**1.Question Formularization**

**1.1.Question** Focus: to understand scam functioning by study on scam email history, types, operations, risks and proper ways to treat these frauds.

**1.2.Question Quality and Amplitude**

**Problem**: Spam, scams, and frauds are things that we need to consider in cybersecurity. A lot of people and business get affected by these things and result in money lost, and personal or important data stealing. The object of this SRL is to understand scamming in deep detail in order to avoid the risk of it and handle scamming properly.

**Question**: How phishing and scams email functions including: the way that forms of scam campaigns are organized and evolve, the way it works, and the way to avoid risk for these scammers?

**Keywords and synonyms**: Email spam, Internet fraud, Cybercrime, phishing, victimization, Privacy concerns, Privacy protection, Privacy knowledge

**Intervention**: Things that will be observed are these following:  
- Scam email invention   
- Scam email types and technical vocabularies   
- The operations of scam email, how this thing works and how it can attack the computer  
- The ways to avoid scamming and phishing

**Control**: None

**Effects**: Doing the systematic review on scam emails will give a better understanding of this fraud and know the ways to prevent risks form these things.

**Outcome measure**: The numbers of scam emails and affected users could be collected. Then we can separate scam category and link to their target.

**Population**: Internet users and email users

**Application**: The organizations and companies can use knowledge to handle scamming and prevent crime from stealing their important information. The programmer can use knowledge from this to protect their data, code and program system from scamming. Normal internet users can separate scamming from regular email and handle these frauds correctly.

**Experimental Design**: The meta-analysis can be conducted through the statistic information about scams. First thing is collecting the number of scamming in a period and categorize the scamming by the origin, purpose, target, and operations. Then the number of users that are affected by scamming can be collected and it will be linked to the type of scam. We can see effectiveness for each scamming from these number, i.e. scamming about lottery might have higher success than scamming about a loan. Then the number of attacks can be gathered to see how can we avoid these risks. Finally, all data can be analyzed together and produce a conclusion.

**2.Sources Selection**

**2.1 Source Selection Criteria Definition:** The article must have been published in the last 5 years and are written by reliable researchers who have well knowledge and related degree (i.e. Computer major). Sources are conducted in a neutral tone (no bias). The study used an observational design and a qualitative methodology.

Availability to consult articles in the web; the presence of search mechanisms using keyword and publishing companies suggested by experts.

**2.2 Studies Languages:** Papers are written in English with a neutral tone and use appropriate language level.

**2.3 Source Identification**

**- Source Search methods**: search through library web search engine

**- Search String:** Email spam, Internet fraud, Cybercrime, phishing, victimization, Privacy concerns, Privacy protection, Privacy knowledge

**- Source List:** papers might be searched from ACM or IEEE website

**2.4 Source Selection after Evaluation:**

**2.5 References Checking:** All sources were approved.

**3.Studies Selection**

**3.1.Studies Definition**

- Studies Inclusion and Exclusion Criteria Definition: The study must contain information about scamming and has reliable references. The study can be collected as primary or secondary research but the detail must be specific to spam, scams, and frauds. his research will not select studies that contain topic beyond the scope.

**- Studies Types Definition:** All types of studies that are related to spam, scams, and frauds will be selected. Information sources can be primary or secondary.

**-Procedures for Studies Selection:** Research paper will be searched with a specific keyword through web search engines. The abstract will be read and be evaluated according to inclusion and exclusion criteria. The whole paper will be read after it passes the evaluation.

**4.Information Extraction**

**4.1.Information Inclusion and Exclusion Criteria Definition:** The information gathered from studies must contain the history of spam, scams, and frauds, scamming campaign and organization, scamming techniques and strategies, scamming effects, the way to treat scamming.

**4.2.Data Extraction Forms:** The information forms defined for this systematic review can be found in [Cabral and Travassos, 2004].

**4.3.Extraction Execution**

**- Objective Results Extraction**

**i) Study Identification:** Isacenkova, J.; Thonnard, O.; Costi,n A.; Francillon, A.; Balzarotti, D.; Inside the scam jungle: a closer look at 419 scam email operations, EURASIP Journal on Information Security 2014, 2014:4, pages 1 - 18

**ii) Study Methodology**: The researchers analyzed 419 scam campaigns and provided some statistics of the scam messages in order to study the way that scam campaigns forms are organized.

**iii) Study Results:** The analysis using multi-dimensional clustering technique discovered a high diversity in scam orchestration methods, presenting that scammer(s) can work on many topics within a campaign, competing with each other over trendy scam topics. Most campaigns that scam clusters can identify are originated either from anonymized UK number or African countries. Structure, orchestration, and modus operandi of such campaigns are different from old-style spam campaigns: campaigns are long and scarce, they use anonymization tools like webmail accounts to hide IPs and proxy phone numbers.

**iv) Study Problems:** None

**- Subjective Results Extraction**

**i) Information through Authors:** It was not requested.

**ii) General Impressions and Abstractions:** The paper is well written. The researchers use multi-dimensional clustering technique to group scamming around the world and represent in understandable mapping pictures. The analysis and summary are well performed.

**4.4.Resolution of divergences among reviewers:** There were no divergences.

**5.Results Summarization**

**5.1.Results Statistical Calculus:** Statistical calculi were not used.

**5.2.Results Presentation in Tables**

Quantity of Studies by Initiative

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Type of Initiative** | **Tool** | **Technique** | **Method** | **Strategy** | **Others** | **Total** |
| **# of Studies** | - | 1 | 1 | - | - | 1 |

**5.3.Sensitivity Analysis:** It wasn’t applied.

**5.4.Plotting:** Data plotting was used to represent scamming information and a cluster. The research use plot line graph, bar graph and scattergrams.

**5.5.Final Comments**

- **Number of Studies:** Studies found: 1903; Studies selected: 1.

**- Search, Selection and Extraction Bias:** None was defined.

**- Publication Bias:** None was defined.

**- Inter-Reviewers Variation:** There was no conflict resolution.

- **Results Application:** The research result suggests that most scam campaigns are from either UK or African countries with hiding IPs and unknown sender so we should avoid interacting with emails that have these characteristics.

**- Recommendations:** The research studied in deep detail about the origin of scam campaign, method, and strategies but did not discuss a lot about the way to handle scamming. After categorizes scamming type and techniques, the researcher may make a short summarize of email characteristic that should be aware.