Social Sustainability Reporting Readiness in Software Services: Drivers and Challenges

Outline of Bachelor Thesis

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Study program: Wirtschaftswissenschaften
8. Semester
Matriculation number: 7798555

Frankfurt am Main, July 30, 2025

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Chapter 1

INTRODUCTION

1.1 Background and Research Rationale

The Emergence of Social Sustainability Reporting (SSR)

- Under increasing stakeholder pressure, firms are progressively expected to disclose information related to their corporate social responsibilities (CSR), particularly in the social domain (Monteiro, García-Sánchez, and Aibar-Guzmán 2022).
- Such disclosures are increasingly viewed as important for reinforcing stakeholder confidence and supporting the firm's overall strategic positioning (Monteiro, García-Sánchez, and Aibar-Guzmán 2022).
- However, in practice, companies vary significantly in their readiness to implement CSR reporting.
- The social dimension has not received adequate attention (Heldal et al. 2024).
- The social dimension is often viewed as vague, hard to quantify, and underemphasized, compared to environmental (Morais and Silvestre 2018) and governance aspects.

The Specific Role of the Software Industry

- Beyond sectors like retail, pharmaceuticals, and medical manufacturing, the social dimension of CSR reporting is gaining prominence in software services (Holder-Webb et al. 2009).
- This is because software industry exerts substantial social impact through its indirect influence via digital platforms (Jiménez et al. 2024).
- However, there is currently no clear or tailored SSR framework that reflects the industry's particularities, such as intangible assets, remote workforce, and agile organizational structures.

1.2 Research Gap

- There is limited research on corporate readiness for social sustainability reporting during the transition to mandatory regulations in the EU (Fiechter, Hitz, and Lehmann 2022).
- Most existing studies focus on ESG in general or primarily on environmental aspects (Mani, Gunasekaran, and Delgado 2018), with an emphasis on industries like manufacturing, finance, or energy—sectors with more tangible datasets.
- Many current reports remain superficial and lack specific social indicators (Christensen, Hail, and Leuz 2021; Fernandez Martin et al. 2025).
- There is an absence of sector-specific SSR frameworks (Bochkay, Hales, and Serafeim 2025).
- It is still unclear which factors drive or hinder the readiness for SSR among software companies in Europe.

1.3 Research Objectives

Aim

To develop a structured assessment framework for measuring the readiness of software service companies in Europe to engage in social sustainability reporting.

Objectives

- Identify key SSR criteria applicable to the software industry.
- Evaluate the SSR readiness of software companies using the developed criteria.
- Analyze the key drivers and barriers encountered in the implementation of social reporting.
- Provide practical recommendations to enhance SSR readiness for digital service enterprises.

1.4 Scope and Limitations of Research

Scope

- The study focuses solely on the “Social” dimension of ESG; environmental and governance aspects are not analyzed in detail.

- The sample includes 30 medium- and large-sized software companies headquartered in Europe during 2022–2023.
- Data sources include annual reports, ESG reports and the SRN database.

Limitations

- The analysis is restricted to the social pillar of ESG and does not address the environmental (E) or governance (G) components.
- The sample size is limited to 30 companies, which may not fully represent the entire software industry.
- No internal survey or interview data is used.
- Some evaluation criteria may involve a degree of subjectivity.

1.5 Significance of the Study

Academic Contribution

- Addresses a research gap by proposing a sector-specific SSR framework.
- Offers a practical quantitative tool to assess social reporting capabilities.

Practical Contribution

- Enables software companies to self-assess their readiness considering mandatory regulations such as the CSRD.
- Provides evidence-based insights for policymakers on the current state and support needs regarding SSR.

1.6 Structure of the Research

This thesis is organized as follows:

- Chapter 1 introduces the background, research gap, objectives, scope, limitations, significance, and structure of the study.
- Chapter 2 reviews relevant literature, including definitions, sector context, theoretical frameworks, and prior research.
- Chapter 3 outlines the research methodology, including approach, data collection, assessment framework, and limitations.

- Chapter 4 presents findings and analysis from empirical research.
- Chapter 5 discusses the empirical results and their implications.
- Chapter 6 summarizes the research, key conclusions, contributions, recommendations, limitations, and suggestions for future research.
- References are provided at the end.

Chapter 2

LITERATURE REVIEW

2.1 Definitions and Sector Context

2.1.1 Overview of Social Sustainability Reporting

Definition and Scope

- Social sustainability reporting in this research highlights the S-Pillar in CSR.
- In the literature, terms such as CSR, 'extended external reporting', 'ESG reporting', and 'sustainability reporting' are often used interchangeably (Edge 2022; Fiechter, Hitz, and Lehmann 2022).
- Sustainability reporting encompasses disclosures on social, environmental, and governance dimensions, with the social aspect focusing on issues such as labor practices, diversity, and community engagement.

Roles and Value of SSR

- SSR enhances transparency and builds trust with stakeholders (investors, employees, customers, governments).
- It serves as a key component within broader ESG strategies and CSR agendas.

Relevant Conceptual and Standards Frameworks

- Corporate Sustainability Reporting Directive (CSRD):
  - The EU's CSRD, effective from January 2024, is a mandatory regulation requiring large and listed companies to disclose ESG-related information.
  - It establishes a legal basis for sustainability reporting and reinforces the importance of the social dimension across sectors.

- European Sustainability Reporting Standards (ESRS):
  - Developed under the CSRD, the ESRS provide detailed reporting requirements.
  - In particular, ESRS S1 focuses on social sustainability related to an organization's own workforce,
- GRI 401–405: Voluntary global standards covering employment, labor relations, diversity, and equal pay.
- ISO 26000: Voluntary international guideline promoting social responsibility across stakeholder groups.

2.1.2 Overview of Reporting Readiness

Definition

- Reporting readiness refers to the extent to which an organization possesses the capacity, systems, data, and commitment required to conduct high-quality, reliable SSR.
- It represents a transitional stage between awareness of SSR and successful implementation.

Key Characteristics

- **Disclosure Scope**: Coverage of key social topics such as working conditions, diversity, and employee well-being.
- **Stakeholder Engagement**: Involvement of internal actors like HR teams and management in the reporting process.
- **Data Availability**: Access to measurable and reliable social data that enables transparent reporting.
- **Maturity Levels**: Readiness can be assessed using multi-level scales reflecting progression from basic to advanced reporting practices.

Link to Organizational Capabilities

- Reporting readiness is viewed as an organizational capability that can evolve over time.
- It can be measured through structured frameworks proposed in the literature or developed in specific studies.

2.1.3 Overview of Software Services Sector

Sector Characteristics

- The software services sector is a service-based industry highly reliant on human capital and intangible assets.
- It is rapidly evolving with remote and hybrid work environments, facing high competition for talent and increasing expectations for attractive workplace conditions.

Role of Social Aspects

- Employees are core assets; thus, working conditions, benefits, and training are of strategic importance.
- ESG performance increasingly influences the ability to attract B2B clients and investors.

Challenges for SSR

- Lack of standardized quantitative data and measurement systems for social indicators (Gibbons 2024).
- Existing standards provide limited industry-specific SSR guidance for digital service firms.
- Many companies are SMEs with limited resources for non-financial reporting.

2.2 Theoretical Framework

2.2.1 Institutional Theory (DiMaggio & Powell, 1983)

Coercive Pressure

- Legal and regulatory requirements such as the CSRD, ESRS, and EU directives mandate ESG disclosure.
- Transparency laws, human rights policies, and DEI reporting obligations from public institutions and industry coalitions.

Normative Pressure

- Expectations from professional associations, major clients, and investors to comply with recognized reporting norms.

Mimetic Pressure

- Firms imitate industry leaders or competitors when SSR is seen to deliver reputational or HR-related advantages.
- This is particularly salient in the software sector, where best practices are quickly observed and replicated due to intense competition.

2.2.2 Resource-Based View (RBV) (Barney, 1991)

Readiness as an Outcome of Internal Resources

- Firms with ESG data systems, HR software, and dedicated sustainability personnel are better equipped to measure and report social outcomes.
- These internal elements are viewed as intangible assets that support the development of SSR capability.

SSR Readiness as a Strategic Capability

- Readiness is considered a difficult-to-imitate capability embedded in organizational culture and structure.
- It enhances brand reputation, attracts top talent, and improves access to ESG-oriented capital.

2.2.3 Stakeholder Theory (Freeman, 1984)

Key Stakeholders Influencing SSR Readiness

- Investors: Increasingly attentive to social risks and ESG transparency.
- Employees: Expect fair, diverse, and growth-oriented workplaces.
- Customers: Prefer socially responsible partners, particularly in tech supply chains.
- Communities and Local Authorities: Demand ethical behavior, equality, and positive social contributions.

Benefits of SSR from a Stakeholder Perspective

- SSR builds trust and credibility with key stakeholder groups.
- Supports a responsible corporate image—particularly important in sectors like software, where competition for talent is intense.

2.3 Literature Review

2.3.1 Overview of Prior Research

Sector-Specific SSR Studies

- Many studies on CSR and sustainable development have focused on industry-specific contexts such as manufacturing, construction, and mining (Ye et al. 2020; Afshari et al. 2022).
- CSR reporting is more prevalent in environmentally sensitive industries (Lock and Seele 2016).
- High-tech sectors, particularly software, have received comparatively limited attention.
- Earlier research acknowledges that the factors influencing sustainability reporting practices are often mixed and context-dependent (Fifka 2013),
- There remains no consistent framework to explain what drives or hinders SSR readiness.

ESG in the Technology Sector

- The "Social" component is often the weakest in ESG disclosures due to lack of standardized indicators, perceived immateriality, or symbolic reporting (Christensen, Hail, and Leuz 2021; Reitmaier, Schultze, and Vollmer 2024).

2.3.2 Existing Readiness Assessment Models

Prior Frameworks

- **Subramaniam et al. (2023):** Emphasize the need for robust SDG measurement and reporting frameworks.
- **El Baz et al. (2022):** Propose a three-stage sustainability readiness framework (Approach - Deployment - Results) for Industry 4.0 adoption.
- **Afshari et al. (2022):** Present a multi-dimensional classification of Social Sustainability Indicators (SSIs), but not a formal readiness model.
- **Zopounidis et al. (2020):** Develop a multi-criteria ESG disclosure assessment framework, enabling benchmarking but not tailored to SSR readiness or the software sector.
- **Siew (2015):** Reviews corporate sustainability reporting tools, which mainly assess current reporting performance.

- **Okongwu, Morimoto, and Lauras (2013):** Propose maturity models for sustainability reporting, focusing on governance, system integration, and leadership commitment.
- **Barletta et al. (2021):** Organisational Sustainability Readiness (OSR) Model assesses internal capability to implement sustainability strategies, adaptable to software services.

Identified Gap

- Absence of SSR readiness models that reflect the specific characteristics of the software industry.
- Need for an integrated framework drawing from ESRS, ISO, GRI standards, and the context of the digital economy.

2.3.3 Drivers and Challenges in Prior Research

Drivers

- Regulatory compliance pressures—such as GRI, CSRD, or SASB standards—encourage ESG disclosure in the software sector (Reitmaier, Schultze, and Vollmer 2024; Bochkay, Hales, and Serafeim 2025).
- Investors and corporate clients increasingly expect transparency and alignment with ESG principles (Bonnefon et al. 2025; Dai, Liang, and Ng 2021).
- Enhancing corporate reputation is a key driver for improved social sustainability reporting (Reitmaier, Schultze, and Vollmer 2024).
- Firms recognize strategic and operational benefits from participating in collaborative CSR initiatives (Dai, Liang, and Ng 2021).
- Strong societal and ethical practices are positively linked to higher market valuation (S. Chouaibi and J. Chouaibi 2021).

Challenges

- Social reporting standards remain insufficiently defined in many industry-specific contexts, including software and IT services (Bochkay, Hales, and Serafeim 2025).
- Many firms face limitations in data infrastructure and ESG reporting systems, hindering consistent and reliable disclosure (Troshani and Rowbottom 2024; El Baz et al. 2022; Jona and Soderstrom 2023; Belal and Owen 2015).
- Stakeholder relationships, particularly in B2B contexts, are often characterized by power asymmetries that reduce external reporting pressure (Dai, Liang, and Ng 2021).

- Reputational concerns can lead to superficial or symbolic social reporting practices, increasing the risk of greenwashing (Reitmaier, Schultze, and Vollmer 2024; Belal and Owen 2015).
- High short-term costs and expensive assurance processes discourage investment in comprehensive social reporting, despite long-term benefits (Dai, Liang, and Ng 2021; Najjar and Yasin 2023).

2.3.4 Analytical Orientation Informed by Prior Research

- Previous studies have highlighted several factors influencing SSR readiness, including
  - regulatory pressure (e.g., CSRD, ESRS)
  - stakeholder expectations (e.g., from investors and clients)
  - internal systems and organizational capabilities (Christensen, Hail, and Leuz 2021)
  - resource constraints
- Foundational theories such as Institutional Theory, Resource-Based View (RBV), and Stakeholder Theory provide a basis for understanding the key drivers and barriers to social reporting.
- Studies on sustainability reporting structure and indicator design provided the conceptual basis for organizing related indicators into thematically coherent mid-groups.
  - Based on this structure, the study aims to construct an assessment framework for evaluating SSR readiness in the software services industry.
  - The scoring results are then analyzed to uncover prevailing patterns, key drivers, and common challenges in current reporting practices.

Chapter 3

RESEARCH METHODOLOGY

3.1 Research Approach and Design

Type of Research

- This study adopts an exploratory approach, aimed at developing and applying an assessment framework for SSR readiness.

Methodology

- A mixed-methods design was employed, combining:
  - Qualitative content analysis of company reports;
  - Quantitative descriptive statistics;
  - Framework design aligned with Design Science Research (DSR) principles.
- Three main phases of the research:
  1. Developing the framework, consisting of 7 main groups and 246 sub-criteria;
  2. Collecting data from 30 European software companies (2022–2023);
  3. Descriptive analysis to assess levels of readiness and identify key patterns.

Methodological Objectives

- Assess the social reporting capabilities of software companies;
- Identify major drivers and barriers in practice;
- Propose directions for improving the framework and aligning SSR capabilities with emerging EU regulations (CSRD/ESRS).

3.2 Research Subjects and Data Collection

Sampling Criteria

- Sample Size: 30 software companies listed or disclosing ESG information publicly in Europe (during 2022-2023).
- Selection Criteria: Companies must have publicly available data on their social sustainability reporting practices.

Data Collection

- Primary Sources: Financial reports and ESG/sustainability reports for 2022 and 2023 through SRN.
- Data Set:
  - Compiled SSR-related information corresponding to 246 framework criteria for each of the 30 software companies in 2022 and 2023.
  - Data recorded using a structured scoring sheet (Excel).

3.3 Assessment Framework and Data Analysis

3.3.1 Developing the SSR Readiness Framework

Reference Standards

- ESRS S1 – Own Workforce;
- GRI 2 – General Disclosures, GRI 401–406;

Framework Structure

- A total of 246 sub-criteria (reporting items), partially derived from ESRS/GRI standards, and partially adapted to the software sector context.
- 7 main indicator groups based on SRN Framework, each containing 2–3 mid-groups, reflecting specific social dimensions including:
  1. Workforce Characteristics
  2. Collective bargaining and social dialogue
  3. Compensation
  4. Training

5. Health and Safety
6. Work Life Balance
7. Human Rights

- A brief description is given on how the full list of 246 sub-criteria was organized into mid-level thematic groups (mid-groups) for analysis.

Rationale for Grouping

- Facilitates identification of thematic strengths and weaknesses;
- Enables multi-level readiness assessment – at the criterion, mid-group, and main group levels.

Scoring System

- Sub-criteria: scored 0 or 1 (No / Yes – information present);
- Mid-groups: scored from 0 to 3:
  - 0 = No information;
  - 1 = Criteria are mentioned but not quantified;
  - 2 = Specific data or bargaining is reported for one dimension (e.g., gender);
  - 3 = Comprehensive reporting, including bargaining across two or more dimensions
- Main groups: average of mid-group scores.
- Total score: average of all 7 main group scores.
- Each company's total score reflects a relative level of SSR readiness.

3.3.2 Data Analysis

Analytical Steps

- Score each company based on the framework;
- Aggregate scores by thematic group;
- Compare across companies to identify common patterns and notable differences.

Descriptive Statistical Techniques

- Means, frequencies, and standard deviations for total and group-level scores;
- Visualization tools (bar charts, radar charts, etc.);
- Identify salient factors and trends in SSR readiness.

3.4 Research Ethics and Methodological Limitations

Research Ethics

- Only publicly available and legally accessible data from official sources is used;
- No individual company is evaluated or criticized—the goal is to provide an industry-level analysis;
- Adheres to academic integrity and protection of potentially sensitive data (if applicable).

Limitations

- The sample is limited to 30 companies and may not represent the entire software industry;
- Data quality is dependent on the extent and clarity of each company's public disclosures;
- The framework remains in a preliminary stage and has not been internally or externally validated.

Chapter 4

FINDINGS AND ANALYSIS FROM EMPIRICAL RESEARCH

4.1 Overview of SSR Readiness Across the Sample

Sample Overview

- This section provides a brief description of the 30 software companies included in the sample, covering:
  - Geographic distribution
  - Company size (small, medium, large)
  - Status of ESG/SSR report disclosure

Table 4.1: Basic Information of Sampled Companies (Appendix A)

Company	Country	Size	Status of ESG & SSR report disclosure

Table 4.2: Sample Classification by Region and Company Size (Appendix B)

Region/Size	Number of Companies	SSR Readiness Score

Overall Results

- SSR readiness scores across the sample range (to be completed with data).
- There is substantial variation in average scores across companies and countries.

Table 4.3: SSR Readiness Score for Each Company

Company	Score accounding sub-sectors (0-246)	SSR Readiness Score (0-3)

Figure 4.1: Histogram/Bar Chart of Readiness Score Distribution

Table 4.4: Average Readiness Score by Country

Country	Average Readiness Score

4.2 Readiness by Company Characteristics

Comparison of readiness based on:

- Company size (SMEs vs. large)
- Geographic location (Western vs. Central & Eastern Europe)
- Business model
- ESG disclosure status (presence of standalone ESG report)

Table 4.5: Readiness Score by Company Characteristics

Attribute	Number of Companies	Average Readiness	Std. Dev.

Figure 4.2: Bar Chart Comparing Readiness by Attribute Groups

4.3 Analysis by the Framework Categories

Readiness across thematic groups: (To be altered by further analysis)

- Workforce Characteristics: Key themes across all categories
- Collective Bargaining and Social Dialogue: Often limited or absent in SMEs
- Compensation: Commonly disclosed and relatively easy to quantify
- Training and Development: Present but rarely detailed with clear metrics
- Health and Safety: Frequently addressed, though metrics vary
- Work-Life Balance: Mentioned, but coverage is often vague
- Human Rights: Unevenly addressed; more prevalent in larger firms

Table 4.6: Readiness by Main Groups (Appendix C)

Figure 4.3: Bar Chart of 7 Main Group Readiness (Appendix D)

Readiness by Mid-Groups

- Each main group is further divided into mid-groups, which provide more granular insights into specific reporting areas.
- Mid-groups reveal strengths and weaknesses within each thematic category, highlighting areas for improvement.

Table 4.7: Readiness by Mid-Groups (Appendix E)

Figure 4.4: Bar Chart of Mid-Group Readiness (Appendix F)

Top and Bottom Reporting Sub-Criteria

- Identify the top 5 sub-criteria with the highest reporting rates (e.g., >70%).
- Identify the bottom 5 sub-criteria with the lowest reporting rates (e.g., <30%).
- Discuss potential reasons for these patterns, such as ease of measurement, stakeholder demand, or sector norms.

Table 4.8: Top 5 Highest and Lowest Reporting Sub-Criteria

4.4 Empirical Drivers and Challenges

Key Drivers of Reporting Readiness

- Sub-criteria and mid-groups with high disclosure rates (e.g., >70%) indicate areas where reporting is either well established, easy to quantify, or commonly requested by stakeholders.
- These drivers include elements such as compensation transparency, health and safety incidents, and DEI statements.
- Their structure, familiarity, or measurability contribute to higher readiness.

Key Challenges Hindering Reporting Readiness

- Low-scoring criteria (e.g.,<30% disclosure rate) signal inherent challenges.
- These include vague or qualitative dimensions (e.g., collective bargaining quality, freedom of expression), lack of existing frameworks (e.g., social dialogue outcomes), or sensitivity of topics (e.g., grievances, wage gaps).
- These challenges hinder readiness not because companies refuse to report, but due to structural complexity, ambiguity, or lack of metrics.

Table 4.9: Summary of Key Drivers and Barriers

Category	Description	Number of Companies

4.5 Summary of Findings

- Strong and weak reporting categories
- Factors positively/negatively affecting SSR readiness
- Prepares for discussion

Chapter 5

DISCUSSION ON EMPIRICAL RESULTS

5.1 Summary of Key Findings

Brief recap of key results from Chapter 4:

- Average SSR readiness among the 30 companies
- Strongest and weakest thematic categories
- Differences across company groups (by size, geography, etc.)
- Unexpected or counterintuitive observations

5.2 Theoretical Interpretation of Drivers and Barriers

5.2.1 Drivers of Social Sustainability Reporting Readiness

Table 5.1: Drivers of SSR Reporting and Theoretical Interpretation

Driver	**Theoretical Interpretation**
Regulatory pressure from CSRD, EFRAG, SEC	Institutional Theory: Coercive pressure driving behavioral change
Demands from customers and large investors	Stakeholder Theory: Stakeholder expectations incentivize transparency and reporting quality
Talent shortage → SSR used for employer branding	Stakeholder & RBV: SSR becomes a competitive advantage in recruitment and reputation
Large firms with clear ESG leadership	RBV: Strong organizational capabilities, leadership, and ESG integration into strategy

5.2.2 Barriers of Social Sustainability Reporting Readiness

Table 5.2: Industry-Specific Challenges and Theoretical Interpretation

Challenge	**Theoretical Interpretation**
Difficulty in collecting and standardizing non-financial data	RBV: Reflects lack of systems, tools, and personnel—organizational capabilities not yet developed
Informal labor, globalization, remote work	Institutional Theory: Fragmented settings weaken legal coherence and coercive pressure
Lack of sector-specific social standards	Institutional Theory: Normative pressure is underdeveloped; no established ”social norms” for the sector
SMEs lack ESG budget/personnel	RBV: SMEs often lack the strategic resources to build internal reporting capabilities

5.3 Implications for Practices

For Businesses

- SSR should be viewed not merely as compliance but as a strategic investment in long-term competitiveness (Barker 2025)
- There is a need to improve the quality of reporting and avoid symbolic or superficial disclosures (Subramaniam et al. 2023)
- SMEs may consider cost-sharing solutions: industry coalitions, standardized tools, and shared digital resources (Najjar, Yasin, et al. 2024)

For Policymakers

- Develop sector-specific SSR guidance, particularly for technology services
- Support SMEs through simplified tools, training, tax or financial incentives
- Promote open APIs and standardized formats (e.g., SRN) to enhance comparability and transparency

For Standard-Setters and Rating Agencies

- Refine social indicators tailored to the digital sector (e.g., DEI, personnel data protection)
- Clarify materiality thresholds to reduce ambiguity in reporting

5.4 Academic Contributions

- Extends ESG research into the software industry, a largely underexplored area
- Develops a transferable SSR readiness framework applicable to other service sectors
- Integrates three organizational theories in a complementary way to explain ESG reporting behavior

Chapter 6

SUMMARY AND CONCLUSIONS

6.1 Research Summary and Conclusions

Research Summary (Proposal)

The primary aim of this research was to develop and apply a Social Sustainability Reporting (SSR) readiness framework tailored to the European software sector. The research process involved:

- Designing a comprehensive framework comprising 246 criteria based on established standards;
- Systematically scoring 30 software companies over the period 2022-2023;
- Analyzing SSR readiness patterns across thematic groups;
- Identifying key drivers and challenges influencing SSR implementation within the sector.

Key Conclusions (Proposal)

- **Overall Readiness:** The analysis revealed that overall SSR readiness among the sampled companies remains moderate, with substantial variation across organizations.
- **Strongest and Weakest Thematic Groups:** The strongest thematic categories were related to workforce characteristics and health and safety, while collective bargaining and social dialogue showed the weakest readiness.
- **Key Drivers:** Key enablers of SSR adoption included regulatory pressure (e.g., CSRD), stakeholder expectations (e.g., from clients or investors), and reputational benefits tied to ESG positioning.
- **Major Challenges:** Primary barriers identified were resource constraints, the absence of standardized social metrics, and a lack of tailored guidance for the software services sector.

Unique Sector Traits

- The software sector exhibits distinct characteristics compared to other industries, including:
  - Rapid innovation cycles;
  - Intangible value creation (e.g., through intellectual capital);
  - Heavy reliance on digital infrastructure.
- These traits significantly influence how SSR practices are implemented and prioritized.

6.2 Contributions of the Study

Academic Contribution

- **New Perspectives:** Provides new insights into SSR readiness within digital service industries, emphasizing sector-specific challenges and opportunities.
- **Theoretical Synthesis:** Applies a multi-theoretical approach (Institutional Theory, Resource-Based View, and Stakeholder Theory) to explain variations in SSR readiness across companies.

Practical Contribution

- **Usable Framework:** Introduces a simplified and practical SSR readiness framework that enables software companies to assess their status and identify improvement areas.

6.3 Recommendations

- **For Companies:**
  - Treat SSR as a strategic capability;
  - Invest in data infrastructure and assign dedicated personnel;
- **For Policymakers and Standard-Setters:**
  - Develop SSR standards tailored to the software/services sector;
  - Provide support for companies through model reporting tools and open data platforms (e.g., APIs).

6.4 Research Limitations

- **Sample Size:** The study is limited to 30 companies, all based in Europe.
- **Framework Testing:** The SSR readiness framework is preliminary and has not yet been tested widely.
- **Data Sources:** Only publicly available data were used; no interviews or internal data were collected.

6.5 Suggestions for Future Research

- **Expand Sample and Coverage:** Future studies should include more companies and extend to non-European regions.
- **Cross-Industry Application:** Apply the framework to related service sectors to test generalizability.
- **Validation Methods:** Incorporate surveys or expert interviews to validate the framework's design and scoring logic.
- **Statistical Analysis:** Conduct advanced statistical analyses to explore correlations between SSR readiness and business or ESG performance metrics.

REFERENCES

Afshari, H. et al. (2022). “Social sustainability indicators: A comprehensive review with application in the energy sector”. In: *Sustainable Production and Consumption* 31, pp. 263–286.

Barker, R. (2025). “Corporate sustainability reporting”. In: *Journal of Accounting and Public Policy* 49, p. 107280.

Barletta, I. et al. (2021). “Organisational sustainability readiness: A model and assessment tool for manufacturing companies”. In: *Journal of Cleaner Production* 284, p. 125404.

Belal, A. and D. L. Owen (2015). “The rise and fall of stand-alone social reporting in a multinational subsidiary in Bangladesh: A case study”. In: *Accounting, Auditing & Accountability Journal* 28.7, pp. 1160–1192.

Bochkay, K., J. Hales, and G. Serafeim (2025). “Disclosure standards and communication norms: Evidence of voluntary sustainability standards as a coordinating device for capital markets”. In: *Review of Accounting Studies*, pp. 1–44.

Bonnefon, J.-F. et al. (2025). “The moral preferences of investors: Experimental evidence”. In: *Journal of Financial Economics* 163, p. 103955.

Chouaibi, S. and J. Chouaibi (2021). “Social and ethical practices and firm value: the moderating effect of green innovation: evidence from international ESG data”. In: *International Journal of Ethics and Systems* 37.3, pp. 442–465.

Christensen, H. B., L. Hail, and C. Leuz (2021). “Mandatory CSR and sustainability reporting: Economic analysis and literature review”. In: *Review of Accounting Studies* 26.3, pp. 1176–1248.

Dai, R., H. Liang, and L. Ng (2021). “Socially responsible corporate customers”. In: *Journal of Financial Economics* 142.2, pp. 598–626.

Edge, B. (2022). “Recent developments in sustainability reporting”. In: *Australian Accounting Review* 32.2, pp. 151–155.

El Baz, J. et al. (2022). “A framework of sustainability drivers and externalities for Industry 4.0 technologies using the Best-Worst Method”. In: *Journal of Cleaner Production* 344, p. 130909.

Fernandez Martin, R. M. et al. (2025). “European sustainability reporting standards: An assessment of requirements and preparedness of EU companies”. In: *Journal of Environmental Management* 380.

Fiechter, P., J.-M. Hitz, and N. Lehmann (2022). “Real effects of a widespread CSR reporting mandate: Evidence from the European Union’s CSR Directive”. In: *Journal of Accounting Research* 60.4, pp. 1499–1549.

Fifka, M. S. (2013). “Corporate responsibility reporting and its determinants in comparative perspective–a review of the empirical literature and a meta-analysis”. In: *Business Strategy and the Environment* 22.1, pp. 1–35.

Gibbons, B. (2024). “The financially material effects of mandatory nonfinancial disclosure”. In: *Journal of Accounting Research* 62.5, pp. 1711–1754.

Heldal, R. et al. (2024). “Sustainability Competencies and Skills in Software Engineering: An Industry Perspective”. In: *Journal of Systems and Software* 211, p. 111978.

Holder-Webb, L. et al. (2009). “The supply of corporate social responsibility disclosures among US firms”. In: *Journal of Business Ethics* 84.4, pp. 497–527.

Jiménez, E. et al. (2024). “Towards a software industry corporate social responsibility reference model for software sustainability”. In: *Sustainable Development* 32.4, pp. 3471–3494.

Jona, J. and N. S. Soderstrom (2023). “Management accounting research opportunities in climate change reporting”. In: *Journal of Management Accounting Research* 35.3, pp. 13–20.

Lock, I. and P. Seele (2016). “The credibility of CSR (corporate social responsibility) reports in Europe. Evidence from a quantitative content analysis in 11 countries”. In: *Journal of Cleaner Production* 122, pp. 186–200.

Mani, V., A. Gunasekaran, and C. Delgado (2018). “Enhancing supply chain performance through supplier social sustainability: An emerging economy perspective”. In: *International Journal of Production Economics* 195, pp. 259–272.

Monteiro, A. P., I.-M. García-Sánchez, and B. Aibar-Guzmán (2022). “Labour Practice, Decent Work and Human Rights Performance and Reporting: The Impact of Women Managers”. In: *Journal of Business Ethics* 180.2, pp. 523–542.

Morais, D. O. C. and B. S. Silvestre (2018). “Advancing Social Sustainability in Supply Chain Management: Lessons from Multiple Case Studies in an Emerging Economy”. In: *Journal of Cleaner Production* 199, pp. 222–235.

Najjar, M. and M. M. Yasin (2023). “The management of global multi-tier sustainable supply chains: a complexity theory perspective”. In: *International Journal of Production Research* 61.14, pp. 4853–4870.

Najjar, M., M. M. Yasin, et al. (2024). “Investigating social sustainability practices in global supply networks: A fuzzy-set qualitative comparative analysis”. In: *Journal of Cleaner Production* 447, p. 141590.

Okongwu, U., R. Morimoto, and M. Lauras (2013). “The maturity of supply chain sustainability disclosure from a continuous improvement perspective”. In: *International Journal of Productivity and Performance Management* 62.8, pp. 827–855.

Reitmaier, C., W. Schultze, and J. Vollmer (2024). “Corporate responsibility and corporate misbehavior: are CSR reporting firms indeed responsible?” In: *Review of Accounting Studies*, pp. 1–69.

Siew, R. Y. J. (2015). “A review of corporate sustainability reporting tools (SRTs)”. In: *Journal of Environmental Management* 164, pp. 180–195.

Subramaniam, N. et al. (2023). “Sustainable development goal reporting: Contrasting effects of institutional and organisational factors”. In: *Journal of Cleaner Production* 411.

Troshani, I. and N. Rowbottom (2024). “Corporate sustainability reporting and information infrastructure”. In: *Accounting, Auditing & Accountability Journal* 37.4, pp. 1209–1237.

Ye, N. et al. (2020). “A bibliometric analysis of corporate social responsibility in sustainable development”. In: *Journal of Cleaner Production* 272, p. 122679.

Zopounidis, C. et al. (2020). “Environmental, social and corporate governance framework for corporate disclosure: a multicriteria dimension analysis approach”. In: *Management Decision* 58.11, pp. 2473–2496.