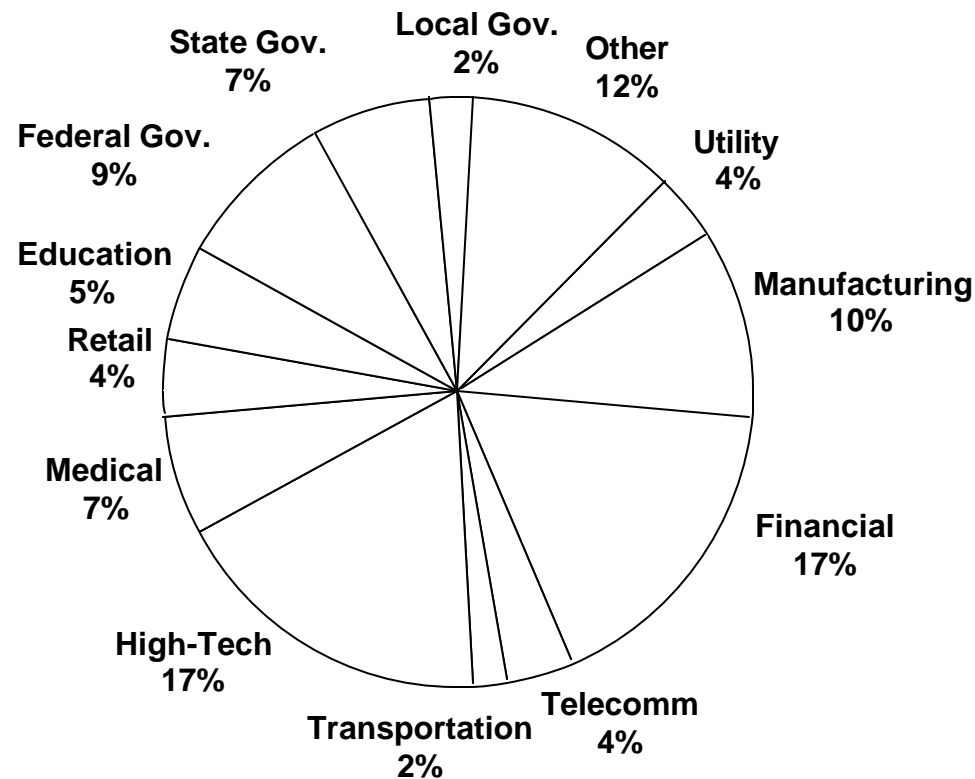# CSI/FBI 2000
COMPUTER CRIME AND
SECURITY SURVEY

Statement of intent

- This survey was conducted by the Computer Security Institute (CSI) in association with the San Francisco Computer Crime Squad of the Federal Bureau of Investigation (FBI).
  The purpose of this joint effort is threefold:

- To provide statistical data on the current state of both computer crime and computer security;

- To help law enforcement agencies and information security professionals deal with the threat more effectively;

- To further cooperation between law enforcement agencies and organizations by encouraging organizations to report computer crimes to appropriate authorities.
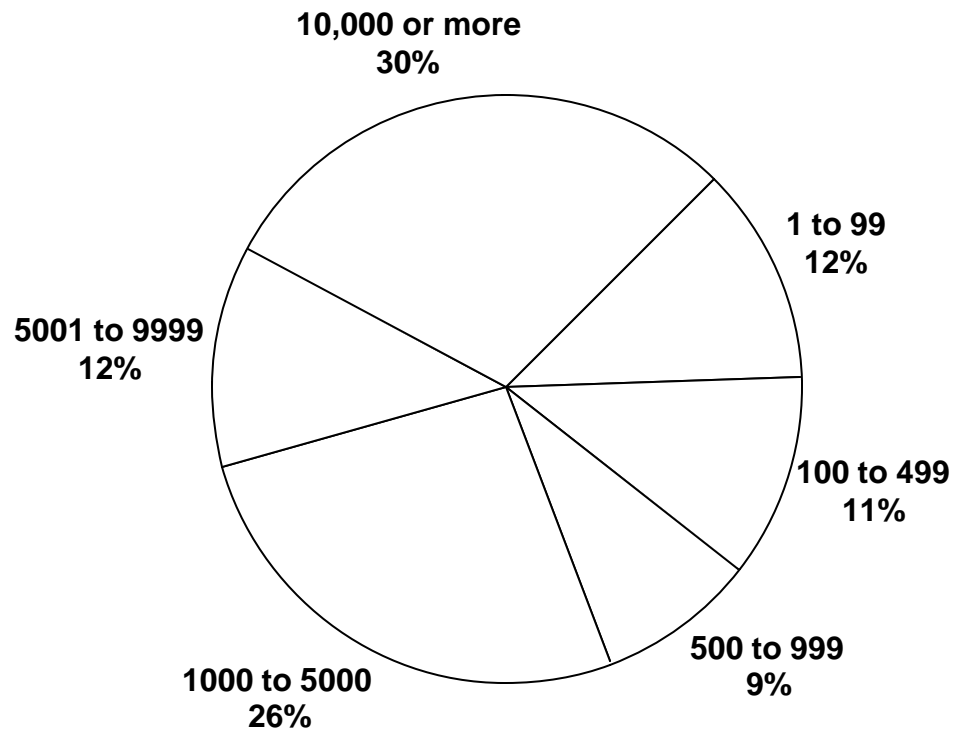
Methodology

- Questionnaires were distributed to 4,284 information security professionals, 643 responses were received for a response rate of 15%. In 1999, 521 responses were received for a response rate of 14%. In 1998, 520 responses were received (13% of 3,890). In 1997, 563 responses were returned (11.49% of 4,899). In 1996, 428 responses were received (8.6% of 4,971).

- The responses were anonymous

- Job titles of respondents ranged from corporate information security manager and data security officer to senior systems analyst

- Organizations surveyed included corporations, financial institutions, government agencies and universities

Respondents by industry sector

State Gov. 7%
Local Gov. 2%
Other 12%
Federal Gov. 9%
Utility 4%
Education 5%
Manufacturing 10%
Retail 4%
Medical 7%
Financial 17%
High-Tech 17%
Telecomm 4%
Transportation 2%

2000: 643 Respondents/100%

Respondents by number of employees

10,000 or more
30%

1 to 99
12%

5001 to 9999
12%

100 to 499
11%

1000 to 5000
26%

500 to 999
9%

2000: 640 Respondents/99%

Respondents by gross income

Over $1 billion
43%

Under $10 million
17%

11-99 million
15%

$100-500 million
14%

$501 million to $1 billion
11%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

2000: 422 Respondents/65%
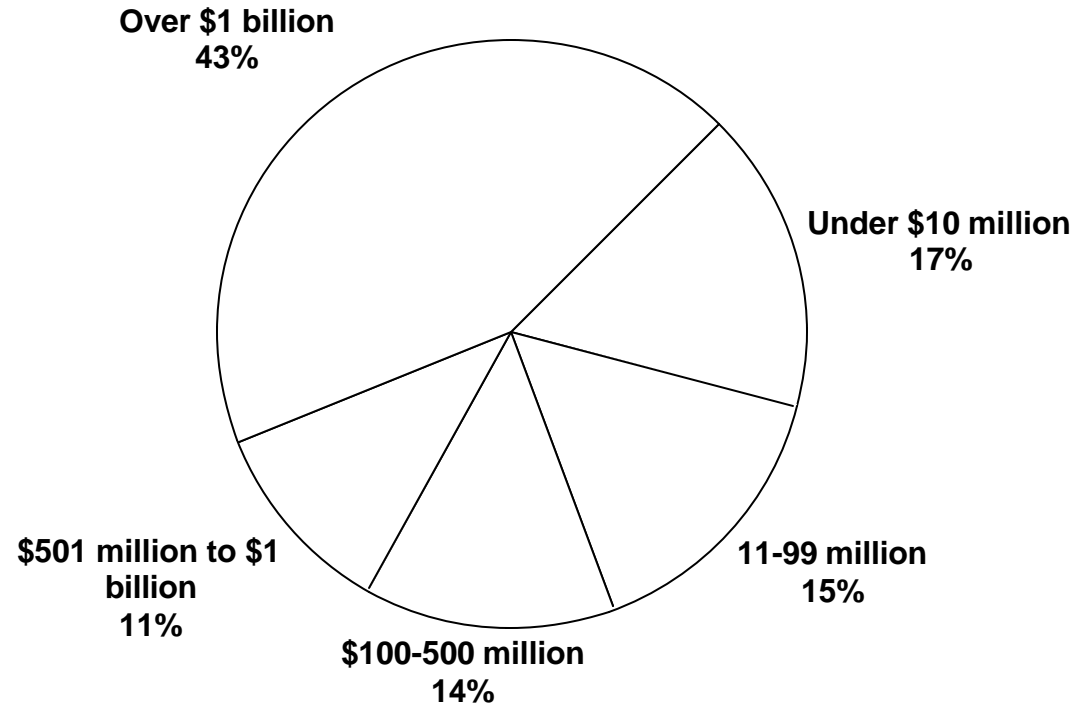
Security technologies used

	Percentage of Respondents		

Digital IDs: 36 / 34 / 20
Intrusion detection: 50 / 42 / 35
PCMCIA: 39 / 39 / 34
Physical security: 90 / 91 / 89
Encrypted login: 50 / 46 / 36
Firewalls: 78 / 91 / 81
Reusable passwords: 54 / 61 / 53
Anti-virus software: 100 / 98 / 96
Encrypted files: 62 / 61 / 50
Biometrics: 8 / 9 / 6
Access control: 92 / 93 / 89

Legend: 2000, 1999, 1998

Percentage of Respondents
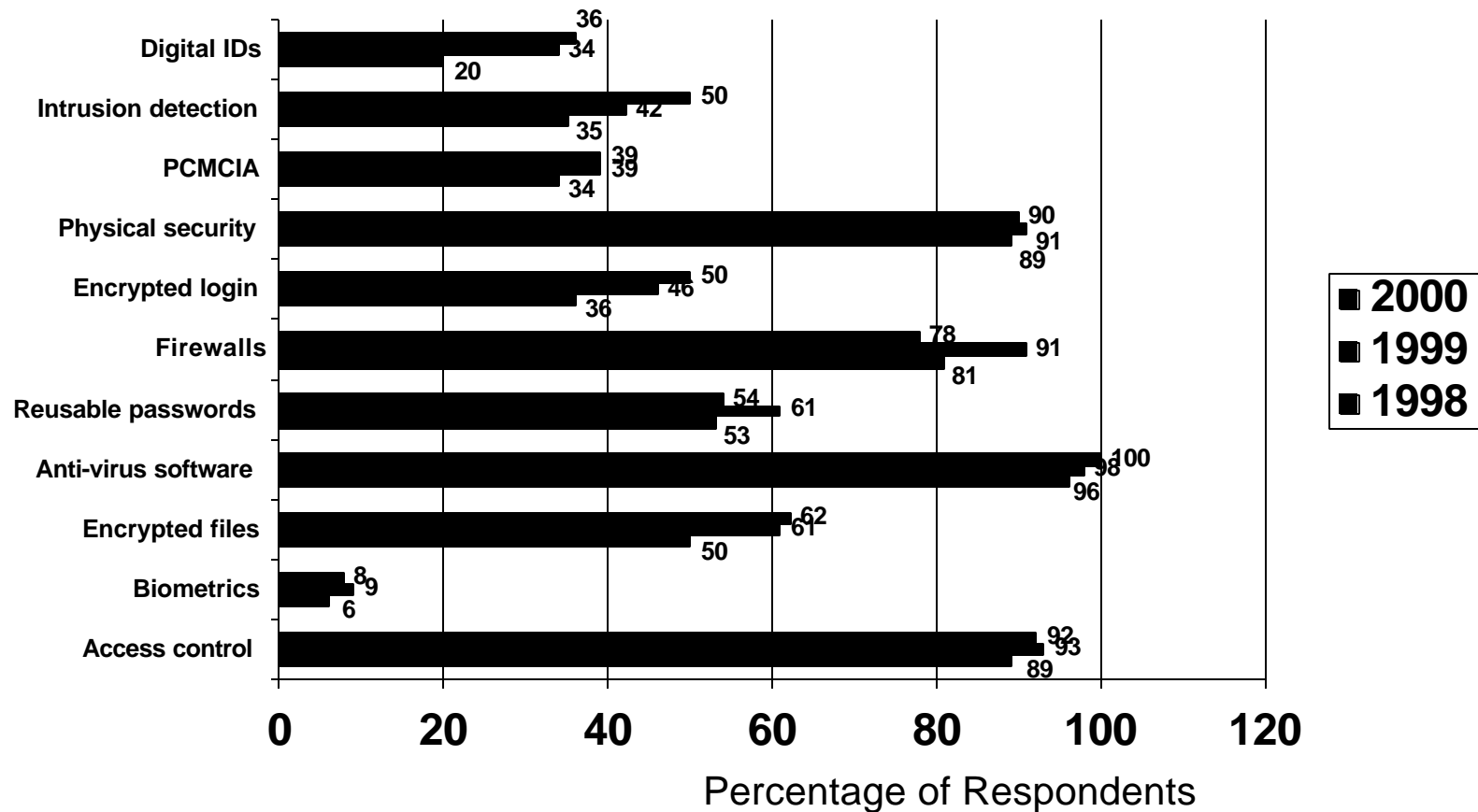
CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

1998: 512 Respondents/98%
1999: 501 Respondents/96%
2000: 629 Respondents/97%

Unauthorized use of computer systems within the last 12 months?

Percentage of Respondents

Legend:
- 1996
- 1997
- 1998
- 1999
- 2000

YES: 42, 50, 64, 62, 70
NO: 37, 33, 18, 17, 16
DON'T KNOW: 21, 19, 18, 21, 12
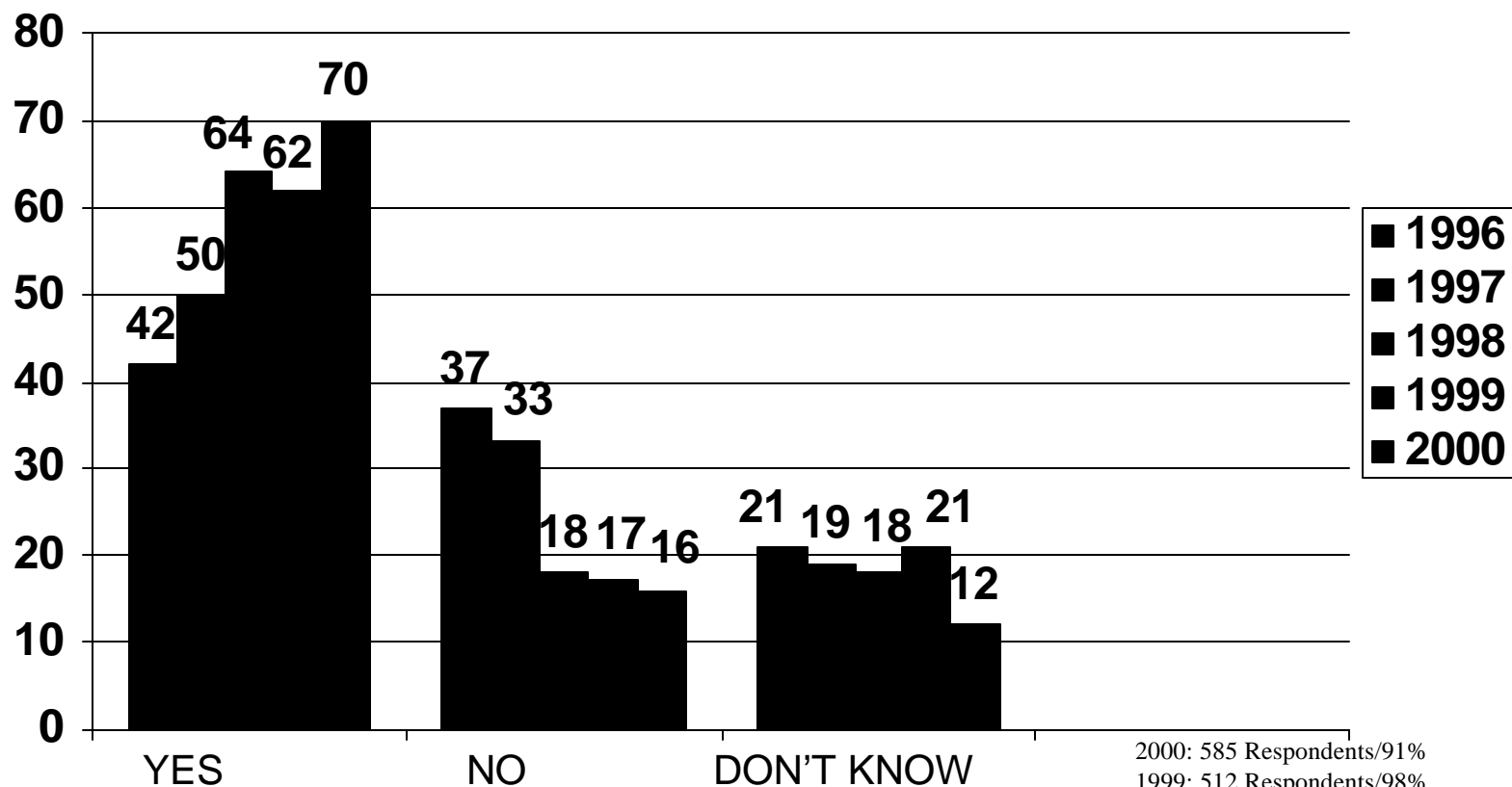
2000: 585 Respondents/91%
1999: 512 Respondents/98%
1998: 515 Respondents/99%
1997: 391 Respondents/69%
1996: 410 Respondents/96%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

How many incidents? How many from outside? How many from inside?

How many incidents?

	1 TO 5	6 to 10	11 to 30	31 to 60	Over 60	Don't Know
2000:	**33%**	**23%**	**5%**	**2%**	**6%**	**31%**
1999:	**34%**	**22%**	**7%**	**2%**	**5%**	**29%**
1998:	**61%**	**31%**	**6%**	**1%**	**2%**	**n/a**
1997:	**47.60%**	**22.50%**	**2.9% (*)**	**n/a**	**n/a**	**26.93%**
1996:	**45.8%**	**20.6%**	**12.2% (*)**	**n/a**	**n/a**	**21.2%**

(2000: 392 Respondents/61%, 1999: 327 Respondents/63%, 1998: 234 Respondents/45%, 1997: 271 Respondents/48%,   1996: 179 Respondents/42%)

How many from the outside?

	1 TO 5	6 to 10	11 to 30	31 to 60	Over 60	Don't Know
2000:	**39%**	**11%**	**2%**	**2%**	**4%**	**42%**
1999:	**43%**	**8%**	**5%**	**1%**	**3%**	**39%**
1998:	**74%**	**18%**	**6%**	**0%**	**3%**	**xx%**
1997:	**43.10%**	**9.91%**	**1.21% (*)**	**n/a**	**n/a**	**45.28%**
1996:	**n/a**	**n/a**	**n/a (**)**	**n/a**	**n/a**	**n/a**

(2000: 341 Respondents/53%, 1999: 280 Respondents/54%, 1998: 142 Respondents/27%, 1997: 212 Respondents/41%, 1996: n/a)
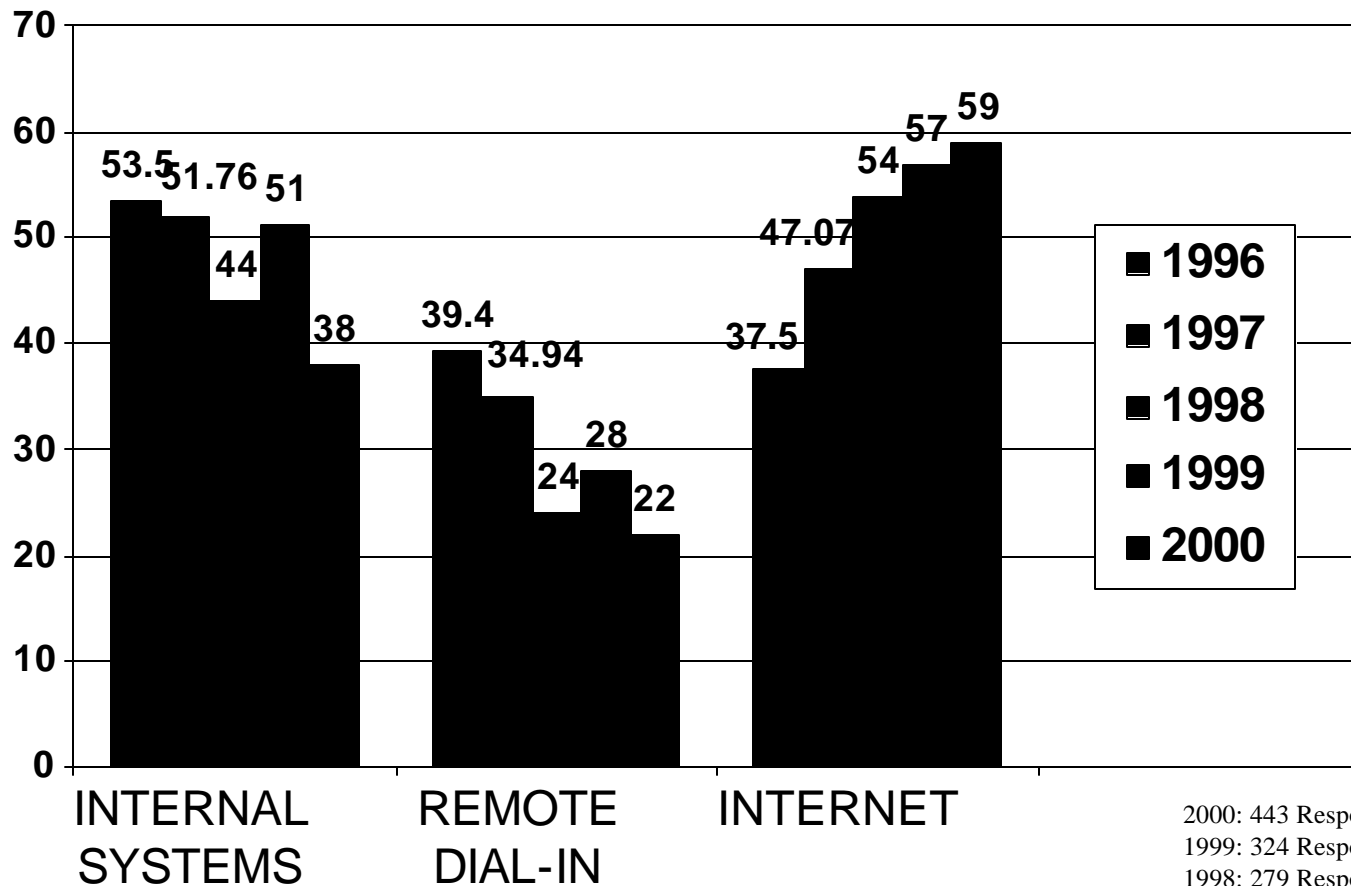
How many from the inside?

	1 TO 5	6 to 10	11 to 30	31 to 60	Over 60	Don't Know
2000	**38%**	**16%**	**5%**	**1%**	**3%**	**37%**
1999:	**37%**	**16%**	**9%**	**1%**	**2%**	**35%**
1998:	**70%**	**20%**	**9%**	**1%**	**1%**	**n/a**
1997:	**47.20%**	**13.76%**	**3.21% (*)**	**n/a**	**n/a**	**35.32%**
1996:	**n/a**	**n/a**	**n/a (**)**	**n/a**	**n/a**	**n/a**

(2000: 359 Respondents/55%, 1999: 308 Respondents/59%, 1998: 184 Respondents/36%, 1997: 218 Respondents/39%, 1996: n/a)

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

* Note: In '96 and '97, we asked only "11 or more."
**Note: In '96, we didn't ask this question.

Internet connection is increasingly cited as a frequent point of attack

Percentage of Respondents

Legend:
- 1996
- 1997
- 1998
- 1999
- 2000

INTERNAL SYSTEMS: 53.5, 51.76, 44, 51, 38
REMOTE DIAL-IN: 39.4, 34.94, 24, 28, 22
INTERNET: 37.5, 47.07, 54, 57, 59
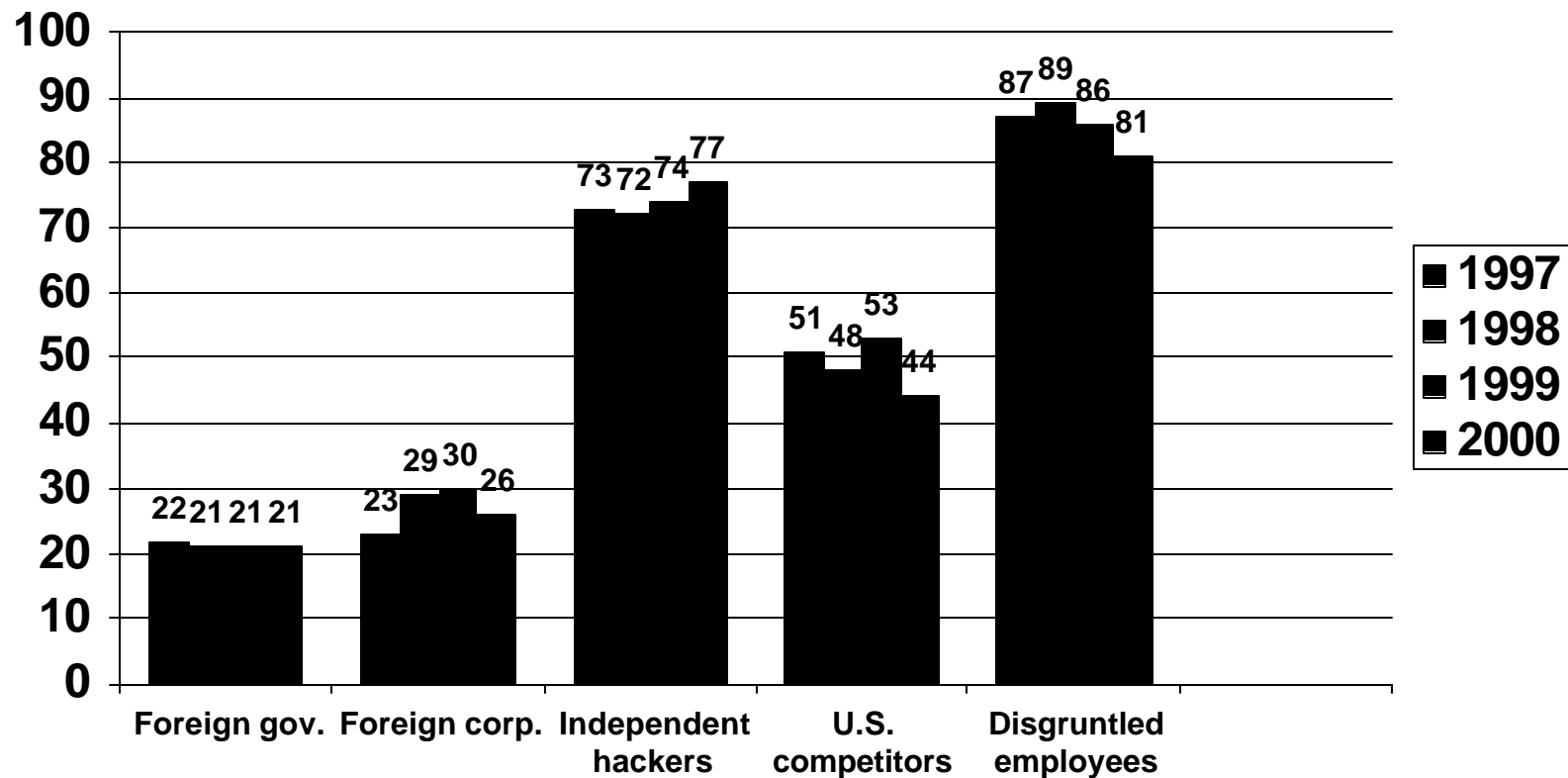
2000: 443 Respondents/68%
1999: 324 Respondents/62%
1998: 279 Respondents/54%
1997: 391 Respondents/69%
1996: 174 Respondents/40%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

Likely sources of attack

Percentage of Respondents

Legend: 1997, 1998, 1999, 2000

Categories: Foreign gov., Foreign corp., Independent hackers, U.S. competitors, Disgruntled employees

- Foreign gov.: 22, 21, 21, 21
- Foreign corp.: 23, 29, 30, 26
- Independent hackers: 73, 72, 74, 77
- U.S. competitors: 51, 48, 53, 44
- Disgruntled employees: 87, 89, 86, 81

2000: 583 Respondents/90%
1999: 460 Respondents/88%
1998: 428 Respondents/83%
1997: 503 Respondents/89%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

Types of attack or misuse detected within the last 12 months

Denial of Service
- 158
- 128
- 114

Laptop
- 348
- 280
- 297
- 287

Active wiretap
- 8
- 9
- 5
- 18

Telecom fraud
- 69
- 71
- 75
- 133

Unauthorized access by insiders
- 414
- 223
- 203
- 198

Virus
- 499
- 368
- 380
- 407

Financial fraud
- 68
- 58
- 68
- 59

Insider abuse of Net access
- 463
- 394
- 353
- 338

System penetration
- 145
- 124
- 108
- 99

Telecom eavesdropping
- 45
- 53
- 45
- 54

Sabotage
- 102
- 53
- 66
- 69

Theft of proprietary info
- 118
- 104
- 82
- 101

Legend:
- 2000
- 1999
- 1998
- 1997

2000: 581 Respondents/90%
1999: 405 Respondents/78%
1998: 458 Respondents/89%
1997: 492 Respondents/87%

X-axis: 0, 100, 200, 300, 400, 500, 600

Numbers of Respondents

Types of attack or misuse detected in the last 12 months (by percent)

Denial of Service
- 27
- 31
- 24

Laptop
- 60
- 69
- 64
- 58

Active wiretap
- 1
- 2
- 1
- 3

Telecom fraud
- 11
- 17
- 16
- 27

Unauthorized access by insiders
- 71
- 55
- 44
- 40

Virus
- 85
- 90
- 83
- 82

Financial fraud
- 11
- 14
- 14
- 12

Insider abuse of Net access
- 79
- 97
- 77
- 68

System penetration
- 25
- 30
- 23
- 20

Telecom eavesdropping
- 7
- 14
- 9
- 11

Sabotage
- 17
- 13
- 14
- 14

Theft of proprietary info
- 20
- 25
- 18
- 20

Legend:
- ■ **2000**
- ■ **1999**
- ■ **1998**
- ■ **1997**

2000: 581 Respondents/90%
1999: 405 Respondents/78%
1998: 458 Respondents/89%
1997: 492 Respondents/87%

X-axis: 0 20 40 60 80 100 120

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

Percentage of Respondents

Financial losses by type of attack or misuse

Number of Respondents
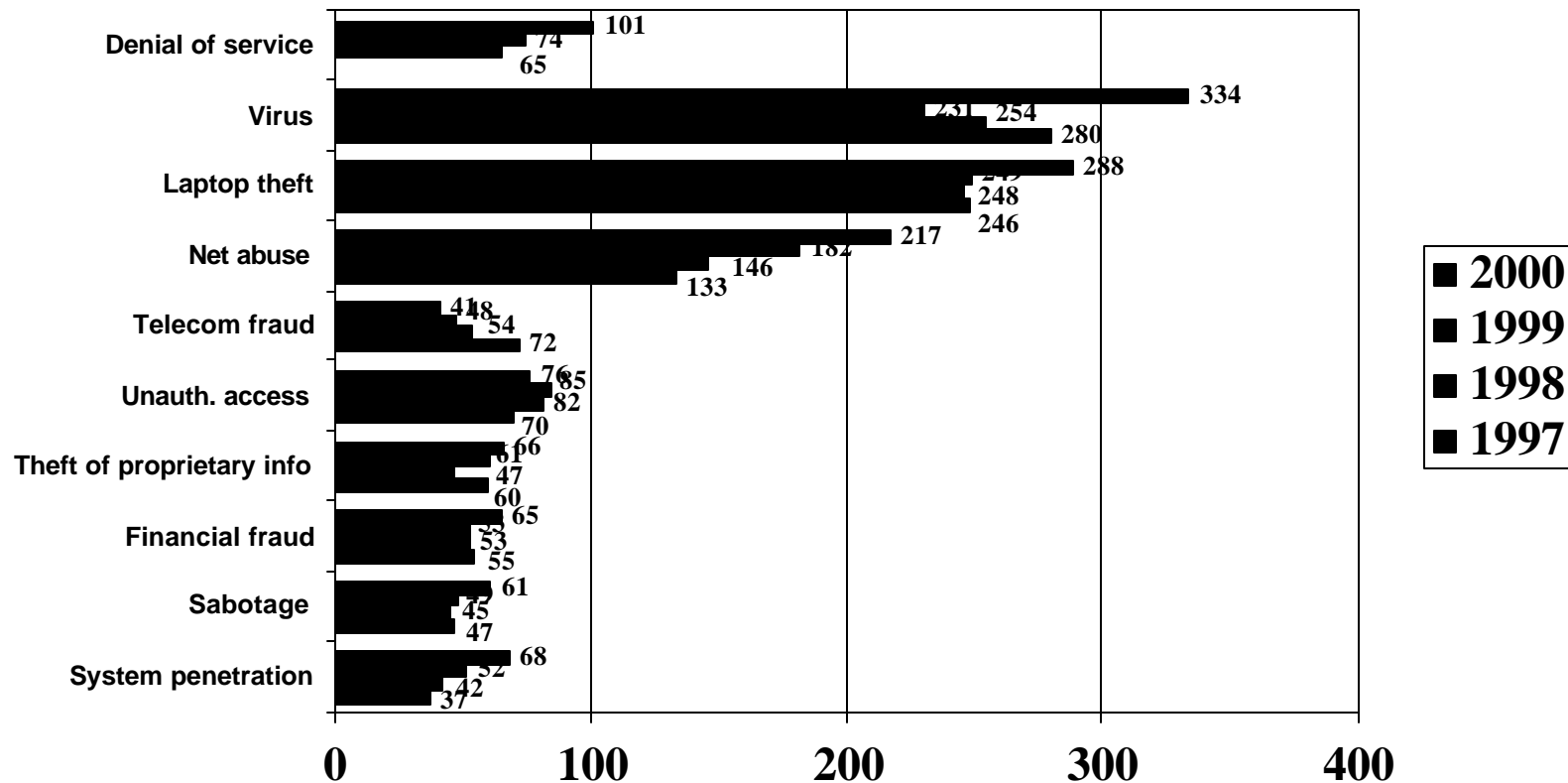
Denial of service	101 / 74 / 65
Virus	334 / 231 / 254 / 280
Laptop theft	288 / 249 / 248 / 246
Net abuse	217 / 182 / 146 / 133
Telecom fraud	41 / 48 / 54 / 72
Unauth. access	76 / 65 / 82 / 70
Theft of proprietary info	66 / 61 / 47 / 60
Financial fraud	65 / 53 / 53 / 55
Sabotage	61 / 45 / 47
System penetration	68 / 52 / 42 / 37

■ **2000**
■ **1999**
■ **1998**
■ **1997**

0   100   200   300   400

2000: 477 Respondents/74%
1999: 265 Respondents/51%
1998: 376 Respondents/73%
1997: 422 Respondents/75%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

Financial losses by type of attack or misuse

Percentage of Respondents
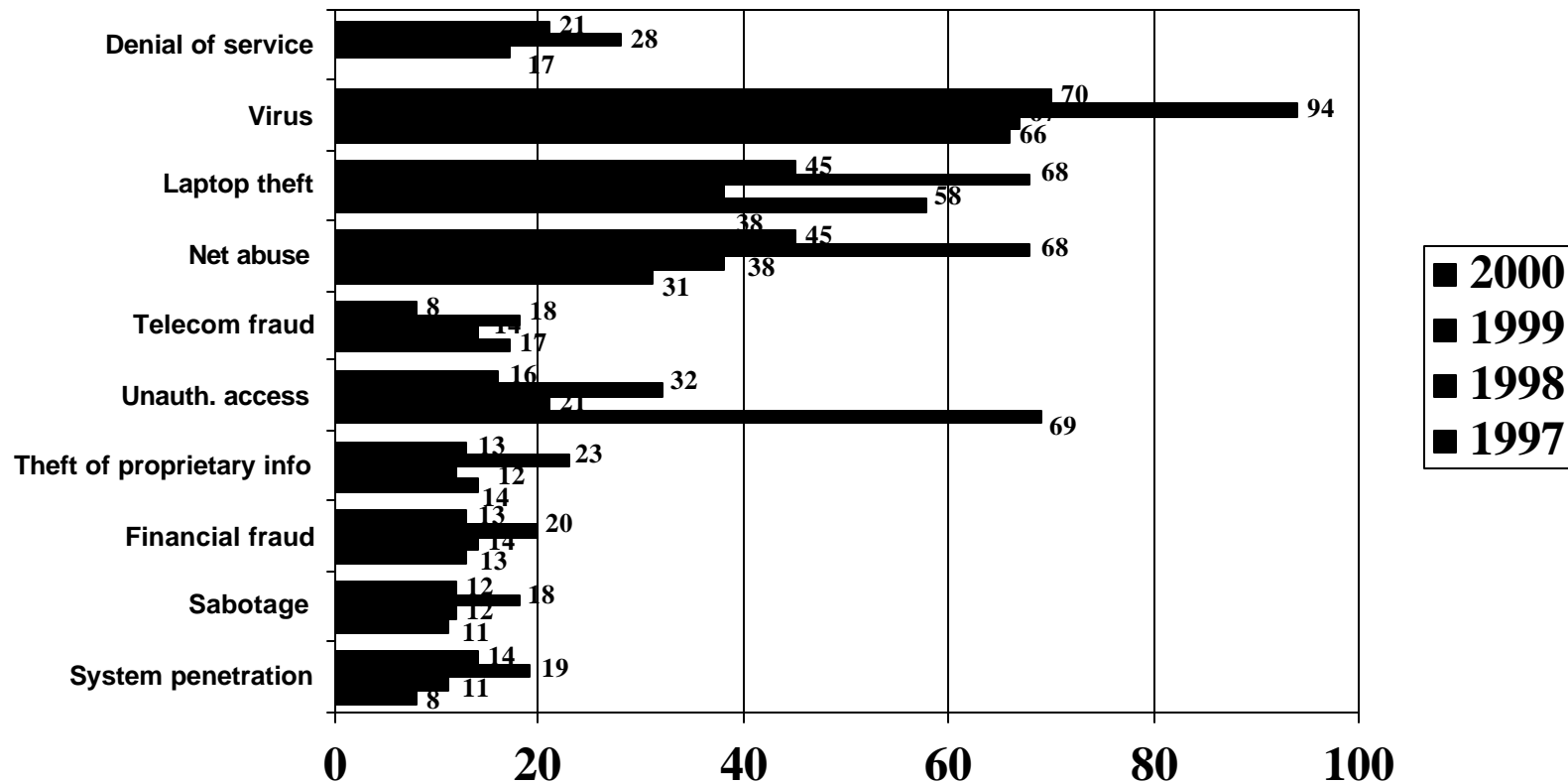
Type	2000	1999	1998	1997
Denial of service	21	28	17	
Virus	70	67	94	66
Laptop theft	45	68	58	
Net abuse	38	45	68	38 / 31
Telecom fraud	8	18	17	
Unauth. access	16	32	27	69
Theft of proprietary info	13	23	12	14
Financial fraud	13	20	14	13
Sabotage	12	18	12	11
System penetration	14	19	11	8

Legend:
- 2000
- 1999
- 1998
- 1997

X-axis: 0 20 40 60 80 100

2000: 477 Respondents/74%
1999: 265 Respondents/51%
1998: 376 Respondents/73%
1997: 422 Respondents/75%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

Dollar amount of losses by type

Type	Amount
Unauth. insider access	$22,554,500
Theft of proprietary info	$66,708,000
Telecom fraud	$4,028,000
Financial fraud	$55,996,000
Virus	$29,171,700
Laptop theft	$10,404,300
Insider net abuse	$27,984,740
Denial of service	$8,247,500
Sabotage	$27,148,000
System penetration	$7,104,000
Telecom eavesdropping	$991,200
Active wiretapping	$5,000,000

2000: 273 Respondents/42%

Financial losses aggregated

Financial losses summary

Cited financial losses due to security breaches:

1997: 75%, 1998: 73%, 1999: 51%, 2000: 74%

Willing and/or able to quantify their losses:

1997: 59%, 1998: 42%, 1999: 31%, 2000: 42%

Total dollar losses:

1997: 249 respondents, US$100,119,555

1998: 241 respondents, US$136,822,000

1999: 163 respondents, US$123,779,000

2000: 273 respondents, US$ 265,589,940

Has your WWW site suffered unauthorized access or misuse within the last 12 months?

95% of respondents have WWW sites, 43% provide electronic commerce services via their WWW sites, only 30% were doing e-commerce in 1999
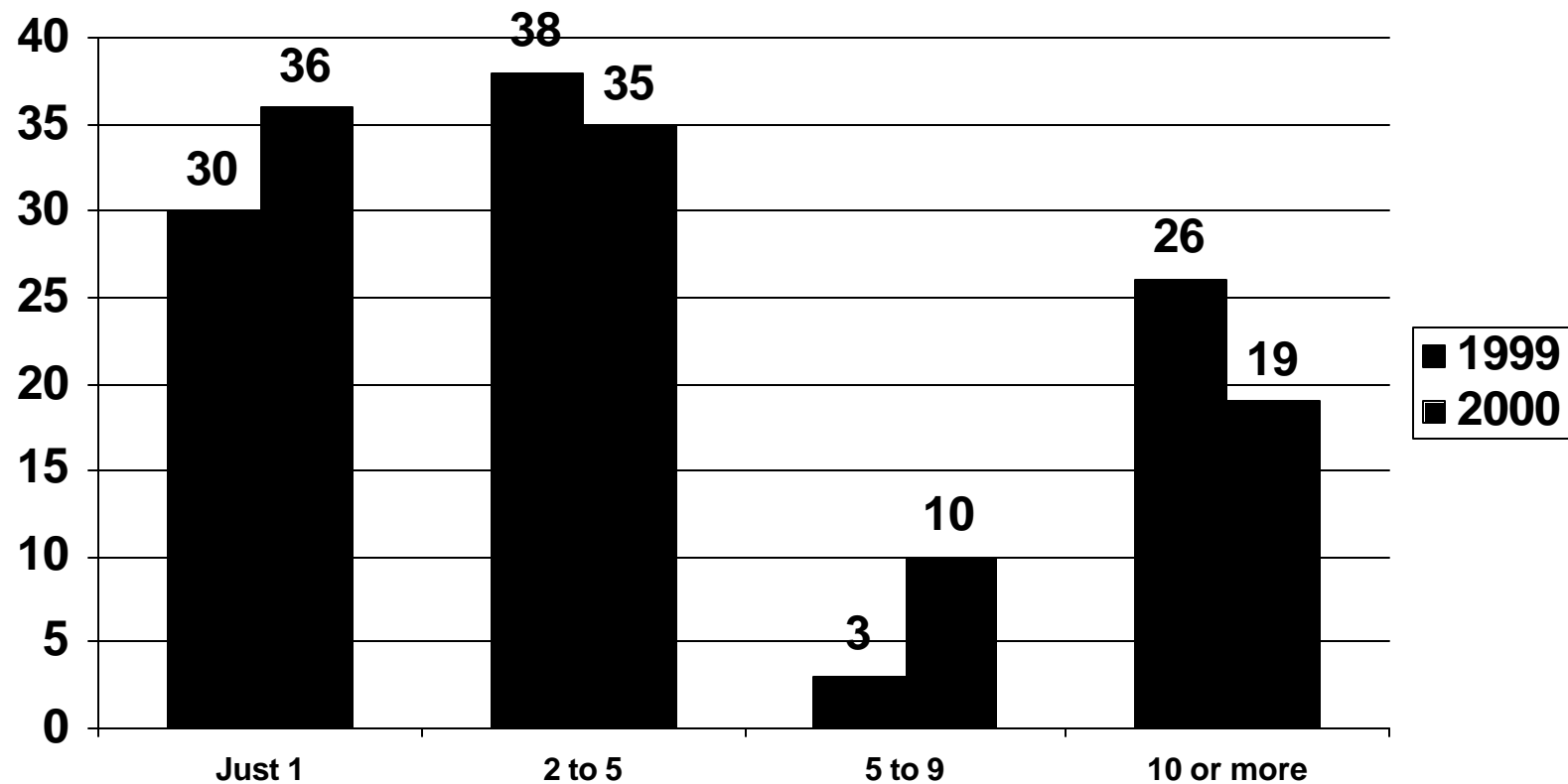
Percentage of Respondents

Legend:
- ■ 1999
- ■ 2000

Categories: Yes (20, 19), No (47, 49), Don't Know (33, 32)
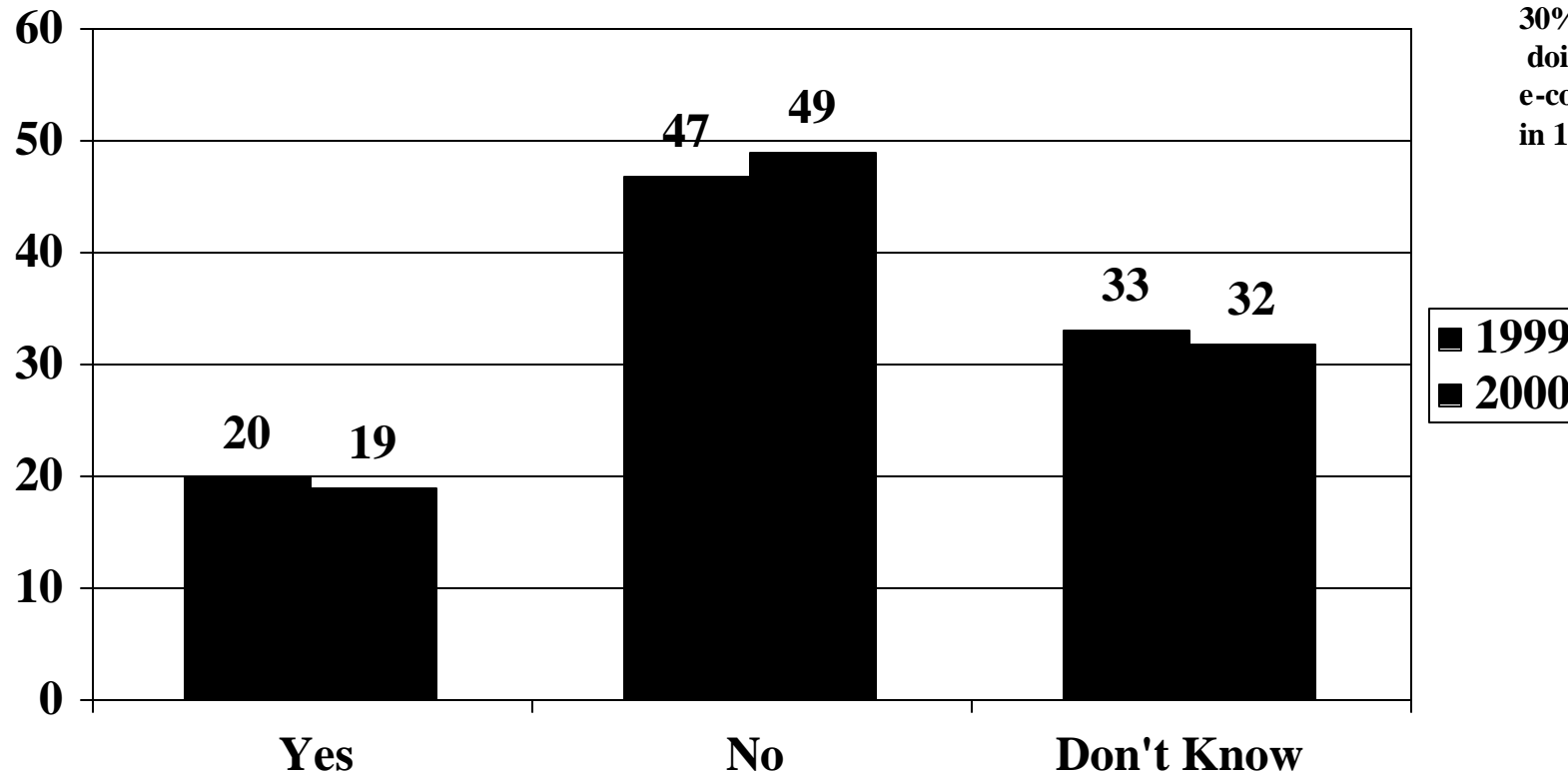
2000: 603 Respondents/93%
1999: 479 Respondents/92%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

WWW site incidents:
If yes, how many incidents?

Percentage of Respondents

Legend:
- 1999
- 2000

Data (Just 1 / 2 to 5 / 5 to 9 / 10 or more):
- 1999: 30, 38, 3, 26
- 2000: 36, 35, 10, 19

2000: 120 Respondents/18%
1999: 92 Respondents/18%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

WWW site incidents:
Did the attacks come from inside or outside?

Percentage of Respondents

Legend: 1999, 2000

	Inside	Outside	Both	Don't Know
1999	7	38	41	14
2000	5	49	24	21

2000: 153 Respondents/23%
1999: 125 Respondents/24%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute
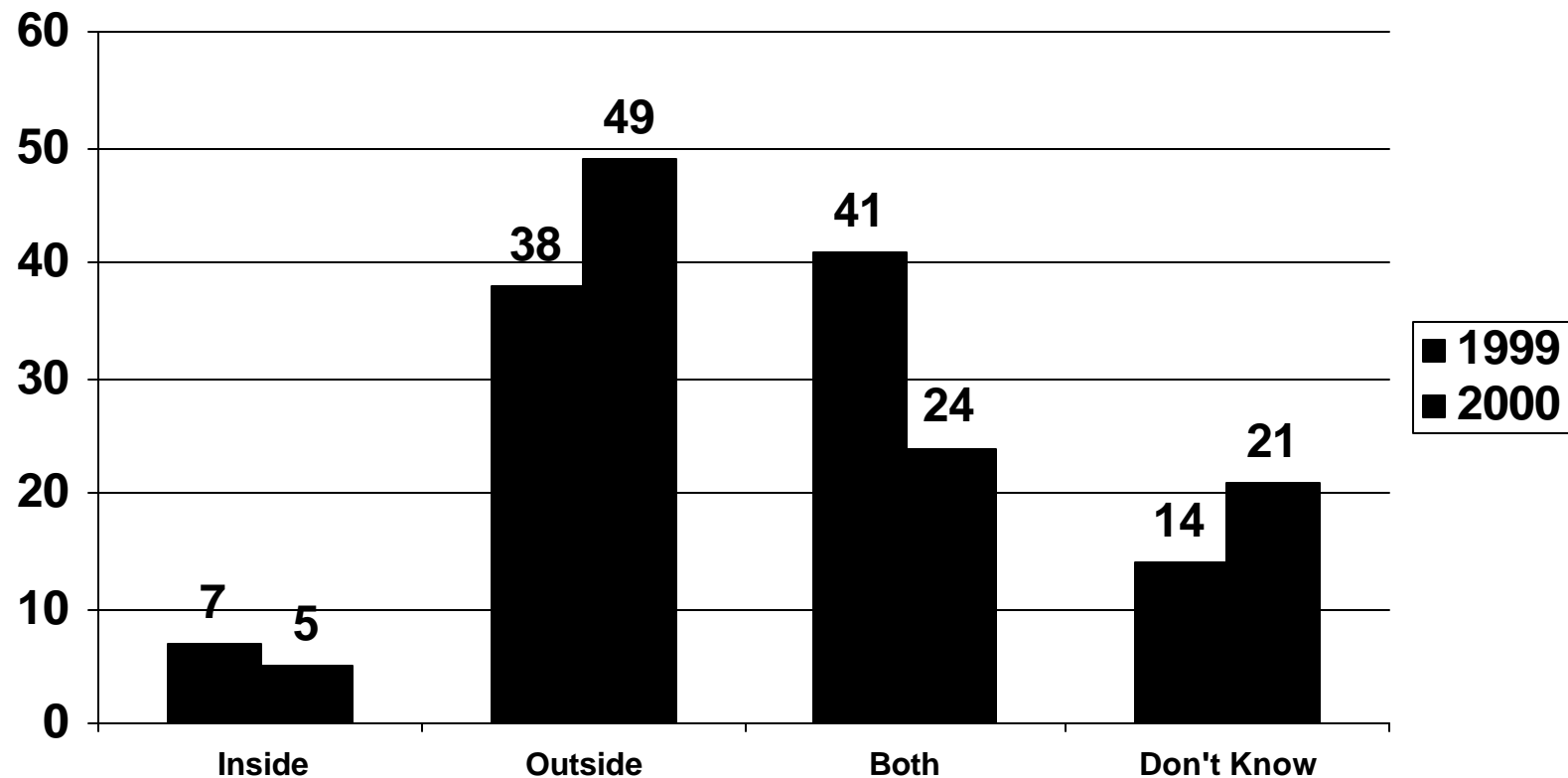
WWW site incidents:
What type of unauthorized access or misuse?

Percentage of Respondents

Legend:
- 1999
- 2000

Chart values:
- Vandalism: 98 (1999), 64 (2000)
- Financial Fraud: 27 (1999), 3 (2000)
- Denial of Service: 93 (1999), 60 (2000)
- Theft of Transaction Info: 25 (1999), 8 (2000)
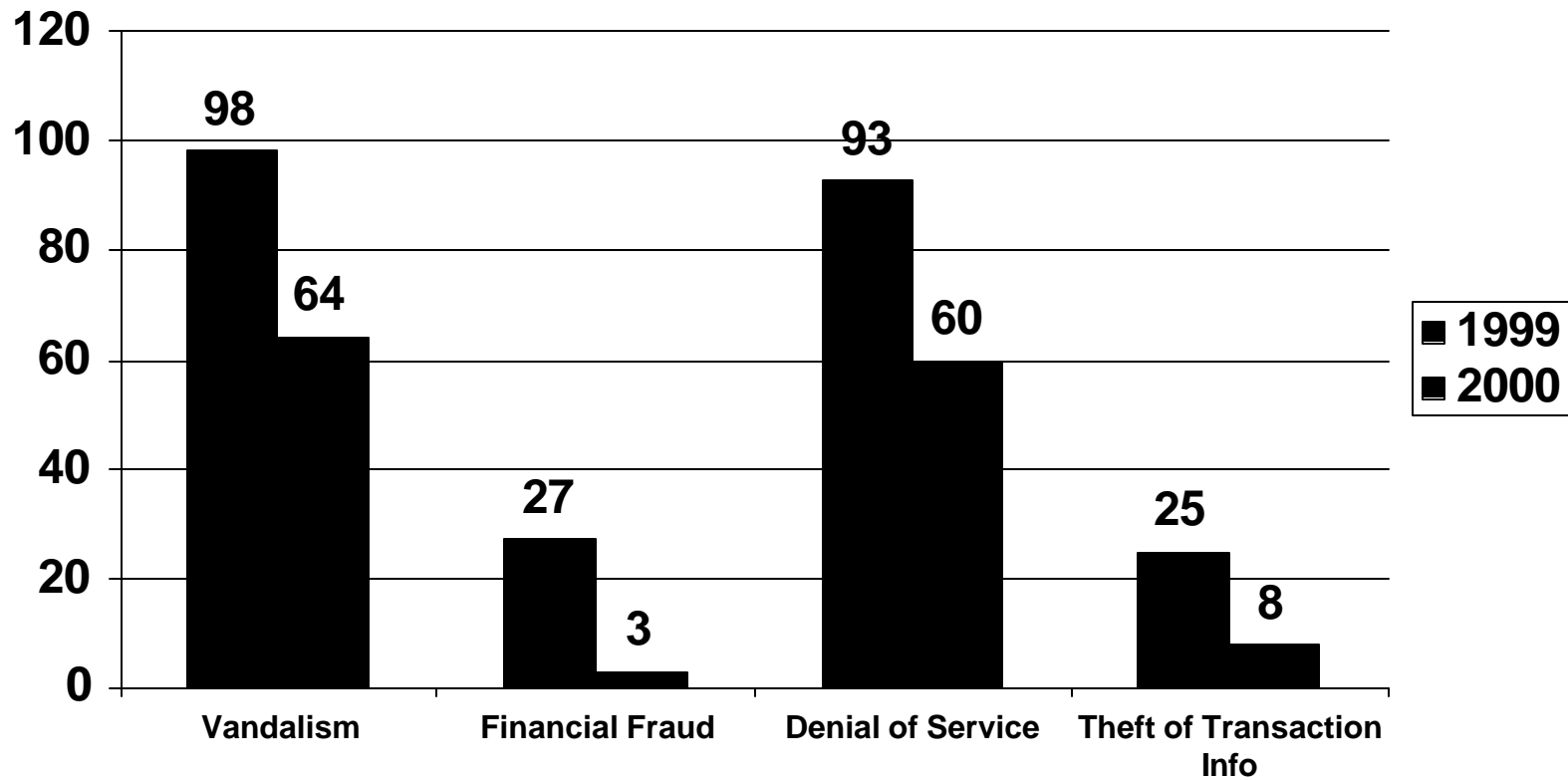
2000: 93 Respondents/14%
1999: 44 Respondents/8%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

If your organization has experienced computer intrusion(s) within the last 12 months, which of the following actions did you take?

Percentage of Respondents
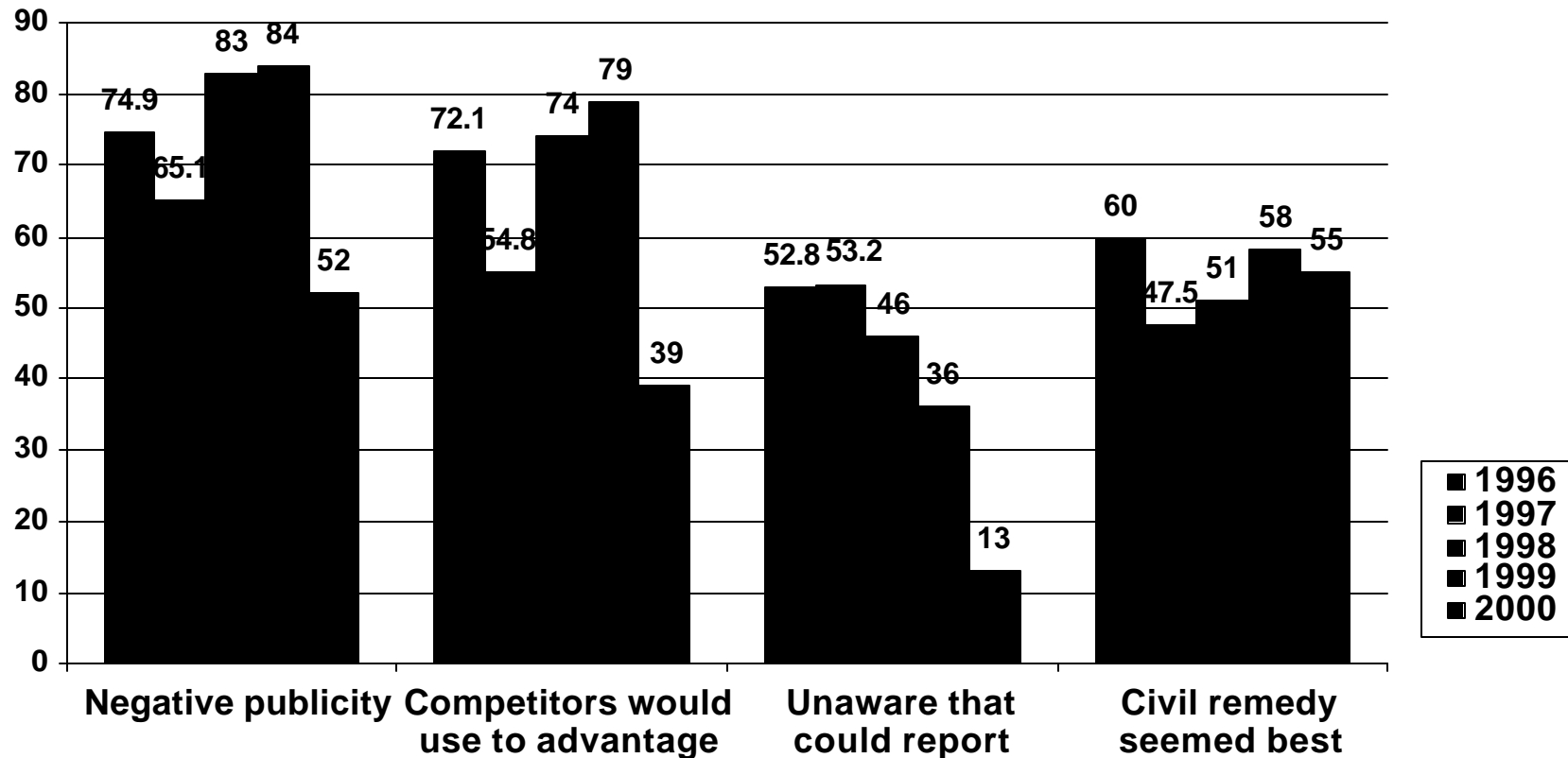

Legend:
- 1996
- 1997
- 1998
- 1999
- 2000

Patched holes: 48, 44, 50, 96, 85
Did not report: 23, 26, 26, 48, 44
Reported to law enforcement: 16, 17, 17, 32, 25
Reported to legal counsel: 11, 11, 16, 29, 20
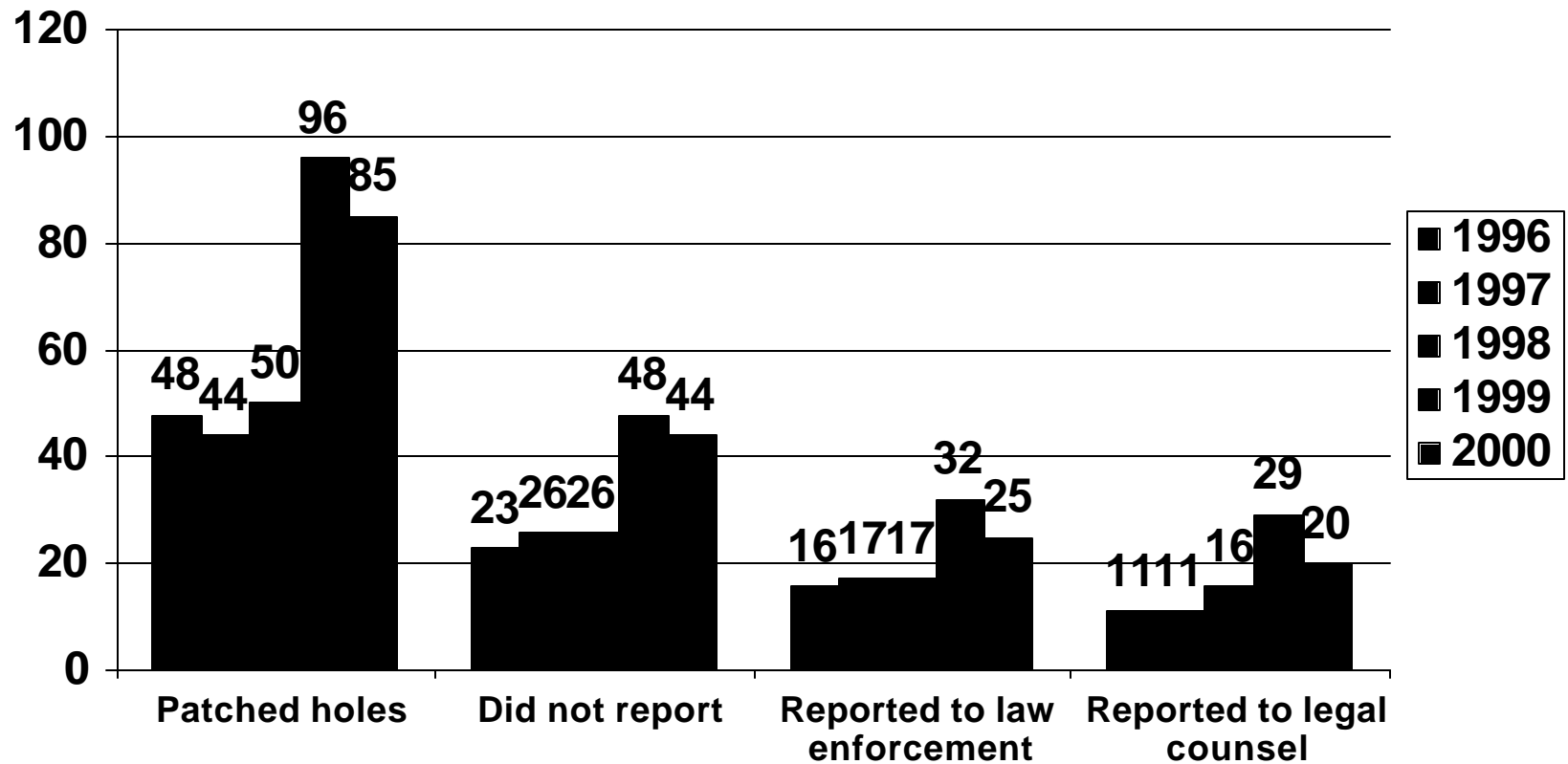
2000: 407 Respondents/63%
1999: 295 Respondents/57%
1998: 321 Respondents/72%
1997: 317 Respondents/56%
1996: 325 Respondents/76%

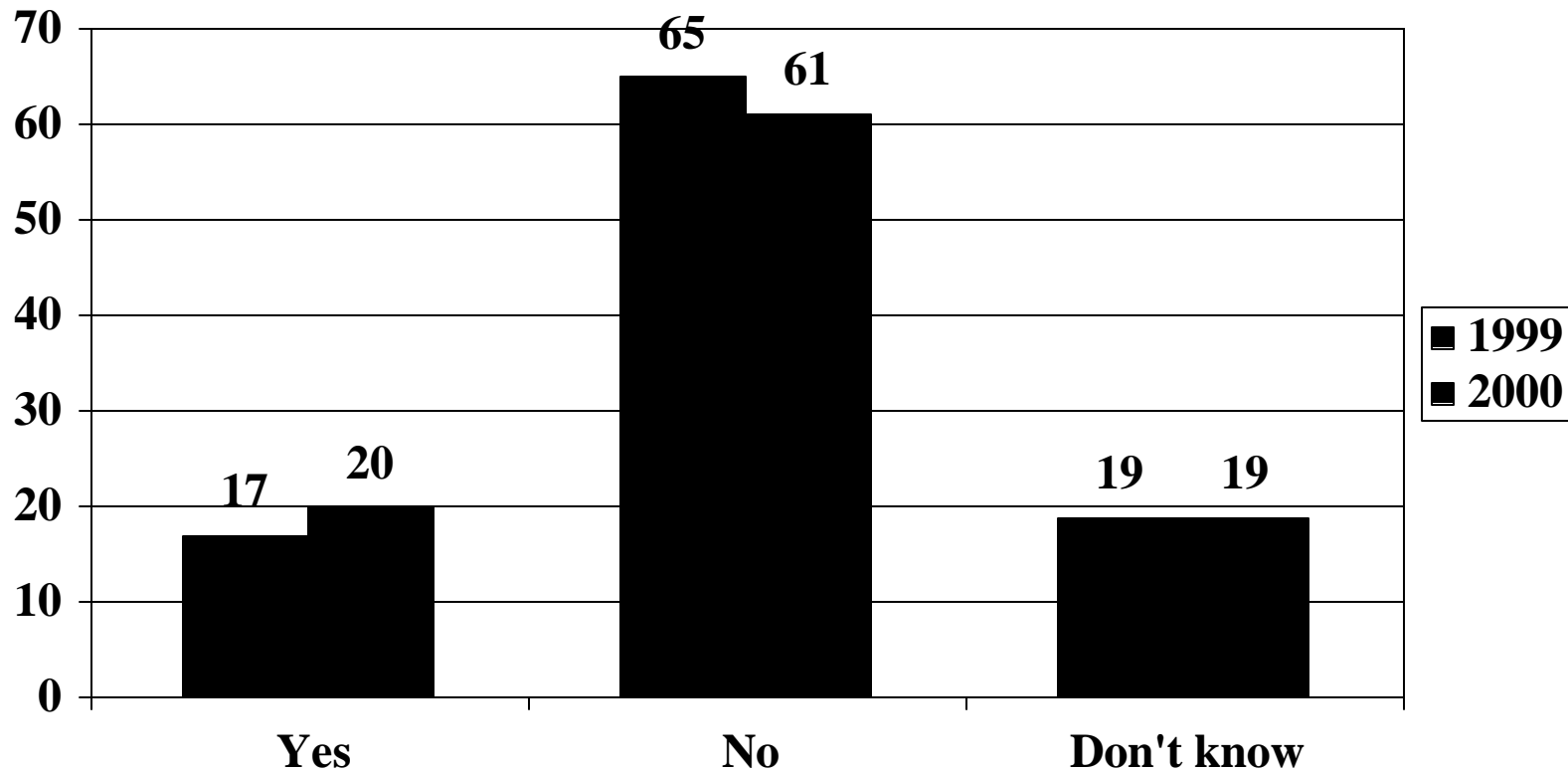# The reasons organizations did not report intrusions to law enforcement

Percentage of Respondents

Legend:
- 1996
- 1997
- 1998
- 1999
- 2000

Negative publicity: 74.9, 65.1, 83, 84, 52

Competitors would use to advantage: 72.1, 54.8, 74, 79, 39

Unaware that could report: 52.8, 53.2, 46, 36, 13

Civil remedy seemed best: 60, 47.5, 51, 58, 55

2000: 209 Respondents/32%
1999: 107 Respondents/20%
1998: 96 Respondents/19%
1997: 142 Respondents/25%
1996: 64 Respondents/15%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

Would your organization consider hiring reformed hackers as consultants?

Percentage of Respondents

2000: 620 Respondents/96%
1999: 506 Respondents/97%

CSI/FBI 2000 Computer Crime and Security Survey
Source: Computer Security Institute

For further information, contact:

- Chris Beeson, Special Agent

  S.F. Regional FBI Computer Crime Squad

  22320 Foothill Blvd.,Hayward, CA 94541

  Ph: 510-886-7447   Fax: 510-886-4981
  E-mail: nccs-sf@fbi.gov

- Richard Power, Editorial Director

  Computer Security Institute

  600 Harrison Street, San Francisco, CA 94107

  Ph: 415-905-2370   Fax: 415-905-2218
  E-mail: rpower@cmp.com