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*In the case of term papers or seminar papers, add:* "within the context of the seminar/module/lecture"...

Summer Semester/Winter Semester XX/XX

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# List of Abbreviations

HGB Handelsgesetzbuch (BEISPIEL)

IFRS International Financial Reporting Standards (BEISPIEL)

LSS Lean Six Sigma

Note

The list of abbreviations includes all abbreviations that are not in common use or are not in the Duden dictionary. Abbreviations such as "etc.", "z. B." and "z. Zt. do not belong in the list.

# List of Symbols

a0 Anschaffungsauszahlung in t = 0 (BEISPIEL)

C Kapitalwert (BEISPIEL)

i Kalkulationszinsfuß (BEISPIEL)

n Nutzungsdauer (BEISPIEL)

q Zinsfaktor 1 + i (BEISPIEL)

*Note*

*A symbol list is not necessarily part of every work.*

# Introduction

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1. **Linear Regression Model:**

* **R-squared Value**: The R-squared value for the linear regression model is approximately 0.8982. This means that approximately 89.82% of the variance in Total Assets can be explained by the linear relationship with MAU.
* **Interpretation**: The linear regression model assumes a linear relationship between MAU and Total Assets. While the R-squared value is relatively high, indicating a good fit, it's important to note that linear regression assumes a constant rate of change. This assumption may not hold true for all scenarios, especially in complex systems like social networks.

1. **Metcalfe Utility Function:**

* **R-squared Value**: The R-squared value for the Metcalfe utility function is approximately 0.9764. This indicates that approximately 97.64% of the variance in Total Assets can be explained by the non-linear relationship modeled by the Metcalfe utility function.
* **Interpretation**: The Metcalfe utility function is derived from network theory and assumes a non-linear relationship between the number of users (MAU) and the value of the network (Total Assets). The higher R-squared value suggests that this non-linear model better captures the dynamics of a social network's value as the number of users increases.

1. **Conclusion:**

* **Model Preference**: Based on the R-squared values, the Metcalfe utility function is preferred over linear regression for estimating total assets as a function of MAU.
* **Justification**: The significantly higher R-squared value of the Metcalfe utility function indicates that it provides a better fit to the data and captures the underlying dynamics of a social network's value more accurately compared to a simple linear relationship.

In summary, the analysis suggests that the Metcalfe utility function, with its non-linear formulation, is more appropriate for modeling the relationship between MAU and Total Assets in the context of a social network like Meta Platforms (formerly Facebook).

1. **Law of Diminishing Marginal Utility:**

The law of diminishing marginal utility states that as a consumer consumes more units of a good or service, the additional utility (satisfaction or benefit) derived from each additional unit decreases.

1. **Relation to the Metcalfe Utility Function:**
2. **Non-Linear Relationship**: The Metcalfe utility function is a non-linear model that accounts for network effects. It suggests that as the number of users (MAU) in a social network increases, the utility (value) of the network increases disproportionately.
3. **Diminishing Marginal Utility**: While the Metcalfe utility function captures the positive network effects, it doesn't explicitly reflect the concept of diminishing marginal utility in its formulation. However, we can interpret diminishing marginal utility within the context of the model:
   * **Early Growth**: In the early stages of a social network's growth, adding new users can lead to significant increases in the network's value. This aligns with the idea of increasing marginal utility.
   * **Saturation**: As the network grows larger, each additional user may contribute less to the overall utility of the network. This can be seen as a manifestation of diminishing marginal utility, where the incremental benefit of adding more users diminishes over time.
   * **S-shaped Growth Curve**: The Metcalfe utility function often results in an S-shaped growth curve, where the rate of growth accelerates initially (representing increasing marginal utility) and then slows down as the network approaches saturation (representing diminishing marginal utility).
4. **Dynamic Nature**: The value of a social network is dynamic and influenced by various factors such as user engagement, network effects, technological advancements, and market trends. The Metcalfe utility function captures this dynamic nature by incorporating the number of users as a key driver of network value.
5. **Conclusion:**

While the Metcalfe utility function does not directly incorporate the concept of diminishing marginal utility, we can interpret aspects of diminishing marginal utility within the context of the model. As the network grows, the incremental utility derived from each additional user may decrease, reflecting the principle of diminishing marginal utility in a dynamic network environment.

Overall, the Metcalfe utility function provides a valuable framework for understanding the relationship between the number of users and the value of a social network, incorporating both increasing marginal utility during growth phases and potential diminishing marginal utility as the network matures.

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# Main Body

## Main Chapter 1

### First sub-chapter

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Source: Exemplary source (1999).

Figure 1: Logo of the university

### Second sub-chapter

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Table 1: Exemplary table

## Main Chapter 2

# Main body

# Main body

# Conclusion

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# Appendix

**Evaluation of literature quality in IT Quality Controlling SS23**

|  |  |
| --- | --- |
| Category | No. sources |
| Peer-reviewed: Scientific journal. Selected scientific conferences with high reputation. | 0 |
| Books / contributions in anthologies. Non-scientific journal with a good reputation, e.g. ZWF. Gabler business encyclopedia. Online publications from German/European ministries. Serious publications from top management consultancies such as McKinsey with substantial content. | 0 |
| Online sources, online dictionaries, Duden, newspapers, magazines such as WirtschaftsWoche. | 0 |

Table 2: Categorization of the used literature

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Ranking | A+ / 4\* | A / 4 | B / 3 | C / 2 | D / 1 | k. R. |
| JourQual 3 | 0 | 0 | 2 | 3 | 0 | 4 |
| AJG 2018 | 0 | 0 | 2 | 2 | 1 | 4 |

Table 3: Rankings of the cited journals

**Statutory declaration**

I, first name/last name, born on XX.XX.XXX, matriculation number 12345678, hereby declare in lieu of an oath that the present term paper attached to this declaration was written independently and without any unauthorized assistance, that it has not been submitted to any other body for examination and that it has not been published either in whole or in part. The passages of the work, which are taken from other works and sources (also Internet sources) in the wording or the sense, I have marked in each individual case as borrowing with exact source indication.

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Place, date Signature

1. Cf. Backhaus/Voeth (2007), p. 1 [↑](#footnote-ref-2)