CYBERSECURITY SITUATION ANALYSIS

Survey in Central Finland 2016-2018

Jarmo Nevala, 14.12.2018
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Master's thesis

- Main subject
  - Cybersecurity situation analysis
- Assigned by
  - Jyväskylä Educational Consortium (2016), Personal work (2017,2018)
- Target group
  - Central Finland companies
- Method
  - Survey (Digium enterprise, Webpropol)
- Timeline
  - Spring from 2016 to 2018

Survey population and problems

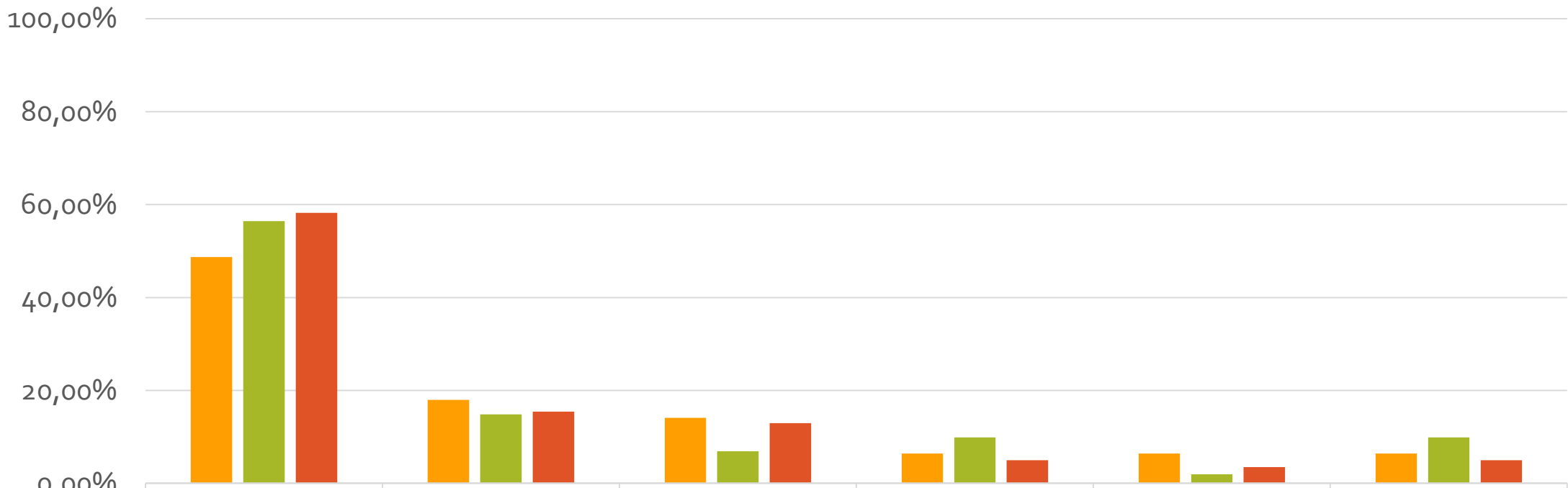
Year	Received answers	Sent Invitations	Response rate
2016	201	2298	~ 8%
2017	101	2276	~ 4%
2018	78	2299	~ 3%

- Problems
  - Wrong time
  - "Phishing attempt"
  - Media writings of cybersecurity
  - Survey platform change

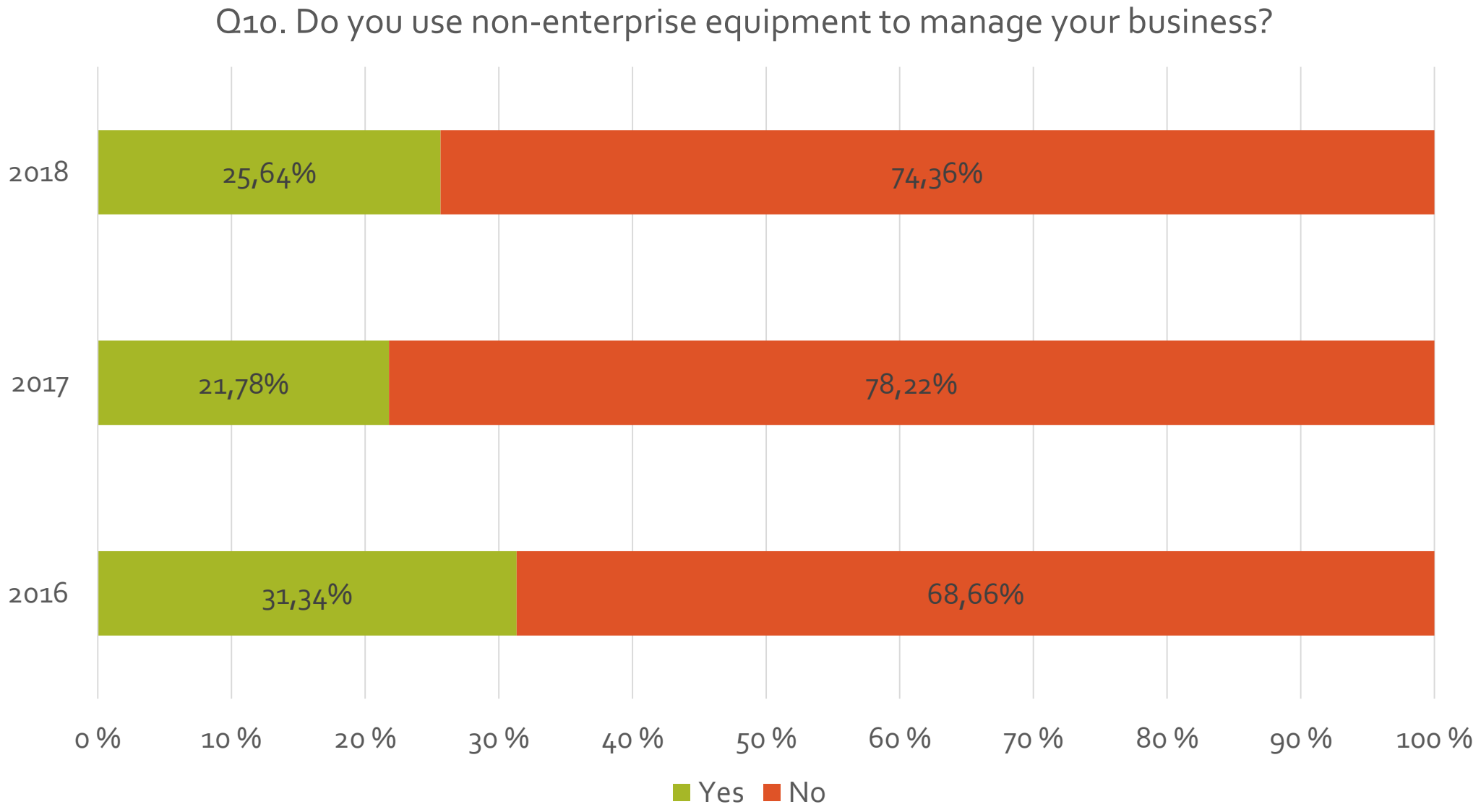
Question groups

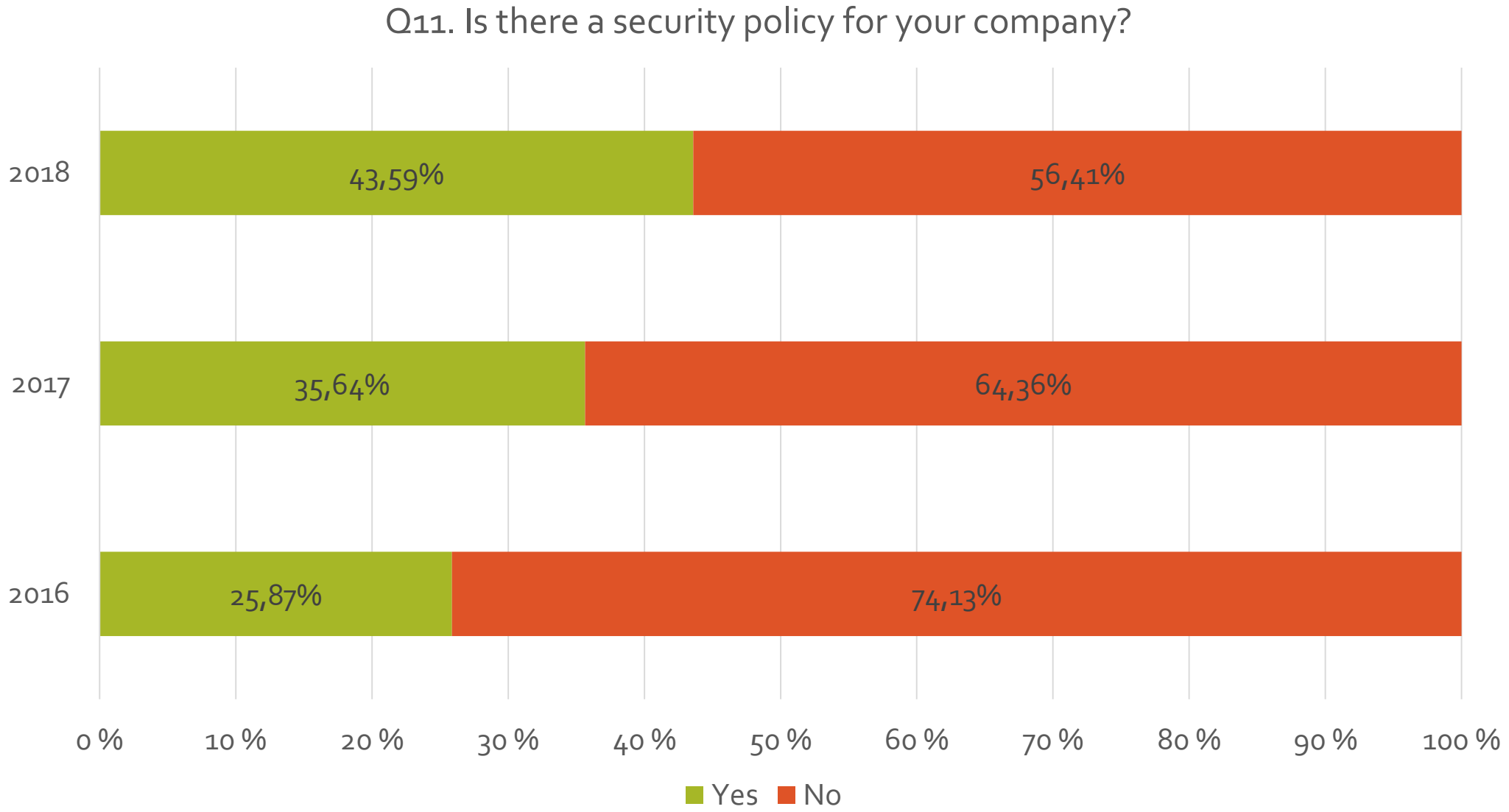
- Background information (Question 1. – Question 8.)
- Observations on security (Question 9. – Question 17.)
- Attitudes (Question 18. – Question 22.)
- Beliefs (Question 23. – Question 27.)
- Actual threats (Question 28. – Question 32.)
- Education and needs (Question 33. – Question 38.)

Q5. Number of employees?

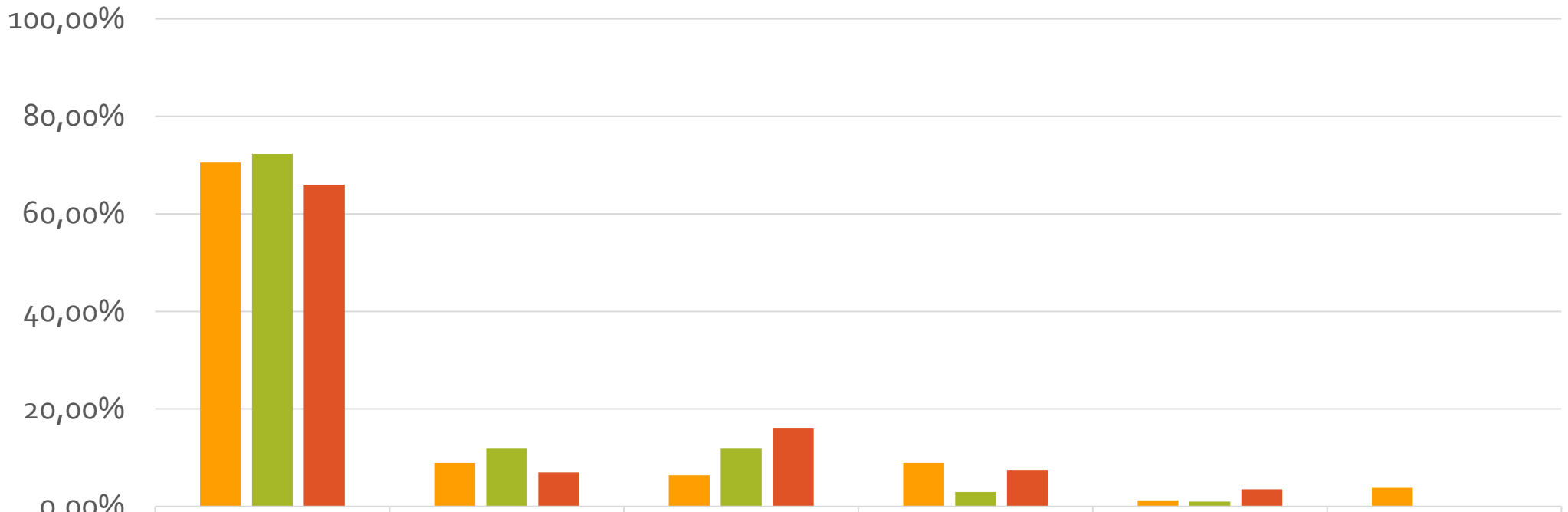


	1–4	5–9	10–19	20–49	50–99	100–
2018	48,72%	17,95%	14,10%	6,41%	6,41%	6,41%
2017	56,44%	14,85%	6,93%	9,90%	1,98%	9,90%
2016	58,21%	15,42%	12,94%	4,98%	3,48%	4,98%


Q10. Do you use non-enterprise equipment to manage your business?
2018
2017
2016
25,64%
74,36%
21,78%
78,22%
31,34%
68,66%
0 %
10 %
20 %
30 %
40 %
50 %
60 %
70 %
80 %
90 %
100 %
Yes
No

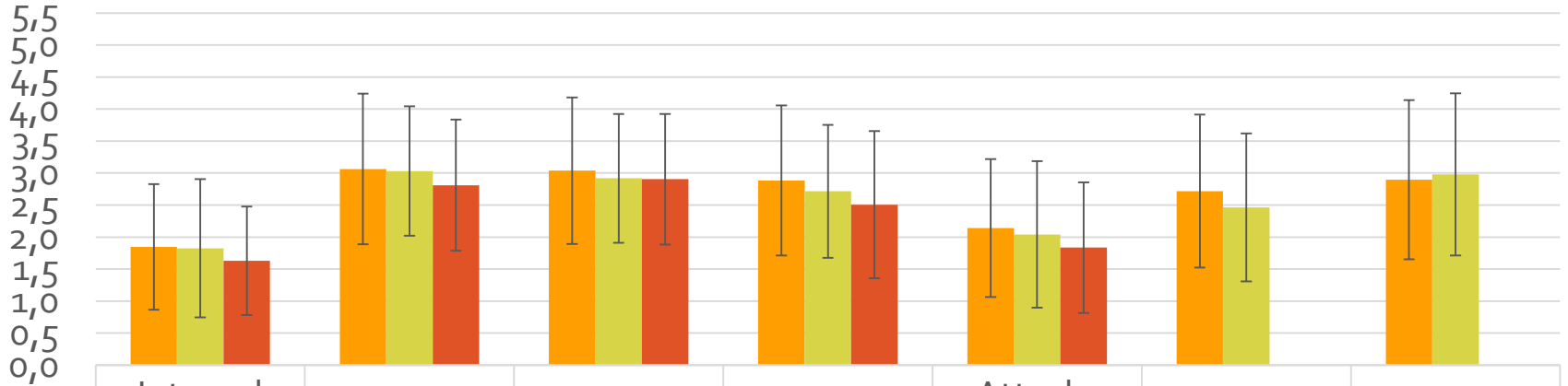

Q11. Is there a security policy for your company?
2018
2017
2016
43,59%
56,41%
35,64%
64,36%
25,87%
74,13%
0 %
10 %
20 %
30 %
40 %
50 %
60 %
70 %
80 %
90 %
100 %
Yes
No

Q16. How are the company security issues are resourced?



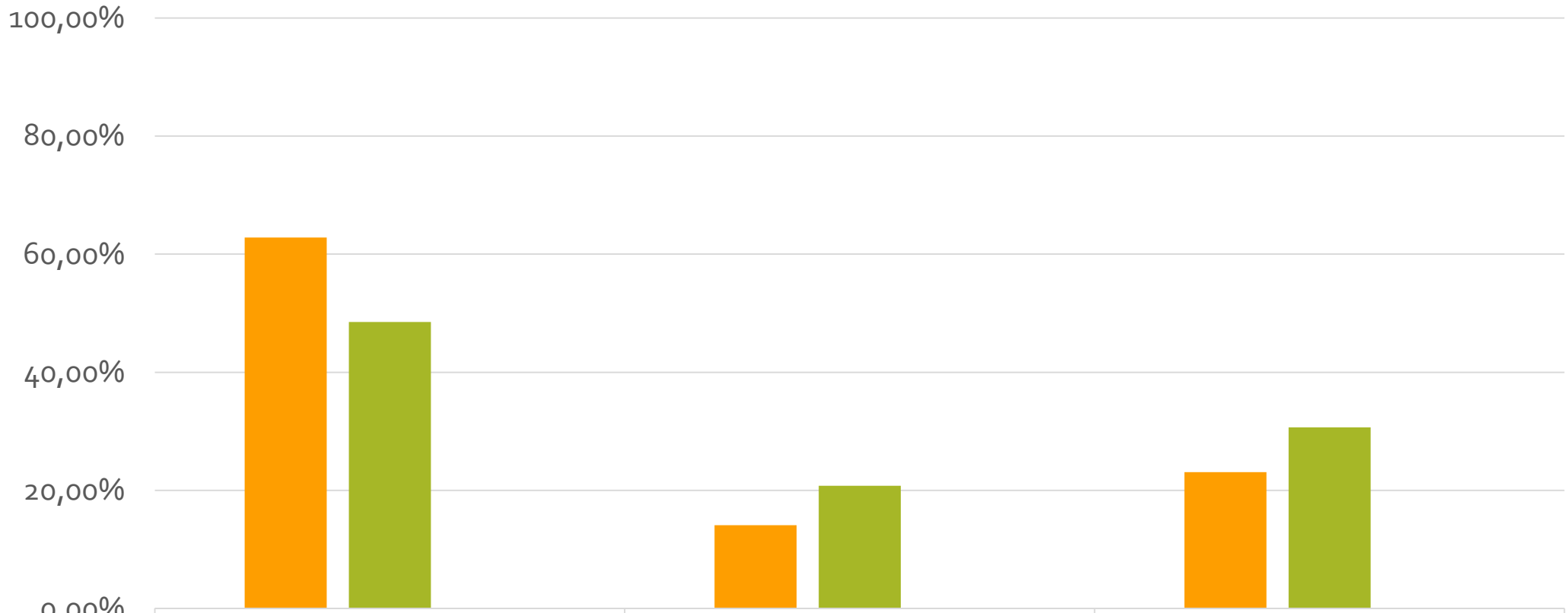
	Things are handled alongside their own work	There is a hired person to this job	The task has been outsourced	This is not a single person's responsibility	Something else, What?	I don't want to answer this question
2018	70,51%	8,98%	6,41%	8,97%	1,28%	3,85%
2017	72,28%	11,88%	11,88%	2,97%	0,99%	
2016	66,00%	7,00%	16,00%	7,50%	3,50%	

Q19. Which of the following issues do you consider a major cyber security threat in your business?



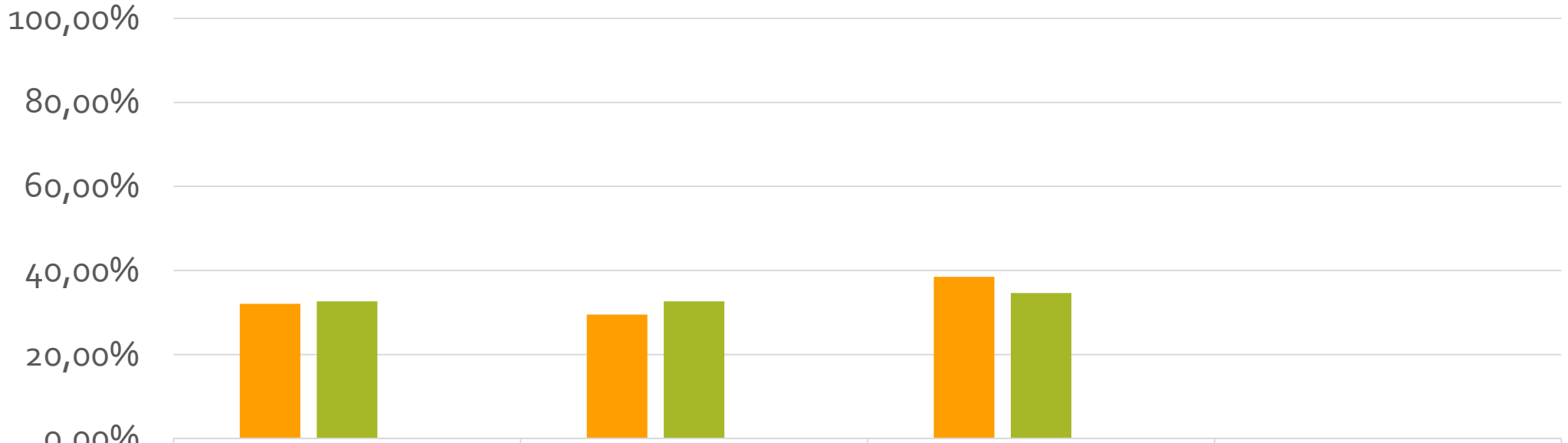
	Internal threat of the company (own employees)	Phishing and malware attacks	Intrusion to information systems	DDoS (to prevent the operation of the web service)	Attacks targeting to company's production process (e.g. IoT)	Ransom malmware (encrypters which asks for ransom)	Computers that have not been upgraded
2018, Mean	1,8462	3,0641	3,0385	2,8846	2,1410	2,7179	2,8974
2017, Mean	1,8247	3,0319	2,9175	2,7158	2,0412	2,4632	2,9794
2016, Mean	1,6283	2,8105	2,9043	2,5052	1,8360		
2018, Std. Deviation	0,9813	1,1771	1,1446	1,1731	1,0778	1,1941	1,2441
2017, Std. Deviation	1,0802	1,0102	1,0070	1,0382	1,1449	1,1560	1,2664
2016, Std. Deviation	0,8479	1,0266	1,0193	1,1486	1,0208		

Q23. Do you believe you are aware of the cyberthreats to your organization?



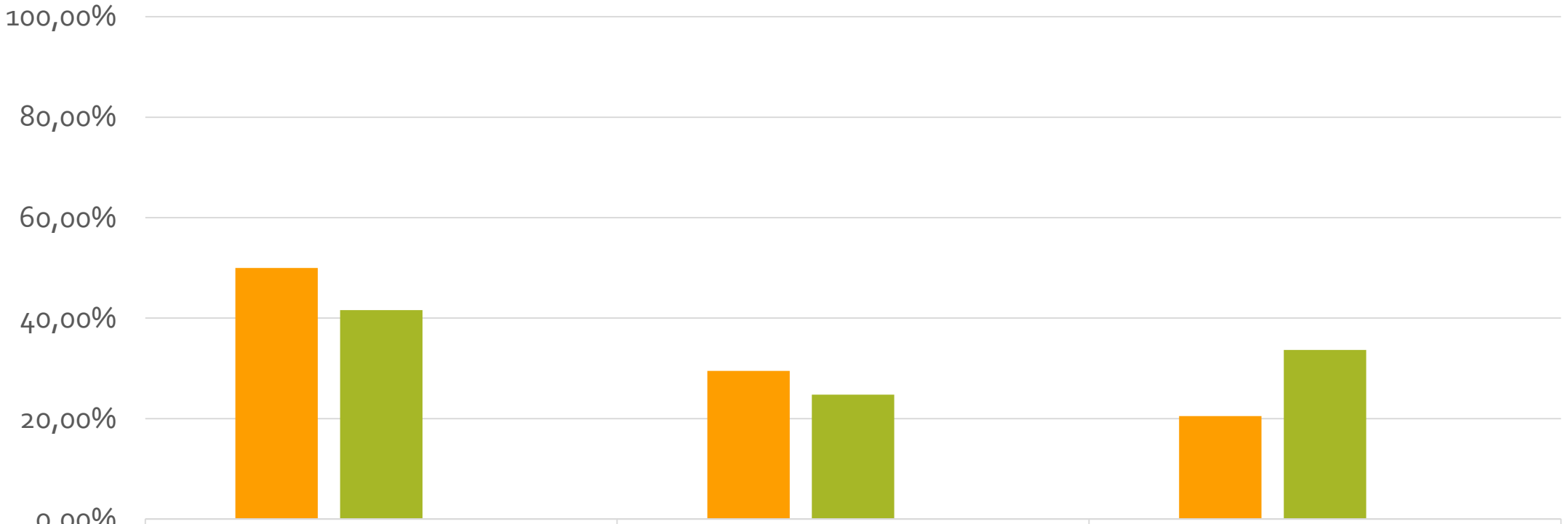
	Yes	No	I don't know
2018	62,82%	14,10%	23,08%
2017	48,51%	20,79%	30,69%
2016			

Q24. Do you believe that your organization will be able to detect cyberattacks?



	Yes	No	I don't know	I don't want to answer this question
2018	32,05%	29,49%	38,46%	0%
2017	32,67%	32,67%	34,65%	
2016				

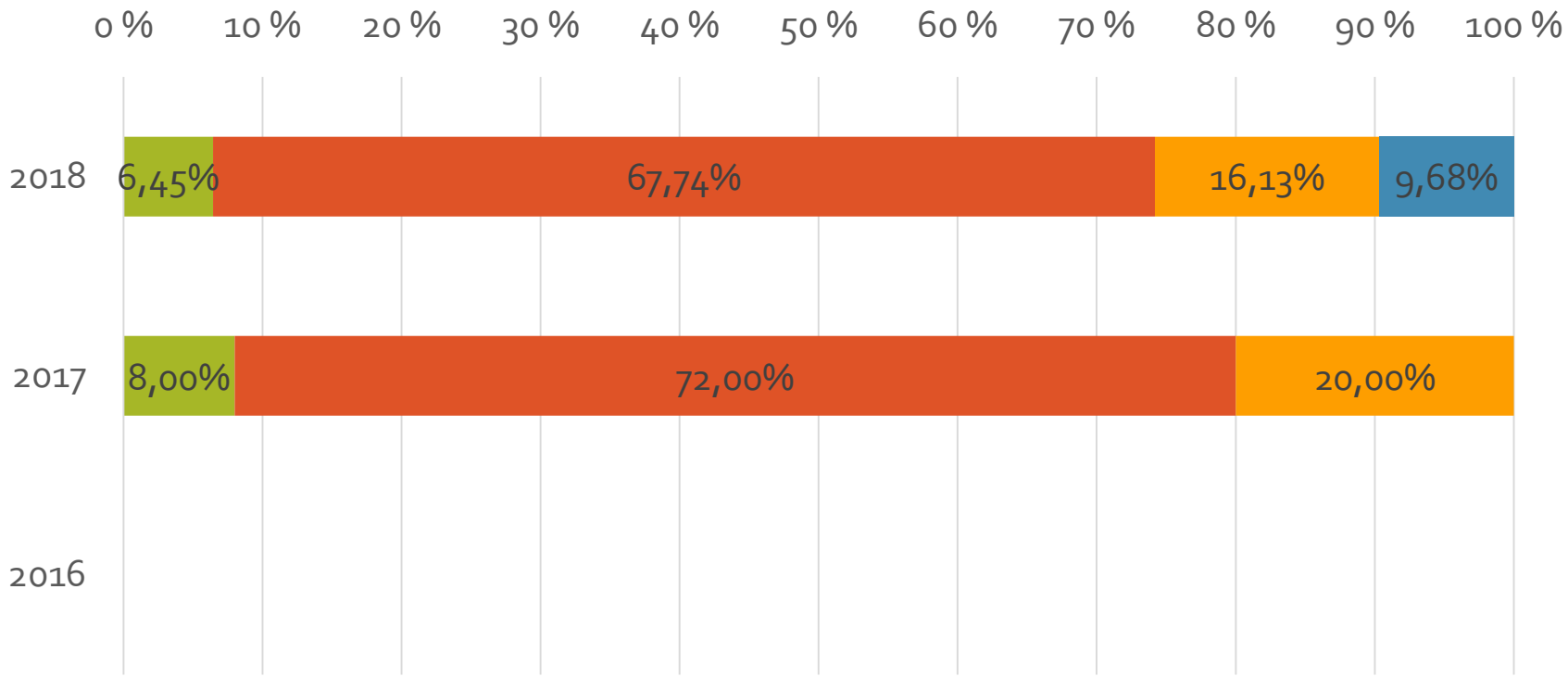
Q25. Do you think that the risk of a cyberattack has increased during the past year?



	Yes	No	I don't know
2018	50,00%	29,49%	20,51%
2017	41,58%	24,75%	33,66%
2016			

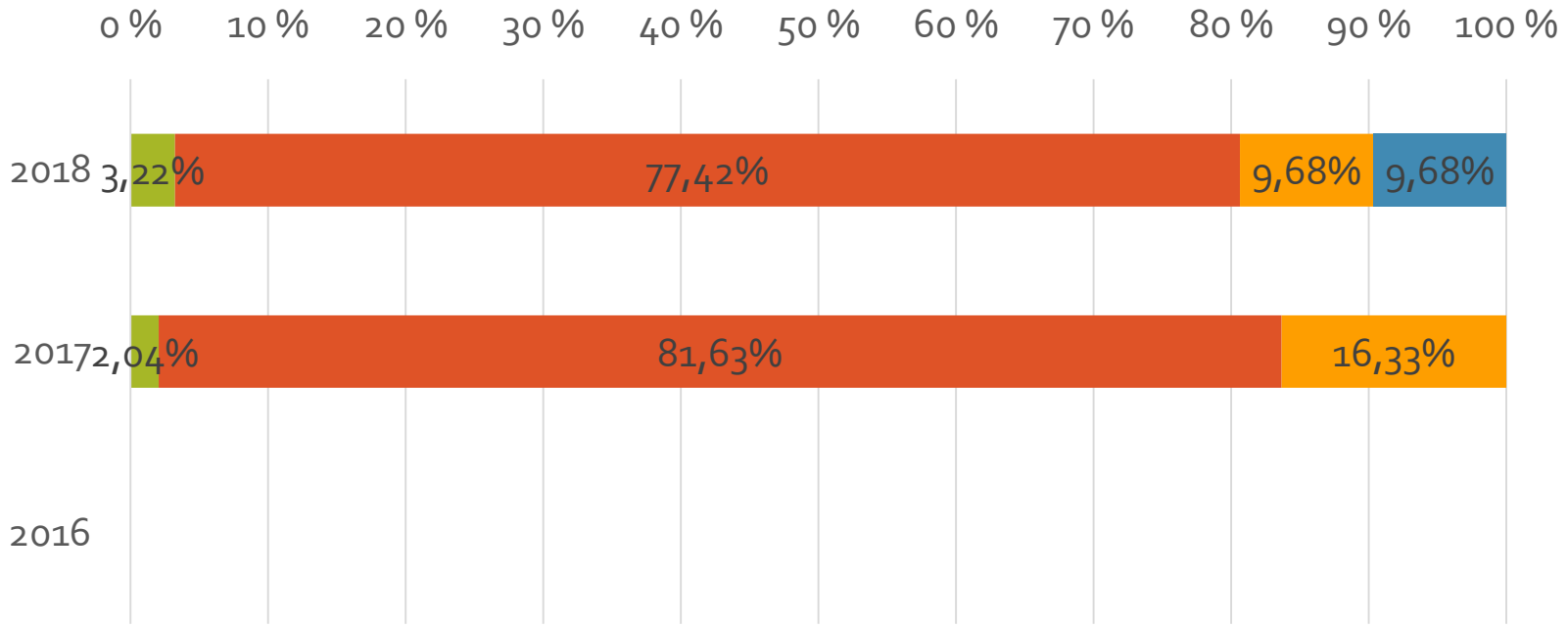
		2018, N=78		2017, N=101		2016, N=201	
		N	%	N	%	N	%
1.	User IDs and passwords have been stolen and have been misused	2	2.74 %	4	3.96 %	6	2.99 %
2.	Ransomware has locked a computer	4	5.48 %	4	3.96 %	-	-
3.	There have been attempts to spy on work related information	10	13.70 %	7	6.93 %	18	8.96 %
4.	Identity has been stolen and has been misused	1	1.37 %	2	1.98 %	4	1.99 %
5.	The organization has lost money because of online scams	0	0 %	2	1.98 %	6	2.99 %
6.	Company data has leaked	5	6.85 %	3	2.97 %	1	0.50 %
7.	The company has lost important information due to hardware failure	4	5.48 %	12	11.88 %	26	12.94 %
8.	A terminal (phone, computer, etc..) has been stolen or lost	4	5.48 %	4	3.96 %	9	4.48 %
9.	An employee has been exposed or has become aware of the confidential information he or she has not been entitled to	7	9.59 %	7	6.93 %	7	3.48 %
10.	The workplace credit card has been misused	2	2.74 %	3	2.97 %	7	3.48 %
11.	A security breach / denial of service has been targeted to the company	5	6.85 %	11	10.89 %	15	7.46 %
12.	The company has not been exposed to a security breach	44	60.27 %	56	55.45 %	118	58.71 %
13.	Something else, What?	6	8.22 %	17	16.83 %	21	10.45 %
14.	I don't want to answer this question	3	4.11 %	-	-	-	-

Q31. Was the police notified about a breach of information or cyberattack?



	2016	2017	2018
Yes		8,00%	6,45%
No		72,00%	67,74%
I don't know		20,00%	16,13%
I don't want to answer this question			9,68%

Q32. Did the security breach or cyberattack become public or come to customers' knowledge?



	2016	2017	2018
Yes		2,04%	3,22%
No		81,63%	77,42%
I don't know		16,33%	9,68%
I don't want to answer this question			9,68%

How company security issues are resourced? * Number of employees? Crosstabulation							
Survey 2018		Number of employees?					
		1–4	5–9	10–19	20–49	50–99	100–
How company security issues are resourced?	Things are handled alongside their own work	32	10	7	3	2	1
	There is a hired person to this job	0	0	1	1	2	3
	The task has been outsourced	0	2	2	0	0	1
	This is not a single person's responsibility	5	1	1	0	0	0
	Something else, What?	0	0	0	0	1	0
	I don't want to answer this question	1	1	0	1	0	0
Total		38	14	11	5	5	5

Which of the following security threats have occurred in your company?:User IDs and passwords have been stolen and have been misused * Number of employees? Crosstabulation								
		Number of employees?						Total
		1–4	5–9	10–19	20–49	50–99	100–	
User IDs and passwords have been stolen and have been misused	2018	0	0	1	0	0	1	2
	2017	1	0	1	1	0	1	4
	2016	4	0	1	1	0	0	6

Which of the following security threats have occurred in your company?: Ransomware has locked a computer * Number of employees? Crosstabulation								
		Number of employees?						Total
		1–4	5–9	10–19	20–49	50–99	100–	
Ransomware has locked a computer	2018	0	0	0	1	1	2	4
	2017	3	0	0	1	0	0	4
	2016	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Conclusions

- Though the companies are concerned, over 60 per cent believe to be aware of the cyberthreats targeted at the company, and half of the respondents think cyberthreats are on the increase within the next year. The companies are aware of the risks but only 32 per cent think they are capable of preventing the attacks.
- The companies are willing to get more training and some of them have already increased the amount of training offered to their employees from the previous years.
- To sum up, cyberthreats are real and companies are aware of them. The fact that they are recognized or detected is concerning, and so are the losses that result from them.
- Companies need advice on how to improve their knowledge on cybersecurity

Questions?