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BBA

# **Career development in ICT: A research-based approach to improving career management at Arbonaut**

Heli Hiltunen, 2010408

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Tikkarinne 9  
FI 80200 JOENSUU  
Tel. +350 13 260 600

**Author**  
Heli Hiltunen

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Career development in ICT: A research-based approach to improving career management at Arbonaut

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This thesis investigates how career development can be effectively structured and implemented within ICT organisations through a case study of Arbonaut, a Finland-based technology company. The motivation for the study arose from Arbonaut's recognition of a gap in its formal career management practices, which currently rely on ad hoc discussions and lack a strategic, company-wide framework.

The objective was to explore established career development theories and frameworks relevant to the ICT sector, assess employee perceptions of current practices, and develop tailored recommendations for a sustainable and inclusive career development system at Arbonaut. A mixed-methods research approach was used, combining a company-wide employee survey with semi-structured interviews of organisational leaders.

The findings revealed that while Arbonaut employees value growth and learning, they experience development as informal, inconsistently supported, and lacking transparency. Leaders acknowledged similar challenges, highlighting the need for structure, clarity, and better alignment with strategic goals. Key theoretical frameworks were found to offer valuable guidance when integrated with Arbonaut's specific context.

Based on these insights, the thesis proposes a practical, multi-framework career development guidelines that emphasizes clarity, equity, supervisor engagement, and strategic alignment. Future research could explore implementation outcomes, HR's role in coordination, and the long-term impact of structured development systems on retention and engagement.

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# 1. Introduction

## 1.1 Background

Technological proficiency and digital skills play a crucial role in career development, particularly in the Information and Communication Technology (ICT) sector. One of the key challenges for leaders managing digital projects is retaining top professionals with cutting-edge technical expertise to remain competitive in the market (Macedo, Velaco, Pinsky & Trevisan 2023, 20).

This challenge also extends to career managers, who must continuously refine their competencies to effectively identify and implement career development strategies that align with both organisational goals and employee aspirations.

Establishing a structured approach to career management and continuous learning can enhance employee growth and align with business priorities. (Macedo, Veloso, Pinsky & Trevisan 2023, 23, 26.)

## 1.2 Introduction to Arbonaut

Arbonaut Ltd, founded in 1994, delivers advanced forest inventory and natural resource management systems to government and private clients worldwide. Arbonaut specialises in creating digital twins of forests such as for precise biodiversity monitoring, carbon stock assessment, and deforestation monitoring. These solutions enable real-time decision making for sustainable forestry and climate resilience planning, balancing ecological and economic priorities globally. (Arbonaut, 2025.)

Arbonaut has headquarters in Joensuu, Finland with a branch office housing ten experts in Helsinki. The company employs 90 professionals with backgrounds in geography, forestry, software development, mathematics, physics, and business administration, among other fields (Arbonaut 2025).

Arbonaut's strategy focuses on combining cutting-edge technology with sustainable forestry practices. The company pioneers digital solutions to support informed decision-making in forest management. (Arbonaut 2025.)

Key elements of the strategy include:

- Innovation: Developing advanced tools for forest operations using aerial and satellite data.
  - Client-Centered Approach: Delivering tailored solutions for both public and private sector needs.
  - Global Impact: Operating in over 30 countries with 100+ projects, emphasising adaptability and sustainability.
  - R&D Leadership: Investing in systems for inventory, wildfire risk, and climate change response.
  - Diverse Team: Leveraging a multicultural workforce to drive creativity and insight.
- (Arbonaut 2025.)

### **1.3 Purpose of the study**

The management of the company has identified that Arbonaut currently lacks a formal career management plan. Employee career development is primarily addressed through development discussions and ad-hoc conversations. The absence of a structured framework makes it unclear how employees can meet the company's evolving technical and digital requirements.

Additionally, it remains uncertain to what extent employee needs are considered in career development initiatives and whether their full potential is effectively utilised. Therefore, as an Arbonaut employee, I was given a task to further investigate the current career development practices and create a career development plan.

The purpose of the study is to examine career management theories and best practices within the ICT sector while analysing the specific needs and goals of Arbonaut. Based on the findings, a tailored career management plan will be developed for the company. The thesis also aims to explore Arbonaut employees' perspectives on career development and how these influence the effectiveness of career management practices.

Based on this study's findings, tailored recommendations will be given for Arbonaut, offering practical guidelines and actionable steps to support the implementation of a more structured and equitable career development process.

These recommendations form a foundation upon which a broader development model can be built, one that includes the necessary tools, resources, and clearly defined responsibilities for employees, supervisors, HR, and the organisation.

To help Arbonaut with achieving these goals, this study will focus on the following research objectives:

1. What established career development theories and frameworks are most suitable for ICT companies in creating effective and sustainable career development plan?
2. What are Arbonaut employees' perceptions of career management practices?
3. What key practices and theoretical approaches should Arbonaut consider when developing a career development plan, and what factors are crucial for ensuring its success?

As an outcome, this thesis presents an analysis of established career development theories and frameworks relevant to the ICT industry and offers tailored recommendations for Arbonaut, including practical guidelines and actionable steps to support the successful implementation of a comprehensive career development plan.

## **1.4 Methodology**

The research process and reporting will adhere to good scientific practices as outlined in the guidelines of the Finnish National Board on Research Integrity (TENK) (Tutkimuseettinen neuvottelukunta 2023). Additionally, a data management plan has been developed to ensure the proper collection, usage, and storage of research data throughout the study.

This study uses a mixed-method research approach, combining interviews, surveys, and desk research. Interviews with employees from various roles at Arbonaut will explore insights that may not emerge from existing knowledge sources or desk research, capturing both management's strategic needs and employees' career aspirations. A company-wide survey will gather broader feedback on career management practices and improvement suggestions. Desk

research will support the analysis by examining relevant frameworks and best practices.

Additionally, AI tools (ChatGPT) have been utilised to assist with data analysis, detecting repeating words and content, as well as for suggestions to improve the grammar. Together, these methods ensure a well-rounded understanding of Arbonaut's career management needs.

### **1.5 Importance of the study**

The proposed career management practices and methods are intended to address the commissioning company's current lack of a structured framework for employee development. This thesis provides guidelines that can serve as a foundation for building a tailored career development system. By incorporating adaptable and forward-looking strategies, these recommendations provide a starting point for a framework that can evolve with the company's changing needs. This flexibility ensures that both managers and employees are supported in their growth, aligning individual development with organisational priorities.

A well-structured career management plan can significantly enhance job satisfaction, improve employee retention, and strengthen the company's competitive position. By promoting continuous learning and skill development in line with industry trends, the plan will help Arbonaut maintain its competitive edge. By balancing strategic goals with employee growth, the findings aim to support the creation of a sustainable approach to career development that contributes to long-term success.

### **1.6 Outline of the report**

The thesis begins with the introduction to the topic of career management and its relevance to the ICT sector. It provides context for the study and explains the motivation behind exploring effective career management practices.

This is followed by a theoretical section that presents the overview of career management in ICT, analyses potential career frameworks and provides tools

and practices. The research findings are then presented, including the results of interviews that explore current and future career management needs.

The final section presents the results of the study, outlining the findings related to Arbonaut's career management needs. It discusses the alignment of the career management guidelines with the company's strategic goals and employee development. The discussion then reflects on how these results answer the research questions and connect to existing career management theories, offering recommendations for improving practices at Arbonaut.

## **2. Overview of Career Management in ICT**

### **2.1 Background**

This chapter outlines key concepts, theories, and frameworks relevant to career management in the ICT sector. It emphasises the need for structured frameworks to support employee growth while aligning with organisational goals. The chapter introduces career management strategies that address ICT industry challenges such as talent retention, skill development, and career progression, identifying factors relevant to Arbonaut's case. It also examines frameworks that support individual growth while aligning with both short- and long-term ICT organisational objectives.

### **2.2 Evolution of career management in ICT**

The evolution of career management has shifted from traditional career paths to more dynamic, adaptable models in response to industry changes. Back in 1995, the 'job shifting' concept recognised the shift from earning-based roles to careers focused on growth and personal satisfaction. This shift underscores the increasing importance of career management frameworks that not only support technical skill development but also align with employees' aspirations for meaningful and progressive career paths. (Bridges 1995 as cited in Yarnall 2008, 9.) Building on this idea, Marzec, Scholarios, Heijden and Jedrzejowicz (2009, 472) emphasise that managing employee careers and employability is "vitally important for the survival and development of ICT companies."

Later, career management approaches began to emphasise the importance of aligning career development with individual values, organisational priorities, and the evolving ICT landscape (Collings & Mellahi 2009, 27; Marzec et al. 2009; Sullivan & Mainiero 2013). ICT companies now recognise the need to balance skill development, strategic alignment, and employee engagement to maintain competitiveness (Collings & Mellahi 2009, 27).

### **2.3 Continuous learning as a foundation for career growth**

Continuous learning involves enhancing skills to meet professional demands and

fostering growth through consistent updates (Tuomikoski 2023, 30). Organisations are encouraged to promote initiatives like career planning workshops, job posting systems, performance appraisals, counselling, mentoring, and job redesign (Greenhaus, Callanan & Godshalk 2019, 16). Continuous learning is essential for maintaining employability, supporting adaptability to new technological demands, and developing skills in the rapidly evolving ICT environment (Scholarios, Van der Heijde, Van der Schoot, Bozionelosc, Epitropaki, Jedrzejowicz, Knauth, Marzecg, Mikkelsen, Van der Heijde 2008, 2-3, 6).

## **2.4 Human resource development in career management**

Human Resource Development (HRD) plays a strategic role in aligning employee development with business priorities. By managing employee competencies through structured training and development programs, HRD supports career advancement and organisational growth. (Laine 2007, 40-42.) HRD now emphasises strategic alignment through structured dialogue, defined competencies, and integrated planning to maintain competitiveness (Hannus 2004, 32, 42–43).

One key practice of HRD is acting as a strategic partner for management in capability and competence management. This involves actively participating in business planning while ensuring effective implementation of measures. In practice, this means developing HRD visions and strategies, as well as defining practical HRD content annually or more frequently as needed. (Laine 2007, 42-43).

Another important practice is organising training and skill-building systematically. This includes basic, advanced, and up-to-date training that often integrates career models and emphasises technology in learning environments. Organisational and workplace development also play a role, focusing on improving work processes and fostering community through group dynamic training. (Laine 2007, 42-43).

Management and key personnel competence growth is crucial, especially in larger organisations. This can involve leadership training at different levels,

performance evaluations, potential assessments, and feedback methods like 360-degree evaluations. Participation in external leadership programs may also be part of this practice. (Laine 2007, 42-43.)

HRD also participates in integrated development projects as an expert, contributing to improvements such as operational model enhancements. Additionally, HRD supports change management and learning, which is particularly important in today's evolving organisational environments. (Laine 2007, 42-43.)

Evaluation of learning effectiveness and change impact is an essential HRD practice. This involves analysing outcomes at both macro and micro levels, from broad organisational strategies to specific development initiatives. Modern HRD focuses on cost-efficiency, integration with core business operations, and achieving short-term results. Key partners in HRD include strategic management, planning functions, expert collaborators, and supervisory roles, emphasising comprehensive and collaborative development approaches. (Laine 2007, 42-43.)

## **2.5 Career development frameworks**

Development framework or career progression framework could in its simplest form be explained with a question "Where do you see yourself in five years?" (Personio 2024). On the other hand, it can be considered as an essential structure for managing the skills and qualities of employees to progress in their careers (Leapsome 2024).

### **2.5.1 Strategic talent management framework**

The strategic talent management framework highlights the importance of identifying pivotal roles within organisations to sustain long-term performance. Unlike traditional models that prioritise high-potential individuals alone, this framework stresses filling these pivotal roles with employees possessing critical skills and competencies. This strategic focus on pivotal positions is central to the strategic talent management framework, which argues that success lies in identifying and filling these roles with the right individuals. (Collings and Mellahi

2009, 6-10.) ICT organisations benefit from implementing career pathways that support technical leadership, innovation, and specialised knowledge development.

This model emphasises talent pipeline development, identifying key talent gaps, and ensuring effective succession planning. By investing in training and mentorship for employees in pivotal roles, organisations can strengthen their long-term competitiveness.

### **2.5.2 Flexible career frameworks**

In boundaryless career framework, employees are urged to develop three types of knowledge: "knowing-why" (understanding career motivations), "knowing-how" (technical expertise), and "knowing-whom" (building professional networks) to navigate dynamic career environments (Inkson, Dries & Arnold 2015, 29). Such competencies are gathered from a person's own work experiences they deploy along the way of their careers.

This framework supports career agility by encouraging professionals to build portable skills that support mobility across roles, organisations, and industries (Inkson, Dries & Arnold 2015, 29). ICT organisations can apply this framework by promoting project-based work, fostering mentorship, and encouraging employees to expand their networks.

The kaleidoscope career model offers a framework for understanding how individuals make career decisions based on changing life circumstances. It emphasises three central dimensions: authenticity (alignment with personal values), balance (managing work and non-work responsibilities), and challenge (seeking growth and stimulation). These parameters shift in importance throughout a person's life, shaping career paths in response to evolving personal and professional needs. (Sullivan & Mainiero 2009, 290–291).

The application of this model reveals generational differences in career values that are especially relevant in industries like ICT. According to Sullivan and Mainiero (2009, 294–296), members of Generation X (group of people who were born in the 1960s and 1970s (Cambridge University Press & Assessment 2025)

report a significantly higher desire for authenticity and balance compared to Baby Boomers (individuals born between 1946 and 1964, who grew up during the economic boom following World War II (Lussier, Korf, Olden & Slepian 2023), who are traditionally more focused on challenge. These findings suggest that Generation X professionals place greater emphasis on aligning work with personal values and managing non-work responsibilities.

This framework emphasises aligning career strategies with life priorities while ensuring talent development focuses on strategic roles that drive organisational success, particularly in key areas like innovation and leadership.

### **2.5.3 Competency-based framework**

The systems theory framework (STF) presents career development as a continuous and interconnected process that encompasses personal, social, and environmental influences. Personal influences include values and abilities. Social influences include teamwork and workplace culture. Environmental influences involve changes in the economic and technological changes. By understanding career development as part of an open system, organisations can create competency development frameworks that are adaptable to the changing needs of both the employee and the organisation over time. Such flexibility allows for the continuous adjustment to changing internal and external conditions. (Patton & McMahon 1999.)

STF emphasises that career development is not linear but evolves as employees respond to organisational and industry changes. It highlights the importance of providing employees with the resources and guidance necessary to navigate career transitions and respond to market shifts.

### **2.5.4 Career progression framework**

Yarnall (2008, 18) describes career pathways as a structured framework where employees gain progressively higher levels of responsibility by acquiring skills relevant to their field. While not ICT-specific, these models can be applied within technology organisations to define pathways from entry-level positions to leadership roles. For example, a progression might begin with technical support

or junior developer roles and advance through milestones such as senior developer or team lead, ultimately leading to management positions.

Career development involves individuals taking responsibility for advancing their careers while receiving organisational support. Organisations should foster a culture where employees are empowered to set career goals and pursue them through continuous learning, risk-taking, and role exploration. This collaborative approach ensures both personal and organisational growth. (Yarnall 2008, 3.)

These models could be particularly valuable in ICT organisations, where clearly defined technical and leadership roles support strategic talent development.

### **2.5.5 Competence management**

There are several definitions of competencies, and the competency-based theory has been divided into three phases from the 1960s to nowadays. Competency models are often divided into two categories: job-specific models that focus on specialised skills and general competency models that emphasise broader skills such as leadership, communication, and interpersonal effectiveness. (Staskevica 2019, 64-66.) Competence management serves as a bridge between employee skill development and strategic business goals. This requires combining individual career planning with organisational development efforts. (Laine 2007, 40-42.)

#### **Best practices in competence management**

A best practices framework can effectively guide organisations in implementing competence management strategies. This framework can effectively guide organisations in implementing competence management strategies. This framework condenses competence management practices into an ideal type, originally inspired by Max Weber's concept. (Laine 2007, 44-46.)

Weber, a German sociologist and political economist, is considered one of the founders of modern social sciences. He is known for numerous theories, including the theory of bureaucracy, which, although primarily associated with management discipline, continues to influence various fields today. (Baskurt, Demirci 2022, 671.)

The ideal type represents a simplified model that highlights essential characteristics of a phenomenon, even if these characteristics may not be fully observable in reality. In the context of competence management, the ideal type serves as a reference model, helping to conceptualize best practices even if they do not entirely match empirical observations. While full replication may be challenging, the framework serves as a valuable reference for improving competence management strategies and enhancing employee development in real-world organisational settings. (Laine 2007, 44-46.)

Based on practical observations, the best practices framework emphasises three primary areas: strategic-level competence management, practical supervisory work, and integration into organisational culture. These areas are presented in best practices in competence management (Appendix 1). Strategic-level competence management focuses on aligning skill-building with strategic goals through structured dialogue, defined competencies, and integrated planning. Practical supervisory work involves implementing development discussions, personalised career plans, and tailored competence plans to support employee growth. Integration into organisational culture entails embedding competence management practices in everyday work routines, ensuring that employee development objectives align with strategic business goals to support sustainable growth. (Laine 2007, 42-46.)

These areas are connected but can also be looked at separately. For example, practical tools for managing competence can be developed without linking them to a broader strategy — and this is often how things are done in practice. The biggest challenges in competence management are not about creating these tools but about making them part of the organisation's strategy and building a strong learning culture. (Laine 2007, 47.)

### **2.5.6 ICT Career Pathway Framework**

The ICT Career Pathway Framework, developed by the NSW Public Service Commission, provides a practical structure for career planning in the ICT sector (NSW PSC 2016).

Instead of following a fixed, hierarchical path, the framework outlines three types of career movements:

- Vertical (upward within a domain),
- Lateral (across similar-level roles), and
- Diagonal (across domains with increasing responsibility). (NSW PSC 2016.)

The framework is based on 55 defined ICT sector roles and 7 emerging roles, validated by subject matter experts and aligned with recognised capability frameworks such as SFIA and the NSW Public Sector Capability Framework. It emphasises adaptability, acknowledging that users can look beyond the listed roles and identify pathways based on similar capability requirements. (NSW PSC 2016, 4.)

The career planning process follows a structured four-step approach to support professional growth. First, it involves identifying a possible pathway by exploring roles that align with personal aspirations and current capabilities. Next, the relevant role description is reviewed to understand the specific capabilities required. After clarifying role requirements, the next step is to compare these capabilities with the individual's current skills, identifying any gaps. Finally, an action plan is developed and discussed with a manager to ensure alignment with career development objectives. (NSW PSC 2016, 9.)

Employees can choose either specialist or generalist career paths, depending on their interests and skills. The framework also distinguishes between roles focused on individual expertise and those involving people management. (NSW PSC 2016, 4.)

To support implementation, it includes tools such as structured overview of planning and preparation tasks (Appendix 2), role matrix (Appendix 3 and Appendix 4) and career move templates (Appendix 5). These are intended to help employees plan their development and encourage meaningful dialogue with managers.

Before implementing the framework, organisations are encouraged to assess their readiness by reflecting on a few key questions. First, they should consider

whether they understand how roles and capabilities may change or evolve in both the short and long term, especially in response to external and internal trends and forces. It is important to evaluate whether the required capabilities for performing roles effectively have been clearly defined. Additionally, organisations should examine whether their culture and conditions are conducive to supporting career pathing, as an enabling environment is crucial for successful implementation. (NSW PSC 2016, 5.)

## **2.6 Conclusion**

Career management in the ICT sector requires aligning individual development with organisational goals while supporting flexibility and adaptability. As career paths become increasingly non-linear, there is a growing need for structures that allow employees to develop in multiple directions based on their skills, interests, and changing industry demands. (Inkson et al. 2012, 330; NSW Government 2016, 5.)

Continuous learning and competence management play a central role in this process by ensuring that skills remain relevant and role enhancement is integrated into daily work (Laine 2007 9-11). Strategic talent management helps organisations identify key roles and prepare for future needs (Collings & Mellahi 2009, 305), while HRD contributes through training, supporting change, and fostering a culture of learning. To remain effective, career development frameworks must also be regularly reviewed and adapted to evolving organisational and technological contexts.

### **3. Strategic talent management & leadership development**

Strategic talent management and leadership development help organisations remain competitive and ensure business continuity. By identifying key roles and developing required skills, organisations prepare employees for leadership, improve engagement, and support growth. This chapter explores strategies that align talent management with business objectives.

#### **3.1 Talent retention**

The challenge of retaining high-quality talents in the ICT sector is one of the top challenges that organisations experience. Often talent retention strategies are salary remuneration, a suitable working environment, and the possibility of promotions. In addition, career development that focuses on lifelong learning, mentorship and clearly delineated pathways of career progression is crucial in keeping the talent. Moreover, fostering a workplace culture that values innovation and rewards employee contributions is essential in ensuring job satisfaction and motivation. (Yarnall 2008, 88, 91-92, 191.)

#### **3.2 Leadership development in the digital era**

Leadership development is essential in the ICT sector to prepare leaders for managing organisational growth and adapting to evolving technological demands. To equip potential leaders for senior roles, most development programs combine various learning experiences.

These programs typically integrate formal education, such as leadership seminars or workshops, with mentoring opportunities where experienced senior leaders provide guidance and share insights. Additionally, participants are often given the chance to lead high-impact projects, enabling them to apply their knowledge in practical settings. (Yarnall 2008, 103-149-154.)

The rise of digital transformation has shifted leadership development priorities toward adaptability, proactive learning, and continuous skill enhancement. Consequently, ICT organisations must develop programs that foster leadership agility, ensuring employees are equipped to manage technological shifts and

market volatility. (Budtz-Jorgensen, Johnsen & Sorensen 2019 as cited in Macedo, Veloso, Pinsky & Trevisan 2023, 24.)

### **3.3 Adaptive leadership and continuous feedback cycles**

According to Araújo and Garcia (2009, 24), career planning has shifted from annual reviews to shorter cycles, with monthly or quarterly sessions promoting faster feedback and continuous career progression. For ICT organisations, these shorter cycles enable quicker alignment between employee development and changing technological trends. (Araújo & Garcia, 2009, as cited in Macedo, Veloso, Pinsky & Trevisan 2023, 24.)

Managers play a vital role in fostering a culture of trust and professional growth by conducting competency assessments and offering insights into market trends. This proactive involvement helps employees identify skill gaps and pursue relevant development opportunities. (Macedo, Veloso, Pinsky & Trevisan 2023, 23-25).

Frequent communication has also become an essential leadership practice, particularly in remote work environments. Regular weekly check-ins and brief one-on-one meetings have been shown to improve employee engagement, emotional well-being, and career clarity. (Bersin and Waggi 2020, as cited in Macedo, Veloso, Pinsky & Trevisan 2023, 15, 24.)

Research by Renato (2023) further highlights the use of micro-training to develop content and technological skills, ensuring employees acquire knowledge that can be applied directly to short-term tasks. However, career development also faces challenges in managing complex behavioural traits essential for responding to the fast pace of business demands. To address this, leaders are placing greater focus on understanding employees' needs and aligning with their aspirations, helping to drive change both within the organisation and across broader career contexts. (Macedo, Veloso, Pinsky & Trevisan 2023, 25.)

### **3.4 Conclusion**

Strategic talent management and leadership development are vital for ensuring organisations remain adaptable and prepared for future challenges. By fostering a culture of growth, organisations can enhance employee engagement, align leadership with business goals, and respond effectively to technological changes. Encouraging continuous learning, promoting regular feedback, and supporting career progression are key strategies that help ICT organisations build a resilient and future-ready workforce.

## **4. Identification of learning needs**

This chapter will briefly present the main aspects of learning needs identification along with the key tools and methods that can be used for this purpose. While these tools will be discussed in summary, examples of the tools will be included in the annexes for practical application guidance.

Identifying learning needs is crucial for organisations seeking to enhance employee performance and align skills with strategic goals. Learning Needs Analysis (LNA) identifies gaps in knowledge, skills, and abilities that hinder performance. Without a clear understanding of these gaps, training efforts may fail to deliver meaningful improvements. By involving managers, team leaders, and employees, organisations can gather diverse insights to shape effective learning initiatives that address real-world challenges and goals. (Wilson 2012, 244.)

### **4.1 Levels of learning needs identification**

Wilson (2012, 244) outlines Boydell's (1983) identification of the three levels of training needs in organisations, with an additional fourth level at the departmental level to address larger organisational structures.

Learning needs can be identified across four key levels. First, organisational level learning needs at this level align with business objectives and strategic plans. For example, a company planning to expand into new markets may require employees to develop language skills, cultural awareness, or sales techniques. Organisational metrics such as customer satisfaction scores, performance reports, or market trends often indicate areas where skill development is necessary. Identifying learning needs at this level helps ensure that learning initiatives are aligned with the company's long-term vision (Wilson 2012, 244-245).

Second, departmental level learning needs are linked to operational goals. Managers assess team performance and identify gaps that affect productivity or efficiency. For example, a marketing team adapting to new digital platforms may require social media marketing training. Department-specific learning needs are

often identified through performance reviews, departmental metrics, and manager feedback. (Wilson 2012, 244-245.)

Thirdly, the occupational level emphasises role-specific skills required to perform job duties effectively. For instance, IT professionals may require cybersecurity certifications, while customer service representatives may need improved communication training. Techniques such as job analysis, observations, and employee interviews are used to define the competencies required for each role. (Wilson 2012, 244-245.)

At last, individual level learning needs focus on personal development goals and career aspirations. These needs are identified through performance reviews, self-assessments, or career development discussions. Personalised learning plans are particularly effective for helping employees address weaknesses, pursue new career paths, or develop leadership skills. (Wilson 2012, 244-245.)

#### **4.2 Methods for identifying learning needs**

Various methods ensure comprehensive identification of learning needs. Each method has strengths and limitations, making it important to choose the appropriate tool based on the organisation's objectives and available resources.

##### **Performance analysis/performance gap**

A learning needs analysis is most effective when clear performance metrics highlight measurable gaps between current and expected results. In stable situations with defined goals and strategies, identifying learning needs is straightforward. For example, when implementing a new marketing strategy, employees must adjust their skills accordingly, making the required learning objectives clear. (Wilson 2012, 243-251.)

However, if an unexpected competitor enters the market, an organisation's marketing strategy may quickly become ineffective, creating uncertainty about how to respond and impacting future performance. Identifying learning needs in such situations is challenging because the required skills or knowledge may be unclear. (Wilson 2012, 246.)

A structured analysis of competence requirements can help assess the knowledge, skills, and attitudes required to perform specific roles. It is effective for instantly visualising workforce capabilities, especially for managers tracking employee progression or planning future skill development initiatives. Mapping employee competencies highlights gaps and future opportunities for development. This process often involves job analysis techniques to define required competencies and the corresponding training solutions. (Wilson 2012, 250-252.)

A key concept in identifying development needs is the performance gap, which refers to the difference between current performance and the desired future performance level. As illustrated in figure 1, the learning needs analysis aims to determine where targeted learning interventions can most effectively improve performance. This method excels in identifying specific technical or operational issues. (Wilson 2012, 246.)

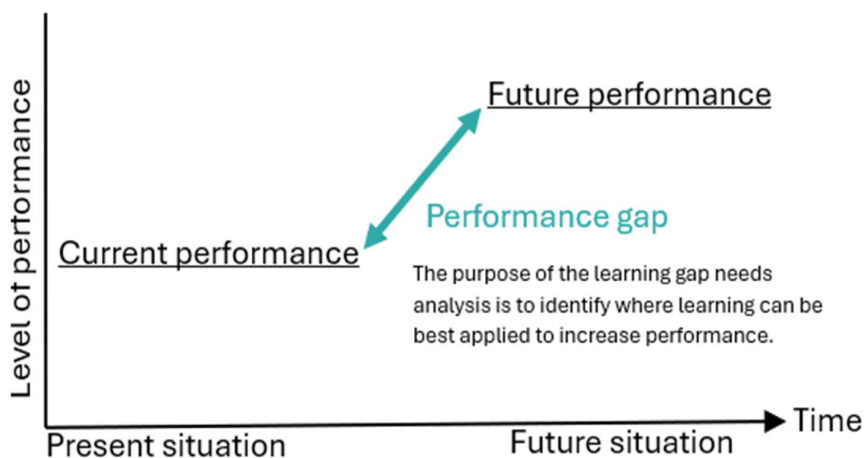


Figure 1. Performance gap (Wilson 2012, 246).

A Skills Matrix (Table 1) is a practical tool that maps employee skills and identifies gaps in current capabilities. It provides a snapshot of the existing skills within a department or team, helping managers track proficiency levels and plan for training. The matrix often uses categories such as:

- **C** (Competent) — Able to perform the task independently.
- **T** (Trainee) — Currently in training for the task.

	Assembly	Drilling	Bending	Fork lift	Spray	Test	Ship
John	C	C	C	C	C	C	C
Dal	C	C	C	C	C		C
Tony	C	C	C			T	T
Ellie	C	C			C		T

Table 1. Skills matrix (Wilson 2012, 250).

SWOT Analysis (figure 2): Provides a structured yet flexible method for assessing team strengths, weaknesses, opportunities, and threats, making it suitable for forward-looking strategies (Wilson (2012, 249).

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>New department manager</li> <li>Stable department workforce</li> <li>Start of multi-skilling</li> <li>Good morale</li> </ul>	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Increase in forecast sales</li> <li>Access to PC-based training</li> <li>New packaging machine next year</li> <li>'Return to learning' scheme available next year</li> </ul>
<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>Stock shortages causing too much firefighting</li> <li>Two trainees recruited</li> <li>Problem-solving team not fully effective</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Team leader retires next year</li> <li>Competition establishing factory nearby</li> <li>Wage rates uncompetitive</li> </ul>

Figure 2. Performance gap/SWOT Analysis, adapted from Wilson (2012, 249).

Problem-Solving Groups: Utilising groups such as Six Sigma teams or continuous improvement groups can be used to identify recurring process issues, which may reveal underlying learning or competency gaps within the organisation (Wilson (2012, 247).

Resource planning: Using HR data like age profiles, qualifications, and turnover can help to predict future skill requirements and inform targeted development efforts (Wilson 2012, 247-248).

By combining these methods, organisations can ensure learning initiatives are tailored to both immediate and future-focused workforce development needs. A

comprehensive learning needs analysis often integrates multiple tools to capture both quantitative and qualitative data. (Wilson 2012, 243-251.)

### **4.3 Prioritising learning needs**

Once learning needs have been identified, organisations must prioritise them based on urgency, strategic impact, and available resources. Key strategies for prioritisation include policy-defined needs, meaning some learning initiatives, such as compliance training or safety certifications, are mandatory and must be addressed immediately. Another strategy is distinguishing between essential and desirable needs where critical skill gaps that directly affect organisational performance take precedence over less urgent development goals. A third approach is the use of a pareto analysis, which applies the 80/20 principle, namely that organisations can focus on the most impactful learning interventions that are likely to produce the greatest improvement in performance. Prioritisation ensures that limited resources are directed toward high-impact learning initiatives that align with strategic objectives. (Wilson 2012, 254.)

### **4.4 Conclusion**

Identifying learning needs is crucial for aligning employee skills with strategic goals and improving performance. Learning Needs Analysis (LNA) helps identify gaps across organisational, departmental, occupational, and individual levels. Effective methods such as performance gap analysis, skills matrices, competence assessments, and SWOT analysis provide valuable insights for targeted training.

By combining these tools, organisations can address immediate skill gaps while preparing for future workforce needs. Prioritising learning initiatives based on urgency and strategic impact ensures resources are directed to the most critical areas, supporting employee growth and enhancing organisational success.

## **5. Methods**

While literature provides valuable frameworks for career management, theoretical knowledge alone cannot fully address Arbonaut's unique needs. As Yarnall (2008, 18) emphasises, effective career frameworks must align with both strategic objectives and employee aspirations.

From this point onward, additional information is required to meet Arbonaut's needs. Therefore, further research will be conducted through interviews and surveys to gather insights directly from Arbonaut's management and employees. This approach will ensure the career management plan reflects both proven frameworks and Arbonaut's specific requirements.

### **5.1 Research design**

To meet the objectives of this thesis, a mixed-method approach, combining quantitative and qualitative approaches, was selected to capture a comprehensive understanding of career development at Arbonaut. The quantitative component involved a company-wide employee survey, while the qualitative part consisted of semi-structured interviews with members of the company's management. The use of both methods enabled the research to explore career development from two complementary perspectives: the everyday experiences and expectations of employees, and the strategic outlook of Arbonaut's leadership.

This methodological structure was chosen to ensure that the findings reflect both bottom-up and top-down insights, essential for developing a career management model that balances organisational needs with individual employee goals.

### **5.2 Data collection methods**

#### **Employee survey**

The survey aimed to capture employees' perceptions of career development opportunities, role clarity, supervisory support, and alignment with strategic goals.

Designed in Microsoft Forms, the survey included multiple-choice, Likert-scale, and open-ended questions.

In planning the survey, the research questions of the thesis were used as a foundation. Each section of the questionnaire directly reflected one or more of the thesis's core themes: development support, learning and training opportunities, career progression, and alignment with company strategy. The questions were carefully crafted to produce relevant, targeted data for each theme.

### **Management interviews**

The interviews targeted strategic insights from leaders across departments, including executive management. One-hour interview sessions followed a semi-structured guide covering themes such as current practices, training support, inclusivity, and future career development outlooks.

### **Participant selection**

Purposeful sampling was used to ensure representation from diverse roles and departments, including the CEO. Survey participants included all employees excluding top management, while interviewees were selected from stream leads and executive leadership to ensure a strategic perspective. This selection ensured a balanced view from operational and decision-making levels.

### **Data analysis approach**

Survey responses were analysed using aggregated metrics and visual summaries directly from Microsoft Forms, supported by qualitative content coding of open responses. Interview transcripts were analysed thematically using Quirkos software. Codes were developed inductively to reflect recurring themes such as supervisor support, equity, strategic alignment, and development tools.

## **5.3 Ethical considerations and documentation**

The study followed the Finnish National Board on Research Integrity (TENK) guidelines. Informed consent was obtained from all participants, data was

anonymised, and access was restricted to the researcher. A data management plan guided secure storage and post-project deletion of sensitive material.

## **6. Implementation**

This chapter explains the practical implementation of the previously stated research methodologies. The implementation phase included the planning, preparation, and administration of both the employee survey and supervisor interviews, which together form the core data collection components of this thesis. The aim was to ensure that each step supported the integrity, relevance, and ethical quality of the research.

### **6.1 Preparation phase**

In the preparation phase, both the employee survey (Appendix 6) and the semi-structured interviews (Appendix 7 and appendix 8) were carefully designed to align with the thesis research questions and the theoretical frameworks on career development. The instruments were constructed to explore key themes including development experiences, supervisory support, learning opportunities, career clarity, and alignment with strategic goals. Additionally, ChatGPT (GPT-4) was used to estimate the approximate time required to complete the survey and conduct the interviews, helping to inform realistic planning and participant expectations.

Before launching either research, permission to conduct them was requested and granted by Arbonaut. The schedule for data collection was coordinated to minimize disruption to daily work and to accommodate respondents' availability. It was also ensured that all materials were reviewed for clarity and ease of use.

### **6.2 Implementation of the employee survey**

The employee survey was implemented through Microsoft Forms, a GDPR-compliant platform compatible with Arbonaut's internal communication systems. The survey was launched on 5th of May 2025 and remained open until 16th of May 2025. It was distributed via email and shared in the company's internal Teams channel. The distribution message included information on the purpose of the survey, its anonymity, and its voluntary nature, emphasizing that the data would be used solely for the author's thesis. Respondents were assured that their responses were anonymous and no identifying information was collected.

A reminder was sent midway through the response window, and a final reminder was posted in the Teams event on the last day the survey was open. The survey was targeted to a total of 67 employees excluding stream heads. By the end of the survey period, 32 responses (47.8%) were received, which is a very positive response rate.

The survey consisted of 35 questions, including both closed and open formats. It was designed to take approximately 10–15 minutes to complete. Based on actual response data, the median time taken to complete the survey was approximately 25 minutes, but according to individual answering times, many participants took additional time by having the survey open for 1-36 hours before submitting their responses. By ruling those exceptions out, the average completion time was 15 minutes. The summary of survey responses and initial analysis was conducted in Microsoft Forms, which provided aggregated visual summaries and exportable data for further analysis in Excel.

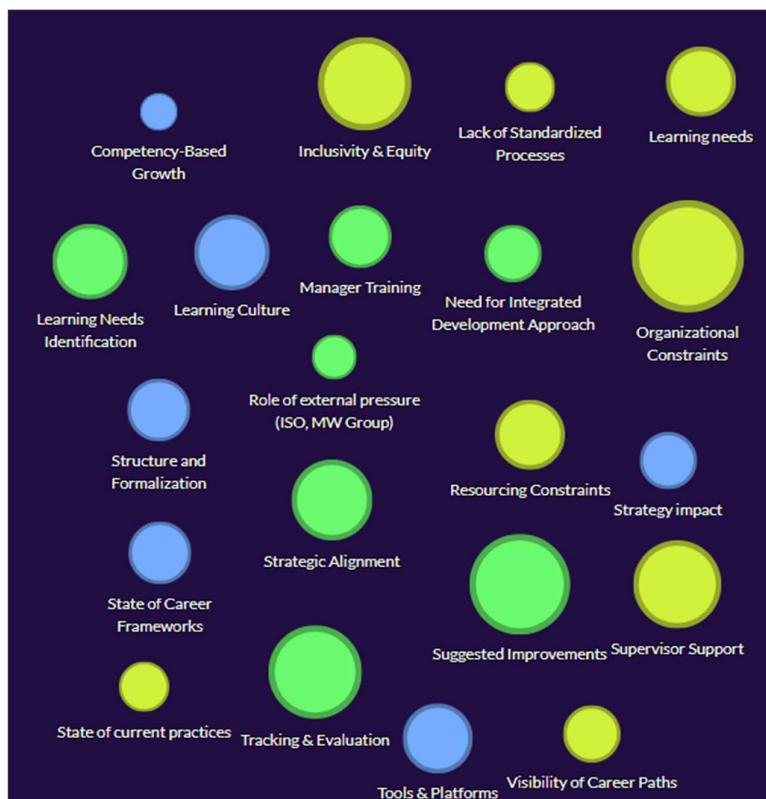
### **6.3 Implementation of the interviews**

Supervisor interviews were conducted between 1st and 16th of May 2025. A total of five leaders (out of 14) were interviewed including members of Arbonaut's management team, representing different divisions. Written consent was obtained from each participant before the meetings. All interviews were scheduled in advance and conducted remotely via Microsoft Teams. The discussions were held in English, and each meeting was recorded with the participants' consent for later transcription and analysis.

Each interview lasted approximately 60 minutes on average, providing sufficient time for an in-depth discussion of career development themes. The interview questions were shared with participants in advance to allow for preparation and to support reflective, open dialogue. A semi-structured format was followed using a predefined interview guide. This allowed for consistency across interviews while enabling flexibility to explore emerging themes. For example, if a respondent addressed a topic in response to an earlier question, follow-up questions on the same theme were sometimes skipped to avoid redundancy. In some cases, the order of questions was adjusted to match the natural flow of the conversation, and participants were occasionally prompted to expand on specific examples or

clarify their earlier responses. Interviews were recorded and later transcribed for qualitative analysis. After transcription, the researcher reviewed each transcript while listening to the interview recordings. Initial meeting notes were created already during the interviews and were further expanded after transcription.

Each transcript was reviewed while listening to the interview recordings to ensure accuracy and depth. During this process, additional notes were made, and answers were mapped to the corresponding interview questions to support systematic analysis. Following this, qualitative coding software Quirkos was used to thematically code the interview data. A range of themes was created in the software, representing key topics (Picture 1). Responses were coded according to these themes to enable more focused and structured analysis across different topic areas. Once the thematic coding was completed, the results chapter was developed by drawing directly from the coded data to illustrate key findings and support the thesis objectives.



Picture 1. QUIRKOS Thematic themes.

#### **6.4 Data management and ethical practices**

Throughout the implementation, ethical considerations were carefully followed. Participants were informed about the purpose of the study, voluntary participation, and how the data would be used. A consent form was formally collected from all interview participants to ensure their informed agreement. A data management plan (DMP) and a privacy policy were shared with all participants, outlining how their data would be handled and protected. The data management plan (DMP) ensured secure data storage, anonymisation of responses, and planned deletion of all data after the thesis was completed. Survey data was stored without personal identifiers, and interview recordings were stored on an encrypted drive accessible only to the researcher.

All responses and interview content were analysed and reported anonymously. Interview data was further anonymised by referring to all participants collectively as 'organisational leaders' to ensure their individual identities and roles remained confidential throughout the reporting process. Anonymisation was carried out by removing all identifying information from the transcripts, including names and any visible user profile pictures or icons. Meeting notes, transcripts, and video recordings were securely stored in the researcher's personal, password-protected folder on Google Drive. The implementation phase followed guidelines set by the Finnish National Board on Research Integrity (TENK), ensuring good scientific practice at every stage.

## **7. Findings of the case company research**

This chapter summarises the main findings from the employee survey and interviews with organisational leaders. The results are organised thematically to highlight perspectives on key aspects of career development at Arbonaut, including current practices, supervisory roles, learning opportunities, role clarity, strategic alignment, equity and suggestions for improvement. Each section compares views from both employees and leaders to identify areas of alignment and contrast.

### **7.1 Current state of career development at Arbonaut**

#### **Leaders' perspective**

Organisational leaders described Arbonaut's current approach to career development as informal and inconsistent across streams. While development discussions and the introduction of a Skill Matrix were seen as positive steps forward, these tools are still applied unevenly and remain partially disconnected from broader development goals. According to leaders, practices vary significantly between streams: some have adopted more structured approaches, while others rely heavily on individual supervisor initiative. The absence of a unified, company-wide framework was widely recognised as a key barrier to ensuring equitable and strategic development.

The Skill Matrix, recently introduced at the company level, was widely viewed by leaders as a highly promising and valuable tool. They saw strong potential in its ability to support long-term planning, increase development transparency, and bring greater structure to employee discussions. While still in early stages, leaders emphasised that its future success depends on regular updates, stream-level integration, and clear ownership. Without these, there is a risk the tool could become a static record rather than the dynamic resource it is intended to be. Despite limited day-to-day use so far, the matrix was regarded as a key strategic enabler for future growth.

At present, formal career paths or promotion criteria are not documented or standardised. Informal progression opportunities exist in some technical streams,

such as architecture or specialist tracks, but are not consistently communicated. The TES (Collective Agreement) salary levels were mentioned as the only structured reference currently in use, although leaders agreed these are too generic and not reflective of Arbonaut's role complexity.

All five organisational leaders agreed that Arbonaut lacks a coherent, company-wide framework for career development. The prevailing system is still fragmented, largely dependent on individual initiative and managerial discretion. This inconsistency and lack of visibility were consistently identified as key challenges. However, a notable improvement is that regular development discussions are now supported by a formalised, company-wide template and are applied consistently across the organisation, offering a foundation for future practices.

Finally, several leaders observed that career development still tends to be reactive, often driven by project timelines or immediate technical demands. While this responsiveness has its benefits, it can overshadow long-term planning and reduce opportunities for broader skill development aligned with strategic goals or individual aspirations.

### **Employees' perspective**

Employees reported uncertainty and inconsistency in how career development is currently experienced at Arbonaut. When asked whether they have a clear understanding of possible development opportunities — such as skill-building, new responsibilities, or internal mobility — only 34% said they do (picture 2). A larger proportion (47%) indicated only a partial understanding, and 19% said they do not have a clear view at all (picture 2). These figures point to a widespread lack of transparency or communication around available growth options. While over 90% of employees reported having had a development discussion in the past year, this regularity does not appear to fully address the broader uncertainty around development opportunities

4. Do you feel you have a clear understanding of possible career development opportunities (e.g. skill development, new responsibilities, internal mobility, or career paths within your team or across the company) at Arbonaut?



Picture 2. Research question 4 about career opportunities.

9. Do you think Arbonaut communicates career paths clearly across the company, regardless of team or role?



Picture 3. Research question 9 about career path visibility.

Open-ended responses confirmed this perception, although they also reflected a strong interest in professional growth. Several (28%) employees described development as something that currently depends on self-initiation, rather than a structured or guided process. Many noted the absence of formal information or pathways, although 18% of responses mentioned accessing support informally through conversations with managers, supervisors, or peers. A small number of employees noted that learning opportunities tend to arise only when actively requested.

Only 9% of respondents felt that career paths at Arbonaut are well-defined and visible (picture 3). Half of the employees (50%) said there is some information available, but it is limited or inconsistent, while 41% found career paths to be unclear or rarely discussed (picture 3). This significant gap between perceived opportunities and clearly defined career paths suggests that while some employees recognise potential for development, most lack visibility into structured route for progression.

Further analysis by length of employment revealed that employees with less than three years at Arbonaut were more likely to perceive career opportunities as somewhat or clearly understandable. In contrast, those with over five years more frequently reported a lack of clarity. This indicates that while newer employees may benefit from recent communication or onboarding, more experienced staff may encounter fading transparency over time.

## **Summary**

Career development at Arbonaut is widely acknowledged as important but remains loosely defined and highly individualised. While development discussions are held regularly, there is little evidence of shared frameworks or long-term progression models. Leaders described efforts to introduce tools such as the Skill Matrix to support planning, but their use has not been systematised.

Employees echoed this view, describing development as self-directed and unclear in scope. Only a minority reported confidence in knowing what development options are available or how to advance. These reflections reinforce the earlier noted issue of structural ambiguity.

## **7.2 Supervisor influence on career development**

### **Leaders' perspective**

All leaders acknowledged that supervisors play a crucial role in employee development, and most also noted that they would benefit from further support or training to strengthen their capabilities in this area. Leaders saw themselves as 'enablers' in supporting employees' career development—understanding their wishes, skills, and goals, taking their needs into account, and actively helping them pursue these. They also aimed to assist in goal-setting and provide support in achieving them.

While the interviewed leaders viewed their own engagement in development planning as quite active and sufficient, they also recognised that at the organisational level, there may be considerable variation in how actively other

stream owners participate. Some stream leaders may feel less prepared, less confident, or unclear about their role in supporting employee development.

There is currently no formal training or onboarding for supervisors in career development practices. Some have developed their approach through experience, while others expressed a desire for support, such as shared guidelines, mentoring frameworks, or example practices. This lack of consistency contributes to uneven employee experiences across the organisation. One leader had pursued relevant training independently, while others noted that supervisor onboarding and support around career development is minimal or inconsistent. As such, there was broad agreement that structured training should be provided to stream owners and team leads, even at a basic level, to ensure equitable support across the company.

### **Employees' perspective**

When asked how satisfied they are with the support they currently receive from their supervisor, employees gave an average rating of 3.97 out of 5, indicating generally high satisfaction. Yet, in a follow-up question, 44% said they would like more support, and another 44% were unsure. These findings suggest that even among employees who are not dissatisfied, there is still uncertainty or desire for deeper engagement, such as guidance on planning, goal-setting, or visibility into opportunities which came up in the open-ended answers. As one employee mentioned, “My supervisor is supportive, but there’s no structure—no long-term plan or follow-up.” (Arbonaut employee survey 2025.)

Supervisor support was rated highest (average 4.67 out of 5) by employees with less than one year at the company, while employees with more than five years gave an average rating of 3.38 (figure 3). This suggests that while early-stage guidance is strong, follow-up support tends to decline with tenure, highlighting a need for sustained engagement.

While many employees reported receiving support early in their careers, those with 3–5 years or more than five years of experience were more likely to say they were unsure or needed more support. This could reflect uneven long-term

support or unmet expectations after the initial years, reinforcing concerns about inconsistent access.

Although employees expressed a desire for clearer structures and long-term planning, the majority (78%) reported that their supervisors are supportive and approachable. This suggests that while structural practices may be lacking, the relational foundation between supervisors and employees is strong.

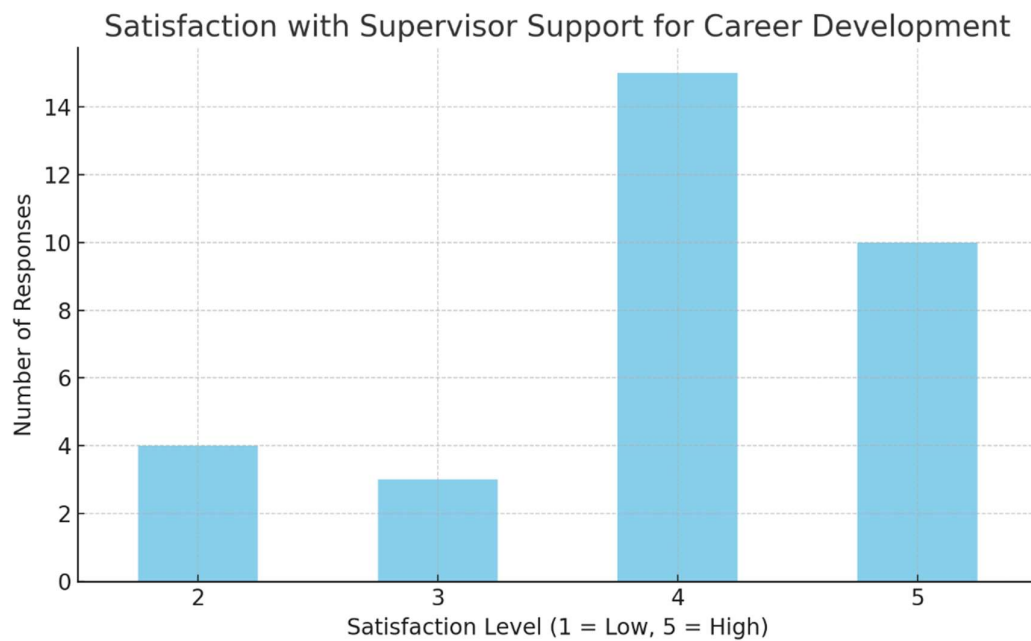


Figure 3. Employee satisfaction level with the support they currently receive from their supervisor regarding career development (e.g. guidance, encouragement, feedback, opportunities).

35. Would you like more support from your supervisor in developing your career?



Picture 4. Survey question 35 about supervisor support.

These findings align closely with leadership views, where supervisors themselves admitted to lacking training or tools to guide employee development systematically. The data supports the need for example for structured supervisor training, development planning templates, and possibly mentoring programs to ensure more equitable and intentional support across teams.

## **Summary**

Supervisors are seen as central figures in employee development. Trust levels are high, and many respondents described their direct managers for being supportive. However, the manner and extent to which supervisors engage in development planning varies significantly.

This inconsistency reflects the second cross-cutting issue: while some teams benefit from proactive support, others lack structured input or regular follow-up. The absence of shared supervisor training or expectations exacerbates this disparity.

## **7.3 Learning and training opportunities**

### **Leaders' perspective**

Leaders referenced training as an area with inconsistent access. Approval processes vary across streams, sometimes requiring executive-level decisions. Budget clarity is lacking, which contributes to an underutilisation of training resources. Language barriers were also cited as limiting access for non-Finnish-speaking employees. Leaders noted that some training needs are followed up within streams, while in others, decisions are escalated. Lack of coherence may limit access and reinforce uneven practices.

One leader described the disconnection between the skills employees require and the career progression options currently offered by Arbonaut as a “chicken-and-egg” situation, in which both management and employees remain uncertain about each other’s expectations and development needs. This lack of mutual visibility was seen as a barrier to designing effective and targeted learning pathways.

Two leaders highlighted that aligning training documentation and development planning with ISO certification standards could serve both internal development needs and external compliance expectations.

All leaders saw current tools as ineffective at the moment, particularly for tracking progress and aligning needs; the Skill Matrix has potential but is not yet functional. They also reported that training tracking is “scattered” and that no centralised register exists. According to one leader, training activities are self-reported and not consistently recorded, limiting the company’s ability to assess who has what competencies

### **Employees' perspective**

Employees reported mixed experiences regarding ongoing training opportunities. While some had accessed external or online learning, many described the availability of training as unclear, sporadic, or lacking relevance to their roles. Over half (53%) of survey respondents said they were unsure what training options were available to them, highlighting a broader communication gap. Despite this, interest in development remains high. The top three areas employees wish to strengthen are technical expertise, leadership or supervisory skills, and business insight (including data analysis and project management). This reflects a clear desire for more structured and transparent training processes to support professional growth.

### **Summary**

Although both employees and leaders recognise the value of continuous learning, actual access to training is uneven. Respondents described unclear processes for requesting or approving development activities, and many reported not knowing what resources were available.

This theme further highlights the underuse of planning tools and systems, which, if fully implemented, could help track learning needs and standardise access.

## **7.4 Clarity of roles and career paths**

### **Leaders' perspective**

Leaders reported a lack of documentation for roles and advancement criteria. Some informal pathways exist, but they are inconsistently communicated. The Skill Matrix is seen as a potential tool for improving clarity, but its use is not yet widespread or structured. Leaders emphasised the need to document expectations, role descriptions, and promotion pathways to provide a clearer structure.

Leaders noted that while transitioning between roles within the organisation is possible, there are no clearly defined steps to facilitate such changes. The timing and implementation of role shifts largely depend on the needs of ongoing projects.

Several managerial leaders referred to the TES (Collective Agreement) salary level descriptions as a structured baseline for role classification. One leader noted that every employee should know under which TES category they fall. However, these classifications were acknowledged as too generic and disconnected from Arbonaut's actual role complexity. Also, some leaders suggested clarifying how salary progression links to career development or role changes.

### **Employees' perspective**

Only 9% of employees felt that career paths at Arbonaut are clearly defined and visible. Another 50% said there is some information available, but it is limited or inconsistent. Meanwhile, 41% reported that career paths are unclear or rarely discussed. Most employees were unsure how to advance or what steps were required. Promotion criteria were largely unknown. While employees generally understood their current role expectations, they lacked clarity about advancement options or pathways. Employees expressed limited understanding of advancement steps and did not identify TES-based categories as contributing meaningfully to their career path visibility.

## **Summary**

Employees consistently expressed uncertainty about how roles evolve or how advancement is evaluated. Leaders similarly noted that while expectations within roles are often clear, there is no shared system for progression or promotion.

This uncertainty again reflects the overall lack of structural guidance. The skill matrix, although designed to clarify role expectations and competency levels, has not yet been consistently adopted or understood across teams.

## **7.5 Strategic alignment of development**

### **Leaders' perspective**

A central theme across all interviews was the strategic importance of development. Leaders called for tighter integration of company goals with learning strategies and training investments. They stressed that development should be aligned not only to team needs but also to long-term priorities. Proposals included planning future skill needs in advance, aligning trainings with project pipelines, and using the Skill Matrix to prioritise learning goals.

One leader pointed to the MW Group — Arbonaut's parent organisation — as a potential benchmark for more structured career management practices. They suggested that drawing on shared practices or frameworks from the group level could help Arbonaut advance its development systems.

Lastly, the issue of retention emerged repeatedly. Leaders warned that without visible development options and proactive support, Arbonaut risks losing talented individuals. They agreed that development should be treated as a strategic priority, not just a human resources function. As one leader put it, "employees are Arbonaut's most valuable asset," and their professional growth is fundamental to ensuring resilience, engagement, and continuity.

## **Employees' Perspective**

While only 28% of employees felt that development is clearly aligned with strategy, an additional 41% saw only partial alignment, and 31% did not see a connection or were unsure. Longer-tenured employees, especially those with over five years at Arbonaut, more frequently expressed uncertainty or lack of clarity about how their development aligned with strategic goals. This supports the broader observation that alignment messaging may not be sustained beyond initial employment years.

This reflects a communication gap: employees may be aware of the company's broad focus areas — such as AI, cloud services, or sustainability — but do not see how their development contributes to those directions. In open responses, some noted that strategic priorities are not clearly discussed in team meetings or development conversations. As one employee put it, “I know the company is doing more with AI, but I don't know how I'm supposed to grow in that direction.” This suggests a desire for clearer links between company strategy, personal goals, and training opportunities.

## **Summary**

Both groups recognise the importance of aligning career development with Arbonaut's strategic direction. Managerial leaders highlighted a strong commitment to forecasting future competencies and embedding strategy into development planning. However, employee responses suggest that this strategic intent is not yet clearly visible in everyday development practices. Most (72%) employees do not fully understand how their learning connects to company goals or emerging focus areas.

## **7.6 Equity and accessibility**

### **Leaders' perspective**

All leaders recognised the concern that some streams invest more heavily in career planning, while others address it inconsistently or not at all. It was also noted by most, that more vocal and proactive employees tend to receive more

attention. Leaders acknowledged that quieter individuals may be unintentionally overlooked. They acknowledged this as an area where bias can occur, even without intent.

Inconsistent supervisor engagement and unclear budgeting further compound inequities. Language was also cited as a barrier in some cases. Leaders explained that project-specific requirements, customer expectations, or geographic focus often determine the working language within a team. While this is a natural consequence of Arbonaut's operational context, it can limit some employees' ability to participate in certain projects or roles if they are not fluent in the required language.

Despite these challenges, the overall workplace culture was perceived by leaders as inclusive and equal, with a shared commitment to fairness and openness.

### **Employees' perspective**

Some employees felt that competence growth depends on self-initiation. Open answers indicated that those who actively seek visibility or advocate for themselves are more likely to receive support, whereas quieter colleagues risk being left behind. Several noted unequal access to development opportunities across teams. About 15% said their career progression happened by chance or self-initiative. These findings suggest that access to support is influenced not only by structural availability, but also by individual communication style, raising concerns about inclusiveness.

A significant portion of employees (over 40%) reported that career paths are rarely discussed or clearly defined at the company level, while 9.4% viewed them as visible and well-communicated. These perceptions point to uneven access to career information, where some teams may receive guidance or support informally while others are left without direction. Similarly, while a majority (72%) of employees understood what was expected of them in their roles, over a quarter (28%) expressed only partial clarity resulting a gap that may lead to misaligned expectations and missed opportunities for progression.

## Summary

Both leaders and employees agree that current development practices at Arbonaut are not fully equitable. Career planning varies significantly across teams, and access to support often depends on individual supervisors rather than a shared company-wide framework. As one leader also acknowledged, “career growth options are highly dependent on the line manager or the manager responsible, which means that not everyone has equal access.”

Employees also reported concerns about fairness in how access to professional growth pathways is distributed. Support is in some cases tied to supervisor initiative, a theme explored in Section 7.2 and further influenced by employee visibility or assertiveness. This raises concerns about inclusiveness as quieter individuals may be at risk of being under-recognised in development processes. These findings point to the need for more consistent, structured practices to ensure equal access to development regardless of team or personality.

While the overall workplace culture was perceived as inclusive and equal, the current system relies on self-direction and informal processes. To address these disparities, Arbonaut would benefit from standardised tools, proactive engagement from supervisors, regular follow-ups, and better tracking mechanisms to reduce unconscious bias.

Lastly, although gender equity was not widely raised by employees, leaders acknowledged that women have historically been underrepresented in managerial roles. Encouragingly, progress has been made, and the number of female supervisors has increased in recent years, and one woman currently serves on the management team. Continued attention to leadership representation remains important for long-term equity. This suggests encouraging movement toward more balanced representation, while also highlighting the importance of continued attention to leadership equity.

## 7.7 Suggestions for improvement

### Leaders' perspective

Managerial leaders across Arbonaut emphasised that building a functional career development system requires both structural improvements and cultural shifts. Several leaders identified the need for clearly documented career paths, role expectations, and transparent promotion criteria. These were seen as essential for enabling consistent guidance during development discussions and improving the visibility of advancement opportunities for employees. For example, one leader described how the current absence of such documents forces supervisors to rely on vague TES categories, which lack relevance for Arbonaut's internal role complexity.

Many leaders underscored the importance of integrating the Skill Matrix into planning routines, not as a static document but as a dynamic tool regularly reviewed and tied to strategy. One supervisor explained that without follow-up, even useful tools like the matrix lose their relevance as new skills emerge. Another practical suggestion involved conducting mid-year follow-ups in addition to annual development discussions to make progress tracking more continuous and responsive.

Leaders also called for systematic onboarding and training for supervisors. While some managers had personal training backgrounds, many had received no formal preparation for supporting employee development. One leader stated that even simple onboarding with examples of good practices, like setting role-specific learning goals or mentoring protocols, would make a tangible difference. Mentoring was widely seen as potential method to accelerate junior employees' learning, particularly in complex areas like software development.

It was noted that while development discussions are formally held annually, career progress often resurfaces informally in stream meetings. They suggested implementing a lighter check-up e.g. every six months in stream owners' meetings to maintain visibility on development goals between formal reviews. This would help ensure that tools, as now existing Skill Matrix, are actively used and reviewed throughout the year and not just at isolated intervals. This reduces

the risk that career planning relies solely on individual initiative of stream heads. To support consistency, it was recommended that stream owners receive regular reminders and shared practices for integrating development tracking into their team routines.

Regarding strategic alignment, leaders emphasised the importance of aligning career development with Arbonaut's long-term priorities and emerging focus areas. They expressed a strong desire to anticipate future competencies and link development plans to strategic directions. This includes using tools like the Skill Matrix to identify gaps and steer learning toward company needs.

<b>Current state at Arbonaut</b>	<b>Desired future according to leaders</b>
Informal and ad hoc development processes	Structured, strategic, and system-wide career development
Career growth dependent on individual supervisors	Shared company-wide framework for roles and growth
Skill Matrix newly introduced and underutilised	Maintained and reviewed Skill Matrix integrated into planning
Career development often favours more visible or vocal employees	Development support provided proactively and fairly, regardless of personality traits
Career development practices vary significantly between teams	Standardised development approach applied consistently across all teams
Limited visibility into roles and paths	Clear role descriptions and documented career paths
No central tracking system or tool	Central tool to track learning goals and development history
Project needs drive training more than strategy	Strategic, forward-looking planning of competencies and training
Supervisor training not systematic	Mandatory onboarding and training for all supervisors

Table 2. Current state vs. desired future – Organisational leaders' insights.

### **Employees' perspective**

In addition to identifying challenges, employees provided a range of constructive suggestions to improve career development practices at Arbonaut. Their feedback focused on enhancing structure, transparency, and support

mechanisms to better align individual aspirations with organisational goals. The following themes emerged from open-ended survey responses.

One commonly raised concern was the absence of formal tracking systems. Thirty-four percent stressed the importance of formal tracking systems and consistent follow-up. Some described development as “happening by chance,” and emphasised the need for a centralised method to record goals, track progress, and support follow-up across teams. Without a shared structure, development efforts risk becoming fragmented or forgotten.

In addition, 38% of employees suggested that the Skill Matrix or similar self-assessment tools could play a more active role in guiding development planning. They saw potential for these tools to clarify goals and support more structured, visible progress.

Mentoring emerged as another valued but underutilised practice, mentioned by seven employees (22%), who said it would be helpful to learn from more experienced colleagues, especially when transitioning into new roles or domains. They suggested integrating mentoring more deliberately into the onboarding and growth process, rather than leaving it to chance or informal arrangements.

While formal development discussions were already taking place, some responses suggested a need for more ongoing or flexible supervisor interaction. Although informal check-ins were not mentioned directly, a few employees appeared to express a desire for more regular support between formal reviews.

Additionally, employees (72%) advocated for clearer communication around development support. While not widely raised, two responses mentioned uncertainty about how decisions are made accessing training opportunities.

Finally, 25% suggested that greater flexibility and co-creation in development planning could be beneficial. These comments highlighted the importance of taking into account individual goals, timelines, and working preferences, while still aligning with organisational strategy.

<b>Theme</b>	<b>Current state according to employees</b>	<b>Desired future according to employees</b>
Career development process	59% of employees reported only a partial or no understanding of potential development options; development is perceived as informal.	Employees desire clearer communication of career development paths and a more structured, transparent system.
Supervisor influence	Around 78% rated supervisor support positively, but long-term planning is often absent and varies by individual.	Supervisors should consistently engage in goal-setting and long-term development support.
Development discussions	Over 90% of employees have had a development discussion in the past year. However, only 34% felt these were fully sufficient to support their growth, while 47% found them only somewhat sufficient and 19% found them insufficient. Quality, follow-up, and personal relevance varied significantly.	Some expect more frequent, focused, and personalised discussions with clearer follow-up and stronger alignment to their individual goals.
Use of tools	Employees mostly mentioned the Skill Matrix but are unclear about its relevance or impact. Other development-related tools mentioned were e.g. DevPath, feedback conversations, 360° feedback surveys, and guidance from senior colleagues.	Development tools could be more clearly integrated into planning processes, consistently offered across teams, and accompanied by clear guidance to ensure they are meaningful and actionable for employees.
Fairness & visibility	Responses suggest vocal employees receive more attention; others may be overlooked.	Development opportunities should be distributed equitably and proactively.
Team consistency	Satisfaction with development varies by stream, indicating inconsistency.	Development practices should be standardised across teams.
Role & path clarity	Everyone stated they understood role expectations at least partially, but many found advancement unclear.	Clear, documented paths and expectations for progression are needed.
Tracking & planning	About 15% said their development happened by chance or self-initiative.	Employees suggest having structured tracking of learning and career progression.
Strategy alignment	Only 28% of employees felt that development clearly aligned with Arbonaut's strategic goals. Another 41% perceived only partial alignment, and 31% either did not see a connection or were unsure, revealing a substantial gap in perceived strategic linkage.	Career development should be linked with strategic goals
Long-term goals & planning	Only 47% felt encouraged to set long-term goals; focus remains short-term.	Employees want greater support and encouragement for long-term professional planning.

Table 3. Current state vs. desired future – Employees' insights.

## Summary

The improvement suggestions from both managerial leaders and employees reflect a clear consensus: Arbonaut's career development approach must evolve from informal, stream-specific practices toward a more coordinated, equitable, and strategically aligned process.

Concretely, this means creating documented career paths and promotion criteria that guide discussions and reduce ambiguity. Tools like the Skill Matrix could be embedded in planning processes and reviewed regularly to remain effective. Aligning training documentation and development planning with ISO certification standards could serve both internal development goals and external compliance requirements, potentially adding value to both individual growth and organisational credibility. A shared digital platform could help track progress and make development visible across the company. Supervisors could benefit from training, onboarding, and practical toolkits to support development equitably, particularly as career planning expectations increase. This is especially important for mid- and long-tenured employees, who expressed greater uncertainty about available opportunities and were less satisfied with ongoing support.

Managerial leaders pointed out that even when training needs are jointly identified by stream owners and employees, many of them are never implemented due to lack of time or funding. One leader noted that specific training needs often go unfulfilled despite agreement, because no time is allocated or the costs are deprioritised. This gap between planning and execution reinforces employee frustration and limits the overall effectiveness of development efforts.

Regular check-ins (beyond the annual development discussion) could be beneficial to support continuous learning and career progression. Both employees and leaders highlighted the importance of proactive support for those who may be less vocal, ensuring development is accessible regardless of personality or background.

As part of the survey, employees were also invited to share suggestions for how skills and knowledge development at Arbonaut could be improved. In their responses, they proposed ideas such as clearer role definitions, stronger

continuity in development initiatives, and support for deeper specialisation. Additional suggestions included the need for mentoring, regular feedback, and better utilisation of tools. Some respondents also recommended offering financial support for external training, creating more task variety through role rotation, and encouraging collaboration across streams. While these suggestions were not raised by the majority, they offer valuable insight into how development practices could be enhanced to better meet diverse learning needs.

Several managerial leaders highlighted that building a coherent career development system is not a quick fix but a long-term cultural process. They described the shift as ongoing and gradual, noting that even when useful tools or templates are introduced, their consistent use and impact take time to develop. One leader estimated the company was only 30% of the way toward a functioning framework, while another explained that internal training initiatives can take years to fully implement. These insights underscore the need for sustained commitment and patience in developing a supportive career culture.

The findings reveal a shared motivation between employees and managerial leaders to improve career development practices. Leaders expressed a strong desire to support meaningful growth, while employees showed clear eagerness to develop their skills, particularly in areas such as software development, cloud technologies, leadership, and strategic thinking. These were among the most frequently selected development goals in the employee survey.

Importantly, the readiness to engage in development was evident across tenure groups, suggesting that the system must accommodate both newer and more experienced staff. This shared readiness provides a solid foundation for building a more structured, equitable, and forward-looking career development system at Arbonaut.

<b>Improvement area</b>	<b>Level of emphasis</b>	<b>Supporting evidence</b>
Career path documentation/ Role descriptions	Strongly emphasised	Only 9% of employees found them clear; raised in all leader interviews
Structured supervisor-employee interactions	Strongly emphasised	44% of employees wanted more support from supervisors; open

		responses highlighted a desire for clearer planning and goal-setting
Training availability and budgeting	Strongly emphasised	Over half (53%) of employees were unsure about training options. Leaders noted unclear budgeting process.
Use of Skill Matrix	Strongly emphasised	Leaders support; employees unclear on use
Create central training tracking system	Strongly emphasised	Leaders noted scattered records; employees noted lack of follow-up
Link career development with strategic goals (and ISO certification standards)	Frequently suggested	Only 28% of employees felt that development clearly aligned with strategic goals. Another 41% perceived only partial alignment, and 31% either did not see a connection or were unsure. Leaders emphasised the need for tighter integration between strategic priorities and development planning.
Cross-team visibility: Embed development follow-up in stream coordination routines - to review progress, evaluate training needs, and maintain visibility across teams	Frequently suggested	Proposed by managerial leaders
Supervisor onboarding/training	Frequently suggested	Uneven support noted by both groups
Structured mentoring	Frequently suggested	Mentioned in employee and leader responses
Development goal tracking	Frequently suggested	Lack of follow-through noted repeatedly
Integrating tools (like the skill matrix, development discussions, or goal tracking) into team routines	Less emphasised	A few leader suggestions. Ongoing integration of development topics/tools into stream-level operations
Stream-level variation	Less emphasised	Inconsistency mentioned across interviews

Support for quieter employees	Less emphasised	Visibility bias noted in responses
Implementation of planned trainings	Less emphasised	Leaders cited time and resource constraints
Long-term cultural shift	Less emphasised	Leaders see this as a gradual process

Table 4. Most strongly emphasised improvements (across survey responses and managerial interviews).

Encouragingly, there is a clear positive shift in how career development is approached at Arbonaut in the past two to three years. While earlier conversations were often informal or inconsistently addressed, the topic has gained strategic visibility within the organisation. Annual development discussions have become more formalised through shared templates and more systematic implementation. There is now wider recognition of the need to align learning with future competencies. The introduction of the company-wide Skill Matrix marks another step forward, though many acknowledged that its practical use is still developing.

The components are already in place, but they must be integrated into a consistent, transparent, and supported framework if they are to truly support career development across the organisation.

## **8. Results**

This chapter presents the key findings of the study and addresses the main research questions guiding the thesis. The objective of the research was threefold. First, it aimed to explore which established career development theories and frameworks are most suitable for creating an effective and sustainable career development plan within the context of ICT companies. Second, it aimed to examine how Arbonaut employees perceive the company's current career management practices. Third, the research focused on identifying key practices and theoretical approaches that Arbonaut should consider when developing a career development plan.

### **8.1 Theoretical frameworks supporting effective and sustainable career development in ICT**

Theoretical frameworks reviewed in this study offer valuable guidance for ICT organisations seeking to establish robust, future-oriented career development systems. These frameworks respond to challenges typical of the ICT sector, such as high talent mobility, evolving technological demands, interdisciplinary work environments, and the need to balance individual career goals with organisational strategy.

Based on the literature and supported by empirical insights from Arbonaut as a case study, five frameworks emerged as particularly relevant for ICT companies: strategic talent management, boundaryless and kaleidoscope career models, competency-based systems, the ICT Career Pathway Framework, and best practices in competence management.

#### **Strategic talent management**

The strategic talent management framework (Collings & Mellahi, 2009) focuses on identifying pivotal roles that are critical to long-term business success and ensuring they are filled with employees who possess strategically aligned competencies. In the ICT sector, where technical expertise and innovation roles can directly influence competitiveness. This model offers a structured method for building internal talent pipelines.

At Arbonaut, while informal career advancement occurs, the absence of systematic succession planning and role-specific development illustrates the need for a framework that goes beyond ad hoc approaches. In addition to its potential for succession planning, this framework could help Arbonaut reduce inconsistencies between streams, better align individual development with strategic goals, and improve retention by clarifying advancement pathways in pivotal roles. It also complements the existing Skill Matrix tool, by providing a broader context for strategic workforce planning.

### **Boundaryless and kaleidoscope career models**

The boundaryless career model (Inkson et al. 2015) and kaleidoscope career model (Sullivan & Mainiero, 2013) emphasise individual agency, career adaptability, and the importance of aligning work with personal values and life circumstances. These frameworks are particularly well-suited to ICT environments, where professionals frequently shift between projects, roles, and even organisations.

At Arbonaut, survey responses revealed that employees highly value autonomy, task variety, and non-linear development options. However, only 34% reported feeling fully supported in development planning, and many described advancements as self-directed or dependent on personal initiative. These models align well with Arbonaut's current cultural strengths, such as flexibility and trust, but also highlight the need for more personalised, transparent, and co-created development paths. They support the idea of offering adaptable, employee-driven planning structures that respond to changing priorities, life stages, and role dynamics across streams.

### **Systems theory and competency-based development**

The Systems theory framework (STF) (Patton & McMahon, 1999) conceptualises career development as a non-linear and dynamic process shaped by interactions between personal goals, social environments, and organisational change. This is especially relevant for ICT companies, which operate in fast-moving, project-based contexts. Arbonaut leaders described their current development planning as reactive, often driven by technical needs rather than strategic foresight.

Similarly, employees expressed uncertainty about how their roles fit into broader goals. The STF model provides a basis for designing flexible, responsive systems that support both individual adaptability and organisational resilience.

### **ICT Career pathway framework**

The ICT Career Pathway Framework (NSW Government 2016) offers one of the most comprehensive practical models tailored specifically to ICT settings. It emphasises multi-directional mobility (vertical, lateral, and diagonal), clear capability profiles, and a structured approach to career mapping. For companies without formalized development systems, such as Arbonaut, where role descriptions and promotion criteria remain undefined, this framework provides actionable tools such as skill gap analyses, role matrices, and planning templates. These resources directly align with feedback from Arbonaut employees and leaders, who called for greater clarity, visibility, and consistency in development opportunities.

### **Competence management best practices**

The competence management best practices framework (Laine 2007) highlights how organisations can institutionalise development through strategy-aligned planning, supervisory practices, and integration into daily routines. ICT companies benefit from embedding career planning into workflows, enabling continuous learning and tracking of skill development.

For ICT companies like Arbonaut, where work is project-based, and growth often depends on initiative, this framework offers tools for building shared structures and reducing team-by-team variation. Although most employees had development discussions in the past year, 47% rated them only somewhat sufficient, and both employees and leaders noted a lack of follow-up and accountability. Leaders also reported variation in supervisor preparedness and called for clearer onboarding, practical tools, and consistent routines. Laine's model directly addresses these needs by promoting coordinated planning, clearer role expectations, and regular tracking of competencies as part of operational management—not as a separate HR function.

## **Summary**

Each of the frameworks discussed above addresses different but complementary needs within ICT organisations, including strategic foresight, individual flexibility, structural clarity, and cultural integration. Taken together, they suggest that the most effective approach for ICT companies is not the adoption of a single model, but rather the integration of several. A sustainable career development system benefits from the strategic alignment of key roles and competencies as, while also incorporating the flexibility and employee-centered orientation found in the boundaryless and kaleidoscope models. Systems theory framework adds the dimension of adaptive, context-sensitive planning, which is particularly suited for dynamic project-based environments. The practical role structuring and progression tools offered by the ICT career pathway framework provide the operational foundation for translating strategy into action. Finally, framework on competence management illustrates how supervisory practices and ongoing dialogue can make development a consistent and integrated part of organisational practice.

In Arbonaut's case, these frameworks collectively highlight the shift from informal, stream-dependent practices toward a more structured and future-oriented approach to career development. Each model offers a distinct lens: some emphasise strategic alignment and succession planning, others focus on individual career motivation, flexible pathways, or integrating development into daily leadership routines. Together, they provide a comprehensive foundation for designing a career development system that is both theoretically grounded and tailored to Arbonaut's goals and working culture.

### **8.2 Employee perspectives on the current state of career management at Arbonaut**

Employee perceptions gathered through the company-wide survey, supported by open-ended comments, indicate that career management at Arbonaut is broadly viewed as fragmented, informal, and inconsistently implemented. A common theme across responses was limited visibility into development opportunities and unclear pathways for progression.

One of the clearest findings relates to the lack of transparency around development opportunities. Only 34% of respondents reported a clear understanding of available opportunities such as skill-building, role transitions, or internal mobility, while 47% indicated only partial awareness and 19% had no clear view at all. This was reinforced by open-ended responses, where employees frequently described career growth as self-directed and heavily reliant on personal initiative. As one respondent put it, “if you don’t ask, nothing happens,” (Arbonaut employee survey 2025) suggesting that more assertive individuals may receive disproportionate attention.

The absence of structured or visible career paths was another recurring concern. Only 9% of employees felt that career paths were well defined and consistently communicated, while 50% believed that information existed but was limited or inconsistent. A further 41% described career paths as rarely discussed. Many employees expressed a desire for clearer criteria, advancement steps, and role expectations. Although tools like the Skill Matrix and DevPath were mentioned, these were not widely perceived as integrated or meaningful, pointing to a disconnect between available tools and actual developmental support.

Despite these systemic issues, employees generally reported positive experiences with their supervisors. The average satisfaction rating for supervisor support in career development was 3.97 out of 5. Furthermore, 78% described their supervisors as approachable and encouraging. However, 44% expressed a desire for more support, and an equal proportion were unsure. This suggests that while relational support is strong, structured guidance and long-term planning remain lacking. Open comments reinforced this tension: supervisors were seen as “supportive,” but the process itself lacked “structure” and “follow-up.” This duality, strong interpersonal relationships but weak systematic support, highlights a central tension within Arbonaut’s current career management environment.

A majority (53%) of employees were unsure about what training options were available, and several described access as inconsistent or not clearly aligned with role-specific needs. Still, development interest was strong, with the top three areas of focus being technical skills, leadership or supervisory capabilities, and business insight, including data analysis and project management. This indicates

that employees are seeking both deeper domain expertise and broader competencies to support professional growth.

Equity in access to development also emerged as a concern. Responses indicated that access to development often depended on the supervisor's initiative or the employee's assertiveness, rather than a consistent company-wide process. Some employees reported that more active individuals might have better opportunities compared to others. This reinforces perceptions of inconsistency and potential bias in how opportunities are allocated.

Finally, perceptions of strategic alignment were somewhat weak. Only 28% of respondents believed that development opportunities were clearly connected to Arbonaut's strategic direction, with 41% seeing only partial alignment and 31% unsure or not perceiving any link. Several employees noted that while strategic focus areas (such as AI, remote sensing, or sustainability mentioned) were generally known, they were not explicitly linked to individual development plans. This suggests that strategic priorities are not yet embedded in team-level discussions or employee growth planning.

## **Summary**

Overall, employee perceptions point to a career management system that is informal, unevenly implemented, and lacking in visibility and structure. Employees wish to have clearer pathways, transparent training processes, and stronger links between their own growth and the company's strategic direction.

Despite the limitations in structure and communication, the overall findings reflect a workplace culture that values learning and employee development. Many employees expressed a strong personal interest in growing their skills, and nearly all reported having had at least one development discussion in the past year. Moreover, the high level of trust in supervisors and the recurring interest in areas like leadership and business insight suggest that employees are motivated to contribute beyond their current roles. These signals reveal a high level of motivation and willingness to engage in development, suggesting that with the right structures in place, employee engagement in career management could be significantly strengthened.

### **8.3 Building an effective career development approach at Arbonaut: strategic considerations and practical guidance**

The findings of this study suggest that Arbonaut would benefit from a structured yet flexible career development plan that integrates established theoretical models with tailored organisational practices. The goal is not to apply frameworks in a prescriptive manner but to draw from their core principles in building a system that is contextually relevant, strategically aligned, and perceived as valuable by employees.

Several theoretical approaches reviewed in this study offer a solid foundation. The strategic talent management model (Collings & Mellahi 2009) supports identifying and nurturing key roles that are central to long-term business success. Given Arbonaut's project-based structure and reliance on highly skilled experts, this approach would help prioritise development where it matters most. Equally important is the application of competency-based frameworks, such as the systems theory framework (Patton & McMahon 1999), which enables adaptive planning by acknowledging the dynamic relationship between personal goals, organisational needs, and external changes.

The ICT career pathway framework (NSW Government 2016) stands out as a particularly compatible tool for Arbonaut. It provides a structured approach for categorising roles, supporting both vertical and lateral career movement, linking progression to capability development, and embedding career planning into day-to-day operations. Two specific tools within this framework, the role matrix (Appendix 4) and the career navigation map (Appendix 3) are especially relevant. The role matrix offers a clear structure for defining job expectations and advancement pathways, while the navigation map helps employees visualise options for development and mobility. Introducing these tools could help overcome the lack of visible career paths at Arbonaut and give both employees and supervisors a shared reference point for planning growth. In Arbonaut's case, where the absence of visible career paths and the underutilisation of tools such as the Skill Matrix were frequently noted, this framework could help define roles more clearly and support supervisors in guiding meaningful development discussions.

In parallel, the kaleidoscope and boundaryless career models (Sullivan & Mainiero 2013; Inkson et al. 2015) emphasise flexibility, self-direction, and individualised growth. These principles align closely with the values expressed by Arbonaut employees, who indicated a preference for more personalised development. Together, these models would support employee agency while operating within a coherent and supportive career development system.

To translate theory into practice, several key elements should be embedded into Arbonaut's career development plan. First, clarity and transparency are essential. Employees repeatedly indicated a lack of visibility into available development opportunities, career paths, and criteria for advancement. A centralised system for role descriptions, competency expectations, and learning pathways would address this gap. The creation of visual, accessible development roadmaps, potentially integrated with existing tool like the Skill Matrix, would increase usability and awareness.

Second, the role of supervisors as development facilitators must be strengthened. While many employees view their supervisors positively, the absence of structured support and follow-up was a recurring concern. Equipping supervisors with shared tools (e.g. conversation templates, goal-setting forms, feedback cycles) and offering development-focused onboarding or training would improve consistency. The competence management best practices framework (Laine 2007) emphasises this integration of career development into supervisory work and could help embed new habits at the team level.

Third, the plan should promote equity and inclusiveness. The current informal and discretionary approach was seen to favour more assertive or vocal employees, leading to perceptions of unequal access. Establishing clearer eligibility criteria for training, transparent budget communication, and employee-initiated development planning could reduce this imbalance. A structured development process would also help identify and support quieter individuals or those less familiar with self-promotion.

Fourth, successful implementation will require linking career development with strategic priorities. Currently, many employees do not see a connection between their own growth and the company's direction or international expansion.

Embedding strategic themes into learning tracks, project assignments, and role progression criteria can help bridge this gap. Regular communication and leadership visibility in development planning would reinforce these links and demonstrate commitment from the top.

Finally, the plan must allow for individualisation within a shared structure. Employees expressed a wide range of aspirations from deepening technical expertise to developing leadership or business capabilities. The system should accommodate these differences by supporting flexible learning pathways and enabling horizontal as well as vertical growth. Offering a mix of coaching, mentorship, external training, and internal mobility options can reflect the diversity of interests and career stages across the organisation.

### **Summary**

In summary, Arbonaut's career development plan should combine well-established theoretical approaches with tailored organisational practices. Among the most relevant frameworks are the ICT career pathway framework, strategic talent management, and competency-based career models. These approaches offer useful principles and tools for defining roles, supporting career mobility, linking development to business goals, and accommodating individual growth needs.

To succeed in practice, the plan must also address several key areas identified in this study. These include improving visibility through clearer development paths, strengthening the role of supervisors in guiding and supporting growth, and ensuring fair access to opportunities through transparent criteria. It is also essential to link personal development more clearly with strategic company priorities, and to offer flexible pathways that reflect the diverse aspirations of employees.

By integrating these frameworks and practices, Arbonaut can move toward a more structured, inclusive, and future-oriented development culture that supports both the company's strategic direction and the professional growth of its people. To remain effective, the career development plan and its underlying frameworks

should be regularly reviewed and updated in response to changes in strategy, workforce needs, and the external operating environment.

## 9. Discussion

This thesis aimed to investigate ways to enhance career development practices in the ICT sector through a case study of Arbonaut. The results demonstrate that a strong foundation for structured career development already exists in the organisation through motivated personnel and shared leadership commitment, but that current practices remain informal, uneven, and often dependent on individual initiative. The study's results strongly align with its original objectives and research questions and contribute both theoretical and practical value not only to the case company Arbonaut, but also by offering insights that may be relevant to similar ICT organisations facing comparable challenges in career development.

### **Achievement of goals and connection to the knowledge base**

Reflecting on the three research questions, the study successfully met its objectives by providing comprehensive answers to each. These responses are presented in detail in sections 8.1–8.3, where established frameworks are evaluated. RQ1 was addressed through the identification and evaluation of key theoretical frameworks, which were shown to be both applicable and adaptable to Arbonaut's ICT environment. RQ2 was answered by gathering and analysing employee perceptions through a survey and comparing them with leadership insights, revealing consistent patterns and challenges. RQ3 was addressed by integrating theoretical and empirical findings to propose concrete practices and priorities for building a more structured and inclusive career development system.

The frameworks chosen in the theoretical section turned out to be highly relevant and applicable to Arbonaut's context. The ICT career pathway framework was particularly useful, as it directly addressed concrete gaps identified in the findings, such as the lack of clearly defined career paths and the limited use of tools like the Skill Matrix. The boundaryless and kaleidoscope career models aligned well with the employee feedback that emphasised the need for flexible, personalised development options rather than rigid hierarchies. Meanwhile, the Systems Theory Framework helped explain how career development at Arbonaut is shaped not only by individual goals but also by team dynamics, supervisory practices, and broader organisational conditions. These frameworks together

provided useful guidance for analysing the current state and suggesting improvements.

### **Evaluation of implementation and methods**

The implementation of the study followed a mixed-method approach, combining a company-wide survey and interviews with five managerial leaders. Microsoft Forms was used to collect survey data and Quirkos to analyse interview transcripts. This approach allowed me to capture both broad trends and deep, qualitative insights.

While the survey response rate was satisfactory (47.8%), it is possible that the results do not fully represent the views of all employee groups. The number of interviews was also limited to five, and expanding this to include project leads might have provided even more broader view. However, the data was sufficient to identify consistent patterns and areas of concern, particularly since both quantitative and qualitative findings pointed to the same structural issues, such as the lack of formal paths, inconsistent support, and weak links to strategic goals. It was particularly encouraging that all survey respondents (100%) chose to answer at least one open-ended question, despite these questions being optional. This high level of voluntary engagement suggests that employees were motivated to share their views, which greatly enriched the qualitative depth and contextual understanding of the findings.

The original plan was to interview six organisational leaders, but due to scheduling constraints and time limitations, the number was eventually reduced to five. However, the amount of data collected from these interviews turned out to be extensive. As a result, even with one fewer participant than planned, the qualitative material was more than sufficient to identify clear themes and draw meaningful conclusions.

The thematic analysis of interviews, structured through Quirkos and supported by the theoretical frameworks, provided a clear and systematic basis for drawing conclusions. My dual role as researcher and employee presented certain challenges, but I actively reflected on my position throughout the process to avoid personal bias and ensure critical distance.

### **Ethics and reliability**

Throughout the thesis process, I followed the ethical guidelines provided by the Finnish National Board on Research Integrity (TENK). All participants gave informed consent, and anonymity was preserved in both the survey and interview data. A secure storage of all responses was maintained and took care to avoid collecting unnecessary personal information. Therefore, everything went as planned.

Reliability was supported by using consistent data collection tools and clearly documented analysis procedures, as well as by comparing patterns across both survey and interview data. However, as with all research based on self-reported data, there is a risk of social desirability bias or selective reporting. This was mitigated through careful question design and critical interpretation of the findings. My own role as an employee-researcher also required special attention to reliability. The conclusions are based on a careful interpretation of the data and aim to reflect the findings honestly and respectfully.

### **Professional growth and learning**

The thesis process served as a valuable opportunity to strengthen skills in conducting organisational research, applying theory to practice, and communicating complex findings in a clear and meaningful way. Competence was further developed in mixed-method data collection, qualitative analysis, and academic writing, while navigating the dual role of employee and researcher enhanced awareness of professional boundaries and objectivity.

Early in the research process, a key challenge was determining which questions would produce data that was both relevant and meaningful for achieving the thesis objectives. It required careful planning to ensure that both the survey and interview questions were focused enough to provide actionable insights, without overwhelming participants or collecting unnecessary data. Balancing depth and clarity were a particular challenge, as the study had to be kept manageable while staying aligned with the research objectives.

One of the most valuable lessons was understanding the complexity of career development at both the individual and organisational level, especially as the topic was unfamiliar when starting the process. Insight was gained into how leadership, structure, tools, and strategy interact to shape development experiences.

### **Future directions and recommendations**

The results provide a comprehensive insight into the current situation, challenges, and needs related to career development. These findings can now serve as a foundation for designing a more specific and structured career development plan, tailored to the company's goals and employee expectations. Career development is not a one-time project but a continuous process that requires regular evaluation and adjustment.

It is recommended that Arbonaut revisits its development tools and practices on an ongoing basis, includes employees in assessing their relevance, and ensures that career planning remains aligned with the company's evolving strategic direction. The career development plan should also account for employees' willingness and ability to adapt to continuous learning. Supporting this adaptability is essential to keeping skillsets aligned with evolving industry demands and emerging technologies. The system should support diverse development pathways, enabling employees to grow in areas aligned with their individual strengths and interests, whether technical, strategic, or operational, while still contributing to the organisation's broader goals. To remain effective, the career development system must be periodically reviewed and updated to reflect changes in the business environment, technologies, and employee needs.

It is also important to note that the role of human resources (HR), or *people operations* as referred in Arbonaut, in supporting or coordinating career development was not examined separately in this study, and their involvement in future planning remains to be clearly defined. The limited mention of HR in both survey and interview responses may suggest that their role in career development is less visible to employees in everyday interactions, even if they are involved at a strategic or structural level. However, it is also possible that the absence of HR references was influenced by how the research instruments were

designed. As the questions focused on personal experiences and perceptions, participants were more likely to describe interactions with supervisors and teams. Future research could explore this further by explicitly examining perceptions of HR's strategic and operational role in career development. Clarifying HR's responsibilities and resources could be a valuable next step in building a coherent and sustainable development system.

Future research could explore how development efforts are implemented over time, and how employees experience any resulting changes. This could include gathering employee feedback, tracking training participation, or using performance metrics to assess impact. It would also be valuable to examine potential outcomes such as improved retention, increased engagement, or stronger alignment between competencies and organisational needs. In this way, Arbonaut can ensure that career management remains a dynamic and responsive part of its long-term strategy.

At a broader level, this thesis responds to a growing demand for more inclusive, flexible, and sustainable career development practices in the ICT sector. As roles become more complex and individualised, companies must offer both structure and adaptability, ensuring that all employees, regardless of tenure, background, or personality, have access to meaningful development opportunities. By investing in career development, organisations not only support employee growth but also enhance long-term resilience and strategic capability in an increasingly dynamic and competitive industry.

## References

- Arbonaut employee survey. 2025. Unpublished internal survey data. Helsinki: Thesis, Career development in ICT: A research-based approach to improving career management at Arbonaut.
- Arthur M. B., & Rousseau, D. M. 1996. *The Boundaryless Career: A New Employment Principle for a New Organizational Era*. Oxford: Oxford University Press.
- Baskurt, Demirci 2022. *MAX WEBER: BUREAUCRACY THEORY AND ACCOUNTING APPROACH*. Istanbul: PressAcademia
- Benson GS, McIntosh CK, Salazar M, Vaziri H. 2020. Cultural values and definitions of career success. *Hum Resour Manag J.* 2020; 30:392–421. <https://doi.org/10.1111/1748-8583.12266>.
- Cambridge University Press & Assessment 2025. <https://dictionary.cambridge.org/dictionary/english/generation-x>. 3.4.2025
- CEN. 2014. User guide for the application of the European e-Competence Framework 3.0. CWA 16234:2014 Part 2. Bryssel: European Committee for Standardization.
- Collings, D. G., & Mellahi, K. 2009. *Strategic Talent Management: A Review and Research Agenda*. Human Resource Management Review. Netherlands: Elsevier.
- Columbia University Mailman School of Public Health. 2024. New York: Columbia University. <https://www.publichealth.columbia.edu/research/population-health-methods/content-analysis> 13.11.2024.
- FINNISH NATIONAL BOARD ON RESEARCH INTEGRITY TENK. Helsinki: Tutkimuseettinen neuvottelukunta. <https://tenk.fi/en> 18.1.2025
- Gerli Fabrizio. Bonesso Sara., Pizzi Claudio. 2015. *Boundaryless career and career success: the impact of emotional and social competencies*. Frontiers in Psychology. Switzerland: Frontiers Media S.A.
- Greenhaus, J. H., Callanan, G. A., & Godshalk, V. M. 2019. *Career Management for Life*. New York: Routledge.
- Hiltunen H. 2025. Organisational leader interview. (2025). Unpublished interview transcript. Helsinki: Thesis: Career development in ICT: A research based approach to improving career management at Arbonaut.
- How to develop a career progression framework. Leapsome. <https://www.leapsome.com/playbooks/how-to-create-career-progression-framework>. 23.11.2024.
- Indeed, 2024. *Power Dynamics in the Workplace: An Intro*, <https://www.indeed.com/hire/c/info/power-dynamics>. 10.11.2024.
- Inkson, K., Dries, N., & Arnold, J. 2015. *Understanding Careers: The Metaphor of Career Journeys*. London: SAGE Publications.
- Laine Pertti, 2007. *OSAAMISEN JOHTAMINEN JA HRD – TARUA VAI TOTTA? Kuvaus viiden case-organisaation henkilöstön kehittämisen käytännöistä*. Jyväskylä: Koulutuskeskus Salpaus.
- London, Manuel 2003. *Job Feedback: Giving, Seeking, and Using Feedback for Performance Improvement 2<sup>nd</sup> Edition*. New Jersey: Lawrence Erlbaum Associates.
- Lussier, Korf, Olden, Slepian 2023. *Comprehensive Precision Medicine*. 1st Edition. Massachusetts: Academic Press.

- McIlveen et al. 2011. Developing Learning Professionals: Career Development Learning Frameworks for Work-Integrated Learning. Sydney: Australian Learning and Teaching Council (ALTC).
- NSW GOVERNMENT, 2016, ICT Career Pathway Framework Implementation Guide. Sydney: NSW Public Service Commission.
- NSW GOVERNMENT, ICT Career Pathway Framework 2016. Sydney: NSW Public Service Commission.
- Patton Wendy and McMahon, Mary. 2006. The Systems Theory Framework Of Career. Development And Counseling: Connecting Theory And Practice. International Journal for the Advancement of Counselling. Netherlands: Springer.
- Personio, Career Progression Framework: What It Is & How to Build One. München: Personio.  
<https://www.personio.com/hr-lexicon/career-progression-framework/>. 23.11.2024
- Raboca Julienne. 2024. What Is Global Talent Mobility? And Why Do So Many Companies Suck at It?.  
<https://www.playroll.com/blog/what-is-global-talent-mobility>. Playroll. 9.12.2024.
- Renato Reis de Macedol, Elza Fátima Rosa Veloso, Vanessa Pinsky I, Leonardo Trevisan II, Rev. Adm. UFSM Santa Maria. 2023. Career management in digital age: a study of leadership's competencies and practices applied for IT professionals, v.16, n. 1, e3, 2023. Santa Maria: Universidade Federal de Santa Maria.
- Sharon. 2024. What is Global Talent Mobility? DistantJob.  
<https://distantjob.com/blog/global-talent-mobility/>. 9.12.2024.
- Staskevica. 2019. The Importance of Competency Model Development. Academic article shared on ResearchGate.
- Sullivan, S. E., & Mainiero, L. A. 2013. The Kaleidoscope Career: An Integrated Model of Career Development. In Career Development and Counseling: Putting Theory and Research to Work. Hoboken: Wiley.
- Tuomikoski Suvi. 2023. Uravalmennus työpaikalla. Suomi: BoD - Books on Demand.
- Wilson John P. 2012. International Human Resource Development. Learning, Education and Training for Individuals and Organizations. 3rd Edition. London: Kogan Page.
- Yarnall Jane. 2008. Strategic Career Management Developing Your Talent. Aldershot: Gower Publishing.
- Zheng Robert Z. 2020. Examining Multiple Intelligences and Digital Technologies for Enhanced Learning Opportunities. Pennsylvania: IGI Global.

**Best practices in competence management (Laine 2007, 47)**

<b>Competence management area</b>	<b>Description of best practice or operational method</b>
<b>(1) Strategic-level competence management</b>	(1) Ongoing strategic dialogue with management. HRD participates in the strategy process as a "strategic partner." HRD (HR) is represented in the organization's strategic groups.
	(2) The strategic importance of competencies as a competitive factor or as fundamental to the organization's core mission is explicitly defined.
	(3) Competence must be included in the management reporting system. This requires continuous measurement.
	(4) Annual planning and joint assessments with action plans include assessments of competence significance.
	(5) Competence management processes are defined.
	(6) Information system solutions support these processes.
<b>(2) Competence management in practical supervisory work</b>	(1) The annual planning process systematically applies competence management procedures.
	(2) Development discussions are conducted systematically throughout the organization according to recorded guidelines; planning and evaluation are key perspectives.
	(3) Personal development plans are created and monitored.
	(4) Competence descriptions (competence profiles, role descriptions, etc.) are created and utilized in the above processes.
	(5) Preparation for and protection against competence gaps in the workplace.
	(6) Competence management perspectives are continuously integrated into everyday leadership practices.
<b>(3) Application of learning organization principles</b>	(1) The principles of a learning organization are defined and applied in guiding the organization.
	(2) Building a shared vision extends to development and competence areas. The vision communicates long-term goals and outlines steps to achieve them.
	(3) Emphasis on collaborative learning methods, systematic thinking, and promoting structured practices.

**Implementation guide and tips – planning and preparation** (NSW GOVERNMENT, ICT Career Pathway Framework Implementation Guide, 2016)

This annex includes a structured overview of planning and preparation tips from the ICT Career Pathway Framework. The table outlines responsibilities and suggestions for Business Leaders, Managers, and HR Teams.

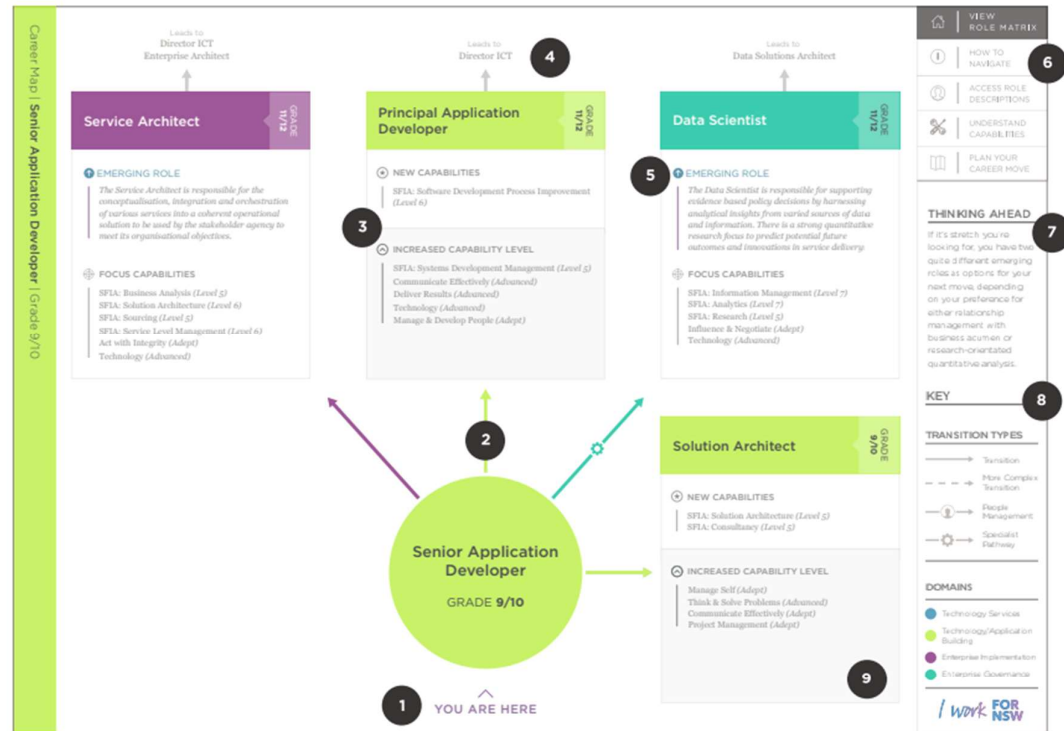
	<b>Consider</b>	<b>Business Leader Tips</b>	<b>Manager Tips</b>	<b>HR Team Tips</b>
Plan	<ul style="list-style-type: none"> <li>• What is the framework trying to achieve?</li> <li>• Is a project team required to manage the implementation and who should be on the team?</li> <li>• When &amp; how will you implement the framework?</li> <li>• How will you define success?</li> <li>• How will I measure the impact of the ICT Career Pathway Framework?</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate the implementation as part of your agency's next performance development process</li> <li>• Establish a project team that covers all levels of staff</li> <li>• Involve managers in decisions about the change: 'How can we make this work in our organisation?'</li> <li>• Confirm the outcomes with the senior leadership team</li> </ul>	<ul style="list-style-type: none"> <li>• Consider the impact of the change and anticipate the range of reactions</li> <li>• Consider what information is required to support the change</li> <li>• Involve staff in decisions about the change: 'How can we make this work in our team?'</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporate messages about the framework with current messaging around the performance development process</li> <li>• Use or adapt metrics already in place to measure success such as the People Matters Employee Survey (PMES) or your agency's HCMS</li> </ul>
Prepare others	<ul style="list-style-type: none"> <li>• Who can be a change champion?</li> <li>• How will you brief others on the intent, design and uses of</li> </ul>	<ul style="list-style-type: none"> <li>• Meet with your team and discuss:               <ul style="list-style-type: none"> <li>– 'Emerging trends in ICT' (pg. 7 of the ICT Career Pathway Framework)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Meet with your team and discuss:               <ul style="list-style-type: none"> <li>– 'Emerging trends in ICT' &amp; 'How the framework will help you' (pg. 7–8)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Brief others on why we need an ICT Career Pathway Framework</li> <li>• Use this to build engagement with the framework</li> </ul>

	<p>the framework?                  • When will you brief them?</p>	<ul style="list-style-type: none"> <li>• Explore development options (coaching, mentoring, etc.)</li> <li>• Use questions from 'Manage resistance to change' resource</li> <li>• Be clear on the purpose of the framework</li> <li>• Gauge reactions</li> <li>• Ask 'What other information do you need?'</li> </ul>	<ul style="list-style-type: none"> <li>• Allow the team to share reactions</li> <li>• Use the 'Manage resistance to change' resource</li> <li>• Help individuals create personal implementation plans</li> <li>• Be flexible with how the framework is implemented</li> </ul>	
<p>Implement</p>	<ul style="list-style-type: none"> <li>• How can the framework support career conversations in your agency?</li> <li>• Are employees exhibiting resistance to the change?</li> <li>• How can you encourage discussion with team or potential users?</li> </ul>	<ul style="list-style-type: none"> <li>• Start the process by having a career conversation with your direct reports</li> <li>• Provide managers with the 'Managers Career Conversation Guide' * to build confidence in having career conversations</li> </ul>	<p>Ask your team to individually work through pages 80-81 of the ICT Career Pathway Framework i.e. ' How I turn my career pathway into reality' &amp; 'Plan your career move'</p> <ul style="list-style-type: none"> <li>• Meet one on one to discuss the results using the 'Managers Career Conversation Guide'*</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor the quality of career conversations</li> <li>• Enable access to information on the ICT Career Pathway Framework</li> </ul>

			<ul style="list-style-type: none"> <li>• Identify what capabilities or experience will help them with their next career move</li> <li>• Share information about how other teams are going with the implementation.</li> </ul>	
Sustain	<ul style="list-style-type: none"> <li>• Do changes need to be made based on feedback and evaluation?</li> <li>• What are the risks to the change being maintained over time?</li> </ul>	Follow through on development/career plans with your direct reports	<ul style="list-style-type: none"> <li>• Review progress on career plans</li> <li>• Look for development opportunities for your staff</li> <li>• Think about ways you can make work learning and learning work</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct skip-level interviews with staff to get feedback on whether the ICT Career Pathway Framework helped them navigate their career options</li> </ul>

**Example of how to navigate in the career map (NSW GOVERNMENT, ICT Career Pathway Framework 2016)**

- 1. You are here:** This is your starting point. Each role has up to four possible pathways which have been identified based on grade, capability match and industry insight.
- 2. Career pathways:** Each arrow represents a possible career move. The arrows depict the level of complexity and type of move.
- 3. Possible roles:** Each role outlines capabilities required to move to a new role. Understanding these capabilities will help you plan your development. Each role is at the same level or one above. Horizontal paths enable greater breadth while diagonal pathways are typically more challenging as they enable greater stretch and breadth.
- 4. Leads to:** Possible future moves one level above are highlighted to guide longer term career planning.
- 5. Emerging role:** A set of emerging roles which are required to support the future of ICT have been included in this framework.
- 6. Navigation panel:** Interactive links help you navigate this document. Use the 'View Role Matrix' button as your home button.
- 7. Thinking ahead:** Additional insights to help you plan your career move.
- 8. Key:** The use of symbols and colour provides additional information that will help you determine your career pathway.
- 9. Role profiles:** Additional information on key complexities and valued experiences has been provided for a sample of seven critical roles.



*Click here to start exploring your possible career pathways*



Example of role matrix (NSW GOVERNMENT, ICT Career Pathway Framework 2016)

# Role Matrix

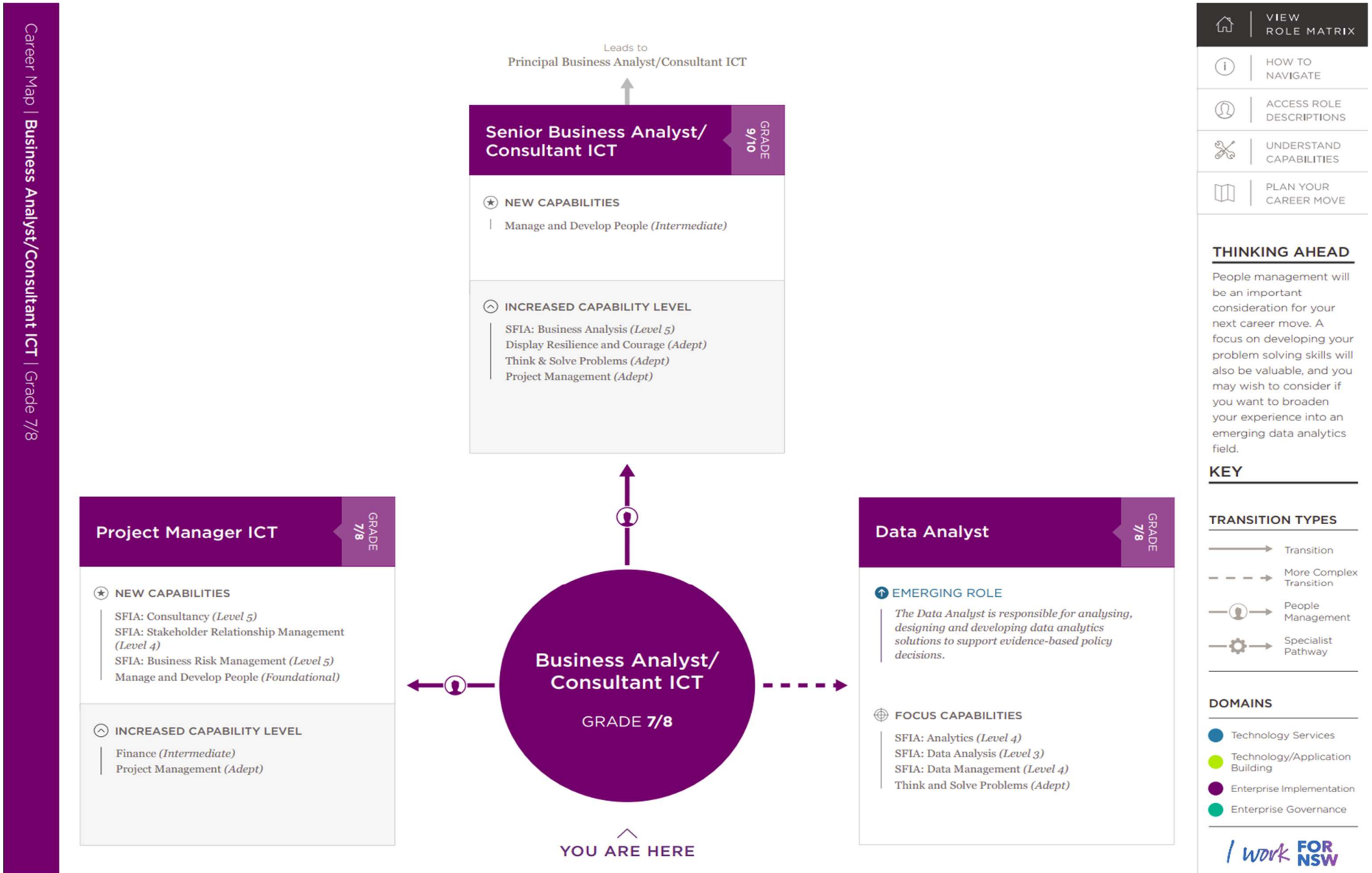


**Navigating the role matrix:** This page is interactive. Find a role based on its level and domain, as depicted by labels and colour coding. You can then click on the role to be linked to its career map and possible pathways. Please note that the placement of roles within a band or grade do not reflect the level of seniority or hierarchy.

Band	Infrastructure Engineering	Systems Administration	Application Development	Database Administration	Data Analytics	Information Security	Network Management	Strategy & Architecture	Service Management	Project Management & Business Analysis		
Band 2								Chief Information Officer				
Band 1						Director ICT Governance, Security & Risk	Strategist ICT	Enterprise Architect	Director ICT	Program Manager ICT - Director, Consulting & Project Management		
Grade 11/12	Manager ICT Infrastructure Engineering	Principal Systems Administrator	Principal Application Developer		Data Scientist	Manager ICT Governance, Security & Risk	Principal Network Administrator		Service Architect	Business Partner ICT	Manager ICT Contracts	Manager Program Management Office (PMO)
					Data Solutions Architect	Principal Cyber Security & Digital Forensics Officer			Service Level & Catalogue Manager	Manager ICT Customer Services	Principal Business Analyst/Consultant ICT	Principal Project Manager
									Product Manager	ICT Continual Service Improvement Manager		
Grade 9/10	ICT Infrastructure Engineer	Senior Systems Administrator	Senior Application Developer	Senior Database Administrator	Senior Data Analyst	Senior Security Administrator	Senior Network Administrator	Solution Architect	Asset & Configuration Manager	Service Continuity Manager	Change & Release Manager	Resourcing Manager ICT
	Technical Support							Information Architect	Problem Manager	Availability & Capacity Manager	Senior Business Analyst/Consultant ICT	Senior Project Manager
	Team Leader Technical Support								Knowledge Manager ICT	Vendor Relationship Manager	ICT Testing & Quality Assurance Manager	User Experience Designer
											Business Process Modeller	
Grade 7/8	Technical Support Administrator	Systems Administrator	Application Developer	Database Administrator	Data Analyst	Security Administrator	Network Administrator				Business Analyst/Consultant ICT	Project Manager ICT
Grade 5/6	Technical Support Officer					Security Analyst				Service Level Analyst	Test Analyst ICT	Project Support Officer
												Project Support Administrator
Grade 3/4	Technical Support Assistant											

● Technology Services   ● Technology/Application Building   ● Enterprise Implementation   ● Enterprise Governance   ● Emerging Role

Example of ICT career maps profile (NSW GOVERNMENT, ICT Career Pathway Framework 2016)



**Interview questions for CEO – Career management at Arbonaut**

## Background information

1. Name and role in the company

## Current State of Career Development

2. How would you describe the current state of career development at Arbonaut?
3. Are there clear career paths or development programs in place?
  - a) For example, are there documented role paths, promotion criteria, or role descriptions to guide employee growth?
  - b) How clearly are these opportunities defined and how visible are they to employees?
4. What practices or tools are currently in place to support career planning and guidance for employees?
  - a) Are there company-wide frameworks, systems, or principles that guide employee development?
5. How is career development progress tracked or assessed at a company level?
  - a) For example, are there any tools, indicators, or reporting practices that help Arbonaut understand how employees are progressing in their roles or developing their skills over time?
6. Do you think these tools and practices are effective in supporting both individual growth and company goals?
  - a) Have these practices evolved over the past 2–3 years?
  - b) What changes (if any) have been made, and why?
7. How does Arbonaut ensure that career development happens intentionally instead of occurring by coincidence or without direction?
  - a) Are there practices in place to make career growth more predictable or planned?
8. How are training decisions made? Who decides — employee, supervisor (stream owner), HR?

## Leadership Support and Competence

9. How do you see the role of company leadership in enabling career development?
  - a) What expectations are there for managers to support growth and learning?
10. What kind of support or training is provided to managers to help them lead and support career development effectively?

## Strategic Perspective and Alignment

11. How clearly are Arbonaut's strategic goals connected to employee career development?

- a) Consider whether strategic direction is reflected in practices such as role planning, training, or development discussions.
  - b) Are there any tools, frameworks, or documentation that help link strategy to personal development planning?
12. In what ways have Arbonaut's strategic directions affected talent needs or employee development? e.g. have strategic priorities led to the creation of new roles, or changed the types of skills emphasized in recruitment and training?

#### Challenges and Opportunities

13. What do you see as the biggest challenges in supporting effective career development across Arbonaut?
14. Do you think employees have access to development opportunities that help them grow in their roles and advance their careers?
15. How does Arbonaut ensure that personal career goals are supported while aligning with organizational needs?
16. Where do you see the most potential for improving career management practices?
- a) e.g. value in developing more structured learning paths or mentoring systems at a company level?

#### Diversity and Inclusion

17. How is inclusivity and diversity considered in career development at Arbonaut?
- a) Have language or background-related factors (e.g. Finnish language needs for certain clients) influenced access to training or roles?
  - b) Is there a risk that some roles are more accessible to certain groups?

#### Future Outlook

18. How do you see career management evolving at Arbonaut in the next 2–3 years?
19. Are there tools, systems, or leadership principles you'd like to see introduced?
20. What development actions would you like to see implemented to strengthen career management company-wide?
- a) Are there tools, systems, or leadership principles you'd like to see introduced?
21. How does Arbonaut support employees in keeping their skills up to date in a changing environment?
- a) How are skill development needs identified and addressed from a strategic perspective?
  - b) Are there gaps between what's needed and what's available?
22. Is there anything else you would like to add or comment on regarding career management in Arbonaut?

## Interview questions for supervisors – Career management at Arbonaut

### Background information

1. Name and role in the company

### Current State of Career Development

2. How would you describe the current state of career development at Arbonaut?
3. Are there clear career paths or development programs in place?
  - a) For example, are there documented role paths, promotion criteria, or role descriptions to follow?
  - b) Do people know what they need to do to grow in their role?
4. What practices or tools do you use for career planning with employees?
  - a) Such as skills maps, competence profiles or development discussion templates, training tracking?
  - b) Do you document discussions or keep it informal?
  - c) Is there anything you use to track learning or set career goals?
5. Do you use structured templates for development discussions?
  - a) How often do you use it — every discussion, or only occasionally?
6. Do you find the current practices and tools effective? Why or why not?
  - a) Do they support your leadership work or feel like extra steps?
  - b) Do they help employees develop, or is impact limited?

### Supervisor Support and Competence

7. Have you received any support or training as a supervisor in managing career development?
  - a) Any formal training, workshops, or peer learning?
8. Do you feel you have the skills or confidence needed to support career development?
  - a) Is there something you'd like to improve — like feedback conversations, goal setting, or identifying training needs

### Changes Over Time

9. Have the career development practices changed in the last 2–3 years? How?
10. Has there been progress or setbacks? What kind and why?
  - a) Can you think of a specific example of something that got better or worse?

### Challenges and Opportunities

11. What are the main challenges in supporting career development at Arbonaut?
  - a) Time constraints? Lack of tools? Employees not bringing it up?

12. Do you feel employees have enough opportunities to progress in their careers?
  - a) Are there enough varied roles, or is progression too narrow? Do people change roles, lead projects, learn new skills?
13. Where do you see the greatest opportunities for improving career management?
  - a) Are there gaps in learning, visibility, or internal mobility?
14. Do you think mentoring programs or structured learning paths could be useful?
15. Are there any gaps between the skills employees need and the development opportunities Arbonaut currently offers (e.g. internal training, external courses, tools)?

#### Role of the Supervisor

16. How do you see your role in supporting employee career development?
17. Do you regularly discuss career goals with your team members?
  - a) Are these part of performance reviews or separate conversations?
18. How do you support your team's skills and growth? (e.g. by offering project roles, suggesting courses, or job rotation)
19. How are training needs identified?
  - a) Do employees suggest things themselves?
  - b) Do you assess skills gaps and recommend development?
20. How are training decisions made, and what influences them? (e.g. budget, team needs, personal interest, strategic priorities)
  - a) Are training needs typically identified through project requirements, employee requests, supervisor assessments, or strategic planning — or a combination?
  - b) Who makes the final decisions about which trainings are offered — the employee, supervisor, HR, or someone else?

#### Strategy and Career Development

21. How are Arbonaut's strategic goals reflected in employee career development? (e.g. how do sustainability or technology focus areas influence needed skills)
22. Has the strategy been clearly linked to employee development plans?
  - a) Have you seen any concrete examples where strategic goals influenced which roles were developed, added, or emphasized? For example, has Arbonaut's focus on international growth led to new job roles or changed what kind of skills are prioritized?

#### Diversity

23. How is inclusivity and diversity considered in career development at Arbonaut?

- a) Are there practices that help ensure all employees, regardless of background, role, or location, have equal access to development opportunities?
- 24. Have you noticed how factors like language skills, cultural background, or previous work experience are considered in career planning?
  - a) Have language abilities—such as proficiency in Finnish—ever influenced access to training opportunities, customer-facing roles, or project responsibilities?
  - b) Are there development paths that may be more accessible to employees with certain language skills?

#### Future Outlook

- 25. What development actions would you hope to see for career management in the future? (e.g. new tools, career tracks, training systems, leadership coaching)
- 26. How do you see career management evolving in Arbonaut in the next 2-3 years?
- 27. How does Arbonaut support employees in keeping their skills up to date as the company and technology evolve?
  - a) Do you feel the company anticipates future skill gaps, or responds only when needs arise?
- 28. Is there anything else you would like to add or comment on regarding career management in Arbonaut?

## **Career development survey for Arbonaut employees**

Microsoft Forms Survey for Arbonaut Personnel: Career development and skill growth

Introduction

Welcome to the Arbonaut Career Development Survey!

PLEASE NOTICE: This survey is directed specifically to employees, excluding stream heads.

The purpose of this survey is to support my thesis, which examines career management theories and best practices within the ICT sector, while analyzing the specific needs and goals of Arbonaut. Based on the findings, a tailored career management plan can be developed for Arbonaut. The thesis also aims to explore Arbonaut employees' perspectives on career development and how these perspectives influence the effectiveness of career management practices. At Arbonaut, the goal is then to develop a structured approach to career management that supports individual growth while aligning with the company's evolving strategy. Your feedback is essential in helping understand what supports your professional development.

The survey is confidential and anonymous, and participation is completely voluntary. It will take approximately 10-15 minutes to complete. Since this survey is part of a thesis, all responses will be analyzed in aggregate form only. Background information, such as the participant's business area, will be used to identify group-level patterns and differences in knowledge across organizational functions. However, all personal identifiers will be anonymized during transcription and analysis to ensure participant confidentiality. Individual responses will not be identifiable, and all data will be securely deleted after the analysis is completed. The summarized results will be published as part of the final thesis report.

The survey is open from 5.5.2025 until 16.5.2025 at 23.59.

Please note that since responses are collected anonymously, you won't be able to return to the form later. The response must be completed and submitted in one session.

Thank you, Heli

Privacy policy:

<https://link.webpolsurveys.com/short/03b017940aa8484bb3ee3eb1b0a7f519>

Data management plan:

[https://arbonaut.sharepoint.com/:b:/s/Oma/EbNRUVEvyedKn8UXzTc3HUIBkpoG1w5X9vgchk6gu0o\\_2w](https://arbonaut.sharepoint.com/:b:/s/Oma/EbNRUVEvyedKn8UXzTc3HUIBkpoG1w5X9vgchk6gu0o_2w)

### Background Information

1. Stream (required)
  - 21 SUP
  - 22 DevOps
  - 31 MH
  - 32 IS
  - 33 BLOPS
  - 34 SW
  - 35 MOT
  - 37 SMK
  - 41 FEI
  - 51 ERA
  - 53 R&D
  - 61 DSC
  - 62 LUC
  - Other
2. Role nature: (required)
  - Technical Expert
  - Project/Process Management
  - Sales / Customer Interface
  - Administration / HR / Finance
  - Other, please specify:
3. How long have you worked at Arbonaut? (required)
  - Less than 1 year
  - 1–3 years
  - 3–5 years
  - More than 5 years

### Current Experiences with Career Development

4. Do you feel you have a clear understanding of possible career development opportunities (e.g. skill development, new responsibilities, internal mobility, or career paths within your team or across the company) at Arbonaut? (required)
  - Yes – I have a clear and broad understanding
  - Somewhat – I'm aware of a few possibilities, but not the full picture
  - No – I don't have a clear understanding of what's available
5. Have you had a development discussion (e.g. performance or career review) in the past 12 months? (required)
  - Yes  move to the question 6
  - No  move to the question 7
6. If yes: Were your career goals discussed? (required)
  - Yes
  - No
  - I don't remember

7. How satisfied are you with your current career development opportunities at Arbonaut? (Scale 1–5, 1 not satisfied at all – 5 very satisfied) (required)
- 1-5
8. What supports your career development most in your current role? (Select 3 options that apply best to you) (required)
- Clear goals and expectations
  - Mentoring or coaching
  - Opportunities to align work with personal strengths or interests
  - Regular feedback
  - Visibility of internal career paths and growth options
  - Learning opportunities (internal or external, e.g. trainings, courses, seminars, webinars, or workshops)
  - New or increasing responsibilities (e.g. leading a project, taking over a new task area, managing systems or tools, coordinating client work, or mentoring others)
  - Recognition or appreciation for progress
  - Supportive team or work culture
  - Having ownership over my tasks and responsibilities
  - Something else (please specify): \_\_\_\_\_
9. Do you think Arbonaut communicates career paths clearly across the company, regardless of team or role? (required)
- Yes – Career paths are well-defined and visible
  - Somewhat – There is some information available, but it's limited or not consistent
  - No – Career paths are unclear or rarely discussed
10. What has helped make career paths clear to you — or what would improve clarity in your area of work? (Open, optional)

#### Needs and Expectations for Development

11. Do you feel that development discussions are sufficient to support your career growth? (required)
- Yes
  - Somewhat
  - No
12. What tools (besides development discussions) or training would help support your development? (required)
13. Which of the following would support your career development most? (Select 3 options that apply best to you) (required)
- Clearer career pathways
  - Mentoring or peer learning
  - More frequent development discussions
  - Rotation between projects/roles
  - External trainings or certifications
  - Internal learning and training opportunities

- More structured personal development plans (e.g. *goal-setting, tracking*)
  - Regular feedback on progress toward career goals
  - Other, please specify: \_\_\_\_\_
14. What types of skills or knowledge would you like to develop in the future? (choose as many as you want) (required)
- Technical expertise/skills (e.g. coding, software development, system architecture, cloud technologies, automation tools)
  - Project management (e.g. agile methods, budgeting, stakeholder coordination, time/resource planning)
  - Self-management and productivity (e.g. organizing tasks, meeting deadlines, prioritizing work)
  - Leadership or supervisory skills (e.g. coaching, strategic decision-making, team leading)
  - Data analysis (e.g. interpreting data, generating insights, using data in decision-making)
  - Digital tools (e.g. Power BI, CRM systems, workflow automation, collaborative platforms)
  - Communication or collaboration (e.g. presenting ideas clearly, giving/receiving feedback, working across teams)
  - Customer or business insight (e.g. understanding client needs, business models, user-centered thinking)
  - Other, please specify:
15. How could Arbonaut better support your skills and knowledge so you can contribute more effectively in your current role? (open) (required)
16. What kind of format would work best for you to support or discuss your career development? (Select all that apply) (required)
- Structured development discussions with supervisor
  - Mentoring or peer coaching
  - Informal check-ins (e.g. regular 1:1s or chats)
  - Career development workshops or group sessions
  - Using a skill matrix or other self-assessment tool
  - I prefer to reflect on my development independently
  - Other, please specify: \_\_\_\_\_

#### Strategy and Career Planning

17. How well do you understand Arbonaut's strategic focus areas? (required)
- Very well
  - Somewhat
  - Not well
  - Not at all
18. How do you see your own role or responsibilities contributing to these strategic goals? (open)
19. Do you feel that the available career development opportunities are aligned with Arbonaut's strategic goals? (required)
- Yes

- Somewhat
- No
- I do not know

20. Please explain why you think they are or aren't aligned. (open, optional)

#### Career Progression and Clarity

21. How do you perceive career progression at Arbonaut? (required)

- Clear opportunities exist for progressing
- Somewhat unclear but possible
- Unclear and limited

22. Please specify why you chose the option above and share any examples or thoughts. (open, optional)

23. Do you feel you know what is expected from you in your current role to progress or succeed? (required)

- Yes
- Somewhat
- No

24. Please specify why you chose the option above and share any examples or thoughts. (open, optional)

25. Do you feel your career has developed or progressed during your time at Arbonaut?

- Yes, for the better
- Yes, but not significantly
- No noticeable change
- Yes, for the worse
- Too early to say / I'm new  move on to question 27

26. Was your development the result of intentional planning or support (e.g. through discussions, new responsibilities, training), or did it happen more by chance or without a clear plan? (open, optional)

27. Are your personal career goals taken into account in your current role or development conversations? (required)

- Yes
- Somewhat
- No

28. Please specify why you chose the option above and share any examples or thoughts. (open, optional)

29. Do you feel encouraged to set long-term professional goals? (required)

- Yes
- Somewhat
- No

30. Please specify, why or why not? (open, optional)

#### Career Development Over Time

31. Do you feel that career development practices at Arbonaut have changed over the past 2–3 years? (required)

- Yes, for the better
- Yes, for the worse
- No major change
- I don't know / I'm new

32. If there has been a change, how would you describe it? What has improved or worsened? (open, optional)

#### Supervisors' role in career development

33. How satisfied are you with the support you currently receive from your supervisor related to your career development (e.g. through guidance, encouragement, feedback, or opportunities)? (Scale 1–5) (required)

- 1 – Very dissatisfied
- 2 – Somewhat dissatisfied
- 3 – Neutral
- 4 – Somewhat satisfied
- 5 – Very satisfied

34. What kind of support have you received from your supervisor? (Select all that apply) (required)

- Guidance or coaching
- Encouragement or motivation
- Constructive feedback
- Opportunities for new tasks or growth
- Help setting goals
- I haven't received support
- Other, please specify: \_\_\_\_\_

35. Would you like more support from your supervisor in developing your career? (required)

- Yes
- No
- Not sure

36. Please explain why you chose the option above. What kind of support would help you most? (open, required)

Thank you for your time and insights! Your input directly helps us build a more strategic and inclusive career development model at Arbonaut.