORP may suffer a cyberattack (the probability of which is affected by your decisions) and you will be presented with your resulting payoff. There are two possible scenarios:

1)



CYBECORP does not suffer any cyberattack and maintains the profit obtained from its commercial data. Therefore, your payout will be 1400 VC of the CYBECORP profit plus what you have left of your budget.

2)



CYBECORP suffers a cyberattack and loses all of the profit obtained from its commercial data. Therefore, your payout will be what you have left of your budget plus the amount you have insured (if you chose to buy insurance).

Continue

Figure 5. Stage 1 and 2 instructions when the context is random, Factor C1

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Stage 1

You are the cybersecurity manager of a small business, called CYBECORP. You are aware that a **cybercriminal might deliberately target your company**. You know that 40% of companies like yours have suffered a similar attack in the last week.

We will now ask you to make some decisions that will affect the cybersecurity of CYBECORP.

Read the following instructions in detail and press "Continue" when you are ready.

Note: You do not need to have any knowledge about computer systems or cybersecurity for complete the study. There are no right or wrong answers please just answer honestly. Whatever the result, you are guaranteed a minimum of the fixed participation rate at the end of the study.

1. Initial State

Your initial state is the following:



2. Purchase of security measures

At the beginning of the stage, you will have the opportunity to spend your budget on an advanced security measure and/or insurance against cyberattacks.

3. Registration for a conference

You will then be asked to register CYBECORP for a conference and asked to complete the online registration form (you will have an employee card at the registration page with all the necessary information). As in real life, the probability of CYBECORP suffering a cyberattack may increase depending on your way of surfing the Internet.

4. Results

Once you have registered for the conference, CYBECORP may suffer a cyberattack (the probability of which is affected by your decisions) and you will be presented with your resulting payoff. There are two possible scenarios:

1)



CYBECORP does not suffer any cyberattack and maintains the profit obtained from its commercial data. Therefore, your payout will be 1400 VC of the CYBECORP profit plus what you have left of your budget.

2)



CYBECORP suffers a cyberattack and loses all of the profit obtained from its commercial data. Therefore, your payout will be what you have left of your budget plus the amount you have insured (if you chose to buy insurance).

Continue

Figure 6. Stage 1 and 2 instructions when the context is intentional, Factor C2.

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Your progress:


Cybersecurity shop

Welcome to our Cybersecurity shop! Below, we present the security measures you can buy for CYBECORP. Select the measures you want to buy and press "Continue". Remember that you have a budget of 650 VC and keep in mind that once you press "Continue" you will not be able to go back. You can reread the instructions at any point by pressing the "Instructions" button on the top right.

Security Measures

Security measures are computer softwares used to prevent, detect and remove malicious software:


Basic security measures



Basic security measures costs 0 VC and the initial probability of suffering the attack is 40%

Cost	0 VC
Attack probability	40%

Advanced security measures



Advanced security measures costs 314 VC and the initial probability of suffering the attack is 20%

Cost	314 VC
Attack probability	20%

Which one do you want to buy?


Basic security measures

Advanced security measures

Cyberinsurance

Cyberinsurance is an insurance product used to protect businesses from Internet-based risks. We offer you three options with different level of coverage:


No insurance



Opting for no insurance costs 0 VC and covers 0 VC of lost profits in case of attack

Cost	0 VC
Coverage	0 VC


Basic insurance



The "Basic insurance" costs 140 VC and covers 350 VC of lost profits in case of attack

Cost	140 VC
Coverage	350 VC

Premium insurance



The "Premium insurance" costs 280 VC and covers 700 VC of lost profits in case of attack

Cost	280 VC
Coverage	700 VC

Which one do you want to buy?

No insurance

Basic insurance

Premium insurance

Continue

Figure 7. Cibersecurity shop when there are not price dependency and the prices of insurance are medium, Factor P1 and I1.

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Your progress:

3

Cybersecurity shop

Welcome to our Cybersecurity shop! Below, we present the security measures you can buy for CYBECORP. Select the measures you want to buy and press "Continue". Remember that you have a budget of 650 VC and keep in mind that once you press "Continue" you will not be able to go back. You can reread the instructions at any point by pressing the "Instructions" button on the top right.

Security Measures

Security measures are computer softwares used to prevent, detect and remove malicious software:

Basic security measures



Basic security measures costs 0 VC and the initial probability of suffering the attach is 40%

Cost	0 VC
Attack probability	40%

Advanced security measures



Advanced security measures costs 314 VC and the initial probability of suffering the attach is 20%

In addition, if you buy our Advanced security measures you will have a 50% discount on the purchase of the cyberinsurance.

Cost	314 VC
Attack probability	20%

Which one do you want to buy?

Basic security measures

Advanced security measures

Cyberinsurance

Cyberinsurance is an insurance product used to protect businesses from Internet-based risks. We offer you three options with different level of coverage:

No insurance



Opting for no insurance costs 0 VC and covers 0 VC of lost profits in case of attack

Cost	0 VC
Coverage	0 VC

Basic insurance



The "Basic insurance" costs ~~140 VC~~ 70 VC and covers 350 VC of lost profits in case of attack

Cost	140 VC 70 VC
Coverage	350 VC

Premium insurance



The "Premium insurance" costs ~~280 VC~~ 140 VC and covers 700 VC of lost profits in case of attack

Cost	280 VC 140 VC
Coverage	700 VC

Which one do you want to buy?

No insurance

Basic insurance

Premium insurance

Continue

Figure 8. Cibersecurity shop when there are price dependency and the prices of insurance are medium, Factor P2 and I1.

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Your progress:


Cybersecurity shop

Welcome to our Cybersecurity shop! Below, we present the security measures you can buy for CYBECORP. Select the measures you want to buy and press "Continue". Remember that you have a budget of 650 VC and keep in mind that once you press "Continue" you will not be able to go back. You can reread the instructions at any point by pressing the "Instructions" button on the top right.

Security Measures

Security measures are computer softwares used to prevent, detect and remove malicious software:


Basic security measures



Basic security measures costs 0 VC and the initial probability of suffering the attack is 40%

Cost	0 VC
Attack probability	40%

Advanced security measures



Advanced security measures costs 314 VC and the initial probability of suffering the attack is 20%

Cost	314 VC
Attack probability	20%

Which one do you want to buy?


Basic security measures

Advanced security measures

Cyberinsurance

Cyberinsurance is an insurance product used to protect businesses from Internet-based risks. We offer you three options with different level of coverage:


No insurance



Opting for no insurance costs 0 VC and covers 0 VC of lost profits in case of attack

Cost	0 VC
Coverage	0 VC

Basic insurance



The "Basic insurance" costs 140 VC and covers 350 VC of lost profits in case of attack

Cost	140 VC
Coverage	350 VC

Premium insurance



The "Premium insurance" costs 336 VC and covers 700 VC of lost profits in case of attack

Cost	336 VC
Coverage	700 VC

Which one do you want to buy?

No insurance

Basic insurance

Premium insurance

Continue

Figure 9. Cibersecurity shop when there are not price dependency and the prices of insurance are asymmetric, Factor P1 and I2.

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Your progress:

Cybersecurity shop

Welcome to our Cybersecurity shop! Below, we present the security measures you can buy for CYBECORP. Select the measures you want to buy and press "Continue". Remember that you have a budget of 650 VC and keep in mind that once you press "Continue" you will not be able to go back. You can reread the instructions at any point by pressing the "Instructions" button on the top right.

Security Measures

Security measures are computer softwares used to prevent, detect and remove malicious software:

Basic security measures



Basic security measures costs 0 VC and the initial probability of suffering the attack is 40%

Cost	0 VC
Attack probability	40%

Advanced security measures



Advanced security measures costs 314 VC and the initial probability of suffering the attack is 20%

In addition, if you buy our Advanced security measures you will have a 50% discount on the purchase of the cyberinsurance.

Cost	314 VC
Attack probability	20%

Which one do you want to buy?

Basic security measures

Advanced security measures

Cyberinsurance

Cyberinsurance is an insurance product used to protect businesses from Internet-based risks. We offer you three options with different level of coverage:

No insurance



Opting for no insurance costs 0 VC and covers 0 VC of lost profits in case of attack

Cost	0 VC
Coverage	0 VC

Basic insurance



The "Basic insurance" costs ~~140 VC~~ 70 VC and covers 350 VC of lost profits in case of attack

Cost	140 VC 70 VC
Coverage	350 VC

Premium insurance



The "Premium insurance" costs ~~336 VC~~ 168 VC and covers 700 VC of lost profits in case of attack

Cost	336 VC 168 VC
Coverage	700 VC

Which one do you want to buy?

No insurance

Basic insurance

Premium insurance

Continue

Figure 10. Cibersecurity shop when there are price dependency and the prices of insurance are asymmetric, Factor P2 and I2.

Codebook - Experiment 1: Behavioural insights of CYBECO model

• • •
Your progress:
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Cybersecurity shop

Welcome to our Cybersecurity shop! Below, we present the security measures you can buy for CYBECORP. Select the measures you want to buy and press "Continue". Remember that you have a budget of 650 VC and keep in mind that once you press "Continue" you will not be able to go back. You can reread the instructions at any point by pressing the "Instructions" button on the top right.

Security Measures

Security measures are computer softwares used to prevent, detect and remove malicious software:


Basic security measures



Basic security measures costs 0 VC and the initial probability of suffering the attack is 40%

Cost	0 VC
Attack probability	40%

Advanced security measures



Advanced security measures costs 314 VC and the initial probability of suffering the attack is 20%

Cost	314 VC
Attack probability	20%

Which one do you want to buy?


Basic security measures

Advanced security measures

Cyberinsurance

Cyberinsurance is an insurance product used to protect businesses from Internet-based risks. We offer you three options with different level of coverage:


No insurance



Opting for no insurance costs 0 VC and covers 0 VC of lost profits in case of attack

Cost	0 VC
Coverage	0 VC


Basic insurance



The "Basic Insurance" costs 168 VC and covers 350 VC of lost profits in case of attack

Cost	168 VC
Coverage	350 VC

Premium insurance



The "Premium Insurance" costs 336 VC and covers 700 VC of lost profits in case of attack

Cost	336 VC
Coverage	700 VC

Which one do you want to buy?

No insurance

Basic insurance

Premium insurance

Continue

Figure 11. Cibersecurity shop when there are not price dependency and the prices of insurance are high, Factor P1 and I3.

Codebook - Experiment 1: Behavioural insights of CYBECO model

Your progress:

Cybersecurity shop

Welcome to our Cybersecurity shop! Below, we present the security measures you can buy for CYBECORP. Select the measures you want to buy and press "Continue". Remember that you have a budget of 650 VC and keep in mind that once you press "Continue" you will not be able to go back. You can reread the instructions at any point by pressing the "Instructions" button on the top right.

Security Measures

Security measures are computer softwares used to prevent, detect and remove malicious software:

Basic security measures



Basic security measures costs 0 VC and the initial probability of suffering the attack is 40%

Cost	0 VC
Attack probability	40%

Advanced security measures



Advanced security measures costs 314 VC and the initial probability of suffering the attack is 20%

In addition, if you buy our Advanced security measures you will have a 50% discount on the purchase of the cyberinsurance.

Cost	314 VC
Attack probability	20%

Which one do you want to buy?

Basic security measures

Advanced security measures

Cyberinsurance

Cyberinsurance is an insurance product used to protect businesses from Internet-based risks. We offer you three options with different level of coverage:

No insurance



Opting for no insurance costs 0 VC and covers 0 VC of lost profits in case of attack

Cost	0 VC
Coverage	0 VC

Basic insurance



The "Basic insurance" costs ~~168 VC~~ 84 VC and covers 350 VC of lost profits in case of attack

Cost	168 VC 84 VC
Coverage	350 VC

Premium insurance



The "Premium insurance" costs ~~336 VC~~ 168 VC and covers 700 VC of lost profits in case of attack

Cost	336 VC 168 VC
Coverage	700 VC

Which one do you want to buy?

No insurance

Basic insurance

Premium insurance

Continue

Figure 12. Cibersecurity shop when there are price dependency and the prices of insurance are high, Factor P2 and I3.

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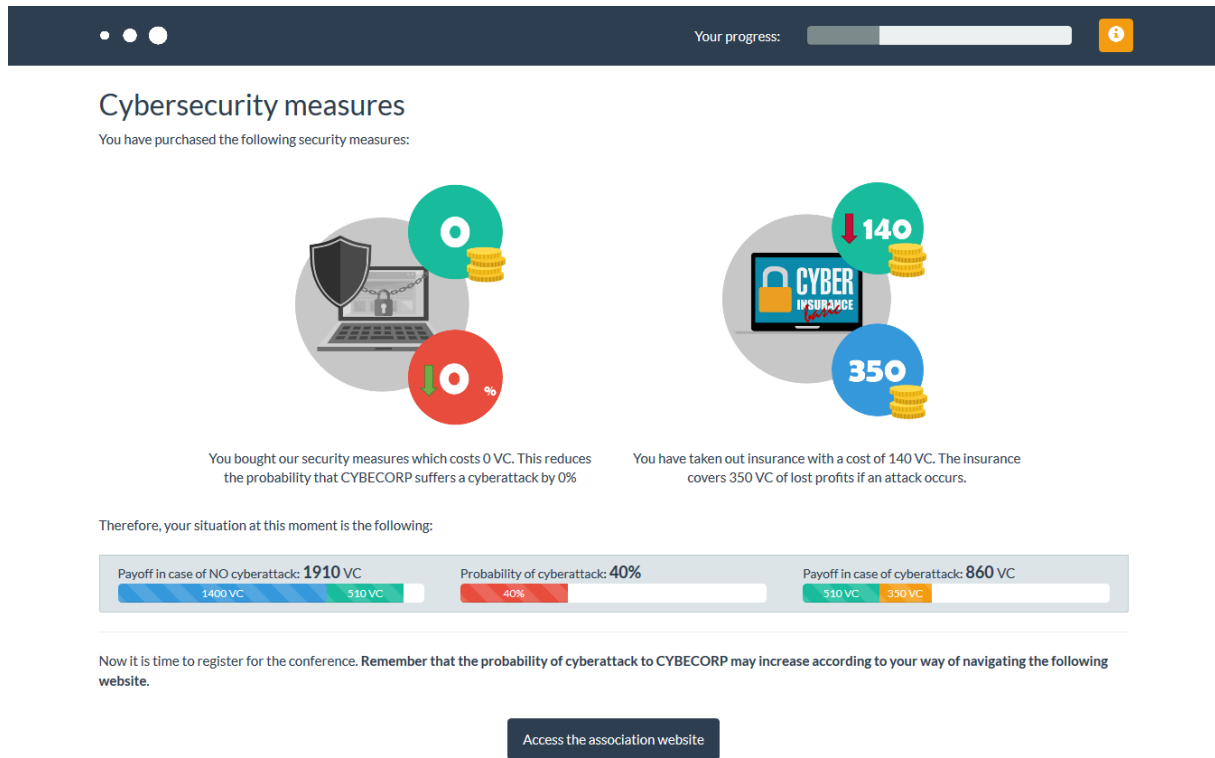


Figure 13. Purchase summary

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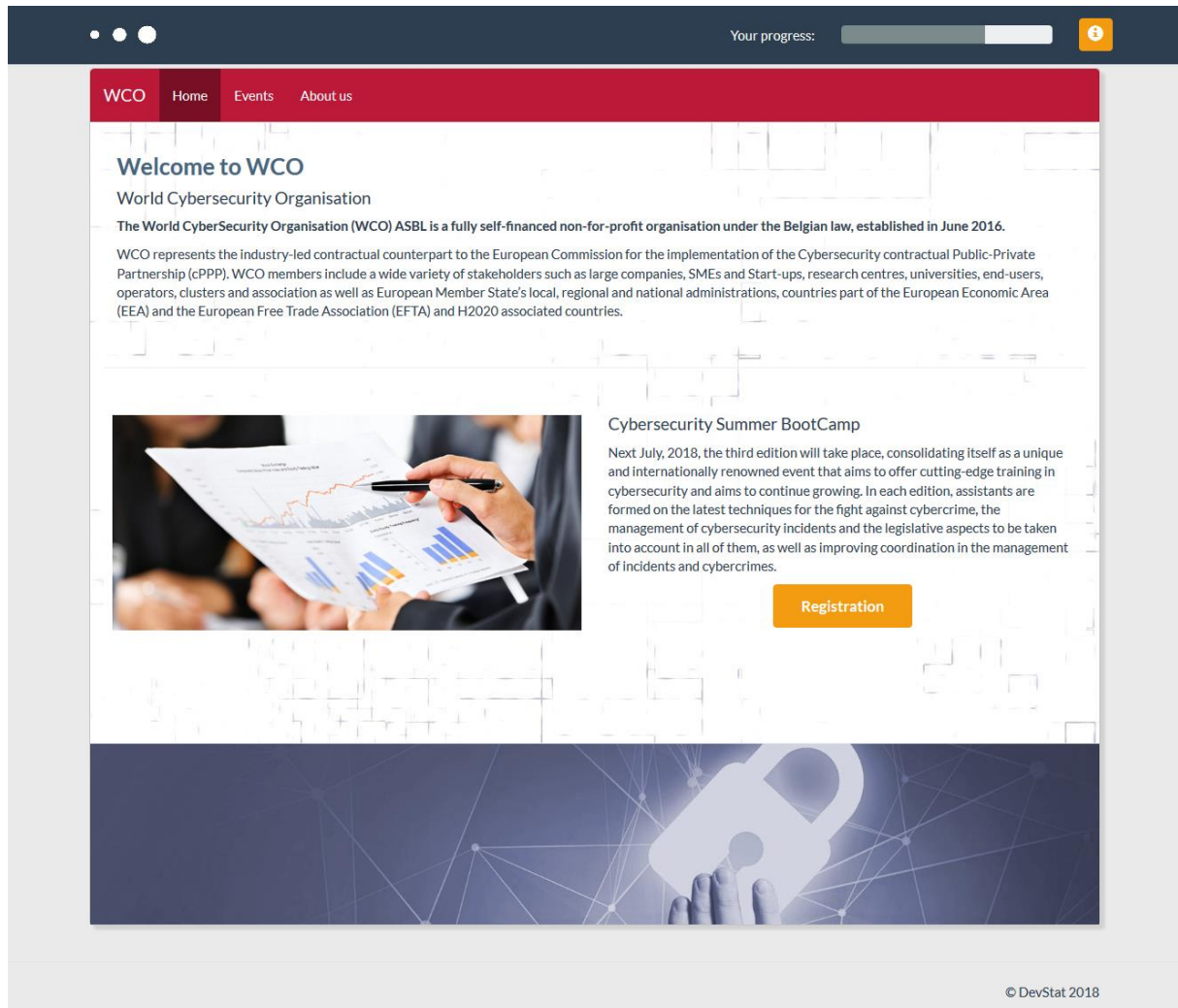
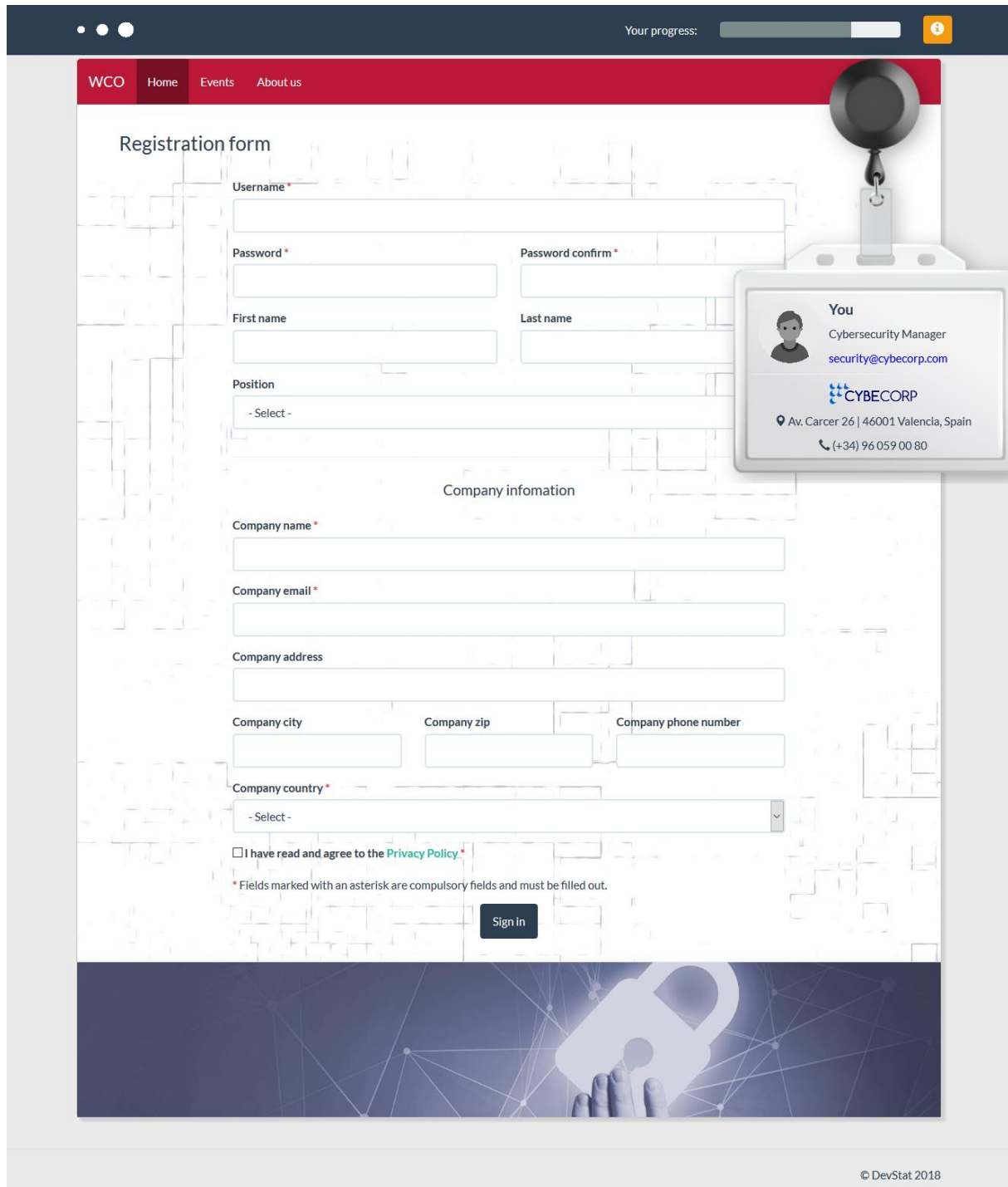
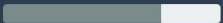


Figure 14. Event website.

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WCO Home Events About us

Your progress: 

Registration form

Username *
Password * Password confirm *
First name Last name
Position
- Select -

Company information

Company name *
Company email *
Company address
Company city Company zip Company phone number
Company country *
- Select -

☐ I have read and agree to the [Privacy Policy](#) *

* Fields marked with an asterisk are compulsory fields and must be filled out.

Sign in

You
Cybersecurity Manager
security@cybecorp.com
CYBECORP
Av. Carcer 26 | 46001 Valencia, Spain
(+34) 96 059 00 80

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Figure 15. Event registration.

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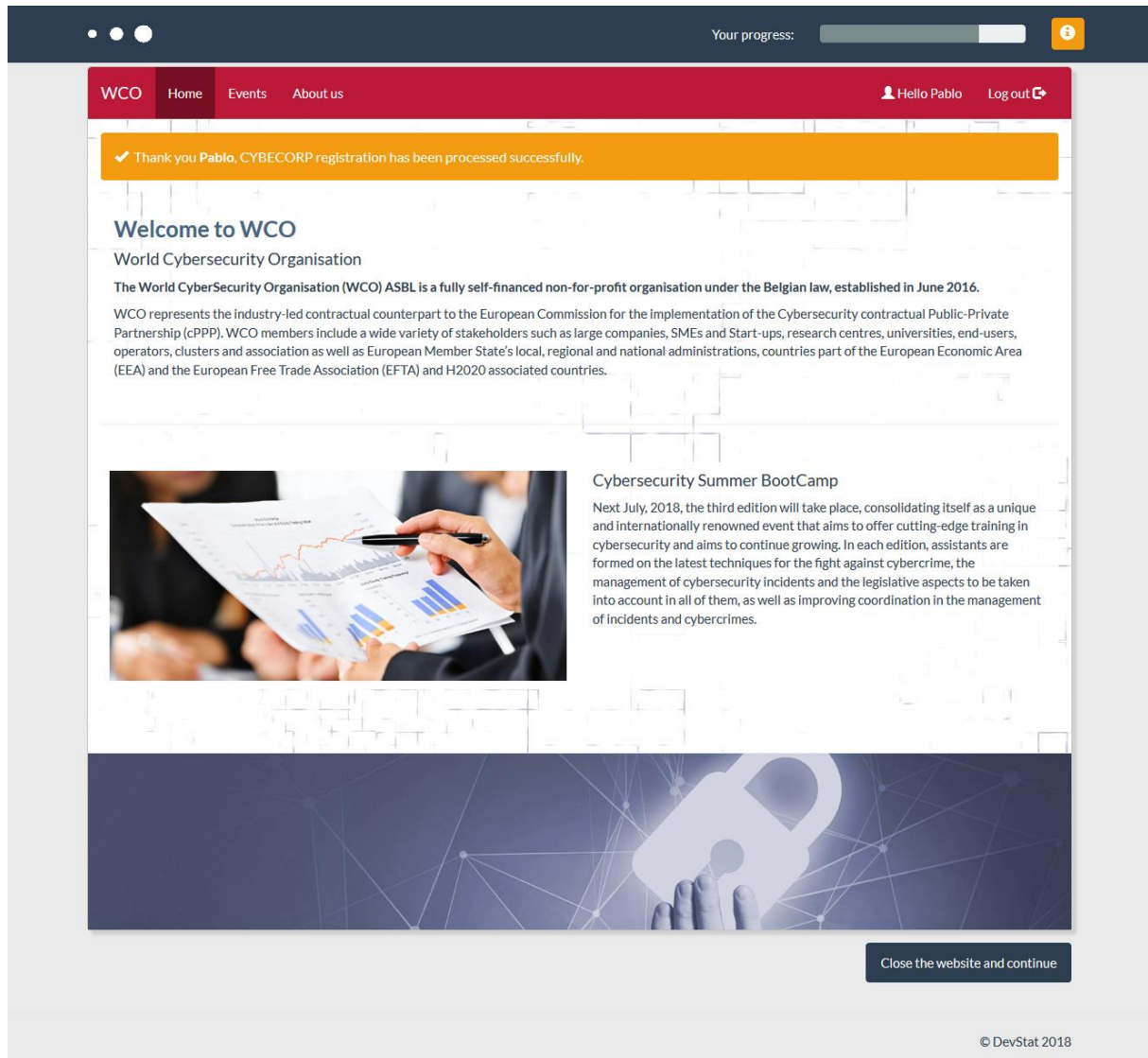
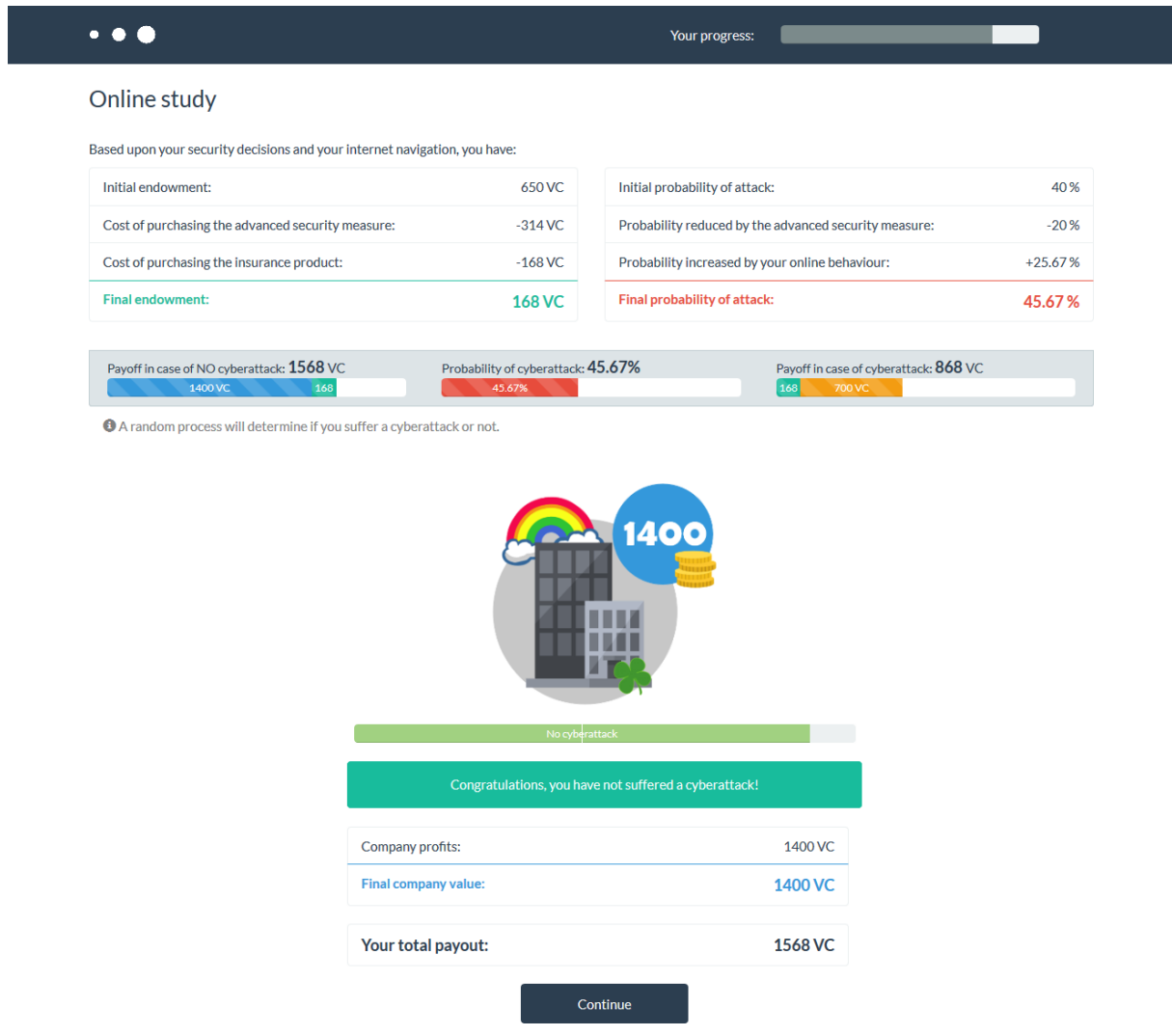


Figure 16. Event website - Logout.

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Figure 17. Cyberattack simulation.

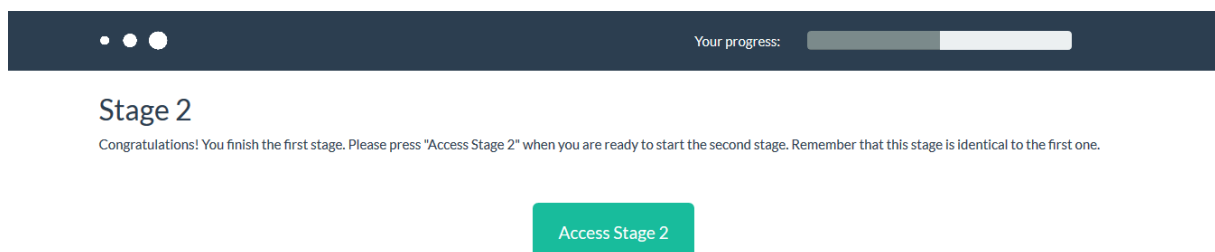


Figure 18. Access to Stage 2

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• • •
Your progress:

Stage 3

Finally, to increase your earnings, we are going to play eleven rounds of a quick and simple game. In each round, you will see a picture with two bags (Bag A and Bag B) with 10 balls in each bag. The balls have four different values:

● = 385 VC
● = 200 VC
● = 160 VC
● = 10 VC

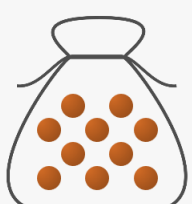
In each round, we will ask you to select one of these two bags. After completing the eleven decisions:

- One of the 11 rounds of the game will be picked at random
- A ball will be drawn at random **from the bag that you have actually chosen** in this round
- The value of this ball will be added to your final payment

Please choose Bag A or Bag B for each decision below.

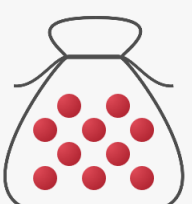
Decision 0

A



0 balls of 200 VC, 10 balls of 160 VC

B



0 balls of 385 VC, 10 balls of 10 VC

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Figure 19. Stage 3: Holt & Laury

• • •
Your progress:

Stage 3 - Results

As mentioned before, the first random number will determine which of the eleven decisions will be used. All of them have the same probability to be picked. Click the button to start the draw!

Selected decision

8

Your choice for Decision 8

	Bag A	Bag B
Decision 8	<input type="radio"/> 8 balls of 200 VC, 2 balls of 160 VC	<input checked="" type="radio"/> 8 balls of 385 VC, 2 balls of 10 VC

ⓘ You have selected the bag B for decision 8 in the previous screen. So, now you have 8 balls with a value of 385 VC and 2 balls with a 10 VC. When you click the button, one of the balls will be randomly selected and this will be the number of additional VC you will earn.

385
385
385
385
385
385
385
385
10
10

Click here to start the draw

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Figure 20. Stage 3 results

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Thank you!

Thank you for taking the time to complete this study. We truly value the information you have provided.

The total profit you earned for all 3 stages are shown below:

Stage 1	832 VC
Stage 2	1568 VC
Stage 3	385 VC
Total	2785 VC

Your VC earnings are converted to £ at a conversion rate of 5120 VC equal to 1 £, therefore, your final payoff in £ is:

2785 VC	0.54 £
Fixed part	0.88 £
Total	1.42 £



Please press "Finish" to complete the process

Finish

Figure 22. End page

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4 Description of the variables in the dataset

The description of the variables included in the dataset collected during the Experiment 1 is presented in the tables of the following subsections. It is important to notice that the dataset contains two rows for the same subject, one for each period. In case of the variables that are common in both periods, they are repeated in both rows. This in the case for variables contained in Subject, Socio-demographic questionnaire, Phase 3 and Final questionnaire.

4.1 Subject

<i>Variable</i>	<i>Description</i>
<i>Subject</i>	Subject ID
<i>Country</i>	Subjects' country DE: Germany ES: Spain UK: United Kingdom PL: Poland
<i>Treatment</i>	Treatment (see Section 2.1) 1: C1 – P1 – I1 2: C2 – P1 – I1 3: C1 – P2 – I1 4: C2 – P2 – I1 5: C1 – P1 – I2 6: C2 – P1 – I2 7: C1 – P2 – I2 8: C2 – P2 – I2 9: C1 – P1 – I3 10: C2 – P1 – I3 11: C1 – P2 – I3 12: C2 – P2 – I3

4.2 Socio-demographic questionnaire

<i>A1</i>	<i>What is your year of birth?</i>
<i>A2</i>	Gender 1: Male

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A3	2: Female
	What is the highest level of education you have completed?
	1: 0 -11 years of education
	2: 12 years of education (high school diploma)
	3: Some years of university (not completed)
	4: University degree (BA, BS)
	5: Post-graduate degree (MA, MS, JD, MD, PhD, etc)
	6: Employment situation Self-employed
	7: Public/Private worker
	8: Unemployed
	9: Housewife/Househusband
	10: Student
	11: Retired
	12: Other (rent perceiver, public or private aid)
A4	Employment situation
	1: Self-employed
	2: Public/private worker
	3: Unemployed
	4: Housewife/Househusband
	5: Student
	6: Retired
	7: Other (rent perceiver, public or private aid)

4.3 Phases 1 and 2

Purchase decisions and online behaviour².

Period

Period

1: First period/round

2: Second period/round

SecurityMeasures

Security measures purchased by the subject

1: Basic security measures

2: Advance security measures

Insurance

Cyberinsurace contracted by the subject

² One row for each period.

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	1: None cyberinsurance 2: Basic cyberinsurance 3: Premium cyberinsurance
<i>PassUpper</i>	Password property 0: No contains uppercases 1: Contains uppercases
<i>PassLower</i>	Password property 0: No contains lowercases 1: Contains lowercases
<i>PassDigit</i>	Password property 0: No contains digits 1: Contains digits
<i>PassPunct</i>	Password property 0: No contains especial characters 1: Contains especial characters
<i>PassUser</i>	Password property 0: No contains the username 1: Contains the username
<i>PassLenght</i>	Password property 0: Less than 8 characters 1: 8 or more characters
<i>DataFirst</i>	Field no compulsory: First name 0: Empty 1: Completed
<i>DataLast</i>	Field no compulsory: Last name 0: Empty 1: Completed
<i>DataPosition</i>	Field no compulsory: Position 0: Empty 1: Completed
<i>DataAddress</i>	Field no compulsory: Company address 0: Empty 1: Completed

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<i>DataCity</i>	Field no compulsory: Company city 0: Empty 1: Completed
<i>DataZip</i>	Field no compulsory: Company ZIP 0: Empty 1: Completed
<i>DataPhone</i>	Field no compulsory: Company phone 0: Empty 1: Completed
<i>ReadTerms</i>	If subject clicks on the Privacy policy link 0: No 1: Yes
<i>Logout</i>	If subject logs put 0: No 1: Yes
<i>Attack</i>	If subject's company suffers a cyberattack 0: No 1: Yes

4.4 Phase 3

Holt & Laury risk aversion questionnaire.

	Decision 0 1: Bag A – 0 balls of 200VC, 10 balls of 160VC 2: Bag B – 0 balls of 385VC, 10 balls of 10VC
<i>Risk0</i>	
	Decision 1 1: Bag A – 1 balls of 200VC, 9 balls of 160VC 2: Bag B – 1 balls of 385VC, 9 balls of 10VC
<i>Risk1</i>	
	Decision 2 1: Bag A – 2 balls of 200VC, 8 balls of 160VC 2: Bag B – 2 balls of 385VC, 8 balls of 10VC
<i>Risk2</i>	
	Decision 3 1: Bag A – 3 balls of 200VC, 7 balls of 160VC
<i>Risk3</i>	

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	2: Bag B – 3 balls of 385VC, 7 balls of 10VC
	Decision 4
	1: Bag A – 4 balls of 200VC, 6 balls of 160VC
Risk4	2: Bag B – 4 balls of 385VC, 6 balls of 10VC
	Decision 5
	1: Bag A – 5 balls of 200VC, 5 balls of 160VC
Risk5	2: Bag B – 5 balls of 385VC, 5 balls of 10VC
	Decision 6
	1: Bag A – 6 balls of 200VC, 4 balls of 160VC
Risk6	2: Bag B – 6 balls of 385VC, 4 balls of 10VC
	Decision 7
	1: Bag A – 7 balls of 200VC, 3 balls of 160VC
Risk7	2: Bag B – 7 balls of 385VC, 3 balls of 10VC
	Decision 8
	1: Bag A – 8 balls of 200VC, 2 balls of 160VC
Risk8	2: Bag B – 8 balls of 385VC, 2 balls of 10VC
	Decision 9
	1: Bag A – 9 balls of 200VC, 1 balls of 160VC
Risk9	2: Bag B – 9 balls of 385VC, 1 balls of 10VC
	Decision 10
	1: Bag A – 10 balls of 200VC, 0 balls of 160VC
Risk10	2: Bag B – 10 balls of 385VC, 0 balls of 10VC

4.5 Final questionnaire

	<i>If my online data/accounts were hacked, it would be severe</i>
Q1a	Strongly disagree 1 2 3 4 5 Strongly agree
	My online data/accounts are at risk of being compromised
Q2a	Strongly disagree 1 2 3 4 5 Strongly agree
	It is likely that my online data/accounts will be breached
Q2b	Strongly disagree 1 2 3 4 5 Strongly agree
	It is possible that my online data/accounts will be compromised
Q2c	

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	Strongly disagree 1 2 3 4 5 Strongly agree
Q3a	Insurance is an effective method to protect against loss Strongly disagree 1 2 3 4 5 Strongly agree
Q3b	Insurers can be trusted to pay out in the event of a claim Strongly disagree 1 2 3 4 5 Strongly agree
Q4a	I feel comfortable taking measures to secure my own computer(s) Strongly disagree 1 2 3 4 5 Strongly agree
Q4b	I feel comfortable taking security measures to limit the threat to other people and the Internet in general Strongly disagree 1 2 3 4 5 Strongly agree
Q4c	Taking the necessary security measures is entirely under my control Strongly disagree 1 2 3 4 5 Strongly agree
Q4d	I have the resources and the knowledge to take the necessary security measures Strongly disagree 1 2 3 4 5 Strongly agree
Q4e	Taking the necessary security measures is easy Strongly disagree 1 2 3 4 5 Strongly agree
Q5a	Insurance is financially costly for me Strongly disagree 1 2 3 4 5 Strongly agree
Q5b	Setting up insurance would require too much from me Strongly disagree 1 2 3 4 5 Strongly agree
Q5c	Insurance is burdensome for me Strongly disagree 1 2 3 4 5 Strongly agree
Q5d	Insurance is time consuming for me Strongly disagree 1 2 3 4 5 Strongly agree
Q5e	Insurance is not worth it Strongly disagree 1 2 3 4 5 Strongly agree
Q5f	Claiming on insurance could harm a business/organisations reputation Strongly disagree 1 2 3 4 5 Strongly agree
Q6a	Insurance is a good idea Strongly disagree 1 2 3 4 5 Strongly agree

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<i>Q6b</i>	Insurance is important Strongly disagree 1 2 3 4 5 Strongly agree
<i>Q6c</i>	I like the idea of taking out insurance to protect me Strongly disagree 1 2 3 4 5 Strongly agree
<i>Q7a</i>	People who are important to me think that I should have insurance Strongly disagree 1 2 3 4 5 Strongly agree
<i>Q8a</i>	Which of the following have you had in the last 12 months: Buildings Insurance 0: No 1: Yes
<i>Q8b</i>	Which of the following have you had in the last 12 months: Contents Insurance 0: No 1: Yes
<i>Q8c</i>	Which of the following have you had in the last 12 months: Flood Insurance 0: No 1: Yes
<i>Q8d</i>	Which of the following have you had in the last 12 months: Health Insurance 0: No 1: Yes
<i>Q8e</i>	Which of the following have you had in the last 12 months: Cyber Insurance 0: No 1: Yes
<i>Q8f</i>	Which of the following have you had in the last 12 months: Vehicle Insurance 0: No 1: Yes
<i>Q9</i>	How many insurance claims have you experienced in the past 12 months?
<i>Q10a</i>	Safety first Totally disagree 1 2 3 4 5 6 7 8 9 Totally agree

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<i>Q10b</i>	I do not take risks with my health Totally disagree 1 2 3 4 5 6 7 8 9 Totally agree
<i>Q10c</i>	I prefer to avoid risks Totally disagree 1 2 3 4 5 6 7 8 9 Totally agree
<i>Q10d</i>	I take risks regularly Totally disagree 1 2 3 4 5 6 7 8 9 Totally agree
<i>Q10e</i>	I really dislike knowing what is going to happen Totally disagree 1 2 3 4 5 6 7 8 9 Totally agree
<i>Q10f</i>	I usually view risks as a challenge Totally disagree 1 2 3 4 5 6 7 8 9 Totally agree
<i>Q10g</i>	I view myself as a... Risk avoider 1 2 3 4 5 6 7 8 9 Risk seeker
<i>Q11a</i>	I am likely to purchase cyber insurance Strongly disagree 1 2 3 4 5 strongly agree
<i>Q12</i>	What would influence your decision to buy cyberinsurance?