

# Who is next?

## Analysis of cyber attacks reported between 2017-2018



# ***Equifax Says Cyberattack May Have Affected 143 Million in the U.S.***

By [Tara Siegel Bernard](#), [Tiffany Hsu](#), [Nicole Perlroth](#) and [Ron Lieber](#)

Sept. 7, 2017



Technology

## **Uber Paid Hackers to Delete Stolen Data on 57 Million People**

By [Eric Newcomer](#)

November 21, 2017, 4:58 PM EST *Updated on November 21, 2017, 10:21 PM EST*

# Hackmageddon

- ❖ scraped [www.hackmageddon.com](http://www.hackmageddon.com) to collect information on:
  - ❖ Date of attack
  - ❖ Target
  - ❖ Target\_class (industry category)
  - ❖ Type of attack
  - ❖ Country
  - ❖ Summary
  - ❖ Type of attack( crime, espionage, hacktivism, warfare)

| date       | attack  | attack_class | author      | country | description                                       | target                       | target_class | url   | target_co |
|------------|---------|--------------|-------------|---------|---|------------------------------|--------------|---|-----------|
| 2018-01-01 | Unknown | CC           | NaN         | UK      | 2018 begins with a new round of Fappening leak... | Faye Brookes                 | Individual   | <a href="http://news.softpedia.com/news/the-2018-fappen...">http://news.softpedia.com/news/the-2018-fappen...</a> |           |
| 2018-01-01 | Malware | CC           | NaN         | US      | Rockingham County Schools servers are compromi... | Rockingham County Schools    | Education    | <a href="https://www.databreaches.net/nc-emotet-malware...">https://www.databreaches.net/nc-emotet-malware...</a> |           |
| 2018-01-02 | Unknown | CC           | Andariel    | KR      | Bloomberg reveals that a hacking unit called A... | Unnamed South Korean Company | Unknown      | <a href="https://www.bloomberg.com/news/articles/2018-0...">https://www.bloomberg.com/news/articles/2018-0...</a> |           |
| 2018-01-02 | SQLi?   | CC           | @0x55Taylor | US      | A hacker using the twitter handle @0x55Taylor     | thefly.com                   | IT           | <a href="https://www.cyberwarnews.info/2018/01/02/clear...">https://www.cyberwarnews.info/2018/01/02/clear...</a> |           |

# Russia-linked hackers invade German government network, sources say

Joerg Blank and Christoph Dernbach Feb 28, 2018

## MyHeritage Statement About a Cybersecurity Incident

By Admin · June 4, 2018

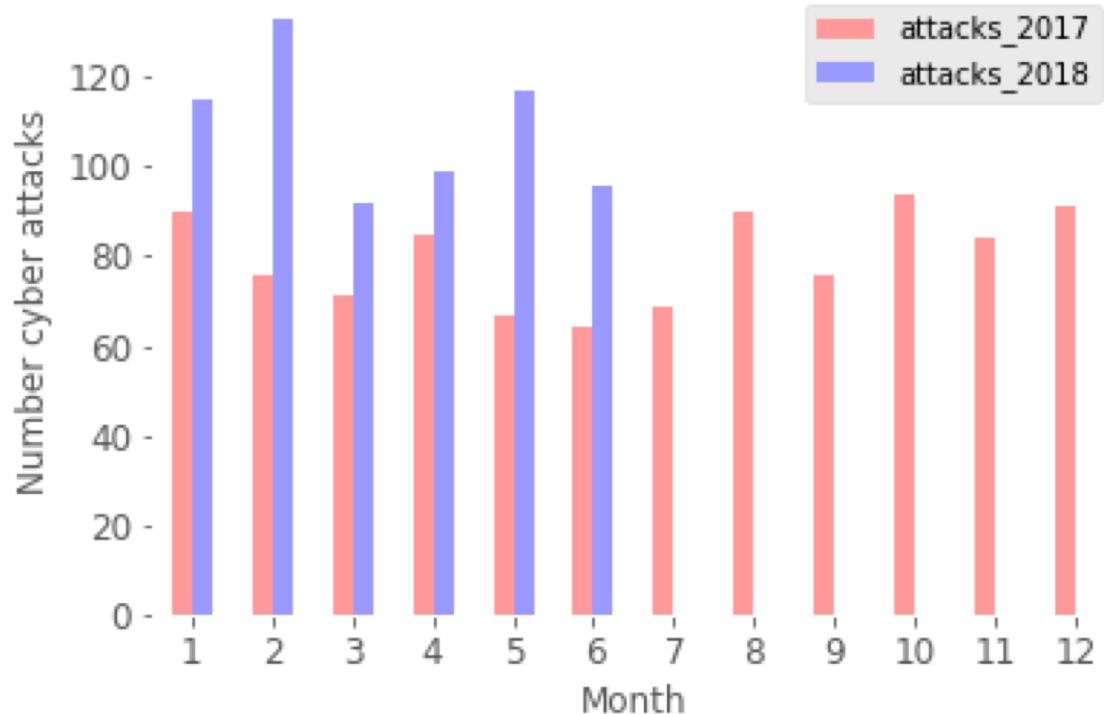
### Hackers target Winter Olympics with new custom-built fileless malware

Researchers have uncovered a campaign targeting organisations involved with next month's Games in South Korea, with the aim of controlling infected machines.



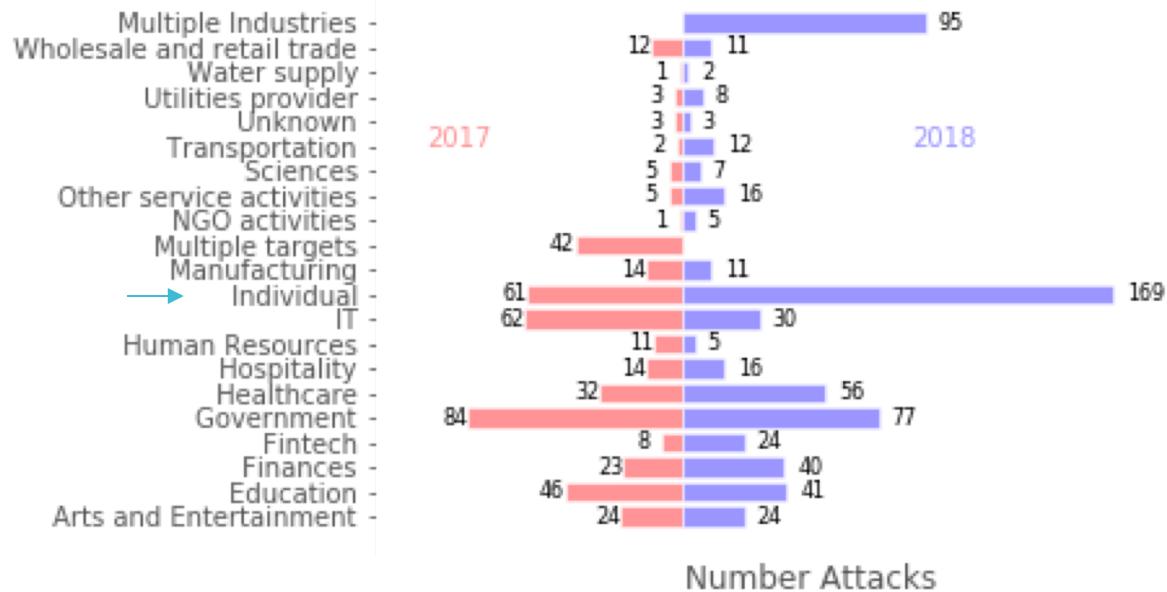
By [Danny Palmer](#) | January 8, 2018 -- 10:20 GMT (02:20 PST) | Topic: [Security](#)

# Trend of increasing cyber attacks for 2018

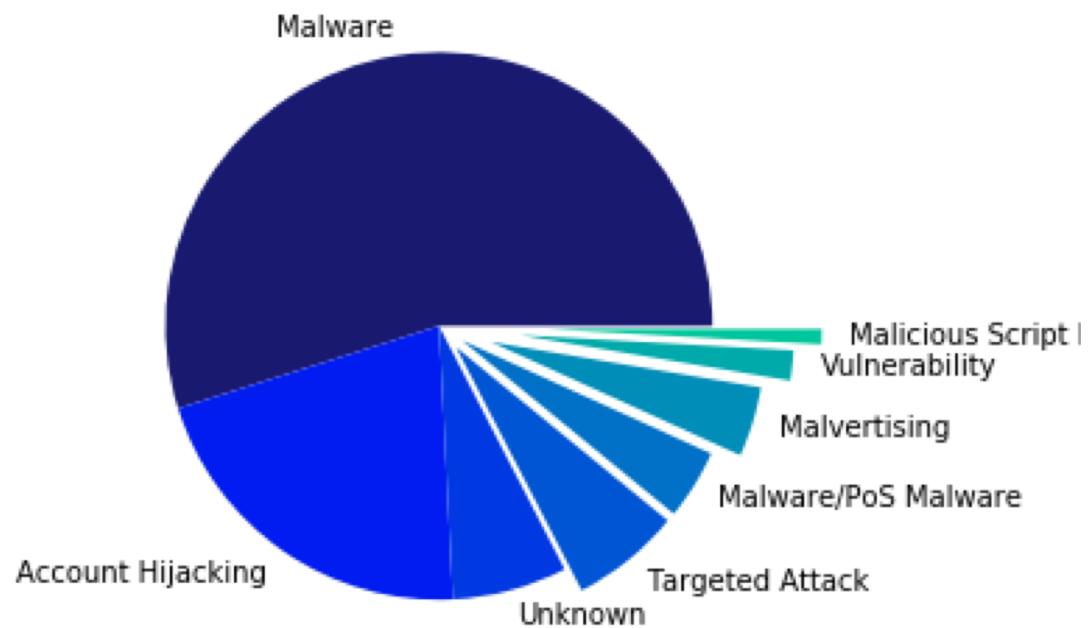


# Top 5 categories affected:

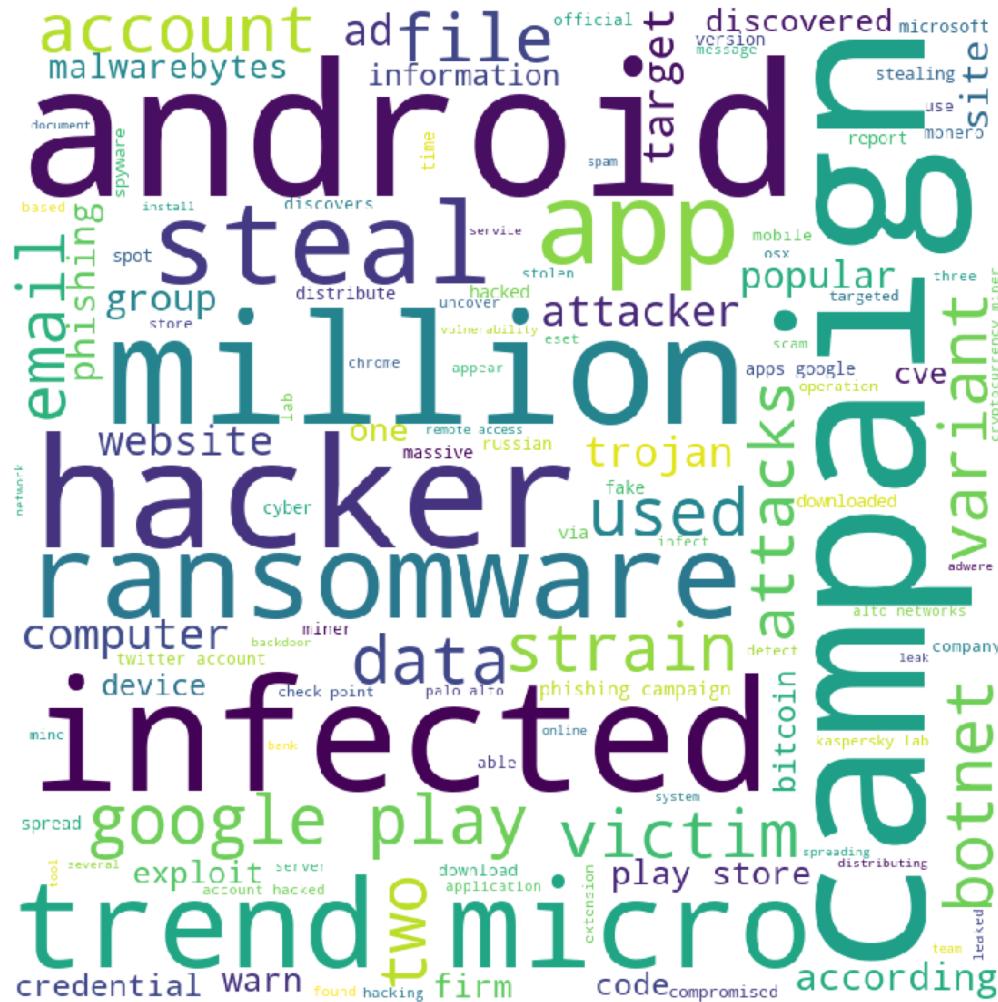
Individuals  
Healthcare  
Fintech  
Finances  
Multiple



# Main attack on individuals: **MALWARE**

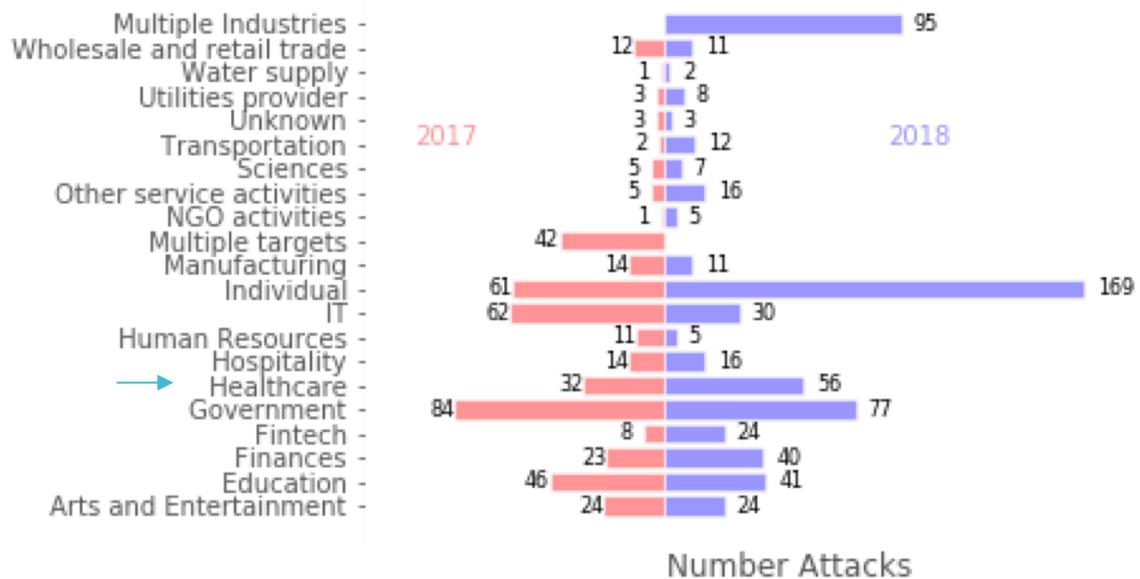


# Individuals: WordCloud



# Top 5 industries affected:

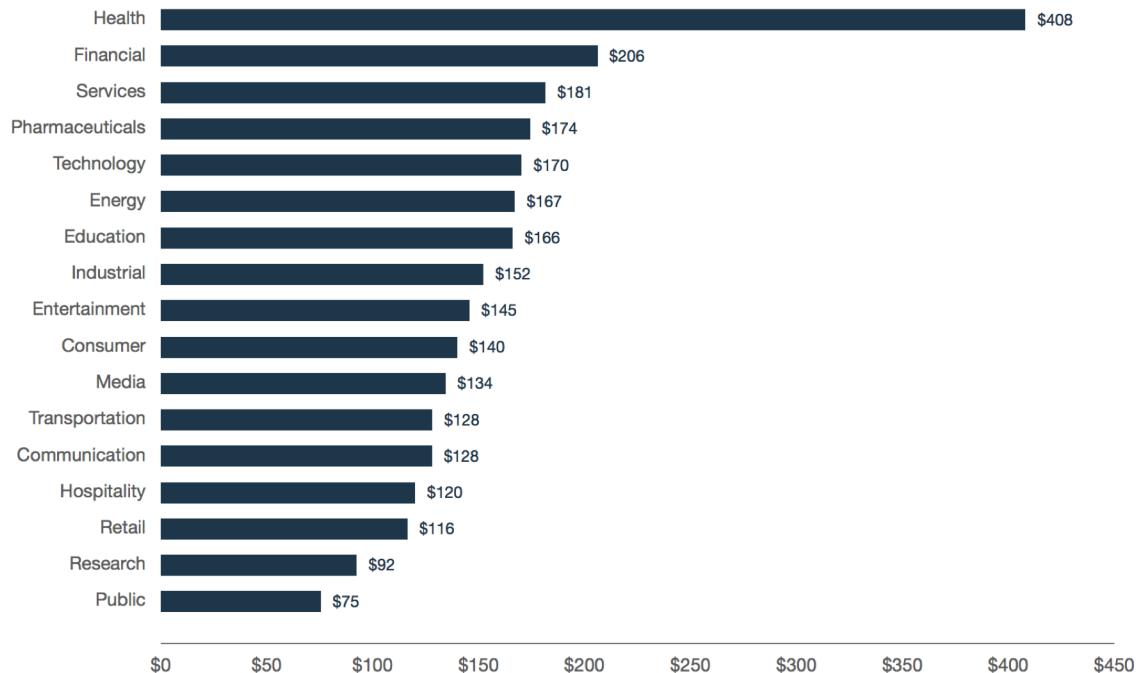
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# Data breach costs are highest for healthcare industry

Figure 7. Per capita cost by industry sector

Measured in US\$



# Glassdoor

- ❖ identified companies/organizations with healthcare sector from hackmageddon dataset
- ❖ scraped [www.glassdoor.com](http://www.glassdoor.com) to collect information on:
  - ❖ Company name
  - ❖ Category
  - ❖ Revenue
  - ❖ Employees

| company                | industry                         | revenue   | employees     | name                                      | min_USD | max_USD | min |
|------------------------|----------------------------------|-----------|---------------|---|---------|---------|-----|
| Private                | Unknown                          | 1 - 5     | 1 to 50       | Metropolitan Urological Specialists       | million | million | 1   |
| Nonprofit Organization | Unknown                          | 5 - 10    | 51 to 200     | Family Service                            | million | million | 5   |
| Nonprofit Organization | Health Care Services & Hospitals | 500-1     | 5001 to 10000 | Lexington Medical Center                  | billion | billion | 500 |
| Private                | Health Care Services & Hospitals | 25 - 50   | 501 to 1000   | Citizens Memorial Healthcare              | million | million | 25  |
| Government             | Insurance Carriers               | 5 - 10    | 10000+        | NHS                                       | million | million | 5   |
| Nonprofit Organization | Health Care Services & Hospitals | NaN       | 5001 to 10000 | Verity Health System                      | NaN     | NaN     | NaN |
| Hospital               | Health Care Services & Hospitals | 100 - 500 | 1001 to 5000  | Campbell County Memorial Hospital         | million | million | 100 |
| Nonprofit Organization | Health Care Services & Hospitals | 2 - 5     | 10000+        | Sentara Healthcare                        | billion | billion | 2   |
| College / University   | Colleges & Universities          | 10 - 25   | 51 to 200     | University of Maryland School of Medicine | million | million | 10  |
| Government             | Health Care Services & Hospitals | 500-1     | 10000+        | Barts Health NHS Trust                    | billion | billion | 500 |

Revenue and  
number of  
employees  
are  
dependent

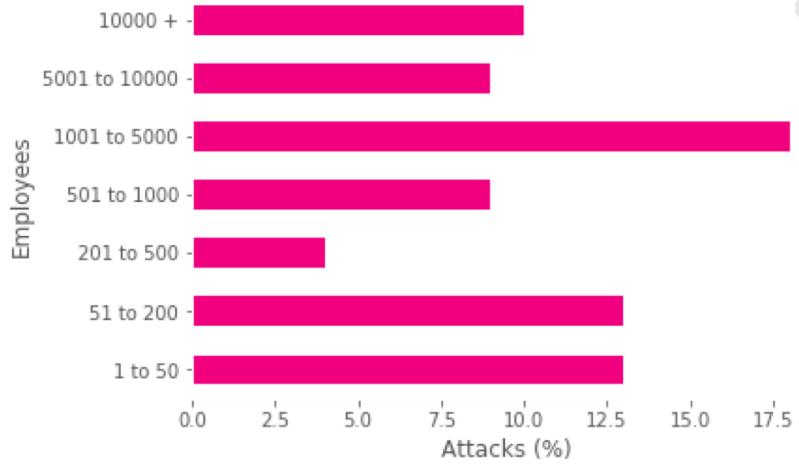
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Chi –sq test : p<0.001

# Healthcare: WordCloud

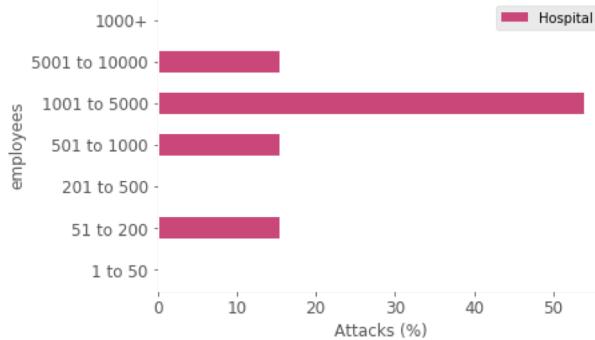


# Healthcare: Attacks by employees



# Healthcare: Attacks by category employees

## Hospitals

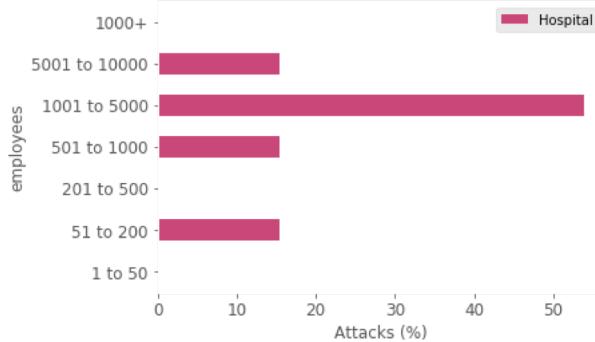


## Private companies

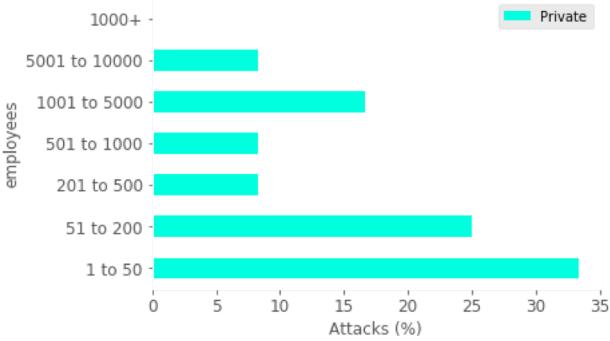
## Nonprofits

# Healthcare: Attacks category by employees

## Hospitals



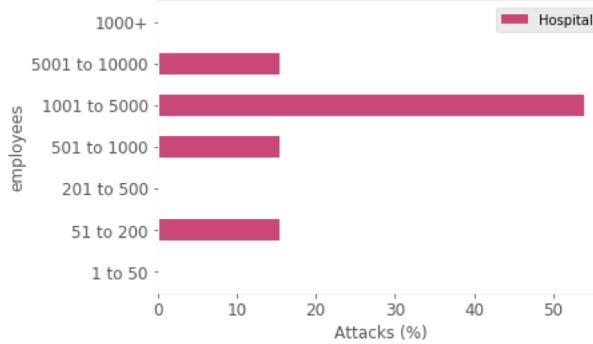
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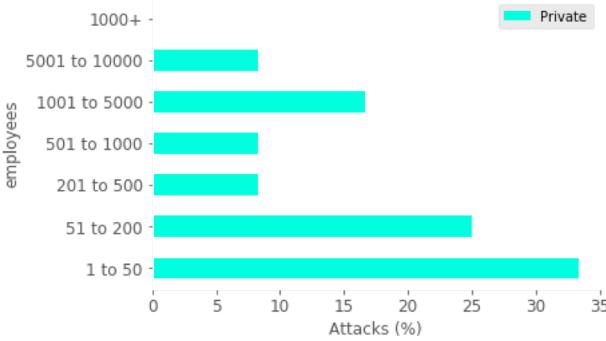
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# Healthcare: Attacks category by employees

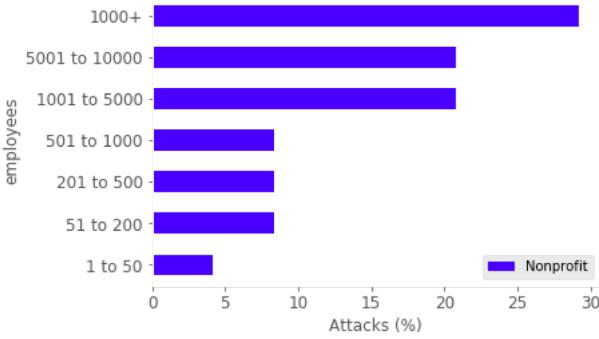
## Hospitals



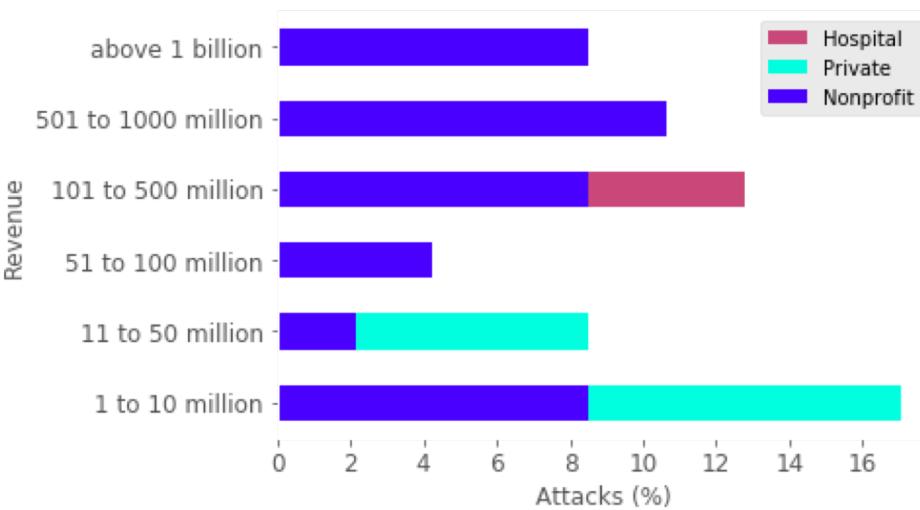
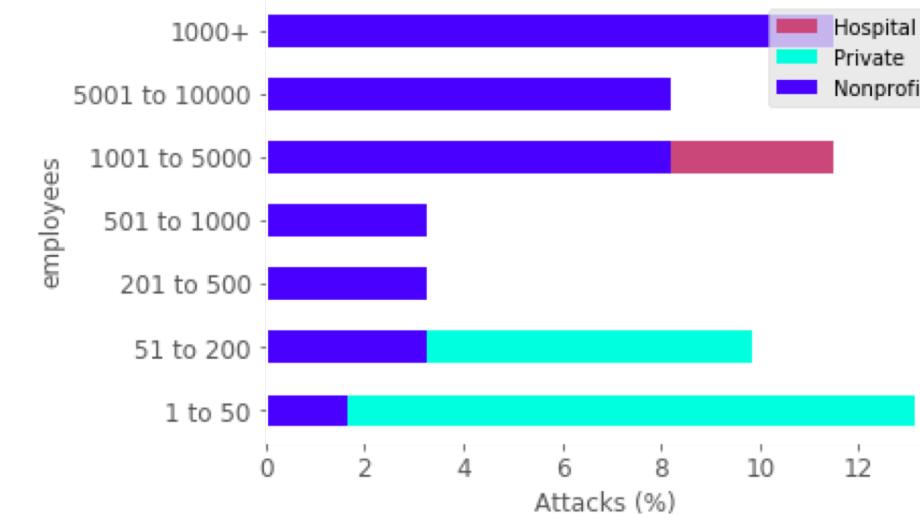
## Private companies



## Nonprofits



# Relationship between employees and revenue



# Conclusions

## Individuals

- ❖ Every individual using the internet is a potential target
    - ❖ App downloads, email accounts
- Tip: avoid free wi-fi and useless apps**

## Healthcare

- ❖ Hospitals, small private companies, and large non-profits are main targets
    - ❖ Phishing emails to employees
- Tip: scale up cyber security training for employees**

- ❖ Ransomware is becoming more popular
- Tip: scale up cyber security investment!**

- ❖ **Unsupervised Machine Learning for clustering to identify predictors**