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Systematization of Data Analysis in Executive Research Process

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In executive search, comprehensive research is required to find the most relevant candidates for an assignment. With an increasing number of assignments, the systematization of the executive research process is a pre-requisite for sustained efficiency and service quality. The objective of this study was to build a process description for data analysis in executive research at Chief Executive Search Helsinki Oy.

This study was based on interviews, company documentation and best practices. First, the current state analysis was carried out on the basis of internal interviews and company documentation. Second, best practices introduced executive search, diversity, continual improvement, methods for data analysis and data privacy aspects. Third, three external experts provided insights into current practices in executive research. Finally, the proposed process description was validated with the case company.

The process description for data analysis was built on three consecutive phases: industry analysis, company analysis and candidate analysis. To increase the efficiency of the executive research process, data sources, analysis methods, automation opportunities and decision points were introduced. The process description is likely to benefit the case company by increasing the efficiency of the executive research process and the profitability of the service.

Keywords	executive search, analytics

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Yksi tärkeimmistä johdon suorahakuprosessin vaiheista on ehdokkaita kartoittava tutkimus, jonka tavoitteena on löytää sopivimmat ehdokkaat toimeksiannossa määriteltyyn tehtävään. Kun toimeksiantojen määrä kasvaa, tutkimusprosessin systematisointi auttaa yritystä saavuttamaan tehokkuudelle ja palvelun laadulle asetetut tavoitteet. Tämän opinnäytetyön tavoitteena oli luoda Chief Executive Search Helsinki Oy:lle prosessikuvaus johdon suorahaun tutkimusprosessin data-analyysistä.

Opinnäytetyö pohjautui haastatteluihin, kohdeyrityksen sisäiseen dokumentaatioon ja alan parhaisiin käytäntöihin. Kohdeyrityksen nykytila-analyysissä hyödynnettiin haastatteluita ja dokumentaatiota. Parhaita käytäntöjä esiteltiin seuraavista aihepiireistä: johdon suorahaku, diversiteetti, jatkuva kehittäminen, datan analysointi ja tietosuoja. Lisäksi kolmea kohdeyrityksen ulkopuolista johdon suorahakualan ammattilaista haastateltiin tutkimusprosessin käytäntöihin liittyen. Kootun aineiston perusteella syntyi luonnos prosessikuvauksesta, joka viimeisteltiin yhteistyössä kohdeyrityksen kanssa.

Prosessikuvauksen peruspilareita olivat kolme peräkkäistä analyysivaihetta: toimialojen analysointi, yritysten analysointi ja ehdokkaiden analysointi. Opinnäytetyössä tuotiin esiin sellaisia tiedonlähteitä, analyysimenetelmiä, automatisoitavia tehtäviä ja tarkistuspisteitä, joiden avulla kohdeyritys voi kasvattaa tutkimusprosessin tehokkuutta ja palvelun kannattavuutta.

Avainsanat	johdon suorahaku, analytiikka

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List of Abbreviations

AESC	The Association of Executive Search and Leadership Consultants
API	Application programming interface
CEO	Chief executive officer
CFO	Chief financial officer
C-suite	Top senior executives of an organization
HR	Human resources
KPI	Key performance indicator
RACI	Responsibility assignment matrix

1 Introduction

The cost of failure in executive selection can be counted in millions of euros. As psychological biases affect the selection of candidates, organizations look for external consulting to increase objectivity and contextuality during the recruitment process. Despite digital tools enabling the comparison of executive search companies, word of mouth and previous experience act as essential factors in partner selection.

In executive search consulting, maintaining the peace of mind resides at the heart of value creation. A thorough search and selection process is the key to success. In practice, executive search is carried out by consultants and researchers. Executive search companies offer end-to-end services including preparatory analysis, search strategy, candidate market mapping, contacting, interviews and testing, and selection. While the executive search process comprehends all previously mentioned activities, the executive research process refers to analytical, strategic, mapping and contacting activities.

High-quality executive search requires a comprehensive mapping of potential candidates. In the worst-case scenario, lack of managing client expectations could lead to iterative mapping rounds. To deliver value in a sustainable fashion, executive search companies are forced to balance between perfection and profitability.

1.1 Business Context

Chief Executive Search Helsinki Oy (hereafter simply Chief) was established in March 2020. Hannu-Matias Nurmi, CEO, has years of experience in executive search. The author of this thesis works as an executive researcher at Chief, focusing on the executive research process.

In all encounters, four values are fostered: transparency, integrity, diligence, and sustainability and diversity. Chief specializes in three fields of business: information technology and digitalization, venture capital and private equity, and industry and manufacturing.

In terms of roles to be assigned, Chief focuses on CEO, board and C-suite recruitment. The value proposition of Chief is to provide an exquisite search experience for both

clients and candidates. Beyond selection, Chief offers a Leadership Performance Program to reinforce the engagement of the parties and to support successful and sustainable leadership in a holistic fashion.

1.2 Business Challenge, Objective and Outcome

As Chief was established only recently, internal process development is required to ensure efficiency without compromising on service quality. Although client project participation of researchers varies in different occasions, this study focuses on preparatory analysis, search strategy and candidate market mapping, referred to as the executive research process.

During the research process, a great deal of resources is spent on manual tasks. Uncovering automation opportunities and the systematization of the research process shows the potential of increased efficiency and profitability. **The objective of this study is to create a description of the executive research process to systematize the researcher's data analysis workflow in executive search.** The outcome of the project is a process description which covers a selection of digital tools such as Profinder and LinkedIn.

1.3 Thesis Outline

Section 1 introduces the business context, the objective and the outcome of the thesis. Section 2 clarifies the utilized method and describes different sources of data. Section 3 provides insights into the current state of the topic and identifies opportunities for enhancement. Section 4 covers best practices in executive search and data analysis. Section 5 consists of process development. Section 6 describes the validation of the systematized process. Section 7 ends the thesis with the final conclusions of the study.

2 Method and Material

The objective of this study was to carry out design science research on the executive research process. This section enlightens the selection of research approach and provides insights into the collection and the analysis of data in this study.

2.1 Research Approach

In this sub-section, the selected research approach is briefly described.

This study can be defined as design science research. By accomplishing this study, the author of this study aimed to explore the current practices in the field of executive search, scientific literature and opportunities of currently available digital tools. Only after exploring what, how and why certain activities are carried out, the objective of generating a relevant process description for executive research process could be reached.

Design science research was initially introduced by Simon (1996) who described it as the Science of the Artificial. In design science research, exploration of a certain phenomenon is followed by a descriptive or explanatory analysis (Dresch et al. 2015), resembling to a case study (Yin 2014). However, the researcher does not remain at an observational state (Dresch et al. 2015), highlighting the differences of the two research approaches. Ultimately, the objective of design science research is to generate satisfactory and, ideally, generalizable solutions to uncovered challenges (Dresch et al. 2015).

Having elaborated the selection of the research method, the phases of a study applying design science research are briefly introduced. Currently working as an emeritus professor, Vaishnavi et al. (2019) has published openly available models and recommendations for design science research in information systems. The design science research process by Vaishnavi et al. (2019) is illustrated in Figure 1.

Figure 1. Phases of design science research process (adapted from Vaishnavi et al. 2019).

At the first stage of the process in Figure 1, the scope of the challenge needs to be addressed. Second, one or several suggestions are generated, preferably utilizing a transparent protocol. The acceptance criteria should be created by those who work in the proximity to the study setting. Third, an artifact is developed. Fourth, the artifact is subjected to evaluation with an emphasis on the pragmatic utility. Finally, the steps of the research are synthesized to clarify the intentions and the results of the study. (Dresch et al. 2015)

Eventually, experimenting would be the preferred method to develop the process of executive research. As the scope of this study was restricted in terms of time allocation, the evaluation of the developed artifact was based on the feedback received from the case company. Thus, measuring performance and analyzing outcomes are required to evaluate the utility, viability and generalizability of this study in practice.

As to this study, the previously mentioned steps of design science research are adapted and contextualized in the next sub-section.

2.2 Research Design

In this sub-section, the research design is visualized and explained in terms of the five consecutive phases of the study. The phases are illustrated in Figure 2.

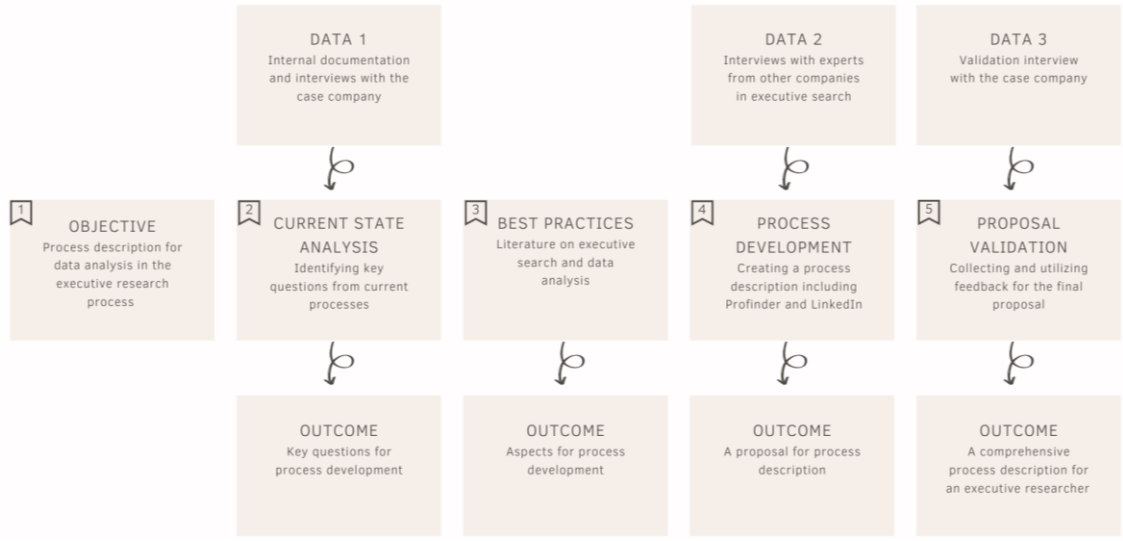

Figure 2. Research design of the study.

First, as depicted in Figure 2, the objective of the study was clarified in collaboration with Hannu-Matias Nurmi, the supervisor of this thesis and CEO at the case company. The study was restrained to cover only a subset of digital tools in order to steer focus to the most important aspects of the process.

Second, a current state analysis was conducted to explore executive research methodology at the case company. The focus areas were identified during the first insight interview with Hannu-Matias Nurmi. As a result of the current state analysis, key questions for process development were highlighted.

Third, best practices were selected and reviewed. Having formulated key questions, demand for further insight was exposed in certain areas as to executive search and data analysis. Based on literature, a conceptual framework was established to benefit process development *de facto*.

Fourth, key questions, interviews in other executive search companies and theory was applied to process development for the case company. The proposal consisted of a process description for data analysis in the executive research process.

Fifth, the proposal was evaluated by the case company. Improved by co-creation, the outcome of thesis project incarnated as a comprehensive process description for an executive researcher.

2.3 Data Collection and Analysis

This section clarifies how data was collected from interviews, internal documentation and discussions. The interviews and discussions are listed in Table 1.

Table 1. Data collection for Data 1–3.

Source	Data type	Topic, description	Date, length	Documented as
Data 1 (Section 3)				
Hannu-Matias Nurmi, Chief Executive Officer, Chief Executive Search Oy	Phone interview	Current state analysis, executive research	03 Apr 2020, 1 h	Field notes, recording
Hannu-Matias Nurmi, Chief Executive Officer, Chief Executive Search Oy	Zoom interview	Current state analysis, key questions	06 May 2020, 20 min	Recording
Hannu-Matias Nurmi, Chief Executive Officer, Chief Executive Search Oy	Zoom interview	Current state analysis, validation	15 May 2020, 2 h 45 min	Recording
Data 2 (Section 5)				
Jari Lösönen, Assignment Manager, IMS Talent Oy	MS Teams interview	Process development, executive research	08 May 2020, 1 h 10 min	Field notes, recording
Marcus Honkanen, Managing Partner, Nordic Minds GmbH	MS Teams interview	Process development, executive research	11 May 2020, 1 h 15 min	Field notes, recording
Bob Olin, Consultant, CamdenPoint Oy	Zoom interview	Process development, executive research	14 May 2020, 1 h 50 min	Field notes, recording
Data 3 (Section 6)				
Hannu-Matias Nurmi, Chief Executive Officer, Chief Executive Search Oy	Zoom interview	Validation of the proposal	04 Sep 2020, 1 h 40 min	Recording

Listed in Table 1, the interviews supplied information directly in three phases of the study: current state analysis, process development and validation. While internal interviews provided insights into the current executive research process, external interviews with industry experts enlightened the variation of activities and clarified the essential elements of the research process to fuel process development. In addition to interviews, internal documentation was utilized (Table 2).

Table 2. Internal documentation for Data 1.

Name of the document	Number of pages	Description
Executive Researcher's Tasks in Executive Search	8	The phases of the current executive research process

As denoted in Table 2, a description of the current executive research process from the researcher's viewpoint was described in the process documentation.

2.4 Project Plan and Schedule

This sub-section introduces the initial project plan for the study. The timetable of this study is shown in Table 3.

Table 3. Timetable of the study.

	APRIL	MAY	JUNE	JULY	AUGUST
INTERVIEWS	INTERNAL	INTERNAL EXTERNAL			INTERNAL
ANALYSIS	OBJECTIVE AND SCOPE	CURRENT STATE BEST PRACTICES			
DEVELOPMENT			PROPOSAL	PROPOSAL	PROPOSAL VALIDATION

As can be seen in Table 3, the study was initiated in April 2020 and continued with expert interviews in May. The proposal was built on current state analysis, best practices and external expert interviews. Finally, the validation of the proposal was carried out to adjust the proposal draft to meet the requirements of the case company.

In the next section, the current state of the topic is analyzed to discover key areas for systematization in the executive research process.

3 Current State Analysis

This section explores the current state of executive search at the case company with an emphasis on the executive research process. First, the analysis provides a holistic view and important details on the topic. Second, key questions for the process development phase are defined to steer the development of the proposal.

3.1 Overview of the Current State Analysis Stage

This current state analysis follows a top-down approach. First, the end-to-end executive search process of the case company is overviewed. Second, the research process is divided into three phases according to company documentation. Complemented by the first interview at the case company, each phase is dissected in detail to provide insights into the current process. A detailed analysis enables identifying the key questions to direct development of the process by this study.

3.2 Executive Search Process

This sub-section describes the executive search process in the case company. As the assignment contract is signed, the executive search process begins. In Figure 3, the phases of the whole search process can be inspected.

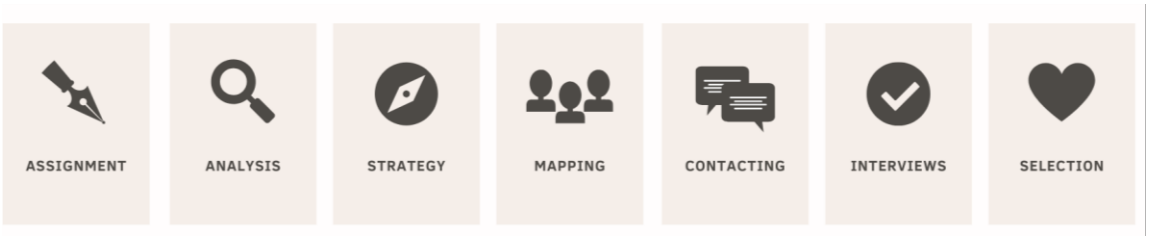

Figure 3. Phases of executive search process.

As illustrated in Figure 3, the process begins with analyzing existing and client-derived data to formulate a search strategy. As the strategy is approved by the client, a systematic candidate market mapping is conducted. However, if required, the strategy can be revised to yield more candidates. As a result of the mapping, a list of potential candidates is presented to the client and modified if required. Thereafter, candidates are contacted

and provided with information of the position. A subset of candidates is selected for interviews and testing. Finally, one candidate is selected from the population of candidates.

3.3 Analyze

This sub-section uncovers the Analyze phase according to documentation of the case company. The research process begins at the assignment. The focus areas in the Analyze phase are summarized in Figure 4.

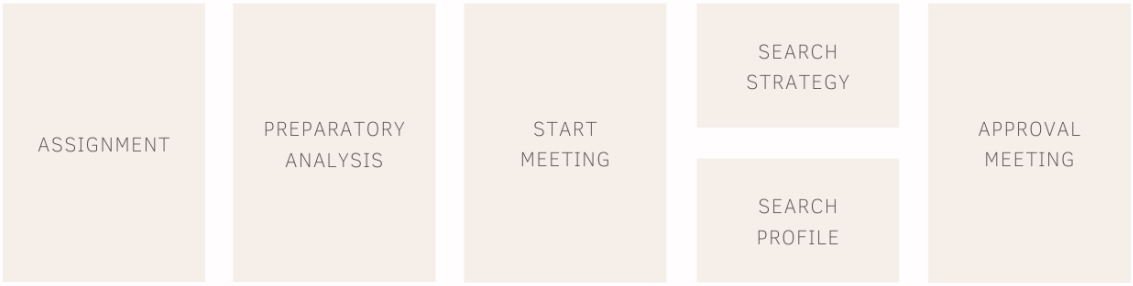

Figure 4. Focus areas in the Analyze phase.

As denoted in Figure 4, a preparatory analysis is commenced to track relevant industries, companies and positions already prior to the start meeting. The objective of a start meeting is to clarify the state of the company and its business environment as well as to draft the job profile of the position. The start meeting accumulates the understanding of client preferences, including business logic, internal processes, business partnerships and competitors. Potential industries and companies for candidate market mapping are discussed. The client may also address examples of target companies for candidate search. In parallel, a description of an ideal candidate profile is formed. The client may prefer a certain set of work activities or achievements from the candidates. Examples of positions may be raised, as well as off-limits restricting the search for candidates.

After the start meeting, additional meetings may be held to include views from all stakeholders. If emerged, internal discrepancy requires facilitation as, evidently, a common understanding at the client company is crucial for the success of the assignment. Having processed the obtained information, a search strategy and a search profile are formulated into an executive search brief and, subsequently, rationalized to the client in the approval meeting. In addition, the timetable of the project is agreed with the client. While

the executive search brief has reached approval, a candidate brief, includes information about the position for future candidate, is drafted at this point of the process.

3.3.1 Roles

Throughout the process, researchers and consultants work in close collaboration. When the assignment has been received, the roles of researchers and consultants in each phase are initially agreed. The roles are presented according to the RACI model (Appendix 1) in Table 4.

Table 4. Roles and responsibilities during the Analyze phase in the case company (R = responsible, A = accountable, C = consulted, I = informed).

Task	**Researcher**	**Consultant**
Assignment	I	A
Preparatory analysis	R	A, C
Start meeting(s)	R/I	A, R
Executive search brief	R	A, C
Candidate brief	R	A, C
Approval meeting	R/I	A, R

As can be seen in Table 4, the researcher prepares and drafts the executive search brief and the candidate brief. The consultant decides whether the researcher is present at one or several start meetings. If not present, the researcher is obliged to guide the researcher with the preparatory analysis and provides the researcher with in-depth insights from the arranged meetings. The researcher has a major impact on the search strategy and consults the consultant during the process. Although the researcher drafts the executive search brief and the candidate brief, the consultant is responsible for the outcome. As with the start meetings, the consultant decides whether the researcher attends the approval meeting. If not having attended, the researcher is provided with updates before and after the approval meeting.

3.3.2 Data

During the preparatory analysis, several digital tools may be utilized in the case company. These may include the existing database of the company, Google, LinkedIn and local or national search tools such as Profinder.

3.3.3 Risks

The initially demonstrated leadership of the assignment builds trust and critically affects the overall success of the project. Via the executive search brief, the Analyze phase has a major impact on subsequent phases of the executive search process. Thus, a special focus is needed to build a thorough understanding of client expectations and to learn how to manage them. In addition to the executive search brief, agreeing on the timetable is needed to increase mutual commitment.

3.4 Research

This sub-section delves into the Research phase of the executive research process. The focus areas in the Research phase are described in Figure 5.

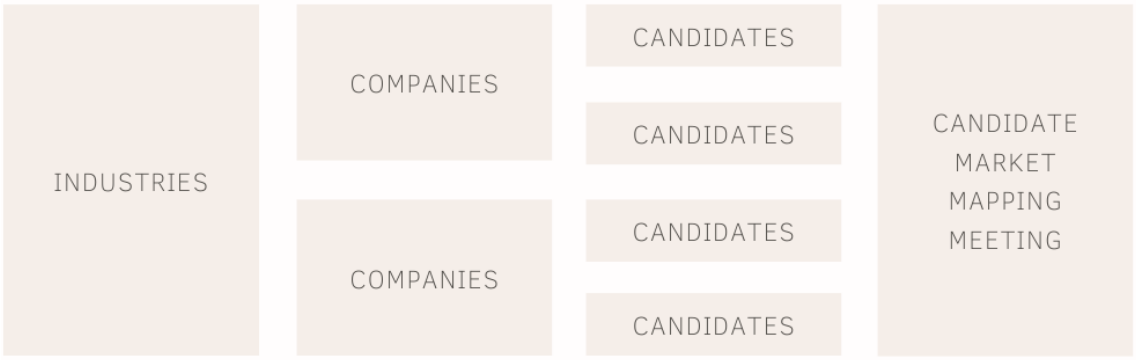

Figure 5. Focus areas in the Research phase.

Illustrated in Figure 5, the Research phase begins at the level of industry. Having defined and explored the target industries, the analysis of business logic, structure and culture of target companies is required. If analyzing a new industry, client attractiveness in these industries needs to be uncovered. Having identified potential companies, candidates in suitable roles are located and analyzed based on professional background and performance with regard to the executive search brief. Importantly, off-limits are removed from the list before contacting candidates. Contacting may be required to discover motivation to change jobs and to collect the consent to be considered as a potential candidate and to be presented to the client. Occasionally, these discussions can be utilized to clarify the work contents, such as leadership experience. In some occasions, the current assignment may not be revealed to the candidates at this point.

The systematic research results in a list of potential candidates with experience in accordance with the search profile. However, a low yield of candidates may result in revisiting the search strategy in terms of industries and companies. Typically, the list of potential candidates contains 10–20 names to be presented to the client. The objective of the candidate market mapping meeting is to rationalize the selection of candidates for the Approach phase. The client may desire to remove candidates from the list to reach the consensus. In addition to the agreed list of potential candidates, the candidate brief is approved at latest in this meeting.

3.4.1 Roles

As in the Analyze phase, both researchers and consultants contribute to the Research phase. The roles during this phase are clarified in Table 5.

Table 5. Roles and responsibilities during the Research phase in the case company (R = responsible, A = accountable, C = consulted, I = informed).

Task	**Researcher**	**Consultant**
Industry analysis	R	A, C
Company analysis	R	A, C
Candidate analysis	R	A, C
Off-limit check	R	A, R
Pre-contacting candidates	R/I	A, R
Candidate market mapping document	R	A, C
Candidate market mapping meeting	R	A, R

As can be seen in Table 5, the researcher performs the analyses and generates the list of selected potential candidates. In addition, the consultant may participate in the analyses or is at least informed in the form of updates. Either the researcher or the consultant may pre-contact the candidates for further information. In the candidate market mapping meeting, the researcher explains how analysis is conducted and why certain decisions and conclusions have been made.

3.4.2 Data

During the Research phase, a myriad of digital tools can be utilized in addition to the network information and client-derived examples of candidates. Some of these may be similar as in the preparatory analysis, such as company database, Google, LinkedIn and

Profinder. With Profinder, one can select companies from different industries from a predefined geographical location. In addition, newspaper archives and associations specialized in certain industries or positions can be utilized.

The value proposition of the case company is to locate and evaluate all potential candidates from relevant industries and companies. However, other than Boolean search, no explicit methods for candidate retrieval exist, as research is considered as a work of a detective, and quality of the candidates is the primary evaluation criteria. In addition, the unemployed may not be found through a traditional funnel approach. Diversity, as described in company values, needs to be considered, as well as data privacy. Finally, costs and the scale of the Research phase need to be controlled.

3.4.3 Risks

Although iterating the search for industries and companies may occur in the Research phase, delays and increased costs for the project should be avoided by high-quality research. Removal of candidates from the list of selected potential candidates should be minimized to retain an adequate amount of candidates for the Approach phase. As contacting candidates begins, the agreed degree of confidentiality acts as a hygiene factor.

3.5 Approach

This sub-section describes the Approach phase according to documentation of the case company. In this phase, the candidates from the list of selected potential candidates are contacted and selected candidates are invited to the pre-interview and provided with the candidate brief.

3.5.1 Roles

The roles in the Approach phase are listed in Table 6.

Table 6. Roles and responsibilities during the Research phase in the case company (R = responsible, A = accountable, C = consulted, I = informed).

Task	Researcher	Consultant
Informing rejected candidates	R	A, R
Inviting to pre-interview	R/I	A, R/I
Updating information and statuses to the database	R/I	A, R/I

As can be seen in Table 6, the researcher is the project manager. Either the researcher or the consultant contacts and registers the candidates and updates the information to the proprietary database.

3.5.2 Data

As candidates are contacted, obtained information and search statuses are updated to the proprietary database. Phone numbers are obtained from the proprietary database, Profinder, Google or LinkedIn.

3.5.3 Risks

Regardless of the setting of the phone call, ending a process or facing a withdrawal, is important to create a positive impact within each call. No other risks were arisen as to the Approach phase.

3.6 Key Findings from the Current State Analysis (Data Collection 1)

This sub-section highlights the main strengths and challenges of the current executive research process, summarized in Table 7.

Table 7. Strengths, challenges and key questions based on current state analysis.

Aspect	Strength	Challenge	Key questions
Roles	Collaboration Pre-defined roles	Implicit determination	What are the roles of consultants and researchers?
Data	Comprehensive list of tools	Implicit methods Implicit decision points	How are industries defined? How are companies defined? How are candidates selected? How are the unemployed considered? How are objectivity and diversity considered? How is data privacy considered?
Risks	Awareness of the probability and impact of risks	Implicit consideration	What are the risks derived from clients, candidates and internal processes?

As can be seen in Table 7, both researchers and consultants work in close collaboration during the research process. Although roles and responsibilities were described in the current state analysis, it remained slightly unclear how work was divided in practice. Importantly, clarifying the division of work would help when new researchers and consultants join the company.

During the research process, several decision points are faced. The current state analysis showed that search tools have been listed but only a general overview on methods and decision points for the analysis of industries, companies and candidates has been described. Detailed workflows and performance indicators would accumulate experiential data for continual development of the process and alleviate training of novel researchers.

The research process is critically affected by the client and the candidates. In the beginning of the research process, communication between the client and the executive search company crucially effects the probability of success. Until the final selection has been made and the agreements have been signed, a risk of withdrawal exists. However, several aspects can be controlled. Thus, identifying, dissecting and contingency planning of the most impactful factors throughout the process is crucial for the success of an assignment.

Based on the analysis of key findings, data analysis was selected as the key area for further development. In addition, critical success factors had an impact on process development.

In the next section, best practices in executive search and data analysis are introduced.

4 Best Practices on Executive Search and Data Analysis

This section introduces the best practices on executive search, with an emphasis on data analysis, the key aspect of this study based on current state analysis in Section 3. Section 4 is divided into two sub-sections: executive search and data analysis. Finally, the conceptual framework of the thesis is presented.

4.1 Executive Search

This sub-section describes the phases of the executive research process based on insights from literature. First, a brief overview to value creation in executive search is provided. Second, the phases of executive search process are clarified. Third, the research process is described in detail. Fourth, to uncover the basis for candidate assessment, the correlation of executive performance and company performance is discussed. Fifth, diversity in research is discussed. Finally, valuable research activities beyond search assignments are overviewed.

AESC is a global association for executive search professionals and leadership consultants, representing more than 16 000 professionals working at 1200 offices in 70 countries (AESC 2020). According to AESC (2018), the value of executive research is based on eight elements, introduced in Figure 6.

Figure 6. Value creation in executive search (AESC 2018).

The reasons for selecting an executive search company as a business partner, presented in Figure 6, can be summarized as locating and reaching out to the right candidates based on deep industry knowledge of the trusted partner in executive search (AESC 2018). According to AESC (2018), the risk of an incorrect hiring decision may be reduced. Although reasoning is logical, it is noteworthy to mention that these views are only represented by AESC members and thus may not reflect the view of the client.

4.1.1 Executive Search Process

According to a survey conducted in Finland, Sweden and Austria, the core practices of executive search are profiling, short-listing and involving the client (Tienari et al. 2013). The executive search process is affected by local markets and industries, technology and infrastructure, and cultural, educational and legal environment (Olin 2019). Based on more than 30 years of experience in the field, Olin (2019) divides the process into four consecutive phases (Table 8).

Table 8. Executive search process (adapted from Olin 2019).

Phase	**Estimated duration**	**Focus areas**
Research	3–4 weeks	Initial client meeting Assignment summary Search strategy Long-list development
Candidate interviews	3–4 weeks	Consultant candidate interviews Short-list to the client
Client interviews and decision-making	2–4 weeks	Client interviews Reference checks Winning candidate, offer negotiation and hiring decision
Follow-up		

As can be calculated from Table 8, an executive search assignment is typically extended to three months (Olin 2019). According to Olin (2019), the phases of the executive research process are following: research, candidate interviews, client interviews and decision-making and follow-up (Olin 2019). Representing experts in executive search and leadership consultancy globally, AESC (2018) divides the executive search process into seven phases: client expectations, client culture and candidate profile, the search, candidate assessment, background and reference checks, negotiating to a “yes”, and onboarding. Based on a survey in Finland, Sweden and Austria, Tienari et al. (2013) perceived six phases in executive search: “securing the relationship and business with the client”, “pinpointing the skills and competences expected of a successful candidate for the position at hand”, “coming up with a wide pool of candidates and narrowing it down”, “contacting a limited number of candidates, interviewing them and selecting which candidates to present to the client”, “involving the client in interviewing top candidates in the last stage of the search”, and “following up on clients and candidates”. In conclusion, the phases of executive search appear to possess similar characteristics regardless of the source and geographical location. Assessed as the most practical approach, the phases of executive search by Olin (2019) are utilized as a basis for the executive search process in this thesis, complemented by additions from the generalized process by AESC (2018).

In the beginning of the executive search process, it is important to agree on “scope of services, timetable, fees, expenses, cancellation policy, and any restrictions or off-limit situations” (AESC 2018). An initial meeting is arranged before starting the current assignment (Olin 2019). The client is expected to provide the search company with a comprehensive assignment brief including “company strategy, goals, challenges, company financials, market position, organizational structure, corporate culture and major

stakeholders" (Olin 2019). Contrary to Olin (2018), AESC (2018) does not define the responsibilities from the search company and the client but only advises to agree on target companies and candidates, diversity aspects and communication approaches between the client and the candidates. In agreement with Olin (2019), AESC (2018) emphasizes gaining insights into the culture as well as short- and long-term objectives of the client organization. In addition, structure and key competitors should be clarified (AESC 2018). According to Olin (2019), the client-derived assignment brief should define the job description, the preferred career and education for the candidate profile as well as candidate expectations such as goals. In addition, the agreed candidate profile may include responsibilities (AESC (2018) and factors related to culture (AESC 2018), also referred to as local conditions (Olin 2019).

Written by the search consultant, an assignment summary guides future actions (Olin 2019). As the assignment begins, the client, the search consultant and one or multiple researchers meet in order to develop a search strategy and an action plan: "define target industries, target companies, target positions, target profiles, how to locate and identify candidates, define the optimal information sources to be used" (Olin 2019). According to AESC (2018), focused mapping of competitor market, utilizing digital tools and calling to sources are included in in-depth research. Although this phase is conducted independently by the search company (AESC 2018), collaboration at this point may prove fruitful if solely the client possesses a strong understanding of an important research aspect (Olin 2019). During the research, progress and feedback is documented (AESC 2018). The accuracy and efficiency of the research improves as understanding of the market develops (Olin 2019).

AESC (2018) describes candidate assessment as "an iterative and open process". Both Olin (2019) and AESC (2018) address the importance of documentation. AESC (2018) suggests that preliminary interviews should be held for initial assessment while in-depth assessment should be carried out only for a minority of potential candidates. Depending on the agreement, the long list may be presented to the client prior to the initiation of contacting selected candidates (Olin 2019). When reached, the candidates are inquired whether they are interest in the position and attending an interview with the consultant (Olin 2019). Occasionally, certain factors in the background of candidates may be confirmed during the phone conversation (Olin 2019). During consultant candidate interviews, the consultant obtains insight into the professional, motivational and personality factors of the candidate (Olin 2019). In addition, document verification or psychometric

testing may be carried out (AESC 2018). Sometimes interviewing up to 15 candidates is enough, and rarely, more than 50 candidates are interviewed (Olin 2019).

Based on matching the candidate profile, a short list is generated and the rational for selection is documented for the client (Olin 2019). In terms of reference checks, AESC (2018) focuses on agreeing on the approach with the client, and Olin (2019) addresses the importance of asking permission from the candidates. By default, the reference statements are reported to the client without the identity of the referee (Olin 2019). According to Olin (2019), the client may ask for consultation before the final decision, and tests can be conducted by the search company or another service provider. In turn, AESC (2018) encourages to active collaboration between the search company and the client when negotiating with the preferred candidate. Although the search assignment ends at the hiring decision, follow-up discussions are held (Olin 2019). Occasionally, the search company may participate in onboarding (Olin 2019), a practice recommended by AESC (2018).

4.1.2 Executive Research Process

With an extensive experience in executive research, Olin (2019) has analyzed the research process thoroughly. The recommended practices for research process are discussed in detail in the following paragraphs.

To achieve excellence in executive research, factors related to people, processes and technology need to be considered. A lack of processes or guidelines results in a state of “no organized activity, no synergy effects and no efficiency”. Leadership systems, knowledge management and best practices are needed to guide the search. Applying Lean methodology steers knowledge management to seeking for the best options, selecting the most suitable person for each task and avoiding the repetition of tasks. In terms of technology, features and utilization of the database are crucial factors. In conclusion, people-, process- and technology-related factors are required to see beyond the simplistic view of research as searching for candidates in different digital sources. (Olin 2019)

Olin (2019) describes the researcher as the project manager and the foreman of the research while the consultant guides the research and participates actively in the research process. The research process resembles police work: “a time-consuming,

thorough, systematic and logical process” enriched by creativity. By default, the researcher should base the research on the assignment summary, the job description and the candidate profile. Olin (2019) emphasizes the importance of “a yardstick” when selecting information sources and to critically evaluate the potential candidates. The details of the research process are presented as three sections of the funnel (Olin 2019).

First, the researcher should create a list of target industries. Second, a list of companies in the target industries should be created and inserted into the database. Associations related to target industries, companies, brands and markets can be utilized, as well as company ranking lists. The usability of information sources, such as business databases, may depend on locality of the search assignment. It is important to create a list of target companies with a similar business logic. Alternatively, personality, experience and expertise may exceptionally be relevant, defined as the size of previously led companies or leadership in a challenging business environment. (Olin 2019)

Third, the researcher should proceed to the candidate level. Finding a benchmark candidate facilitates the research. Internal information sources can be utilized, including discussions with colleagues, querying the candidate database and reviewing documents and notes from previously accomplished search assignments. External information sources recruiting databases, business directories and databases, social media and other publicly available information can be utilized. Notably, the researcher should remember that not all top-level senior executives are found from social media. In addition, business network may prove useful, yielding recommendations and unofficial referee statements. The candidates should be discussed with the consultant and compared with the candidate in a continuous fashion. The researcher should not hesitate to remove candidates from the long list when more information has been acquired. (Olin 2019).

No hesitation should occur if a situation exists where the researcher feels that should ask the client concerning the search (Olin 2019). Interestingly, Olin (2019) does not state that communication at this point could have adverse effects, such as loosing the trust of the client. Instead, Olin (2019) states that too an extended long list may have previously mentioned consequences. Although fitting to requirements is the primary selection criteria for candidates, a typical long list contains 50–70 names (Olin 2019). According to Olin (2019), a shorter list may result in an inadequate length for the short list, whereas a longer list may indicate a lack of understanding the objectives of the assignment.

However, Olin (2019) does not present further details or decision points in terms of localization and selection of candidates.

When the long list is ready, candidates are ranked by the researcher and the consultant based on quality and quantity of obtained knowledge where certain expertise may be emphasized. The researcher should contact the candidates. Contacting and interviewing the first 15 most potential candidates clarifies whether the search has followed the right direction. Based on the consultant candidate interviews, the short list for client candidate interviews should not exceed 4–6 names as, in addition to quality, it shows the expertise of the search company in candidate selection. During client candidate interviews, the researcher conducts reference checks. The researcher may also be present in the meeting after client candidate interviews. After the hiring decision, the researcher ensures that all candidates have been informed about the situation and all useful knowledge exists in the database. Finally, a follow-up discussion needs to be held before closing the assignment. (Olin 2019)

Olin (2019) argues that the amount of the suitable executives is fairly scarce and many of them are not interested to change jobs due to conflicts of interest, fixed notice period of six months or compensation. Olin (2019) states that rankings and decisions concerning the long list and the short list are often based on inadequate information and require strong expertise in executive search. According to Olin (2019), professional expertise is required to change the candidate profile in a correct fashion to reach the right candidates. The method is, however, not described.

4.1.3 Executive Performance Indicators

When creating the candidate profile and looking for potential candidates in executive search, education and previous experience are usually considered. However, productivity is affected by both production practices and factors of operating environment (Syverson 2011). The following paragraphs aims to clarify the relationship of executive performance and company performance, with an emphasis on the role of a CEO.

A meta-analysis of 81 studies focusing on the relationship of previous work experience and performance or turnover concluded that previous experience is a poor estimate for performance in a subsequent position (Van Iddekinge et al. 2019). Insights into executive-fixed effects can be obtained from a study concerning top executives with an

experience of three years in at least two companies in 1969–1999. For CEOs, MBA attainment resulted in one percent point higher rates of return on assets (Bertrand and Schoar 2003). In terms of education, Saidu (2019) reviewed several publications with contradictory results in terms of CEO education and performance. However, a regression analysis on Nigerian data supported the view that CEO education increases profitability (Saidu 2019). In terms of leadership style, a study applying machine learning of CEO diaries showed that CEOs with high behavior index, spending a lot of time with top management and larger, cross-functional groups internally and externally, showed increased productivity after an employment period of three years (Bandiera et al. 2017). A standard deviation increase in the index was associated with higher productivity, corresponding to about 10 % of the increase associated with a standard deviation increase in capital (Bandiera et al. 2017).

In conclusion, characteristics such as education and behavior of top executives may affect company performance. These effects where typically studied and found with a time span of three years (Bertrand and Schoar 2003, Bandiera et al. 2017). Although low in percentage, the effect of top executives may be significant when transformed to currency. However, it is noteworthy to mention that correlation does not implicate causation and conclusions from a population may not hold at the level of an individual candidate.

4.1.4 Diversity

According to a global industry association, the values of executive search include integrity, excellence, objectivity, diversity and inclusion, confidentiality and avoiding conflicts of interest (AESC 2015). Not letting personal opinions affect the search is highlighted by Olin (2019) as well. However, based on a review on existing research, Tienari et al. (2013) states that executive search may corroborate the dominance of white males at executive positions. To uncover points for development, Tienari et al. (2013) dissected the practices of executive search in Finland, Sweden and Austria. Based on interviews with consultants, Tienari et al. (2013) discovered that the utilized profiling criteria may be implicitly selective for gender in terms of work experience, age and family status. Tienari et al. (2013) reported that the interviewees were “silent” about the role of ethnicity, and thus, it was not discussed although previously suggested to have an impact on executive search. Key findings by Tienari et al. (2013) are discussed in the following paragraphs.

When creating the candidate profile for the position at hand, the initial endeavor may be to include both women and men (Tienari et al. 2013). However, the legitimate search process may result in the absence of women as locating female candidates requires more work (Tienari et al. 2013). Emphasizing work experience such as board experience in a certain industry or a substantially long work experience may be derived from the client, resulting in exclusion of many female candidates (Tienari et al. 2013). In addition, positions in communications and HR, typically held by women, may not be considered when selecting the subsequent CEO (Tienari et al. 2013). Although not asked, candidates often tell about their families to consultants (Tienari et al. 2013). Olin (2019) mentions that marital status is one of the basic facts to be included in the company database. However, having a family is regarded differently for men and women, potentially resulting in exclusion of female candidates (Tienari et al. 2013).

According to Tienari et al. (2013), probability of exclusion of female candidates arises towards the end of the process. Tienari et al. (2013) concluded that the interviewed consultants acknowledged the tendency to exclude women in executive search but not much effort was dedicated to the solve the issue. To foster diversity, AESC (2015) encourages creativity and tracking “relevant skills, competencies and personal capabilities” instead of focusing on previous performance at work when defining the desired candidate profile. However, addressing personal factors may be controversial as psychometric testing is usually developed by men and thus may implicitly favor them (Tienari et al. 2013). Stereotypical assumptions when attempting to increase diversity have been demonstrated as well: Tienari et al. (2013) reported a case where a senior consultant tried to balance the gender ratio of long lists by including both female and male consultants in the process as she had discovered that men tend to recommend men. Although only consultants were interviewed, Tienari et al. (2013) suggests that the researchers may also have a significant impact on the gender balance. However, no further information nor references were provided. Although gender balance was rigorously analyzed by Tienari et al. (2013), information about other diversity aspects and the influence of the current working status was not covered by the study.

4.1.5 Continual Improvement

Based on experience, Olin (2019) clarifies how the researcher should benefit the search company when not working with current assignments. Olin (2019) requires spending at least one or two days monthly performing following tasks: providing business

intelligence, basic data maintenance work, relationship management with trusted advisors, continuous monitoring of the business world, pre-emptive research and continuous improvement of the research function. Except for relationship management, previously mentioned tasks are uncovered in the following paragraphs.

Olin (2019) emphasizes the need for monitoring the business world in a continuous fashion. Relevant sources of information include analyses and rankings related to markets, trends, industries, companies and people. In addition, appointments and structural company- and industry-level changes provide relevant insights (Olin 2019). According to Olin (2019), continuous improvement can be achieved with seemingly minor changes, such as reduction of clicks and access time. In the future, Olin (2019) anticipates that adapting novel technological solutions will increase search efficiency.

In terms of database maintenance, Olin (2019) emphasizes the minimization of human errors. There are multiple utilized code systems in executive search, listed in Table 9.

Table 9. Code categories in executive search (Olin 2019).

Category	**Examples**
Person	Language and/or language proficiency Education and/or degree School and/or university Function Level
Search assignment	Candidate status Action
Company	Industry Company size Company type
Miscellaneous	Country Off-limit CRM status Business intelligence

As can be concluded from in Table 9, human errors or list incompatibilities are not surprising when working with a myriad of code systems. According to Olin (2019), the correctness of the information has a major impact on efficiency, quality of the candidates, client and candidate relation management and business intelligence.

Olin (2019) highlights that pre-emptive research pre-determines efficiency when assigned to a novel search project. To begin with pre-emptive research, a hypothetic model of an assignment is created based on existing knowledge, such as previous search

assignments. Then, the research process follows as previously described to maintain expertise in a certain industry. Pre-emptive executive search can also be a service provided by the search company. (Olin 2019)

Finally, Olin (2019) recommends that each assignment type should be analyzed by the researcher for internal reporting purposes. Important measures include such as invoicing, length of the long list, how many candidates were contacted regardless of the outcome, how many candidates were interviewed, length of the short list and length of the assignments. However, Olin (2019) does not rationalize the utilization of quantitative measures and why quality is not considered by default.

4.2 Data Analysis

In this sub-section, relevant data analysis for executive research is discussed. First, a selection of data sources is presented. Second, current and complementary methods for data analysis are introduced. Third, data privacy is discussed as executive search works with personal data and, thus, the current legal environment requires consideration.

4.2.1 Selected Data Sources

In this study, LinkedIn, Profinder are selected as the primary data sources. Each data source is described to understand how data can benefit executive research.

4.2.1.1 LinkedIn Recruiter Lite

LinkedIn is a professional network of nearly 690 million users in 200 countries or territories (LinkedIn 2020). As a paid version, LinkedIn Recruiter Lite provides an extended set of tools for executive research, such as unlimited people browsing, dynamic search suggestions, notifications on novel results in saved searches, collecting profiles to projects, and advanced search (LinkedIn 2020).

When carrying out a search in LinkedIn Recruiter Lite, job titles, locations, skills, companies, year of graduation, schools, industries and keywords can be utilized as search filters. In addition, Boolean search can be executed for job titles, companies, skills and

keywords. According to an e-book by LinkedIn (2013), the query may be enriched with AND, OR, NOT and longer expressions such as quotes and parentheses.

As a result of a search, up to 25 profiles are shown at each page. Only the information from the profiles of the current page can be printed or exported in PDF format. When printed in browser view, a list including name, headline, location, current job title and company can be extracted. On the other hand, when exported as a PDF file, the list includes summary, experience, education and recommendations in a semi-structured fashion. In addition, profiles can be saved to projects.

4.2.1.2 LinkedIn APIs

Several LinkedIn APIs are provided for developers. Whereas Organization Search API enables search with location, size, industry and other criteria (Microsoft 2019), Profile API can be utilized to access information of individual members (Microsoft 2019). Currently, no People Search API is provided to perform advanced filtering of candidates.

4.2.1.3 Profinder

Profinder provides contact information of decision-makers in Finnish companies (Profinder 2020). With Profinder, companies in relevant industries can be selected based on TOL codes by Statistics Finland or based on Fonecta's industry categorization. In addition, Profinder provides a collection of complementary filters: region, basic information, industries, decision-makers, KPIs, segments and information updates.

4.2.1.4 Web Scraping

In executive search, web scraping can be utilized to retrieve published company rankings efficiently from the internet. Scraping of web-site elements can be executed via robotic process automation, such as UiPath (2020). Alternatively, source code of web-sites can be directly benefited to obtain data, as with Beautiful Soup library in Python (Richardson 2020). Notably, scraping of web-site elements needs to follow the terms of the source, typically found when an extension of "robot.txt" is added to the address of the domain. As to LinkedIn, web scraping may be utilized considering certain restrictions (LinkedIn

2017). If web scraping is prohibited and no API is available, printed or exported PDF files can be converted to text with tools such as UiPath (2020) or pdfminer.six in Python (Shinyama et al. 2019).

4.2.2 Methods for Data Analysis

Once useful data is sourced and processed into a convenient format for data analysis, a myriad of techniques can be utilized to gain insights into relevant companies and candidates in executive search. A selection of these techniques is described to provide an overview on the possibilities in the context of executive research.

4.2.2.1 Cluster Analysis

In executive research, companies are subjected to clustering in terms of relevant factors. In essence, cluster analysis refers to dividing data into groups (Everitt et al. 2011). Exemplified by market research, utilizing cluster analysis maximizes the gain of marketing efforts and enables holistic consumer profiling (Everitt et al. 2011). Clusters may be perceived graphically and numerically with a variety of methods (Everitt et al. 2011). For instance, Scikit-learn library can be utilized in Python (Pedregosa et al. 2011). When applying k-means clustering for continuous variables, the desired number of clusters is determined and sample weights are given to observations of selected factors in the matrix according to the level of business importance in cluster formation (Pedregosa et al. 2011). In the case of categorical variables and mixed data types, k-modes and k-prototypes clustering can be utilized, respectively (Huang 1997).

4.2.2.2 Time Series Regression Analysis

Cluster analysis of company characteristics may be benefited from when the aim is to predict business-related outcomes such as stock market performance (Everitt et al. 2011). To obtain more insights into data behavior and underlying correlations, regression analysis may be applied. In executive research, data is often serial in nature. The existence of a trend may be initially evaluated by visual inspection or utilizing the Pearson correlation coefficient or the Spearman rank-correlation coefficient (Anderson et al. 2011). Based on quantitative data, regression analysis aims to explain the values of selected variables, referred to as dependent variables, by other variables, referred to as

independent variables (Welc and Rodriguez Esquerdo 2018). The remaining variability, not explained by independent variables, is referred to as residual (Welc and Rodriguez Esquerdo 2018). If explicable in a deterministic fashion, time series data can be subjected to regression analysis (Cowpertwait and Metcalfe 2009). Although both cross-sectional and time series data can be modeled with regression, the difference of the data in previously mentioned cases needs to be taken into consideration (Welc and Rodriguez Esquerdo 2018). As the residuals are correlated in time series data, the positive bias needs to be corrected utilizing improved estimates of standard error (Cowpertwait and Metcalfe 2009).

4.2.2.3 Natural Language Processing

In executive research, most of the public data regarding the candidates exists as text. Transforming linguistic information into a computable form, natural language processing provides novel directions for development based on human language (Eisenstein 2019). To filter the text material extracted from a PDF file, regular expressions (IEEE 2018) or functions based on them may be applied.

When aiming to visualize commonly used words in text, composing word clouds provides an overview on the text by selecting the words with the highest frequency and determining their size accordingly. Furthermore, word cloud generation can be adjusted in terms of suffixes and removal of non-relevant words. When programming in R, libraries such as tm (Feinerer 2008), snowballC (Bouchet-Valat 2020) and wordcloud (Fellows 2018) can be utilized to process text to word clouds. Harnessing the sentiment lexicon (Nielsen 2011), the sentiment analysis can be performed to uncover emotions of words in the text computationally.

Not restricted to a quantitative view on words and sentences, neural networks enable analysis of more complex textual challenges (Eisenstein 2019). For instance, optimization of search and learning can be utilized for matching elements, such as translations of sentences (Eisenstein 2019). However, quantity and quality of data to train the neural network and environmental consequences of training need to be considered. Fortunately, pre-trained models can be used, such as OpenAI API Beta's production tool to fill the missing parts of data according to user-provided information in a spreadsheet (OpenAI 2020).

4.2.3 Data Privacy

In Finland, both the Personal Data Act (1050/2018) and General Data Protection Regulation (2016) require consideration when processing personal information in executive research. In principle, the data is required to be “collected and processed for a specific and lawful purpose” and “processed lawfully, fairly and in a transparent manner in relation to the data subject” (ODPO 2020). If data is collected from the data subject, exemplified by a candidate in executive search, information about data processing needs to be delivered instantly and a documented consent for data processing is required (OPDO 2020).

However, the procedure differs if personal data is acquired from other sources. In this occasion, information about data processing needs to be delivered when contacting the registered person or prior to sharing the personal information with a third party (OPDO 2020). Eventually, the information needs to be delivered to candidates in one month (ODPO 2020). Having obtained the information from other sources, candidates should to be informed of following terms: publicity, organization or industry, region, and name (ODPO 2018). If automated decision-making or profiling is executed, their logic, impact and consequences need to be elaborated to candidates (ODPO 2018).

As to the Personal Data Act, personal data is defined by purpose, irrespective of the location of data in an information system or the nature of processing (ODPO 2020). Personal information must be processed securely and confidentially, curated appropriately and retained until no longer needed for the pre-defined purpose of data processing (ODPO 2020).

4.3 Conceptual Framework

Despite position-derived and intercultural variation, the executive search process includes profiling and selecting candidates proactively and in agreement with the client (Tienari et al. 2013, AESC 2018 and Olin 2019). The process of developing a long list of candidates in harmony with client needs is defined as the executive research process (Olin 2019). Notably, this thesis focused on systematization of data analysis during the executive research process. The key elements of conceptual framework in this study are summarized in Figure 7.

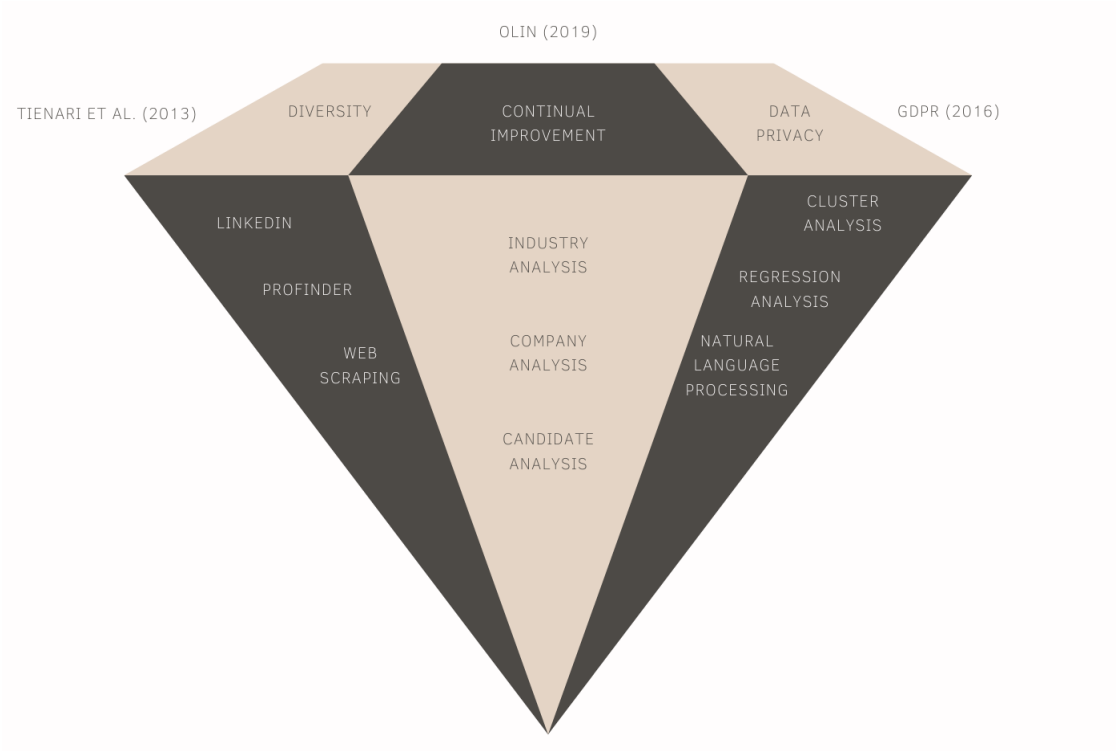

Figure 7. Conceptual framework of the study.

In Figure 7, the conceptual framework is presented in the form of a diamond. First, the core of a successful executive research process consists of a systematic analysis of industries, companies and candidates (Olin 2019). Second, in this study, three data sources are covered: LinkedIn, Profinder and web scraping. Third, having obtained the data, cluster and regression analyses may be performed. When utilizing text, natural language processing techniques can be harnessed. Fourth, as to the whole process, three elements need constant consideration: diversity (Tienari et al. 2013), continual improvement (Olin 2019) and data privacy (GDPR 2016).

The next section demonstrates how the facets of the diamond create value during the executive research process of the case company.

In the next section, current state analysis and best practices are.

5 Building Proposal on Data Analysis in the Executive Research Process (Data Collection 2)

This section merges the results of the current state analysis and the conceptual framework towards the building of the proposal including Data 2 consisting of views from industry experts to benefit the genesis of a novel process description.

5.1 Overview of the Proposal Building Stage

This section aims to create a systematic description of consecutive steps for data analysis in the context of the executive research process. The study began with a current state analysis in the case company. As previously concluded, data analysis in executive research was committed, to a considerable extent, in an implicit fashion. The conceptual framework provided theoretical insights to unleash the full potential of selected data sources and to introduce relevant methods for data analysis. Both the current state analysis, conceptual framework and the expert interviews were included in proposal building.

5.2 External Expert Views on the Executive Research Process

To gain deeper insights into data analysis in the field, learnings from external executive search experts are analyzed in this sub-section.

5.2.1 IMS Talent Oy

As a partner of IMD International Search Group with 40 offices in 25 countries, IMS Talent provides executive and non-executive board search services. In addition, board and leadership assessments and development are provided. The clients of IMS Talent are typically Finnish companies or international companies operating in Finland. (IMS Talent 2020)

At the time of the interview, Jari Lösönen worked as an assignment manager at IMS Talent. Having worked in the field since 2001, he has participated in 500–600 assignments, with an estimated yearly average of 30 assignments. In two decades, the field has undergone a major change due to the advancement of technology.

5.2.1.1 Executive Research Process

Working as a researcher in the company, the interviewee introduced the three common types of the executive research process, listed in Table 10.

Table 10. Process types in executive research.

	Frequency of the process	**Length of the list**	**Contacting candidates**	**Consent from candidates**	**Introduction to the client**
1	Common	Long	No	No	Anonymous
2	Common	Long	Interest mapping	Yes	Names included
3	Less common	Short	Interviewing	Yes	Names included

As can be seen in Table 10, introducing long lists to the client was more frequent than proceeding with interviews until the short list before presenting candidates to the client.

Before the first meeting with the client company, data from the client company is obtained from the company web-site, the latest stock reports and news. According to the interviewee, it is crucial to understand where the company is heading and what kind of talent is needed. This requires gaining insight into the strategy and structure of the client company. Thus, customers, suppliers and competitors of the client company are clarified. In addition, candidate requirements and expectations are discussed. The candidate profile affects the following steps of research as it could range from searching among competitors to “a good person”. Often preferred in hiring, industry expertise is presumed to alleviate the transfer to the client company.

According to the interviewee, selecting the right industries begins by defining which industries have the desired talent. The researcher may choose between services or manufacturing and proceed to specialized and adjacent industries. Some industries may be advanced in terms of some factors, such as digitalization, which may steer the research. For some positions, understanding the business logic is required and thus considered in listing companies. Frequently used data sources are industry associations via Google and industry categorization by Fonecta. In Nordic searches, Largestcompanies.com is utilized.

However, in some positions of executive search, industry expertise may remain secondary. At C-level, particularly for a CEO position, experience of leading a company with a

“reasonable” size in a comparable company situation is considered. In HR roles, employee structure and internationality may be more relevant than industry. Furthermore, industry may not be a relevant factor in CFO positions.

The interviewee emphasizes that locating an unexpected variety of reasoned candidates relies at the core of professional expertise. The interviewee describes the research as a net of paths, and some of them yield candidates whereas others do not. The first candidate may be derived from the company database, based on previous search assignments and experiences from colleagues and contacts of consultants. Next, company web-sites are inspected. LinkedIn search is utilized throughout this phase and may provide novel ideas. In addition, registers and even seminars in Youtube may be utilized. In addition to the current situation in a certain company, previous position holders are considered as well. Moreover, previous positions provide information of other relevant companies. By looking at the pool of candidates with experience in certain industries and companies, one can evaluate the validity of the search strategy and adjust it whenever needed. The amount of candidates is based on the amount of work and usually ranges from 30 to 50, extending to 80 in some cases.

5.2.1.2 Diversity

The unemployed are considered if they have previously worked in a selected company. Regarded healthier than before, candidates with more than 50 years are now increasingly considered due to a shortage in talent. As to diversity of gender, the policy of the client company affects the situation. However, considering diversity may prove challenging in a field with a skewed gender distribution as competence demands cannot be compromised. In addition, internationality is often discussed with the clients. International searches can be performed in Finland or abroad. In some cases, searching abroad may require knowledge of companies from the client or the local partners.

5.2.1.3 Data Privacy

According to the interviewee, all LinkedIn users have approved grouping and processing of information when accepting the terms of the service. Based on this consent, the interviewee assigns the candidates into projects in LinkedIn Recruiter Lite. Only those

candidates who have been contacted and given a consent for data processing are saved to the proprietary database.

5.2.2 Nordic Minds GmbH

Located in Germany and in the Nordic Countries, Nordic Minds provides both executive search and talent acquisition services. In executive search, Nordic Minds focuses on international searches, harnessing its cross-border network. (Nordic Minds 2020)

At the time of the interview, Marcus Honkanen worked as a managing partner at Nordic Minds. During 15 years in the field, he has participated in more than 300 assignments, roughly 20 assignments per year. The field has changed a lot in 15 years as he was among the first LinkedIn subscribers when he worked in a previous search company in Germany in 2005.

5.2.2.1 Executive Research Process

Before working as a consultant, the interviewee has worked as a researcher in executive search. According to the interviewee, acquiring data begins prior to starting an assignment. Based on experience, previous attempts of filling out the position may prevent the success of the assignment at hand. Thus, the interviewee performs a reputation analysis based on trusted and novel sources in the industry of the potential client company. An unrealistic view on reputation, focusing on quantity at the expense of quality and a high turnover in the position may increase the risk of not finding candidates interested in working for the client company. If no alarming factors emerge, an assignment can be signed.

In the beginning of the assignment, the search profile is determined based on a challenge in the client company, such as growth or restructuring. The interviewee emphasized that concrete results should be shown in 3–4 weeks. However, they can be complemented during the next 2–4 weeks. The search process is transparent as the client can follow the timeline and access information concerning the job specification and the search strategy including the targeted industries, companies, functions and candidates.

In the beginning of the search, the interviewee contacts his network of potential candidates and trusted sources who can recommend candidates. As quality and actuality of

the proprietary database is difficult to evaluate, the interviewee concluded that the database solely reflects the experience as a consultant. Thus, according to the interviewee, having or not having an internal database of candidates does not make a difference.

If the client has not directly expressed the identities of the target companies, the interviewee builds a target list including competitors and other relevant companies among the main categories of relevant industries. For instance, Largestcompanies.com is utilized to find suitable companies in the Nordics. The interviewee looks at companies, their sizes and “numbers” to discover what has been accomplished. In case of a growth challenge, only those companies should be selected which have grown in the past 10 years. A target list of 50 companies is usually sufficient. However, the amount of companies could remain below 10 depending on the case and client preferences. Finally, the target list is cleaned from potential off-limits and prioritized with the client.

When searching for potential candidates, LinkedIn is an important tool. In Germany and Middle Europe, Xing is additionally utilized. Potential candidates can be also found via Google looking at industry events, for instance. Selecting candidates for evaluation is based on titles, illustrated by Figure 8.

Figure 8. Title-based selection of candidates for evaluation.

In Figure 8, two dimensions for candidate selection are introduced. When looking at the title to be filled, current and previous employees are considered. Based on current titles in a target company, one step is taken up and down in the hierarchy to find potential

candidates. The interviewee demonstrated the situation with an example case: If the company is looking for head of sales, the mapping includes candidates working as senior vice president, vice president, sales director and sales manager. Most client companies prefer candidates who have worked in the same position but, occasionally, the client may look for someone to grow into that role.

According to the interviewee, it is important to determine how people changed positions and why. If someone only worked for 1.5 years in a position, the interviewee assumes that not much has been accomplished. In addition, if a growth challenge is at hand, and one should have managed growth. The target list of companies is evaluated by the amount of potential candidates. Usually, the amount of candidates ranges from 80 to 150. After querying for the interest of the candidates, the amount of phone interviews is typically 15–40. Next, personal or video interviews are held with 8–15 candidates, and finally, 1–6 short-listed candidates proceed to the interviews with the client.

5.2.2.2 Diversity

In the beginning of the assignment, the interviewee carries out culture interviews to raise the odds of locating candidates who fit to the company culture. Although matching factors are needed, the interviewee emphasizes that the goal of the research process is to produce a diverse set of candidates, including non-obvious ones.

The unemployed must be active in contacting if they wish to be considered in a search. Occasionally, the client's criteria are expressed indirectly or cannot be officially documented, such as age preferences. In addition, gender preferences occur.

Although preferences are considered, challenges may emerge. If an industry is dominated by one gender, changing region may prove helpful. Focusing on industries may result in an inadequate amount of candidates. Thus, to increase diversity and creativity, the interviewee also maps candidates based on the challenge of the client company, regardless of the industry.

5.2.2.3 Data Privacy

Several tools in executive search have been built before GDPR came into force. Unlike these tools, the novel solution utilized by the interviewee has considered the EU's data privacy requirements from the beginning.

5.2.3 CamdenPoint Oy

CamdenPoint provides consultancy and has published a book (Olin 2019) about executive search (CamdenPoint 2020). After a long career in one of the leading companies in executive search, Bob Olin worked as a consultant at CamdenPoint at the time of the interview.

5.2.3.1 Executive Research Process

The interviewee has worked in the field for more than 30 years. When starting with a new assignment, he always wanted to gain insight into the reason behind recruitment, financial information, market knowledge and the challenges of the company. In addition, client expectations were mapped. To excel in his work, the interviewee also wanted to become aware of the interpersonal factors which might affect the attitude of candidates.

The interviewee always began the research with a roadmap based on the existence of human sources and similarity with regard to previous assignments. When the interviewee started working in the field, he used to call people and end with referenced suggestions of candidates. Now that the list of candidates can be attained rapidly from the internet, the interviewee raises the need of studying candidates more carefully. According to the interviewee, it is crucial to follow the process of mapping industries, companies and candidates, respectively. Proceeding in a certain order enables returning to the previous step in case of a non-existing output.

The research process starts with delving into industry information. If needed, the interviewee suggested contacting sources who work in the industry or industry associations to obtain company recommendations. Although an industry-based approach is usually followed, the interviewee also described a case where the selection criterion for companies was a high safety standard.

Having identified relevant industries, the aim is to find the leading companies in selected industries. To accomplish this endeavor, the interviewee suggested looking for companies among the members of Confederation of Finnish Industries and the 500 largest companies by Talouselämä magazine. To evaluate the companies, one may look at the available information and the bottom line during the previous five years, for instance. The interviewee mentions that good companies are present in the media. If other suitable companies are found, they can be added to the list. The amount of companies may vary dramatically, ranging from a few to tens of companies.

Potential candidates may be found from the defined industries or they may have moved to other industries. As a standard, candidates may be required to possess a certain level of education and professional expertise or experience. Market, product or service knowledge may be required as well. To find candidates in LinkedIn, several titles must be considered. In addition, regional restrictions may be applied. As to the title to be filled, previous position holders as well as superior and inferior positions can be included in the research. If no candidates are found despite these efforts, the company web-site may prove helpful.

The interviewee claims that the long list should contain approximately 50 names, with a maximum of 70 names. The contents of the list may change but exceeding the limit may complicate argumentation of the reasoning behind the name to the client and to the candidate. On the other hand, if the list contains less than 30 names, approaching may result a lack of candidates. Usually, the interviewee had to contact 15–18 prioritized candidates to yield a short list of 4–6 candidates.

5.2.3.2 Continual Improvement

According to the interviewee, the role of a researcher differs among executive search companies. In some companies, the work contains development of knowledge management. Figure 9 demonstrates different information systems in companies of different sizes.

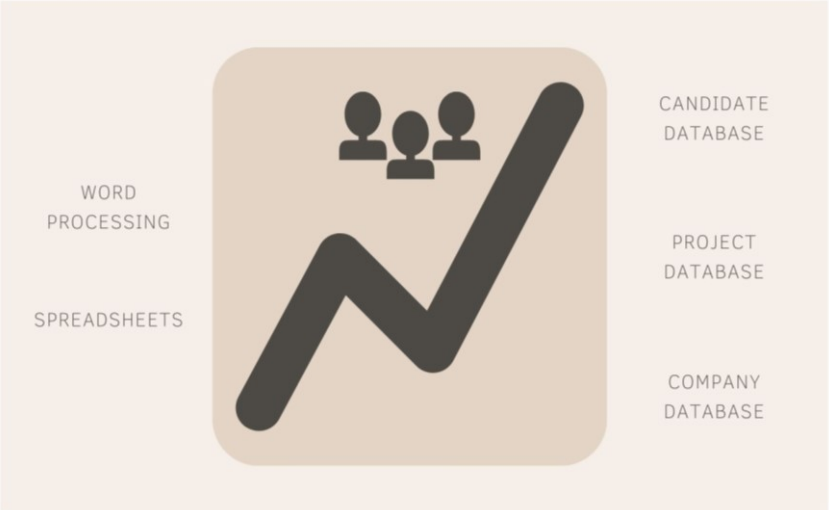

Figure 9. Company size and information systems in executive search.

As demonstrated in Figure 9, size affects the need of advanced information systems in the company. According to the interview, the company may succeed even with Microsoft Word and Excel in the beginning. However, as the number of employees grows, automation is needed to ensure efficiency. Thus, companies usually have a database for candidate information, a database for project-related information and a database for companies in relevant industries. The interviewee emphasizes the importance of selecting the right database and the right code system for industries. Finally, the interviewee states that, despite technology, the focus should remain in contacting and becoming familiar with the candidates.

According to the interviewee, the proprietary databases should contain all information concerning past and current assignments, excluding trade secrets and other confidential information. He emphasized that a major advantage in the speed of research may be achieved by pre-emptive research where candidates for potential assignments are located and fed to the database. In addition, the database should be updated. For instance, Kauppalehti magazine offers public information about nominations. Despite previously mentioned aspirations, the interviewee highlights the importance of reasonability in both pre-emptive research and database updates. To avoid extended laboriousness, pre-emptive research may require only one or two days in a month and database updates may be executed to the most potential candidates among the selection of a relevant database query.

5.2.3.3 Diversity

According to the interviewee, only four candidates in the long list can be unemployed, as the meaning of the search is to attract the best candidates. The interviewee stated that one should discuss with the client if personal factors such as an age range from 35 to 45 years was presented by the client. One should discuss whether candidates can be ten years older if they perform well.

According to the interviewee, some client may want to exclude women from the management team or demand heteronormativity. However, he would not accept such an assignment. He recalls a mention that being a male would be beneficial if the role is hazardous, for instance. He states that the main reason for the low amount of female candidates stems from the unequal distribution in the target group of candidates.

5.2.3.4 Data Privacy

According to the interviewee, the consent for data processing has two distinct procedures. In the first option, one asks for the consent. If one discusses with potential candidates or ask for a CV, one should ask for a consent to feed the information to the database. The same procedure is applied if candidates feed the information to the database themselves. However, if candidates send their CVs via email, it is assumed that they give the consent for storage.

In the second option, one does not have to ask for a consent. Unlike in the previous option, the information is not derived from the candidate but from public sources, one can store the information if needed by the business and the assignment. However, the assumption in executive search is that the information is always needed in future assignments. The interviewee mentions that one should publicly inform everyone about the possibility to inquire whether they exist in the database.

5.2.4 Summary

This sub-section has provided insights into data analysis in other executive search companies. The findings are summarized in Table 11.

Table 11. Summary of findings from interviews with experts in executive search.

	Element	Aspect	IMS Talent Oy	Nordic Minds GmbH	CamdenPoint Oy
1	Industry analysis	a) Industry criteria	a) Service or product, specialized and adjacent industries, digital maturity, business logic, sometimes industry non-relevant (CFO)	a) Competitors, main industry categories	a) The same industry or other factors such as high standards of the business environment
		b) Company sources	b) Industry associations, Fonecta, Largestcompanies.com	b) Largestcompanies.com	b) Industry associations, Confederation of Finnish Industries, Talouselämä
2	Company analysis	a) Company criteria	a) Previous companies of candidates, employee structure and internationality (HR)	a) Growth in the past 10 years in case of a growth challenge	a) Leading companies, the bottom line in the past five years, presence in the media
		b) Decision points	b) Iterated if needed based on candidate yield	b) Approximately 50 companies, prioritized with the client	b) From a few to tens of companies
3	Candidate analysis	a) Sources	a) LinkedIn, company website, registers, seminars	a) LinkedIn, Xing, industry events	a) LinkedIn, company website
		b) Selected positions	b) Current and previous position-holders	b) Current, previous, superior and inferior position-holders, an additional industry-independent search	b) Current, previous, superior and inferior position-holders, searching with several titles and regional restrictions
		c) Candidate criteria	c) Similar company situation (CEO), professional competence, variety	c) Client-derived criteria of working in the same position and seniority, reasons for changing positions as not much has been accomplished in less than 1.5 years,	c) Education, professional expertise and experience, market, product or service knowledge, may have exited from the industry

		d) Long list	d) 30–50 names, rarely exceeding to 80 names, based on the amount of work	managing growth in case of a growth challenge d) 80–150 names, 15–40 phone interviews, 8–15 personal or video interviews, 1–6 client interviews	d) Approximately 50 names (30–70), prioritizing and contacting 15–18 candidates usually, 4–6 client interviews
6	Diversity	a) Unemployment b) Age c) Gender and sexual orientation	a) Considered if previously worked in a selected company b) Over 50 is now generally accepted c) The diversity policy of the client may cause challenges in case of a skewed gender distribution	a) Considered if proactively contacting the firm b) Clients may have age preferences c) If gender preferences occur, changing region may help with a skewed gender distribution	a) Less than five unemployed candidates in the long list b) Expectations of 35-45 years need to be discussed to include older candidates c) Preferences on gender and sexual orientation may occur, a skewed gender distribution is mainly caused by the skewness of the candidate pool
4	Continual improvement		Networking and previous cases, modifying the search strategy if needed	Networking and previous cases	Networking, previous cases, preemptive research
5	Data privacy		Grouping in LinkedIn based on LinkedIn consent and GDPR-compliancy	Developing a GDPR-compliant IT system	Consent inquired unless collected from public sources

Shown in Table 11, executive search professional shared complementary insights into industry analysis, company analysis and candidate analysis. The phases of the analysis were described thoroughly in terms of defining industries, evaluating companies and selecting candidates for the long list. Despite explicit strategies for selecting candidates, all interviewees had faced challenges in meeting gender diversity expectations. In addition

to the analysis, the interviewees practiced continual improvement efforts within and between assignments. Finally, data privacy was considered with a diverse set of procedures.

5.3 Proposal Draft

As previously stated, the aim of this study was to build a process description in order to systematize data analysis in executive research. The proposal was built on the current state analysis, the conceptual framework and the external expert interviews. Following a process and harnessing modern data sources and tools is likely to increase the efficiency of the research process as the number of assignments and employees grows. As confirmed by the conceptual framework and the interviewees, the research process should be strongly steered by the search strategy. However, it is noteworthy to mention that the basis for a novel assignment is built on previous cases and knowledge. An overview of the proposal for data analysis in a novel assignment is presented in Figure 10.

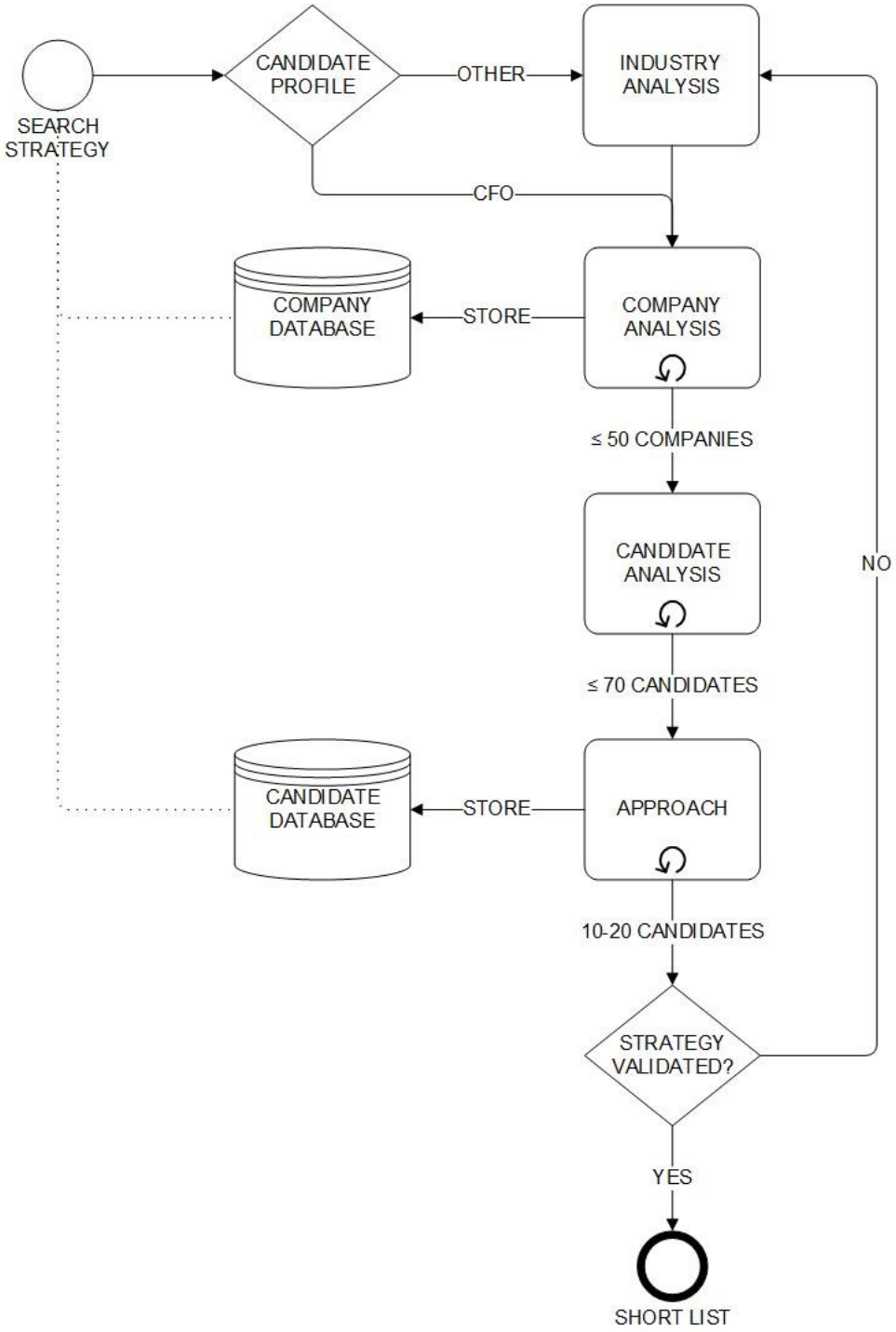

Figure 10. Overview of the proposal draft.

As can be noticed from Figure 10, supported by the conceptual framework (Section 4.1) and the expert interviews (Section 5.2), the data analysis follows one of the common types of executive search process where the candidate list is long and contacting is conducted before introducing the names to the client. In the next paragraph, the industry

analysis, the company analysis and the candidate analysis are overviewed before detailed descriptions.

First, the candidate profile determines whether the industry analysis is relevant (Section 5.2). If relevant, industries for locating potential companies are determined. Second, companies are selected based on evaluation. As suggested by an expert in the field (Section 5.2.2), up to 50 companies are selected according to certain criteria. This information is stored in the company database in order to serve future assignments, as recommended in the conceptual framework (Section 4.1.2). Third, up to 70 potential candidates are located and prioritized for contacting, as recommended in the conceptual framework (Section 4.1.2). Fourth, in concordance with the current practice in the case company, 10–20 candidates are approached and asked for a consent of storing personal information to benefit current and future assignments. Fifth, as stated by the interviewed experts in the field (Section 5.2), it is determined whether the analysis needs improvement before proceeding to the short list.

In addition to novel assignments, the process description can be utilized for pre-emptive research described in Section 4.1.5. In the latter case, however, a consent of storing candidate information is requested only for future assignments.

5.3.1 Industry Analysis

In order to find the right companies for the current assignment, one can select the main industry category of the client company, adjacent industries and competitors, as recommended by the experts in the field (Section 5.2). In addition to industry, size, business logic, digital maturity and business environment could be important in determining the pre-selection of companies (Section 5.2). Not restricted to listing companies in different categories, gathering company information from different sources may yield unexpected groups of companies, such as previously unidentified competitors. For instance, clusters can be visualized by plotting two continuous variables according to the values of a categorical variable. If the objective is to find novel clusters, the method must be selected according to data types. As clarified in Section 4.2.2, k-means clustering can be utilized for continuous variables, k-modes clustering for categorical variables and k-prototypes clustering for datasets with mixed data types.

As described in Section 4.2.1, Profinder enables retrieval of companies based on industry, region, number of employees, type of business and KPIs. As the output consists of a list of companies and their contact persons, all relevant companies in Finland can be retrieved by selecting a ubiquitous role such as the chairman of the board. If utilized in clustering, the information needs to be extracted individually for each criterion and coded according to the existence in the list. As only local subsidiaries are obtained, the location of headquarters can be retrieved by feeding company names to LinkedIn's Organization Search API (Section 4.2.1).

In addition to Profinder, various sources can be utilized. Confederation of Finnish Industries and industry associations yield lists of companies, as mentioned by experts in the field (Section 5.2). Moreover, rankings such as Talouselämä's rating of the largest 500 companies in Finland can be utilized (Section 5.2.3). In addition, Largestcompanies.com shows the latest information on turnover and can be utilized in Nordic searches (Section 5.2). Unless prohibited, data can be scraped from web-sites. Alternatively, if no APIs are available, printed PDF files can be converted to text and filtered by natural language processing, as described in Section 4.2.2. The extracted information can be utilized for clustering and for the company analysis.

5.3.2 Company Analysis

Once the pre-selection of companies has been executed, companies are analyzed in greater detail. Relevant company information, such as industry, size and company type, is stored in the company database, as recommended in the conceptual framework (Section 4.1.5).

To determine up to 50 leading companies in the pre-selected group, financial performance over the past five years is analyzed, as suggested by an expert in the field (Section 5.2.3). If the client company is facing a growth challenge, growth during the past 10 years should be favored (Section 5.2.2). Yearly data on financial performance can be acquired from web-sites directly by web scraping, by converting and filtering text from a printed PDF file or by utilizing OpenAI's production tool for spreadsheets (Sections 4.2.1 and 4.2.2). Financial performance can be determined by performing a time series regression analysis (Section 4.2.2) where a selected measure of financial performance, such as turnover or the bottom line, acts as a dependent variable and time as an independent variable.

The presence of the company in the media was highlighted by an expert in the field (Section 5.2.3). News and social media can be extracted by web scraping, PDF files or an API and analyzed utilizing natural language processing (Sections 4.2.1 and 4.2.2). Providing an overview on the brand aspect, a sentiment analysis (Section 4.2.2) can be included in selection process.

After selecting up to 50 companies, organizational structure can be studied. As to an assignment of a HR role, organizational structure may be relevant, as mentioned by an expert in the field (Section 5.2.1). As company-specific titles for Boolean search can be acquired by analyzing organizational structures, all search assignments can benefit from the analysis. A holistic view on organizational structure can be obtained utilizing several methods. If Google search is utilized, a company-specific search for LinkedIn is performed yielding a maximum amount of results per page, printed as PDF files, extracted to text and analyzed via natural language processing (Sections 4.2.1 and 4.2.2). Although utilizing Google search may yield accurate results, coverage may remain inadequate due to the publicity restrictions of LinkedIn profiles. To define the organizational structures of the selected companies more efficiently, OpenAI's production tool for spreadsheets can be utilized (Section 4.2.2). With OpenAI, position holders for all relevant titles, including the large variety of alternative titles, can be retrieved simultaneously.

5.3.3 Candidate Analysis

When companies have been selected, the researcher continues with the candidate analysis. If the researcher is not familiar with the role to be assigned, key words can be visualized as word clouds by performing a search in LinkedIn, exporting profiles as PDF files and applying natural language processing (Sections 4.2.1 and 4.2.2).

Although OpenAI's production tool for spreadsheets is a powerful tool for fetching position holders, the results may be outdated and thus require verification efforts. By conducting a company-specific candidate search with LinkedIn Recruiter Lite (Section 4.2.1), current and previous position holders equivalent to the role at hand as well as directly superior and inferior position holders are retrieved, as suggested by the experts in the field (Section 5.2) although previous work experience may not predict job performance nor turnover in the future (Section 4.1.3). In order to conduct an effective candidate search, synonyms of titles need to be included in Boolean search if not already examined by the analysis of organizational structure. Once interesting profiles are found,

they are saved into a LinkedIn project (Section 5.2.1). As described in the conceptual framework, aggregations of 25 profiles are exported as PDF files in order to be converted as text for natural language processing (Section 4.2.2).

Before the analysis, names of the candidates can be replaced with codes in order to strengthen the objectivity of the analysis. Some of repetitive phases of the candidate analysis can be alleviated by automation. A few examples on the experience section are covered, but, if relevant, other sections such as education can be analyzed in a similar fashion. As to work experience, the researcher should focus on the most important employment periods and employers, as recommended by the experts in the field (Section 5.2). Employment periods can be filtered by length in order to focus on the most relevant employment periods. To determine the size of the previous employers, the corresponding company names can be fed to LinkedIn's Organization Search API (Section 4.2.1). In addition, the trend of the career can be evaluated by creating career scores based on the order of the observed key titles such as manager and head. In case of a growth challenge, the company's financial performance at the employment period of the candidate can be analyzed by time series regression analysis, as discussed with an expert in the field (Section 5.2.2). As described in the conceptual framework, a period of three years has been relevant in studies where the impact of a CEO on a company has been analyzed (Section 4.1.3). However, the trend may be caused by other factors or seen only after a candidate has moved to another position. Thus, cautiousness is needed when interpreting the results. However, the results may invoke a fruitful discussion with the candidate.

Based on the candidate analysis, up to 70 candidates are selected for the long list. They can be prioritized based on the previously described analyses and other factors, such as diversity requirements. If the diversity objectives are not fulfilled, regional preferences can be varied, as suggested by an expert in the field (Section 5.2.2). From the long list, 10–20 candidates are approached in order to validate the search strategy. If the search strategy appears inadequate, the researcher revises the previous stages of the research to yield more companies and candidates, as suggested by experts in the field (Section 5.2). For instance, analyzing the pool of previous employers may reveal interesting companies, as mentioned by an expert in the field (Section 5.2.1).

When the search strategy appears right and interested candidates have been found, candidate information can be stored in the candidate database. In order to follow current

data privacy regulations in Finland described in Section 4.2.3, the consent for storing information for profiling purposes is manually or automatically requested if candidate information is stored for a longer time period than a month. Automatic role update notifiers can be added to the most promising candidates based on LinkedIn's Profile API (Section 4.2.1), as updates are recommended by an expert in the field (Section 5.2.3).

Although following the generally accepted logic of an assignment, the process description is limited in multiple dimensions. For the sake of clarity, it concentrates on the data analysis, excluding internal roles, meetings with the client company and the project database. In addition, the upper limits for candidates and companies have been defined by experts, and thus provide only a starting point for a junior researcher.

In the next section, the proposed process description is validated with the case company.

6 Validation of the Proposal

The aim of this section is to enlighten the validation of the proposed process description for data analysis in executive research. At the end of this section, the final proposal is described.

6.1 Overview of the Validation Stage

In this section, the proposal in Section 5 is validated based on the feedback from Hannu-Matias Nurmi, CEO at the case company. The proposal was evaluated from three perspectives: utility, viability and generalizability.

As concluded based on the current state analysis, data analysis was performed in an implicit fashion although data sources were mentioned. The proposed process description enlightens the steps of the research process and elaborates the analysis with different data analysis methods. In order to clarify the validation of the process, this section follows the order of the Proposal in Section 5.3, from the industry analysis and the company analysis to the candidate analysis.

6.2 Findings of Data Collection 3

This sub-section introduces the findings from the validation stage.

In terms of balancing the workload, the interviewee recognized the value of pre-emptive research when only a few assignments are in progress. According to him, preparatory analysis in pre-emptive research could reduce the workload during an actual assignment.

In terms of iteration in the research process, the interviewee highlighted the variability in the field. He emphasized building in-depth insights into client situation by carrying out stakeholder interviews at the starting point and by verifying the strategy with the client. Ideally, this procedure reduces the probability of modifying the search strategy and, thus, the need for repeating the process. However, the interviewee stated that the candidate analysis can be iterated if an insufficient number of relevant candidates are interested in the position at hand.

6.2.1 Industry Analysis

First, the effect of the candidate profile was discussed. For a CEO, the requirement for industry knowledge varies. In addition, HR roles may not be dependent on industry knowledge. As to CFO, company factors such as accounting standards are crucial whereas industry does usually not have a major impact. However, as the industry analysis is considered rather a wider analysis for pre-selection of companies than a list of industries, the industry analysis can be performed for CFO roles as well.

Second, important pre-selective criteria were discussed. The most important criteria are industry, region and size. The interviewee stated that size refers primarily to turnover and only secondarily to the number of employees. However, the number of employees can be a criterion from the client and relevant if working in the position includes leading a certain number of employees. Other factors such as business environment are relevant but not as important as previously mentioned criteria. According to the interviewee, digital maturity should be extended to the overall maturity of the processes, as leading a startup differs substantially from leading a corporation with well-defined processes.

Finally, technical solutions were discussed. The interviewee mentioned that Profinder Premium has recently acquired a web scraping feature. Thus, viability of web scraping was validated in this context. In addition, situations were recognized where searching for location of the headquarters via LinkedIn Organization Search API is relevant.

6.2.2 Company Analysis

First, storing company information in a company database was discussed. Earlier, an in-house database could be considered as a competitive factor. Today, however, company data can now be effortlessly bought for an assignment. An in-house database could only focus on a narrow selection of industries as it would require continuous updates. Thus, the interviewee preferred obtaining company-related data from external databases for each assignment.

Second, the financial analysis was discussed. The interviewee agreed on focusing on turnover and profitability. In addition to the growth challenge, companies may have another challenge such as starting a novel business, accelerating growth for an exit, preparing for an acquisition, listing on a stock exchange, strengthening the leading position

in the market via acquisitions, restructuring due to a crisis and redefining strategy in a changed business environment.

Third, the role of ownership was discussed. The interviewee argued that the ownership base is equally or more important than financial performance. A company may be publicly owned or listed on a stock exchange. It can be centralized, decentralized or owned by employees or a family. The importance of ownership is manifested via role-specific effects: For a CEO and CFO, this is a major factor whereas HR roles are not largely affected. The ownership base affects the ratio of strategic and operative work in the role of a CEO, and for a CFO, specific reporting may be required.

Finally, the amount of selected companies was discussed. The interviewee agreed that the amount of selected companies varies substantially. Usually, candidate search from up to 50 companies suffices for a successful assignment. If the client mentions only a few direct competitors, the discussion should be enriched by presenting other companies with the similar type of business and customers. However, in the case of an oligopoly, only a few companies would be relevant for an assignment.

6.2.3 Candidate Analysis

First, the method for selecting relevant positions for candidate search was discussed. The interviewee mentioned that C-suite roles are usually clear and traceable. However, if targeting significantly larger companies than the client company, the positions may not be obvious. In addition, the hierarchy of positions may differ among companies, exemplified by the order of head and director. Thus, although titles can be mapped with automated methods, manual verification may be required. In addition, the interviewee noted that Boolean search cannot be considered sufficient for including a candidate.

Second, the experience of the candidate was discussed. The track record of the candidate is generally accepted to be highly relevant in the field. However, the criteria may differ based on the level of juniority. In the beginning of the career, cognitive capacity and personality affect the evaluation. Later, relevant success in a certain context is increasingly considered. If a candidate for a CEO position is a former or a current CEO, the track record of the whole company during the time of the employment is evaluated. In addition, for a sales-related position, the turnover of the company is evaluated.

Finally, the interviewee elaborated the selection of candidates for the approach phase. The value proposition of the service is to find the most relevant person from each company. However, in order to prepare for a refusal, 0–3 prioritized candidates are selected from the pool of current and previous employees of a target company.

Based on the validation interview with the case company, the development points of the proposal are presented in Table 12.

Table 12. Development points of the proposal draft.

	Element	**Development points**
1	Industry Analysis	Including CFO Clarifying the definition of company size Extending digital maturity to overall maturity as a criterion
2	Company analysis	Excluding an in-house database Including the ownership base as a criterion
3	Candidate analysis	Including the number of candidates from each company Modifying the iteration principles

As can be seen from Table 12 and the previous section, the proposal proved relevant for the case company and only minor changes were required. In the next sub-section, the development of the proposal is described.

6.3 Developments to the Proposal Based on Findings of Data Collection 3

This sub-section summarizes how the proposal was developed to meet the needs of the case company. The development points of the process map are visualized in Figure 11.

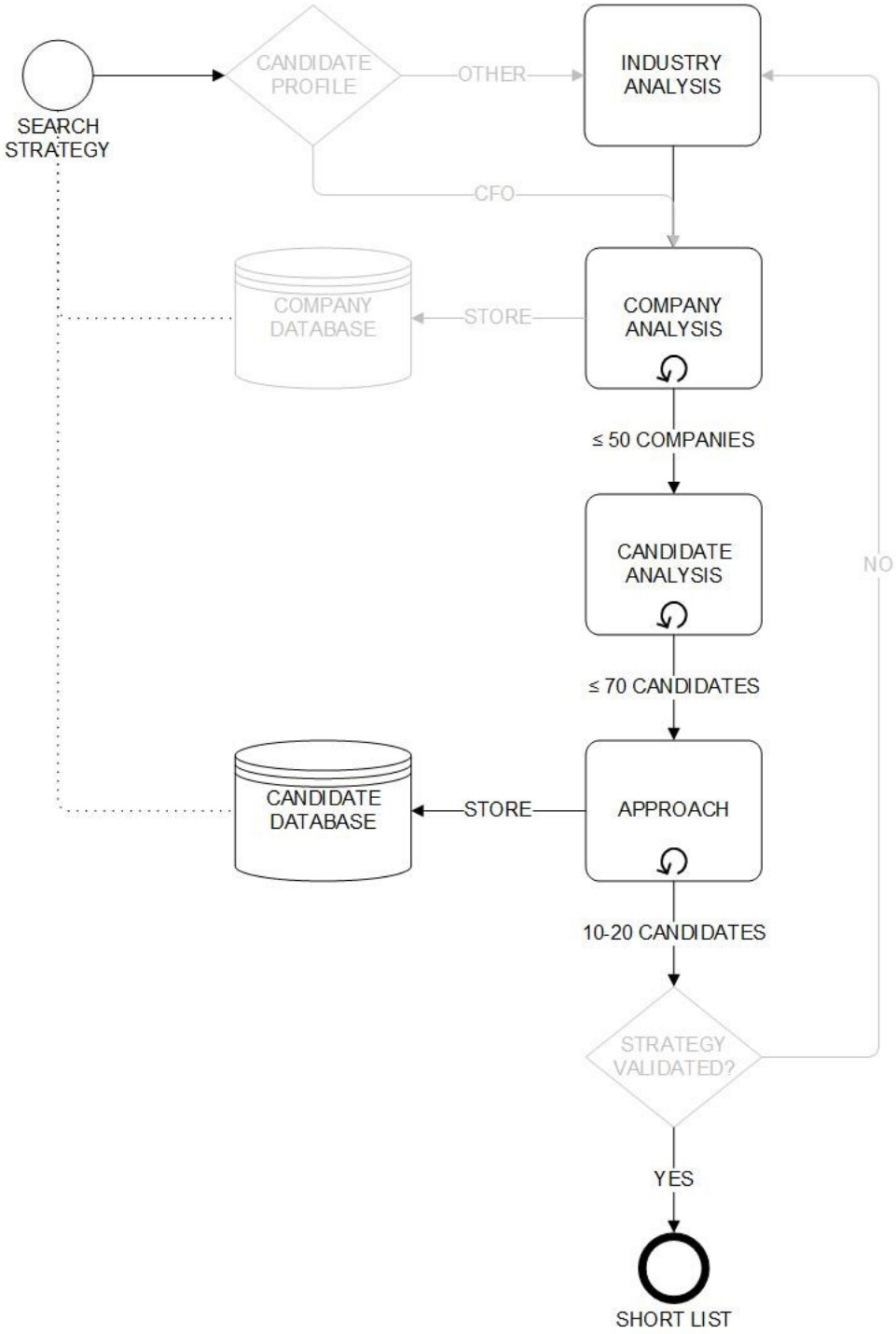

Figure 11. Changes in the proposal draft.

First, as can be seen in Figure 11, the role specification was removed from the process map and the content of the industry analysis was modified. As to the criteria for pre-selection of companies, size was clarified, and digital maturity was replaced with overall maturity.

Second, the detailed company analysis was extended to cover the ownership base. In terms of the company analysis, storing information in a proprietary company database was replaced with extracting data from external company databases.

Third, the candidate analysis was modified to include a mention that 0–3 candidates are considered from each company before contacting in a process where candidates are presented to the client only after contacting.

Finally, instead of asking whether the strategy is validated, yielding and an insufficient amount of relevant candidates leads to the iteration of the candidate analysis, not extending to the industry analysis nor to the company analysis.

6.4 Final Proposal

As previously stated, the aim of this study was to build a process description in order to systematize data analysis in executive research and to increase efficiency and profitability as the business grows. The proposal was built on findings from the current state analysis, the conceptual framework and the external expert interviews, and validated with the case company. An overview of the data analysis for a novel executive search assignment or pre-emptive research is presented in Figure 12.

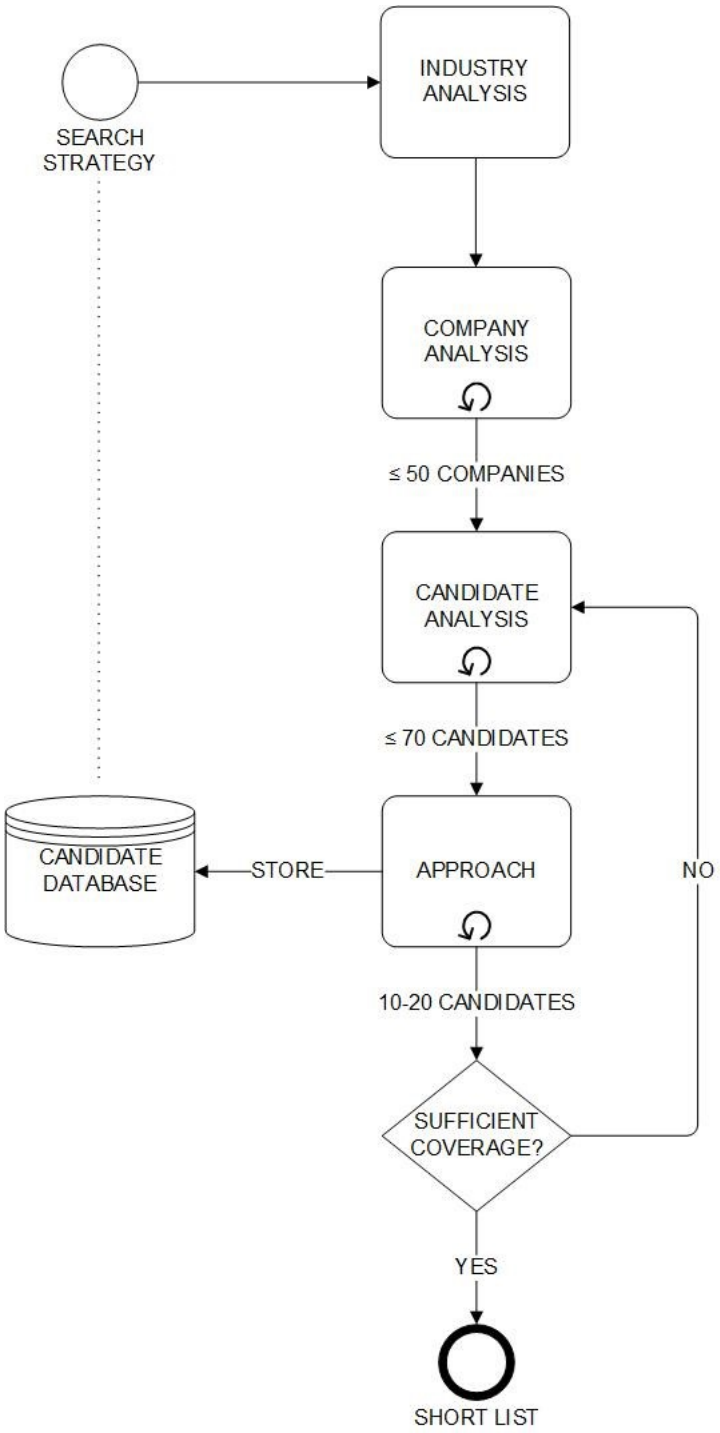

Figure 12. Overview of the validated proposal.

In the process description in Figure 12, it is assumed that the candidate list is long and contacting is conducted before introducing the names to the client. In all cases, a search strategy is determined with the client company and relevant stakeholders before the analysis phase.

The analysis consists of three consecutive steps. First, the industry analysis is carried out, resulting in a pre-selection of companies on the basis of industry-related and other factors. Second, the company analysis is conducted to select up to 50 companies on the basis of in-depth evaluation. Third, 0–3 current or previous employees of each company selected and prioritized for contacting, yielding a pool of up to 70 candidates. Fourth, 10–20 candidates are approached and asked for a consent of storing personal information for current and future assignments in the candidate database. In the case of pre-emptive research, a consent is requested only for future assignments. Fifth, the sufficiency of candidate coverage is evaluated before proceeding to the short list. If required, the candidate analysis can be repeated if the yield of interested candidates remains insufficient.

6.4.1 Industry Analysis

A summary of the industry analysis is presented in Figure 13.

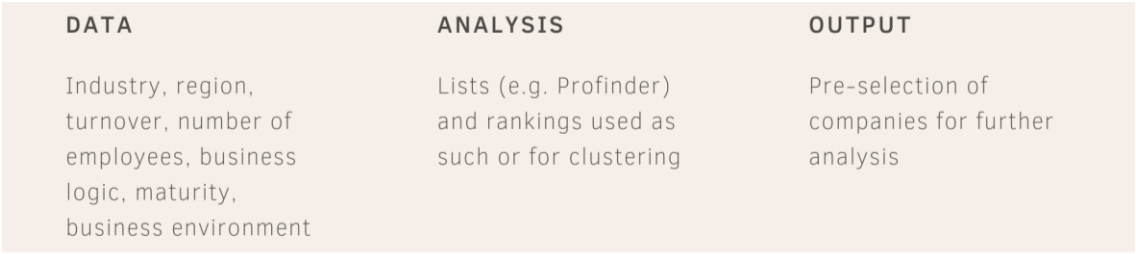

Figure 13. Summary of the industry analysis.

As can be seen in Figure 13, the industry analysis can be analyzed in terms of the utilized data, the selected analysis methods and the outputs. In the following paragraphs, these aspects are described in detail.

Although the importance of industry varies, in order to find the right companies for the current assignment, one may begin by selecting the main industry category of the client company, adjacent industries and competitors. In addition to industry, region, turnover, number of employees, business logic, processual maturity and business environment could be important in determining the pre-selection of companies.

Combining information from different sources may yield unexpected groups of companies, such as previously unidentified competitors. For instance, clusters can be visualized by plotting two continuous variables colored according to the values of a categorical

variable. If the objective is to find novel clusters, the method must be selected according to data types. For instance, in Python, k-means clustering in can be utilized for continuous variables, k-modes clustering for categorical variables and k-prototypes clustering for datasets with mixed data types.

Profinder enables retrieval of companies based on industry, region, number of employees, type of business and KPIs. As the output consists of a list of companies and their contact persons, all relevant companies in Finland can be retrieved by selecting a ubiquitous role such as the chairman of the board. If utilized in clustering, the information needs to be extracted individually for each criterion and coded according to the existence in the list. As only local subsidiaries are obtained, the location of headquarters can be retrieved by feeding company names to LinkedIn's Organization Search API.

In addition to Profinder, various sources can be utilized. Confederation of Finnish Industries and industry associations yield lists of companies. Moreover, rankings such as Talouselämä's rating of the largest 500 companies in Finland can be utilized. In addition, Largestcompanies.com shows the latest information on turnover and can be utilized in Nordic searches. Unless prohibited, data can be scraped from web-sites with Beautiful Soup library in Python. Alternatively, if no APIs are available, printed PDF files can be converted to text with tools such as UiPath or pdfminer.six in Python. The extracted lists can be utilized for clustering and for the company analysis.

6.4.2 Company Analysis

The company analysis is summarized in Figure 14.

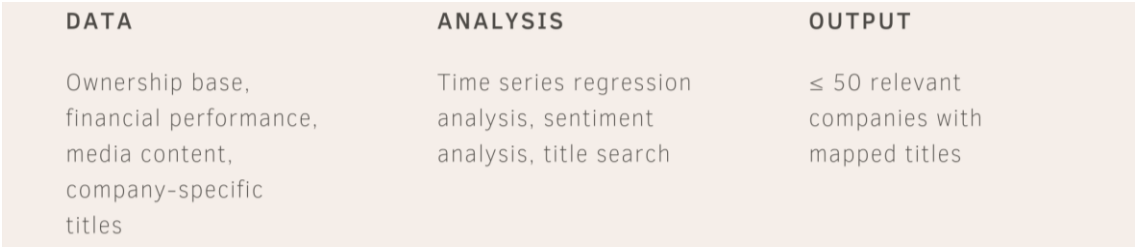

Figure 14. Summary of the company analysis.

As in the case of the industry analysis, the relevant aspects regarding the data, the analysis and the outputs of the company analysis are uncovered in the following paragraphs.

Once the pre-selection of companies has been executed, companies are analyzed in greater detail. To determine the most relevant companies in the pre-selected group, the ownership base and financial performance over the past five years are analyzed. If the client company is facing a growth challenge, growth during the past 10 years should be favored.

Yearly data on financial performance can be acquired from web-sites by web scraping or PDF files, as described in the industry analysis, or by utilizing OpenAI's production tool for spreadsheets. Financial performance can be determined by performing a time series regression analysis where a selected measure of financial performance, such as turnover or the bottom line, acts as a dependent variable and time as an independent variable. Finally, to confirm the selection of companies, emotions related to company brand can be analyzed based on news and social media data acquired via APIs or web scraping and PDF files as described in the industry analysis.

After selecting up to 50 companies, organizational structure can be studied with several methods to yield company-specific titles. If Google search is utilized, a company-specific search for LinkedIn is performed by printing a maximum amount of results per page to a PDF file and extracting text as in the industry analysis. To define organizational structures of companies more efficiently, OpenAI's production tool for spreadsheets can be utilized to search for position holders in a list of alternative titles.

6.4.3 Candidate Analysis

A summary of the candidate analysis is provided in Figure 15.

DATA	ANALYSIS	OUTPUT
Previous position holders, directly superior and inferior position holders	LinkedIn-based filtering of employment periods, career trend, time series regression analysis	≤ 70 relevant candidates (0–3 per company) and 10–20 for approach

Figure 15. Summary of the candidate analysis.

As to the industry analysis and the company analysis, the following paragraphs delve into the details of the candidate analysis summarized in Figure 15.

When the companies have been selected, the researcher continues to the candidate analysis. If the researcher is not familiar with the role to be assigned, key words can be visualized as word clouds after performing a search in LinkedIn, exporting PDF files and extracting text as in the industry analysis.

Although OpenAI's production tool for spreadsheets is a powerful tool for fetching position holders, the results may be outdated and thus require verification efforts. By conducting a company-specific candidate search with LinkedIn Recruiter Lite, current and previous position holders equivalent to the role at hand and directly superior and inferior position holders are retrieved. In order to conduct an effective candidate search, synonyms of titles need to be included in Boolean search if not already determined by the analysis of organizational structure. Once interesting profiles are found, they are saved into a LinkedIn project. As described in the conceptual framework, aggregations of 25 profiles are exported as PDF files and converted to text as in the industry analysis.

Before the actual candidate analysis, the names of the candidates can be replaced with codes in order to strengthen the objectivity of the analysis. The separate sections of the LinkedIn profile such as education and experience can be analyzed by automated methods. For instance, employment periods can be filtered by length in order to focus on relevant employment periods. To determine the size of the employers, company names can be fed to LinkedIn's Organization Search API. In addition, the trend of the career can be evaluated by creating career scores based on the order of observed key titles such as manager and head. In case of a growth challenge, financial performance at the employment period of the candidate can be analyzed by time series regression analysis. Although cautiousness is needed when interpreting the results, they may invoke a fruitful discussion with the candidate.

Based on the candidate analysis, up to 70 candidates are included in the long list. They can be prioritized based on previously described analyses and other factors, such as diversity requirements. If the diversity objectives are not fulfilled, regional preferences can be varied. The objective of the candidate analysis is to recognize 0–3 prioritized candidates from the pool of the current and previous employees of each company. From the long list, 10–20 candidates are approached. If the candidate analysis appears inadequate, the researcher revises the candidate analysis to yield more companies and candidates.

When relevant and interested candidates have been found, consents for storing information for profiling purposes are manually or automatically requested if candidate information is stored for a longer time period than a month. In the candidate database, automatic role update notifiers can be added to the most promising candidates based on LinkedIn's Profile API.

6.5 Action Plan

In this sub-section, an action plan for implementing the systematization of data analysis is presented. The recommended actions for the case company can be divided into three steps according to the yearly volume of assignments. Besides assignments, continuously conducted pre-emptive research accelerates the actual research process by testing in-depth analysis methods and by recognizing some of the most competent candidates in advance.

First, before reaching the yearly volume of 10 assignments, competitive advantage can be reached by focusing on a few industries and roles. To produce the pre-selection of companies efficiently, Profinder and rankings can be utilized. As simultaneous assignments may be rare, plotting and visual inspection can be favored instead of a wide collection of data sources and multiple variations of clustering and regression analyses. In terms of pre-emptive research, the focus relies on organizational mapping and the candidate analysis as collection of titles can be initiated and alleviating the candidate analysis with automation can be tested.

Second, when more than 10 assignments are conducted in a year, setting up a candidate database is recommended. In addition, position-related notifications concerning top performers can be added to the database. Based on experience, the automation of the candidate analysis can now be fully benefited. As to pre-emptive research, clustering can be tested for analyzing novel industries and regression analysis can be tested to automatize the analysis of financial information.

After exceeding the limit of 20 yearly assignments, based on the experience from pre-emptive research, all relevant methods can be applied to generate an efficient, automation-enhanced pipeline for data analysis in executive research. In order to adapt the most relevant technologies, the process can be continuously developed through pre-emptive

research although the proportional volume of pre-emptive research diminishes over time unless a novel industry is conquered.

7 Conclusions

This section begins with an executive summary describing how the process description for data analysis in executive search was built. At the end of this section, the thesis is evaluated from different perspectives.

7.1 Executive Summary

Executive search aims to find the best available candidates for a position. This requires an in-depth analysis of industries, companies and candidates, referred to as the executive research process. The objective of this thesis was to systematize data analysis in executive research in the form of a process description to increase efficiency and profitability of the executive research process at Chief Executive Search Helsinki Oy.

The proposal of this study was built on interviews, company documentation and best practices in executive search and data analysis. First, internal interviews and documentation were analyzed to determine the current state of the research process. Second, best practices for executive search and data analysis were described. Third, external expert interviews were conducted to complement the literature review. Fourth, the proposal was validated within the case company to determine the utility, validity and generalizability of the proposal.

The current state analysis focused on roles, data and risks in three pre-determined phases: Analyze, Research and Approach. The analysis resulted in a conclusion that the data sources were clearly defined but the actual research methodology remained uncovered. Thus, the literature review focused on executive search and data analysis, including the executive research process, diversity aspects, continual improvement of the research process, relevant methods for data analysis and data privacy considerations.

The validated proposal described popular data sources, relevant analysis methods, several automation opportunities and guiding decision points. The research process is steered by the views of the client and the executive search company, crystallized as a search strategy. The analysis is carried out in three phases which are described in the following paragraphs.

First, the industry analysis is conducted to yield a pre-selection of companies based on relevant factors such as industry, region, turnover and the number of employees. Based on several criteria, relevant Finnish companies can be listed by utilizing Profinder. Additional relevant data, such as rankings, can be obtained from web-sites by API requests, by web scraping or by extracting text from printed PDF files. Harnessing clustering methods such as k-means clustering in Python can yield novel, considerable groups of companies.

Second, the company analysis is carried out to obtain an in-depth view on the pre-selected companies. In this phase, the ownership base is clarified. To determine the leading companies, financial performance can be obtained by web scraping, by extracting text from printed PDF files or by utilizing OpenAI's production tool for spreadsheets, followed by time series regression analysis. To inspect the brand of a company, a sentiment analysis can be carried out for data derived from news and social data from web scraping, printed PDF files or APIs. From the pre-selection of companies, up to 50 companies may continue to the analysis of organizational structure with either Google search for LinkedIn and PDF processing or with OpenAI's production tool for spreadsheets.

Third, the candidate analysis is conducted by utilizing LinkedIn Recruiter Lite and other sources to find the most relevant candidates from each company on the list. In terms of the position at hand, current and previous position holders as well as directly superior and inferior positions are primarily considered. Selected profiles can be saved to a LinkedIn project and extracted as aggregated PDF files. Converted to text, the profiles can be analyzed with automated methods such as filtering of employment periods. The data can also be combined with company data from LinkedIn's Organizational Search API to obtain further insights. Based on the analysis, the candidates are prioritized. If diversity objectives of the search assignment have not been achieved, regional preferences can be modified. As a result of the candidate analysis, 0–3 candidates are selected from each company, resulting in a pool of up to 70 candidates. In the approach phase, 10–20 candidates are contacted, and if the consent is acquired, their information is stored in the candidate database and notifications for employment updates are applied with LinkedIn's Profile API.

In conclusion, the executive research process can be enriched with data analytics and automation in order to increase efficiency and profitability. The action plan for the case company emphasizes the role of pre-emptive research in testing novel analysis methods

as the number of yearly assignments grows. The most efficient combination of analysis methods can only be reached by continual evaluation and improvement of the executive research process.

7.2 Thesis Evaluation

In this sub-section, the outcome of project and some of the uncovered assumptions in executive search are critically evaluated.

7.2.1 Project

The brainstorming for the study began before the actual beginning of the project. Thus, iterations were needed to adjust the process in order to achieve the required level of clarity from the reader's viewpoint. Although more theory could have been studied before the expert interviews, focusing on the key aspects instead of following a questionnaire resulted in fruitful discussions yielding several important learnings.

As to building the proposal, division into industry, company and candidate analysis may appear artificial. Although role- and assignment-specific variation as well as the lack of experience in the field restricted the possibility to formulate the exact decision points, practical quantitative thresholds were found to delimit the amount of work in different phases of the research process.

7.2.2 Assumptions

Apparently, several assumptions steer decision-making in executive search. These assumptions are discussed in the following paragraphs.

First, client companies may favor experience in a similar position in a distinct industrial branch. However, scientific studies have not confirmed the importance of experience nor the interdependence of a position holder and company performance. With a growing body of scientific information, the executive search companies are increasingly equipped to challenge the prevailing assumptions.

Second, it is assumed that a candidate would want to change to a new position with a similar title or move one step in the hierarchy. However, it remained unclear why a candidate was assumed to aim for a fairly similar position. In addition, it remained to be explored what the researchers would expect if a candidate has shifted away from a C-level position to a startup, for instance. In the future, these assumptions may have to be critically evaluated to find the best talent.

Finally, diversity needs to be increasingly considered. In this study, skills, competencies and personal capabilities were not included in the proposal due to the limitations of the utilized data sources. In the future, novel methods to increase diversity at C-suite assignments can be developed in co-creation with clients and candidates.

7.3 Closing Words

In executive search, every encounter counts. However, one cannot control the behavior of clients and candidates. Moreover, the reputation of executive search is challenged by the rise of automated headhunting messages regarded as spam. Still, executive search companies should not be afraid to harness the power of data and technology. In the long run, reputation, knowledge and streamlined processes pave the way for success. Thus, the focus should be steered towards decision-making to improve the performance of executive research. Let the machine do what it can do better.

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Appendix 1. RACI Chart

The RACI Chart helps the organization to improve team performance. By utilizing the RACI Chart, the organization can determine what is conducted by who in terms of different tasks (Tartell 2017). An example of RACI chart is presented in Table A1.

Table A1. Example of RACI chart (Tartell 2017).

Sample RACI Chart: Professional Meeting						
Activity	Chapter President (Jane)	Head of Programing (Steve)	Program Committee (Aman)	Program Presenter (TBD)	Chapter Admin. (Michele)	Chapter Marketing (Albert)
Identify possible program presenters	I	A/R	R			C
Share presenter profiles and select program presenter	C	A/R	R		I	C
Create meeting program description	C	A	R	R	C	C
Market/ Communicate program	I	C	I		R	A/R
Register participants	I	I			A/R	I
Ensure presenter logistics are properly handled	I	A/C	C	I	R	I
Deliver the program		R	I	A/R		
Present program evaluations to the board for discussion		A/R	C		R	

In a RACI chart, exemplified by Table A1, activities are listed and roles are at the top row of the matrix. ”R”, or responsible, refers to the person who executes the task. “A”, or accountable, refers to the person who acts as a decision-maker and approver of an activity. “C”, or consultant, provides information or advice to “R” or “A” beforehand. “I”, or informed, receives information after decision-making.