Carola Spinelli  500938948

Melvin  Gatherer 500792252

Olav Ran 500783455

Zara  van `t Hoff 500800430

# *How can a company's compliance with the requirements of the EU AI Act be predicted?*

## Project description and relevance

The current project aimed at identifying factors predicting companies compliance with the EU AI Act (AIA) [1]. There is, indeed, a lack of insights into how organizations will navigate compliance with the AIA and the extent to which they are prepared for its introduction (Dey & Bhaumik, n.d.). Previous research from these authors has measured actual[2], perceived[3], and exaggerated[4] compliance of companies relying on a series of questions addressing the following topics :  Data and model (DM), Model monitoring (MM), Risk management (RM), Technical documentation (TD), and User application (UA).  Building on this, the current project measured actual, perceived, and exaggeration scores to test whether they could be influenced by several factors :  Size of the company  (i.e., number of employees), role occupied by the person filling in the questionnaire, adoption date of AI technologies, familiarity with the EU AI Act, extent of offshoring[5], and extent of outsourcing[6]. Additional analyses were performed to test the impact of these six factors on the compliance topics separately (DM, MM, RM, TD, UA).

Considering all this, a main research question was formulated :

"*How can a company's compliance with the requirements of the EU AI Act be predicted?*".

## Methodology

This project relied on a dataset from previous AIA research, storing the questionnaire answers of 15 companies using AI systems. To contribute to this last research, responses from another company using AI systems were also recorded relying on the same questionnaire. These answers will be integrated in later analysis.

In order to perform the analyses needed to answer the above research question, all answers were standardized in a 0 to 1 scale to ensure comparability among those with different answer scales

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[1] Act attempting to contain the less desired effects of AI systems

[2] The extent to which a company's action comply with the EU AI Act

[3] The extent to which a company represener believes the company's actions comply with the EU AI Act

[4] The difference between the actual compliance of a company and its perceived one, calculated as : actual compliance / perceived compliance

[5]  Extent to which a company operates outside Europe)

[6]  Extent to which a company employs other parties outside Europe

(see Appendix for examples). In addition, answers were also reordered, so that a high score would indicate high compliance for the questions related to both actual and perceived compliance. After this the exaggeration score was calculated. Actual, perceived, and exaggeration scores were computed also for each category separately, which allowed for the analyses below.

First of all, a series of one-way ANOVAs were conducted to investigate the effect of the first 4 factors (size, role occupied by the person filling in the questionnaire, adoption date of AI technologies, familiarity with the AIA) on the overall companies' actual, perceived, and exaggerated compliance. Additional on-way analyses of variance were performed to study the effect of these 4 factors on companies' compliance in DM, MM, RM, TD, and UA.

For the last 2 factors (extent of offshoring and of outsourcing) linear regression analysis were conducted on the overall companies actual, perceived, and exaggerated compliance. The same analyses were repeated for compliance in DM, MM, RM, TD, and UA separately.

In addition, the different topics detailing the EU AI Act were given different weights based on their assumed importance. Collectively, the students working on this project decided to assign to each category the following scores: DM (1), MM (1.1), RM (1.3), TD (0.80), and UA (1).

# Findings and conclusions

*Size of the company :* A series of analyses of variance did not yield any significant results of company size on actual, perceived or exaggerated overall compliance. There were also no significant results for any of the thematic areas except that for the exaggeration score (Appendix 1). The size of a company had an effect on the exaggeration score for the technical documentation.

*Role of the person filling in the survey, adoption date of AI technologies, familiarity with the EU AI Act :* Other one-way ANOVAs did not reveal any significant results of company size, adoption date of AI, and familiarity with the EU AI Act on actual, perceived or exaggerated overall compliance. There was also no effect of these factors on any of the thematic areas separately (Appendix 2,3,4).

*Offshoring and outsourcing degree :* Similarly, two linear regression analyses revealed no effect of degree of offshoring and outsourcing on actual, perceived or exaggerated overall compliance. There were also no significant results for any of the thematic areas (Appendix 5,6).

# Discussions, limitations, suggestions

In short, the only significant insight from this study was that companies with different sizes differed in the extent to which they exaggerated their compliance with the EU AI Act in terms of technical documentation. The lack of effects of the 6 analyzed factors could be explained by the small sample size on which these analyses relied. Future analysis should be based on a bigger number of companies and maybe experiment with, or even compare, results deriving by attributing different weights to the five thematic areas. This could contribute to the development of a better predicting model for compliance with the EU AI Act. To see the initial model developed for this project see the Jupyter notebook submitted on Brightspace.

# References

Dey, D., & Bhaumik, D. (n.d.,). APPRAISE: a framework for managing AI compliance.

https://arxiv.org/ftp/arxiv/papers/2309/2309.14876.pdf

# Appendix

## Standardization

For some questions such as those with a Likert scale (1= strongly disagree; 5 = strongly agree) the answer score was divided by the max score possible.

For the multiple choice questions, where more answers picked indicated higher compliance, a 0.25 was added for each answer option. Thus the resulting score derived from = 0.25 * n of answers picked

## Graphs legend [7]

### 1. Size of the company
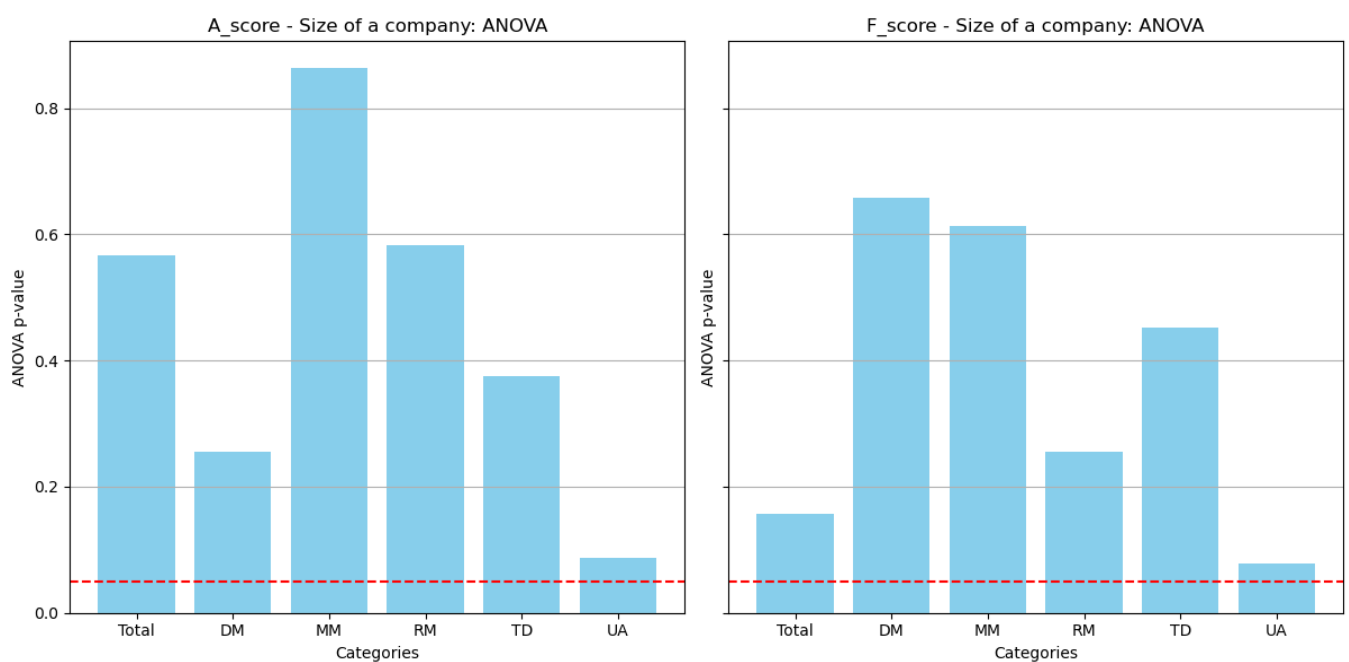


significance below red line (0.05)

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[7] DM = Data Model ; MM = Model monitoring; RM = Risk Management; TD = Technical documentation; UA = User application

Exaggeration_Score - Size of a company: ANOVA
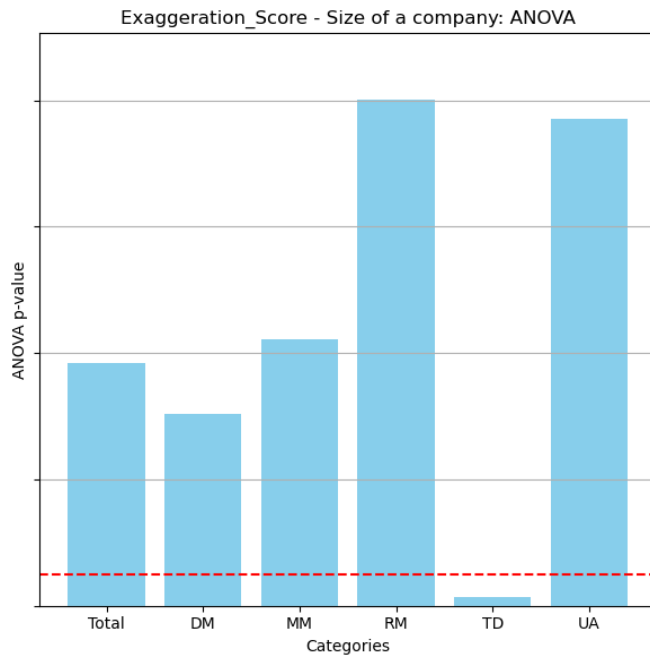
significance below red line (0.05)

## 2. Role of the person filling in the survey



A_score - The role of the person filling in the survey: ANOVA

F_score - The role of the person filling in the survey: ANOVA
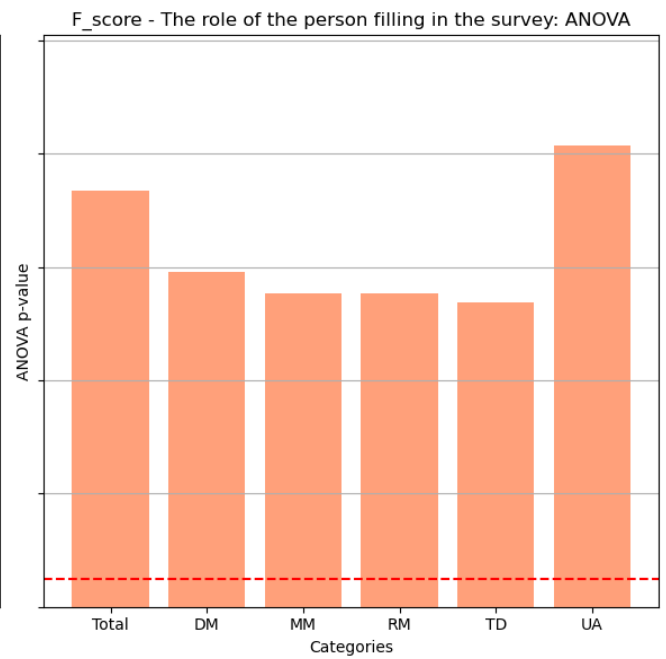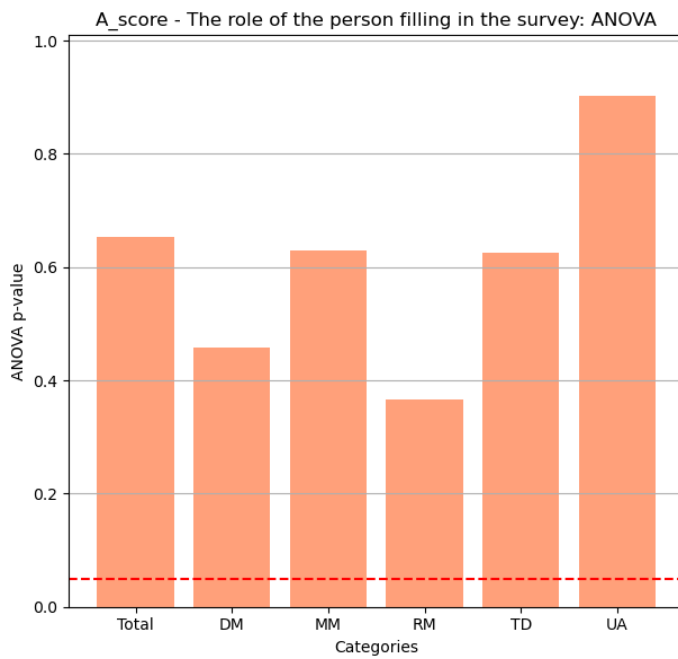
significance below red line (0.05)

Exaggeration_Score - The role of the person filling in the survey: ANOVA
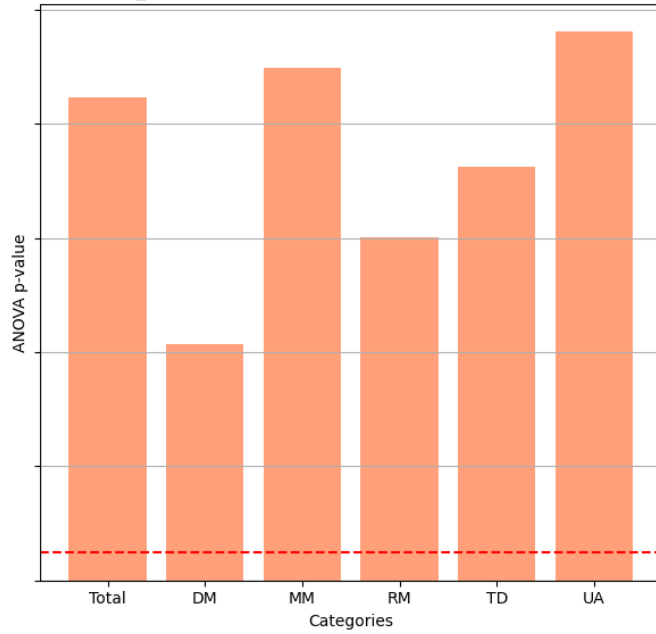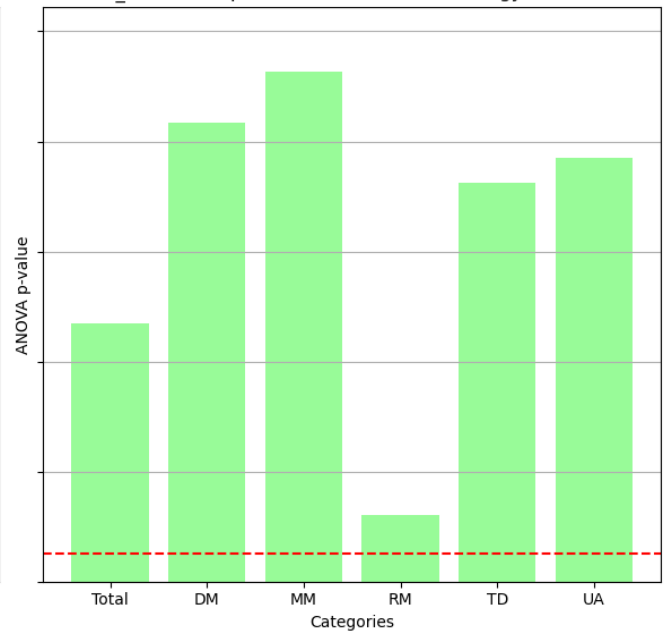
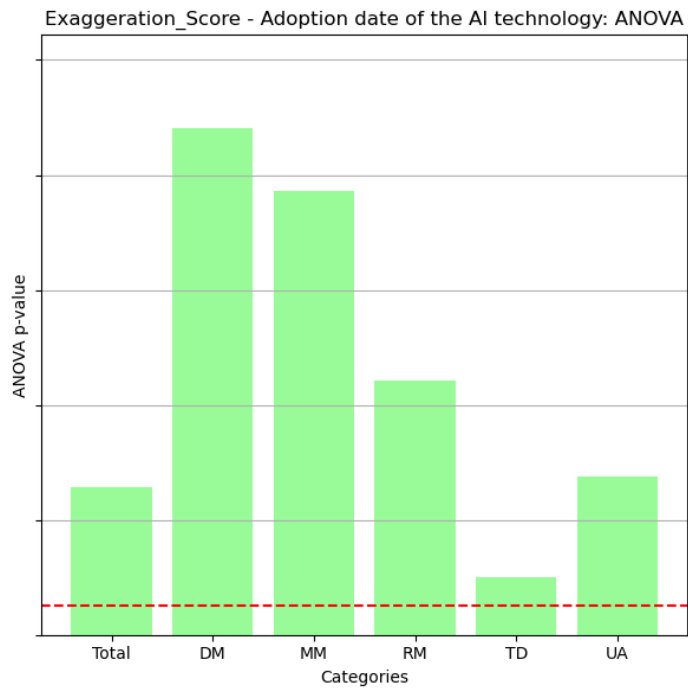significance below red line (0.05)

## 3. Adoption date of AI technologies



A_score - Adoption date of the AI technology: ANOVA
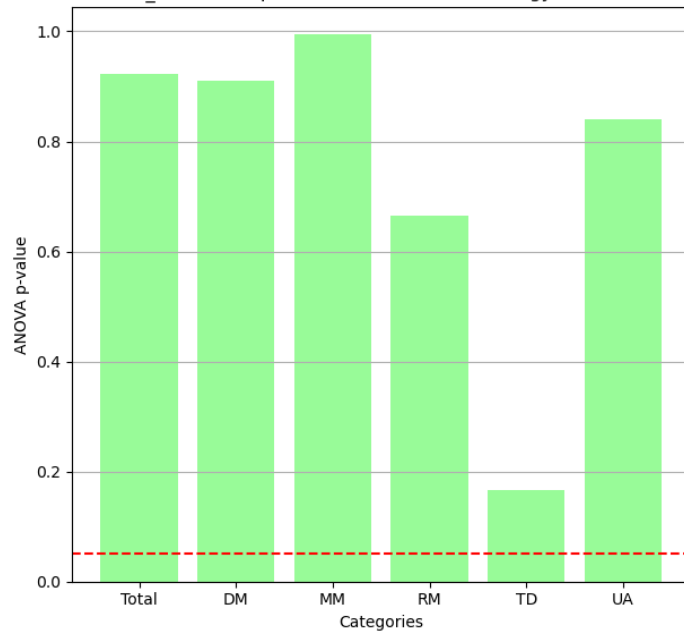


F_score - Adoption date of the AI technology: ANOVA

significance below red line (0.05)

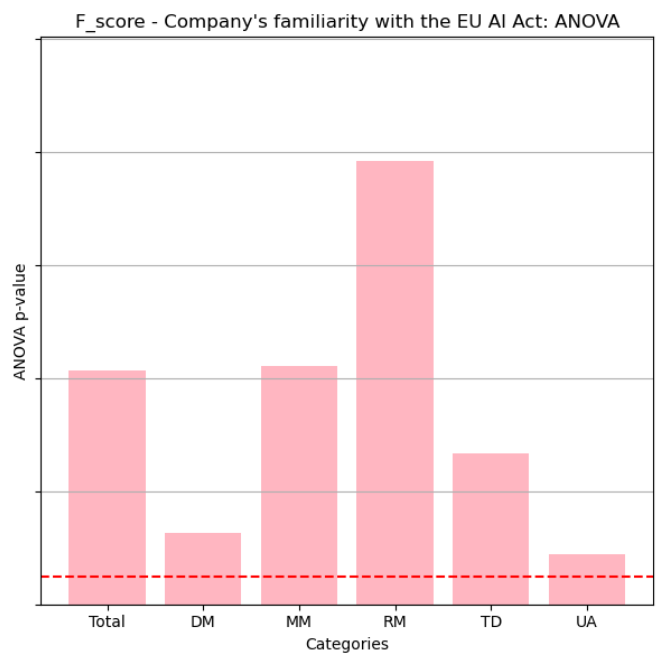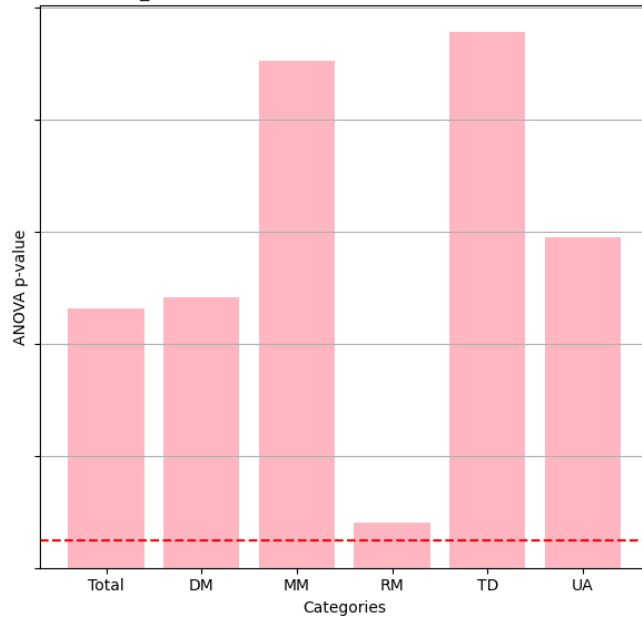Exaggeration_Score - Adoption date of the AI technology: ANOVA

significance below red line (0.05)

## 4. Familiarity with the EU AI Act



A_score - Company's familiarity with the EU AI Act: ANOVA

F_score - Company's familiarity with the EU AI Act: ANOVA
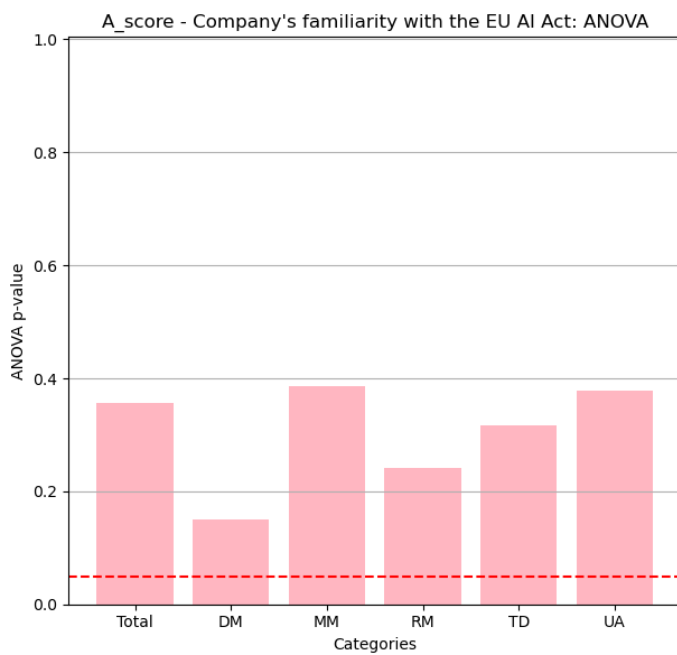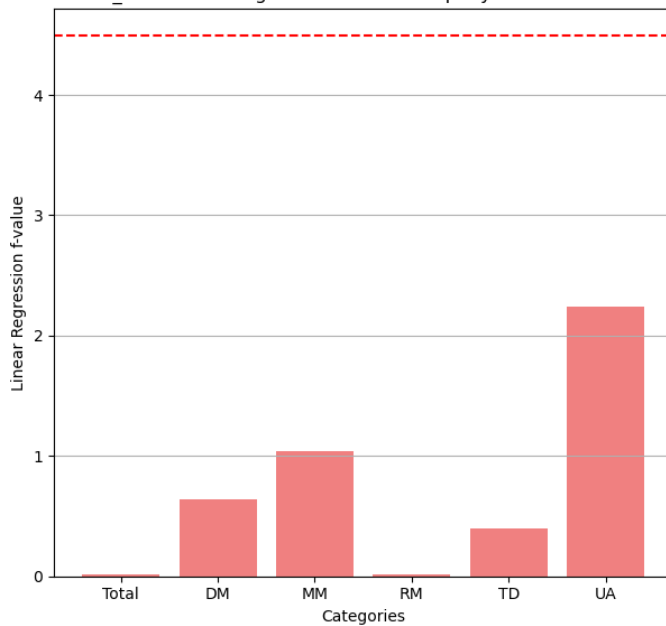
significance below red line (0.05)

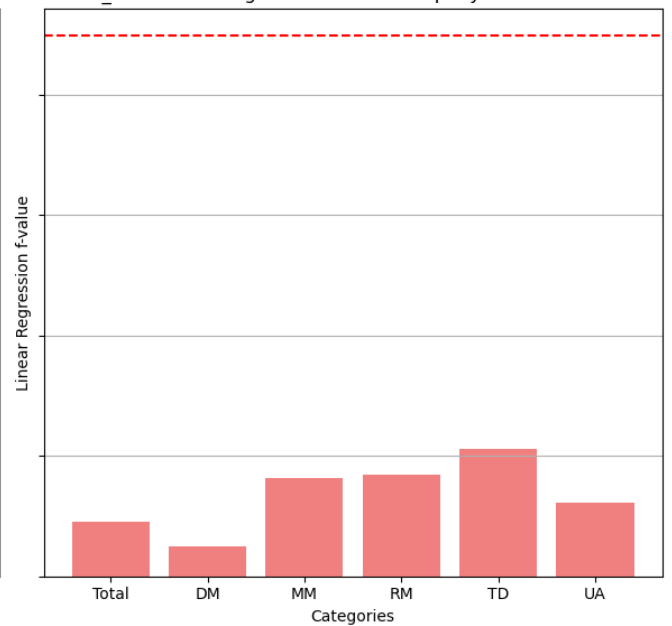Exaggeration_Score - Company's familiarity with the EU AI Act: ANOVA

significance below red line (0.05)

# 5. Offshoring degree
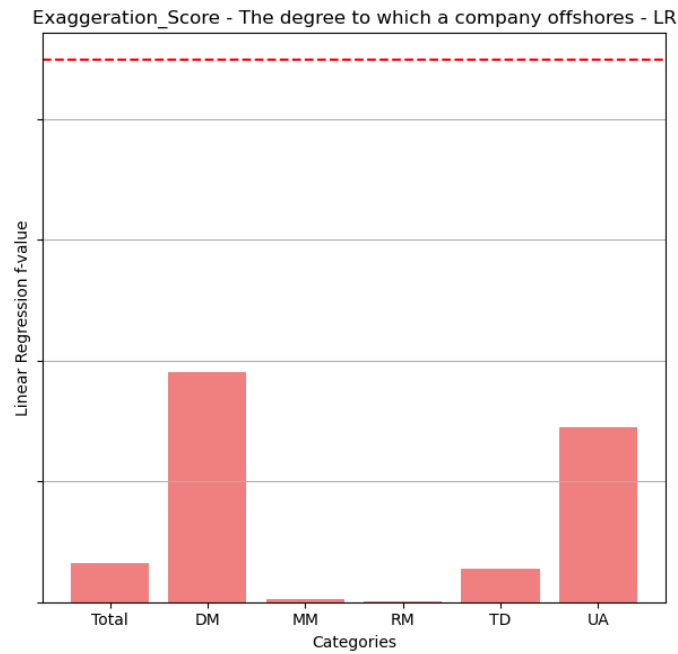


A_score - The degree to which a company offshores - LR
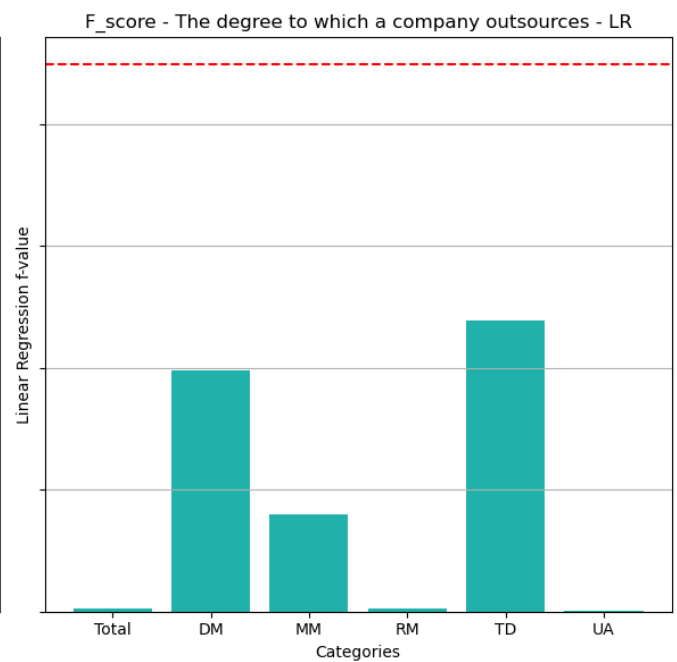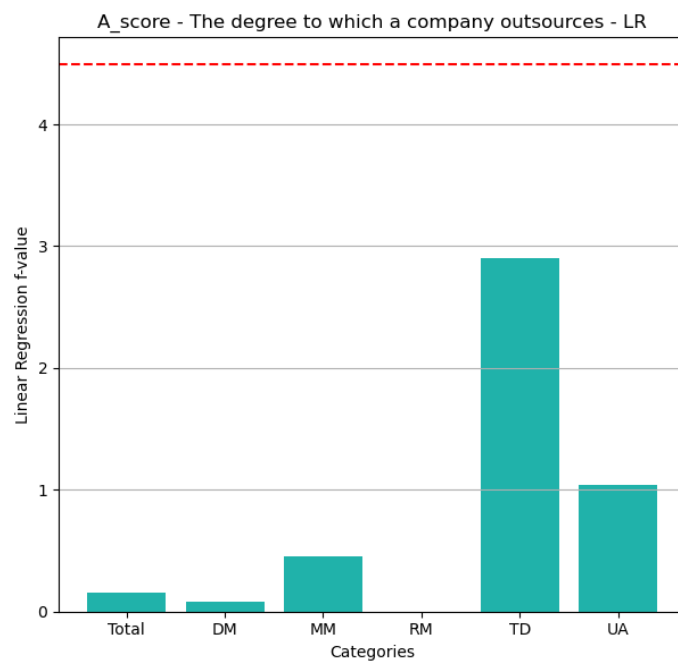
F_score - The degree to which a company offshores - LR

significance above red line (critical value)

Exaggeration_Score - The degree to which a company offshores - LR

significance above red line (critical)

# 6. Outsourcing degree



A_score - The degree to which a company outsources - LR

F_score - The degree to which a company outsources - LR

significance above red line (critical value)

Exaggeration_Score - The degree to which a company outsources - LR

significance above red line (critical value)