

CARVE

Robotic Process Automation (RPA)

How Carve will improve their RPA-business case

Christian Birk Gustafson (Idg790)

Robotic Process Automation is ...



... integration of virtual 'robots' with established software systems



... replication of desktop actions through automation



... settings designed to streamline manual and repetitive tasks



... guided by straightforward rules and business logic.

Robotic Process Automation is not ...



... a physical robot with human-like qualities



... software capable of autonomous decision-making, but not limited to it.

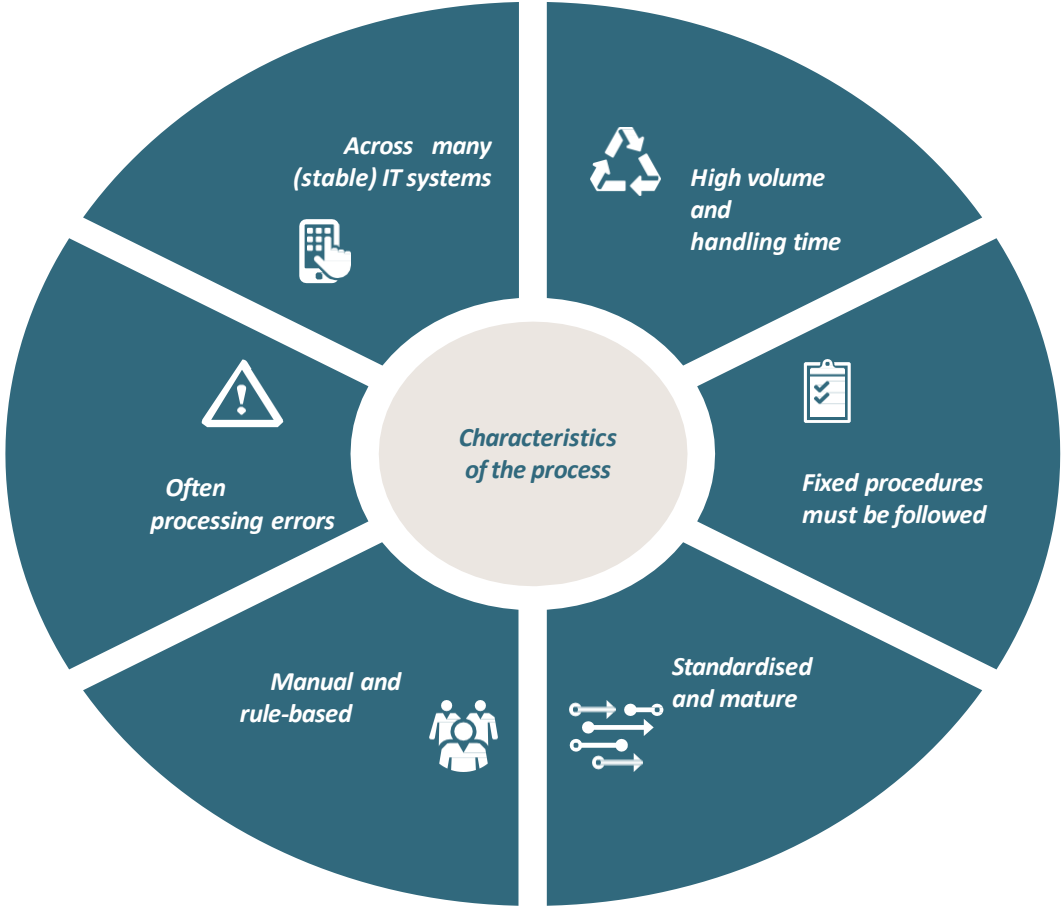


... a complete replacement for employees



... just being a mere cost-saving tool

... and is normally applied to processes with the following characteristics:



Executive summary: It is optimal for Carve to utilise Power-BI for the impact product when implementing the RPA product for the client



Situation

Carve, a company specialising in RPA (Robotic Process Automation) products, is facing the challenge of articulating the impact of the robot to their clients.

The clients are seeking insight into the impact of the RPA solution within their company. They want to understand how the RPA product will influence their workflows, efficiency, employees, and overall business performance.



Complication

Quantifying and communicating the impact of RPA products is challenging because it involves both quantitative (hard facts) and qualitative (soft facts) aspects.

Ensuring that the impact assessment covers all relevant areas and aligns with the client's objectives is complex.



Question

How can Carve effectively measure and present the impact of its RPA product in a transparent and comprehensive manner?

What are the key reasons for implementing the impact product?

1

Which data is required for the RPA impact product's success?

2

How can Carve translate hard- and soft facts into execution savings and visualise it?

3



Answer

Carve should use Power-BI and develop a new 360 RPA-impact plan for their existing RPA-business Case.



Impact

92K-184K kr.

Profit increase from impact product

From 7.2 to 5.2

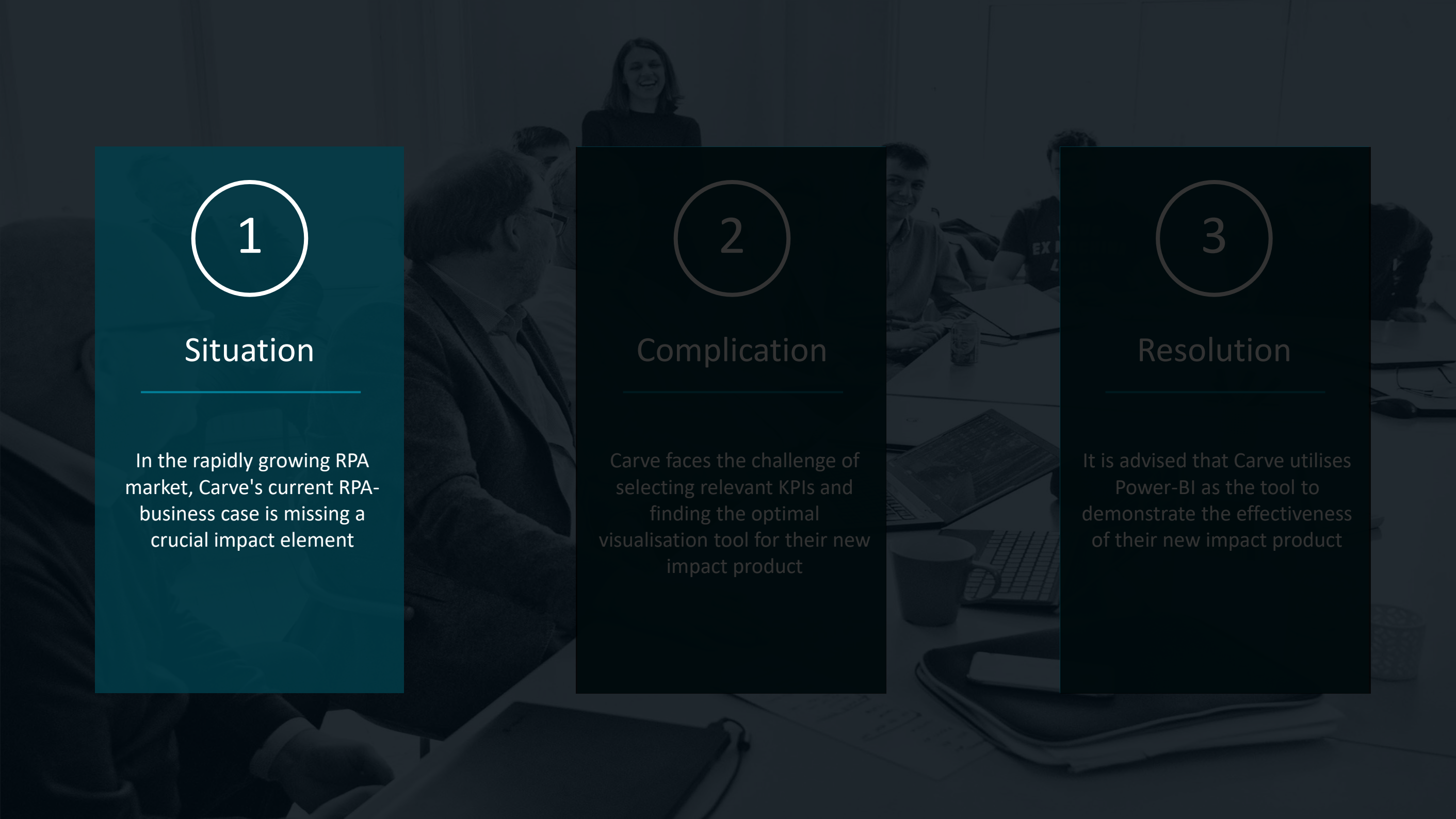
Employee stress level, 2022-2023

152K kr.

Client savings reduction per month

243%

IRR



1

Situation

In the rapidly growing RPA market, Carve's current RPA-business case is missing a crucial impact element

2

Complication

Carve faces the challenge of selecting relevant KPIs and finding the optimal visualisation tool for their new impact product

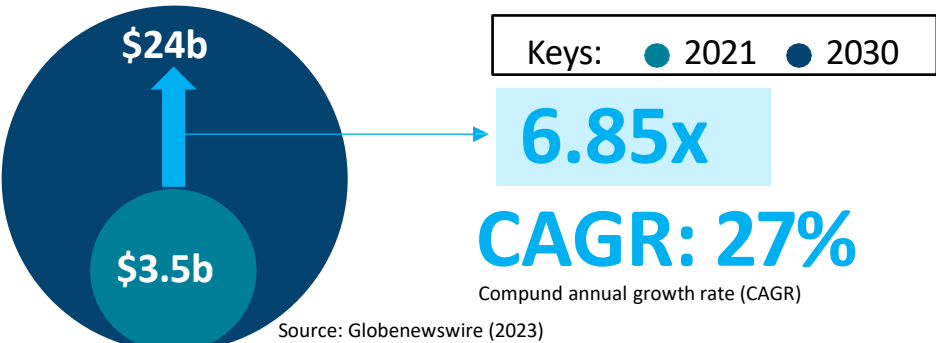
3

Resolution

It is advised that Carve utilises Power-BI as the tool to demonstrate the effectiveness of their new impact product

RPA market in the global landscape

The RPA market is significant and is expected to continue expanding in the coming years



Differentiating Carve in the competitive RPA market

Carve can differentiate from its competitors in the RPA market by implementing an impact product that measures the benefits of its RPA solutions.



Increase in RPA spending

Gartner (2022) reported a strong growth in spending on RPA software. From 2021 to 2022 spending increased by 19.5%, with spending in 2022 being \$2.9 billion

According to a survey by PwC, 45% of business leaders in Denmark believe that robotics, including RPA, will **become the most revolutionary technology for Danish businesses**. Therefore, the impact product has tremendous potential to increase value for Carve and its clients.

Carve's strong existing capabilities



Danish market leader
Leading RPA player in Denmark



Technical know-how
Carve is an expert in developing RPA products

PLATINUM CERTIFIED



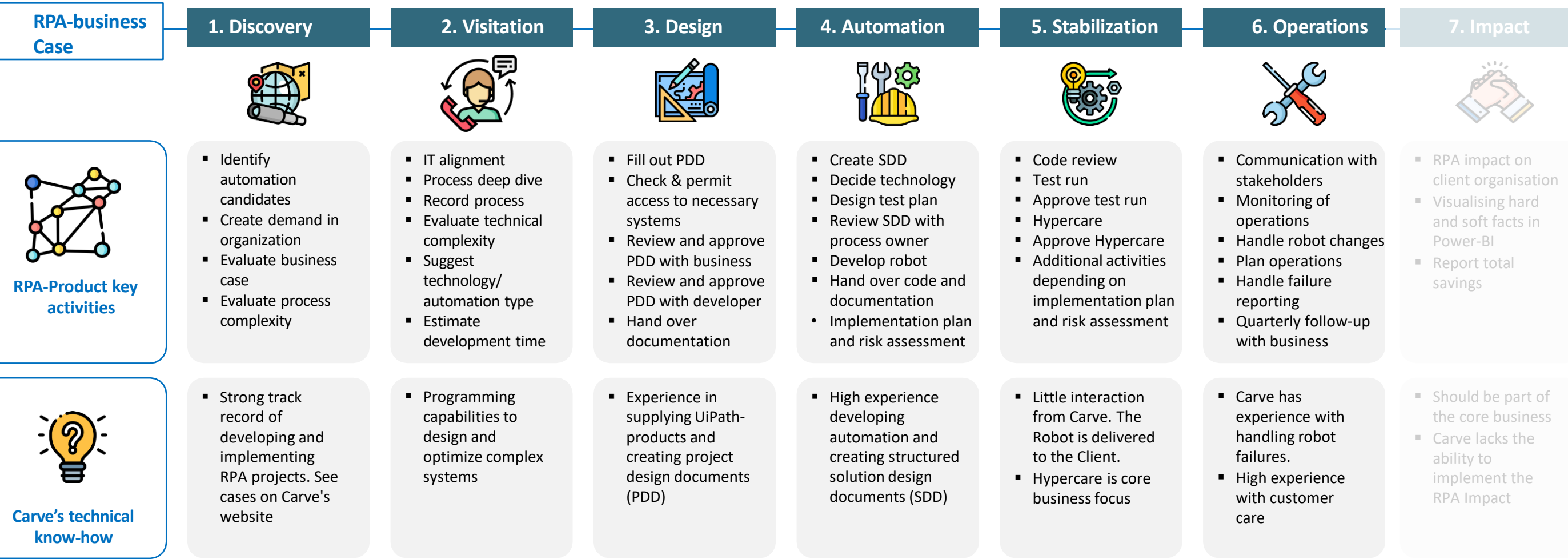
Extensive partnership network
Certified platinum partner for UiPath, which provides the software for the RPA product



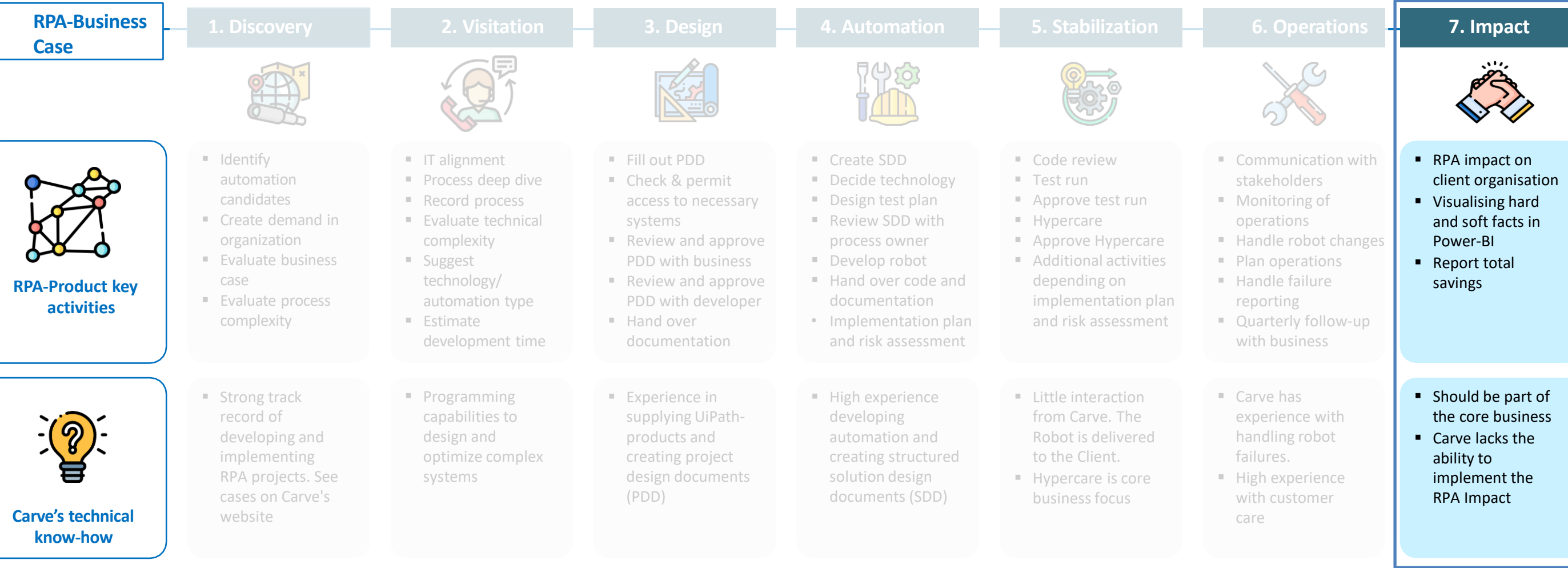
Technology & innovation
Specialised RPA Teams in Carve to spark innovative ideas

Carve must consider leveraging their key competencies in the RPA sector to **pursue the RPA impact product for a value-added service**.

Carve's current RPA-business case lacks an impact element to show the effects of the RPA product



Incorporating a seventh impact phase into Carve's existing RPA-business case will enhance transparency and the value of RPA for the clients



Carve has a strong foundation to build a new core impact element to their RPA-Business case, which is an area Carve can bring new value to their clients.

1

Situation

In the rapidly growing RPA market, Carve's current RPA-business case is missing a crucial impact element

2

Complication

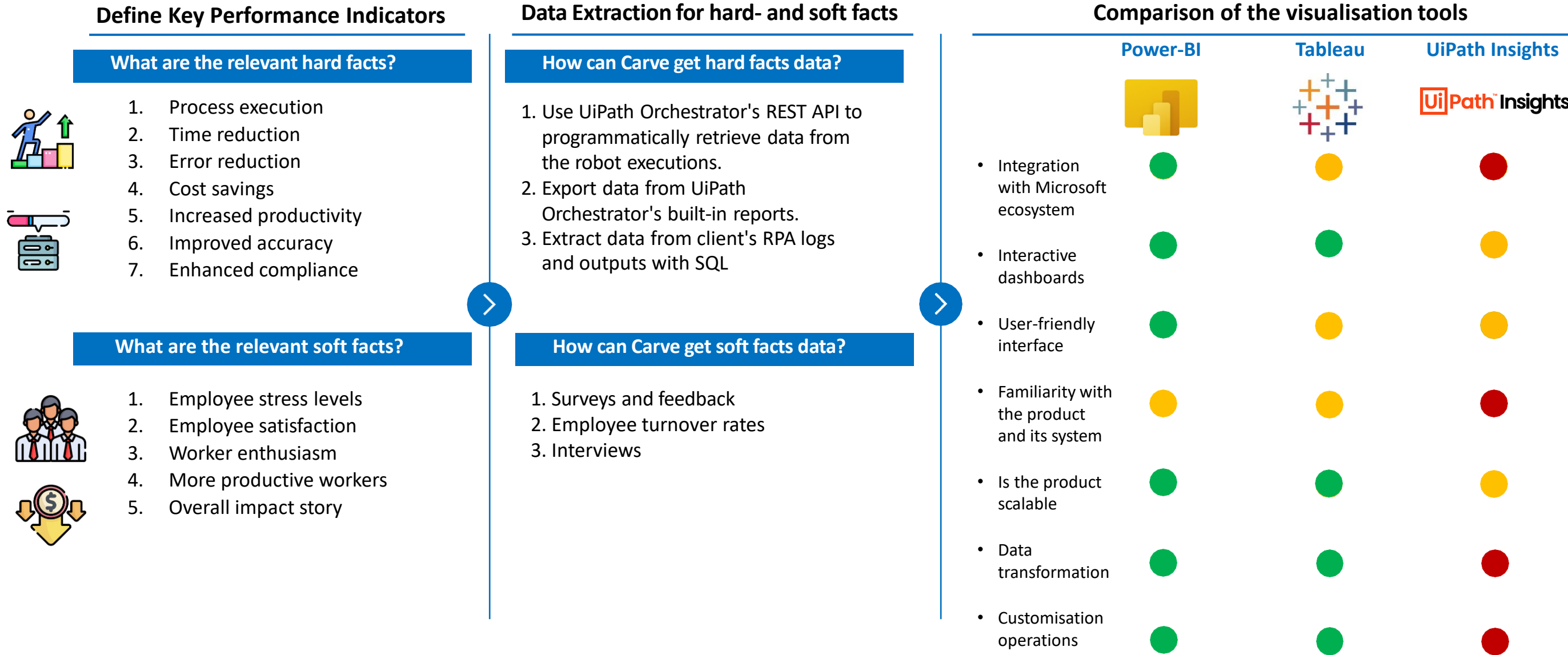
Carve faces the challenge of selecting relevant KPIs and finding the optimal visualisation tool for their new impact product

3

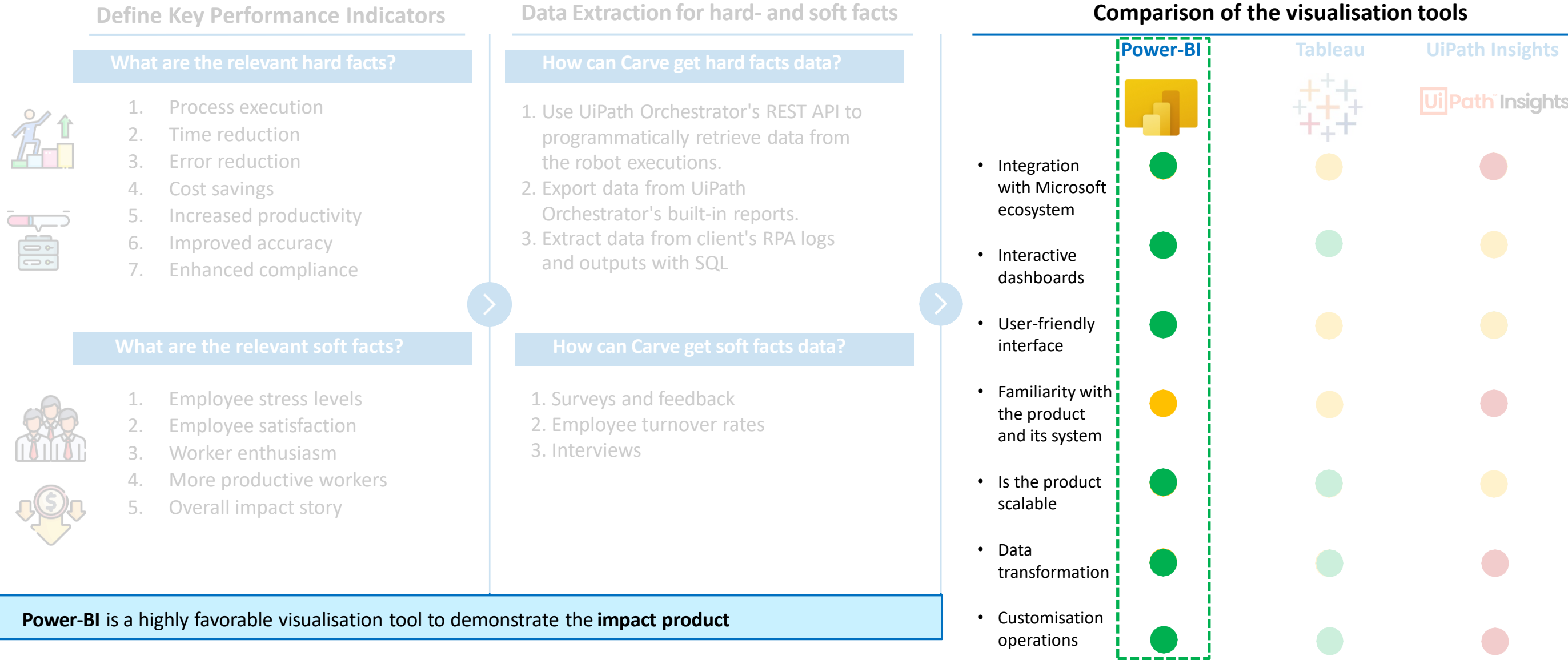
Resolution

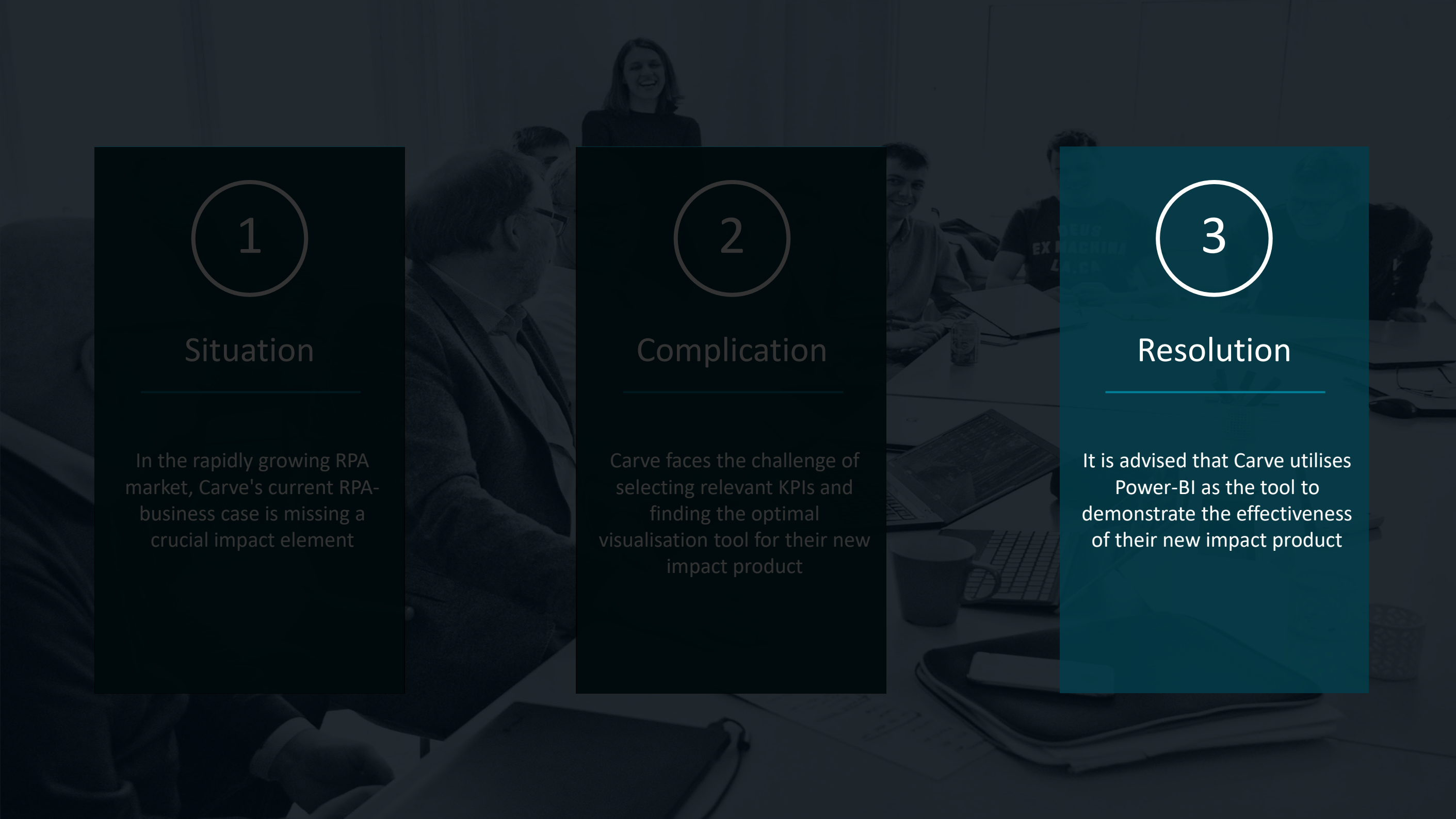
It is advised that Carve utilises Power-BI as the tool to demonstrate the effectiveness of their new impact product

Carve must consider the most relevant KPIs, what data that can be extracted, and which visualisation tool to deploy for the impact product



After comparing the various visualisation tools, Power BI emerges as the most favourable tool to demonstrate the impact product





1

Situation

In the rapidly growing RPA market, Carve's current RPA-business case is missing a crucial impact element

2

Complication

Carve faces the challenge of selecting relevant KPIs and finding the optimal visualisation tool for their new impact product

3

Resolution

It is advised that Carve utilises Power-BI as the tool to demonstrate the effectiveness of their new impact product

Dashboard comments

- 

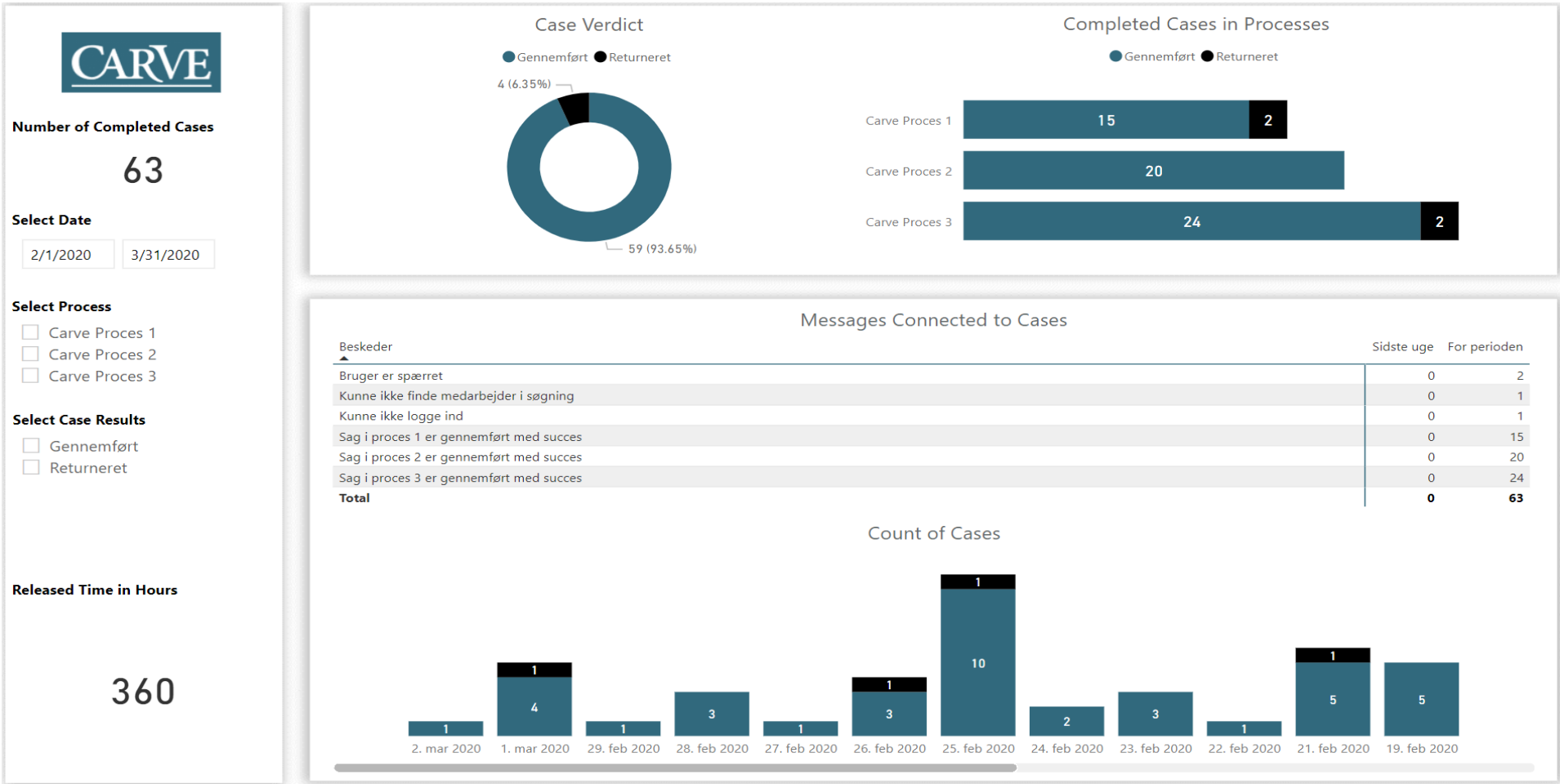
1. The stacked column chart shows **the number of executed processes** by the robot for the given period.
- 

2. The donut chart displays **the number of completed and returned cases**.
- 

3. **"Released Time in Hours"** indicates the time reduction, which is associated with cost savings.
- 

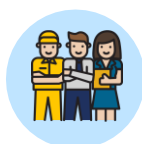
4. **The robot is more accurate** and operates 24 hours a day, thereby increasing productivity.

This Power-BI dashboard illustrates quantitative anonymous client data generated by the robot



Source: Own illustration and data extracted from the client’s UiPath Orchestrator.
Note: Some text is in Danish, as the client is a Danish organisation. For anonymity, I have modified the headings.

Dashboard comments



1. The workers feel **more productive, less stressed,** and more satisfied with their jobs. This can lead to an **increase in revenue.**



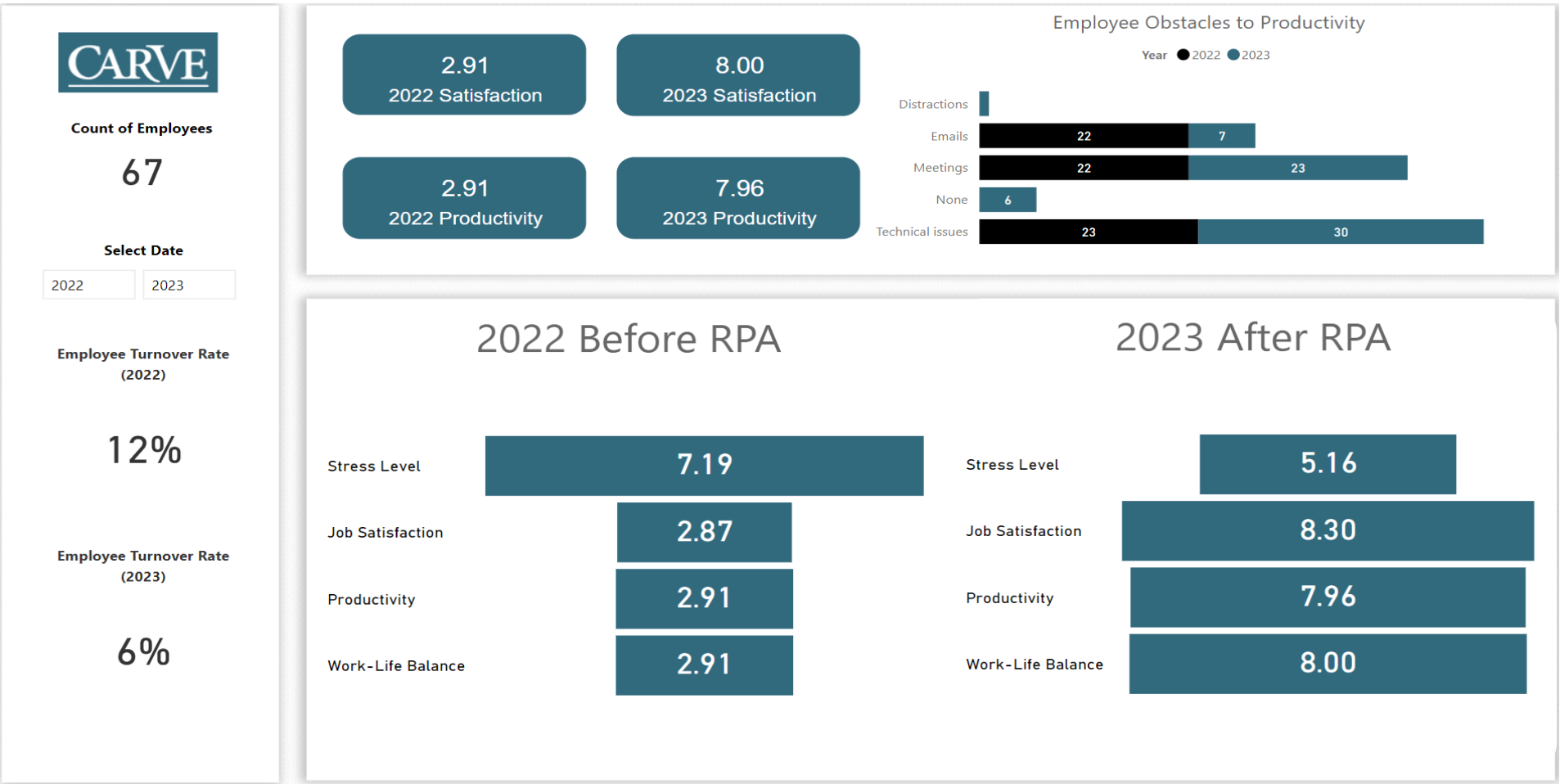
2. **The employee turnover rate decreases,** hence increasing in-house knowledge and reducing employee costs.



3. The clustered bar chart indicates an **increase in technical issues.**



The dashboard shows pre- (2022) and post- (2023) RPA implementation survey results at the client



Source: Own illustration, and the questions and data were created by me to simulate client responses.

Note: The survey scale ranges from 1 to 10, where 1 indicates 'poor' and 10 indicates 'excellent.' However, the scale is reversed for stress level, with 1 representing 'low stress' and 10 representing 'high stress.'

Assumptions used to estimate the total savings

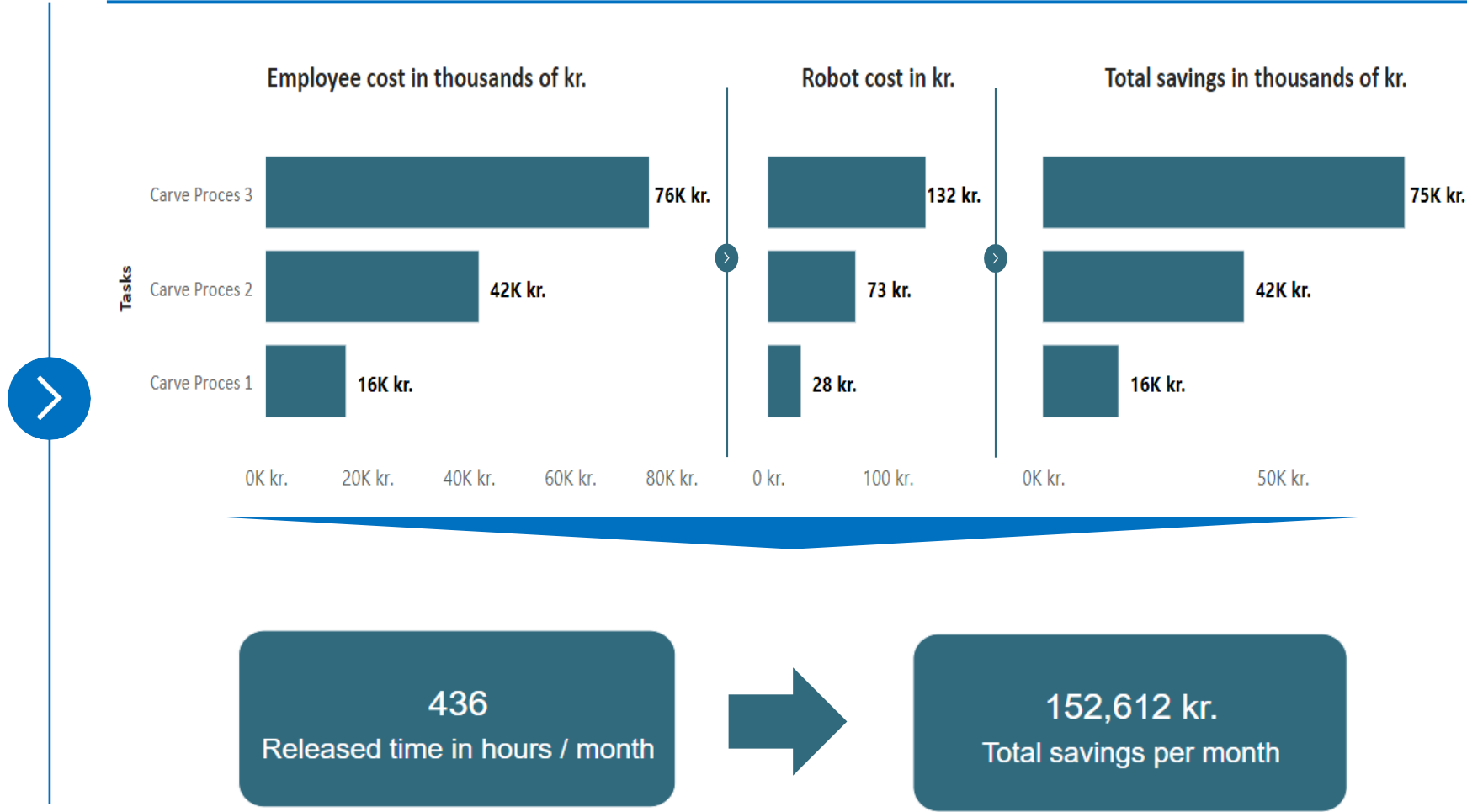
These assumptions are based on implementing one small robot

	Price	Hours
Employee hourly salary	350 kr.	1 hour
Robot hourly cost	11 kr.	1 hour
Employee time to complete proces 1	1,050 kr.	3 hours
Employee time to complete proces 2	2,100 kr.	6 hours
Employee time to complete proces 3	3,150 kr.	9 hours
Robot time to complete proces 1	2 kr.	0.2 hours
Robot time to complete proces 2	4 kr.	0.3 hours
Robot time to complete proces 3	6 kr.	0.5 hours

1. **Process execution time reduction** is employee hours spent subtracted by robot hours spent times employee salary (350).

2. **Error Reduction** is 20% of total employee hours spent completing each proces.

The robot is being 18X more efficient than the employees per month

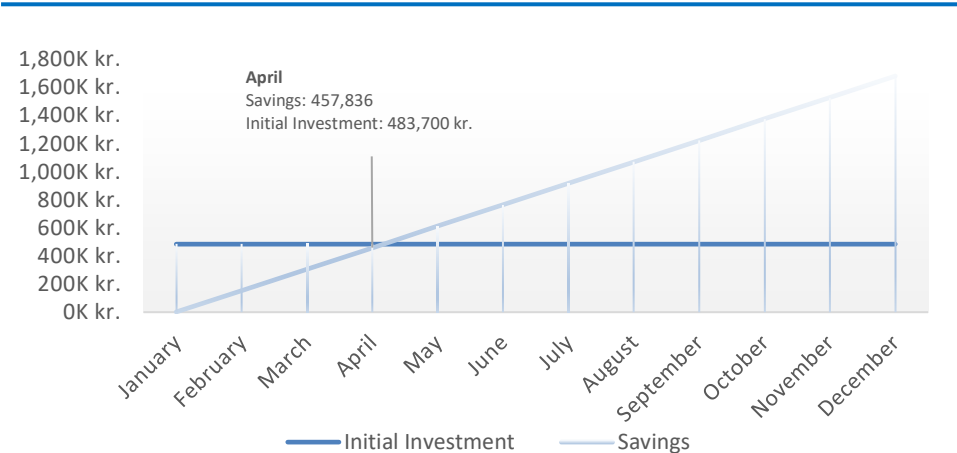


Source: Own illustration and data extracted from the client’s UiPath Orchestrator

Note: "Carve Proces 3" encompasses 24 completed tasks, "Proces 2" includes 20 tasks, and "Proces 1" consists of 15 tasks. These tasks are presented in the stacked bar chart on slide 12. See the Appendix slide 2 for a detailed table visualisation.

Carve's total cost for implementing the impact product will range from 38K - 76K kr., and it is expected to increase profits by 92K - 184K kr.

Client savings vs. initial investment



Note: The robot is implemented in January

The initial investment including additional costs



Initial RPA investment: 421,200 kr.+21K kr. + 21K kr.+20,5K kr. = **483,700 kr.**



IT-Alignment: 21K kr.



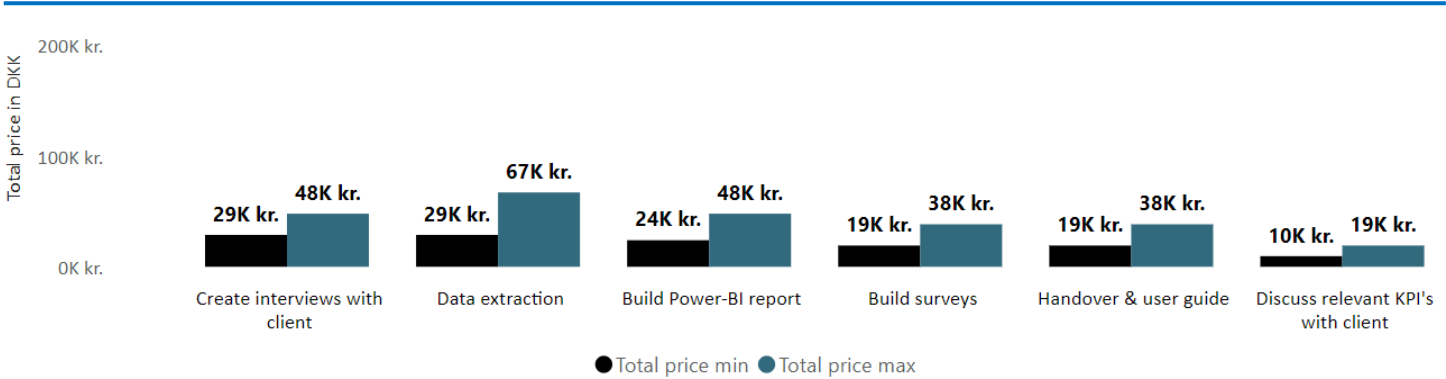
Unexpected tasks: 21K kr.



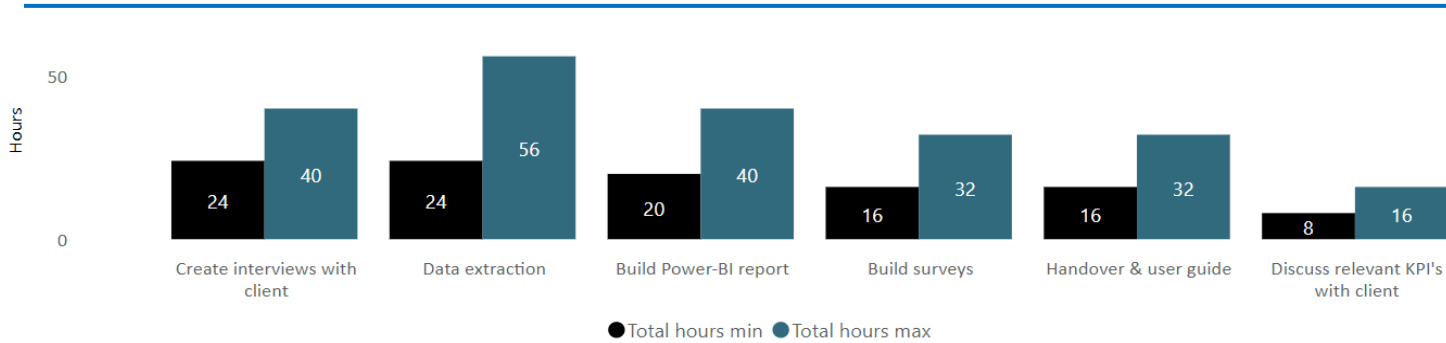
Project Management: 20,5K kr.

Note: The 421,200 kr. represents the cost for all the RPA phases illustrated on slide 6. See the Appendix slide 3 for a detailed table visualisation.

Estimated client price for each impact activity

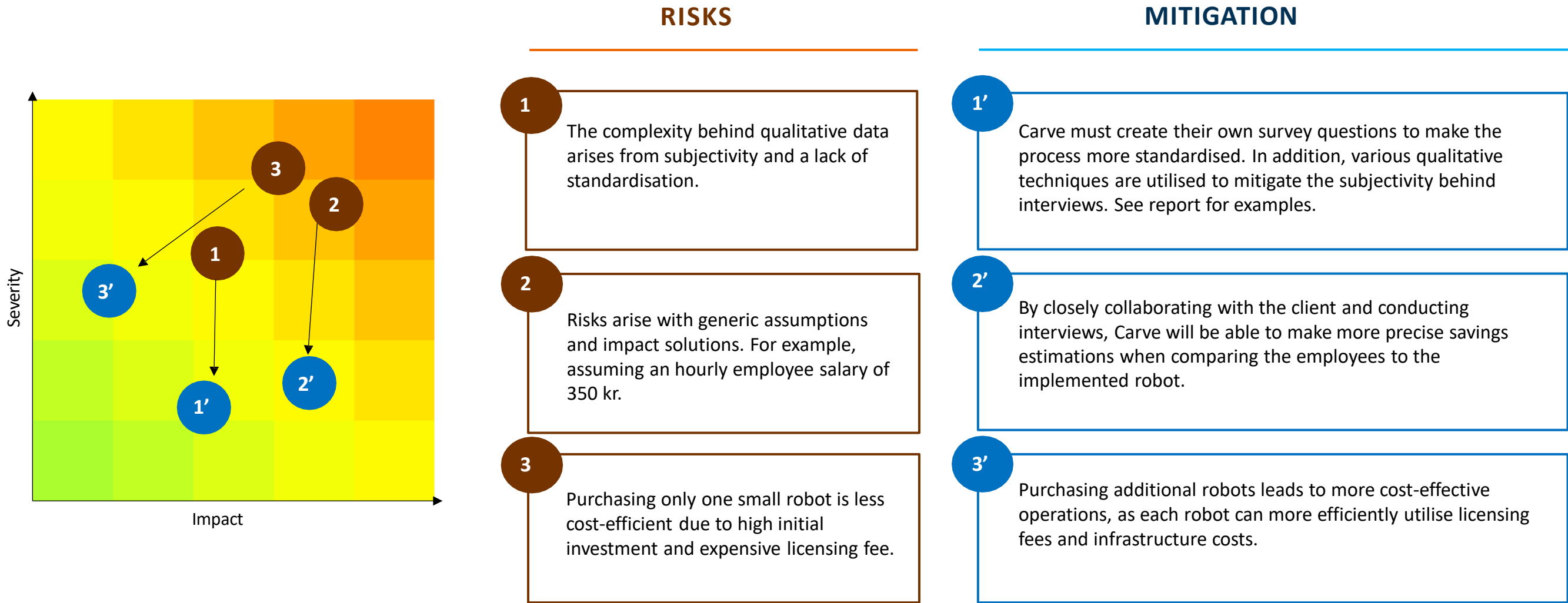


Estimated hours for Carve to complete each impact activity

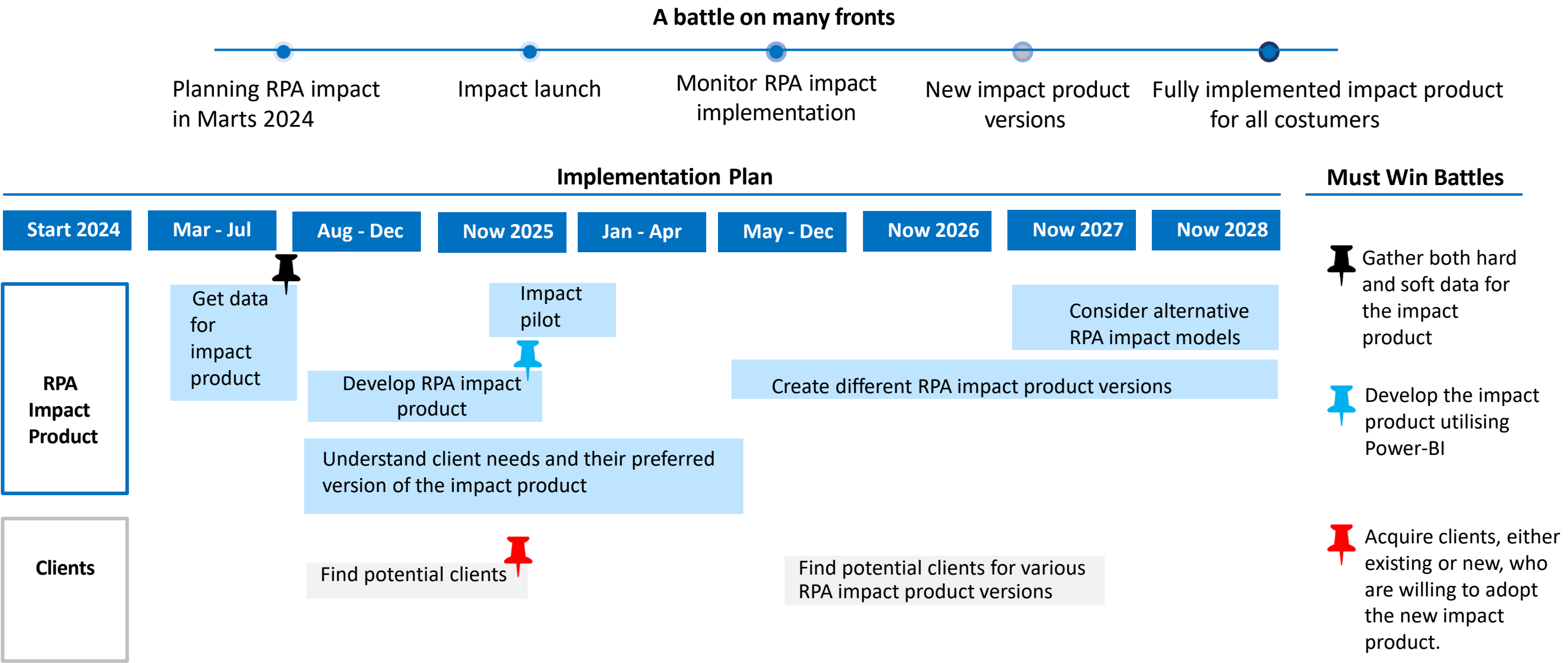


Note: The client is charged at an hourly rate of 1,200 kr. The salary cost for Carve is a self-estimated figure, based on an assumed hourly salary of 350 kr.

There are potential risks associated with the new impact product that Carve must be able to mitigate. The most critical risk is the complexity of handling qualitative data



Through gradual rollout of the Impact product, Carve can boost revenues while meeting the needs of both current and prospective clients



The background of the slide is a dark, teal-tinted photograph of a city skyline viewed from a high-rise building. Silhouettes of several people are visible, standing and looking out the large windows. The scene is dimly lit, with the city lights providing a subtle glow against the dark sky and building interior.

Thank You

Christian Birk Gustafson
Carve Consulting

Appendix

An aerial photograph of a city plaza. On the left, there is a large, curved green wall covered in dense vegetation. To the right of the wall is a paved plaza area. A large, rectangular bicycle rack is filled with many bicycles. A person is standing in the plaza, looking at their phone. In the background, there are trees and other people.

An issue tree encompassing sub-questions, working hypotheses, and comprehensive supporting analyses for a well-rounded approach



How can Carve effectively measure and present the impact of its RPA product in a transparent and comprehensive manner?

Question	Sub-question	Hypothesis	Analysis
What are the key reasons for implementing the impact product?	Will the impact product increase Carve's revenue?	The impact product will increase Carve's revenue significantly	Own calculations and analyses of Carve's pricing model
	How can the impact product help Carve's clients?	Clints will be able to make better decisions based on the RPA impact product	Qualitative assessment of the influence of RPA impact
	How can the impact product help Carve to gain more clients?	The impact product will help Carve gain more clients by being able to better demonstrate benefits behind the RPA product	Benefit analysis of the impact product
		Carve becomes clearer on the benefits and weaknesses behind the RPA impact	Qualitative research
Which data is required for the RPA impact product's success?	Which questions are best suited for surveys and interviews?	Carve becomes clearer on the benefits and weaknesses behind the RPA impact	Qualitative method applied to handling qualitative data
	What hard facts and data sources are available to Carve for decision-making?	Questions that have the robot's function and its influence on the employees are the optimal questions.	Analysis of existing data extraction possibilities
		SQL databases are available for Carve to extract hard facts about the robot performance	Interviews with different Carve employees combined with case analysis
	How can Carve continuously monitor and measure the effectiveness of its cost-saving initiatives driven by hard facts?	UiPath rest API allows for continuous monitoring and connected to Power-BI allows measure effectiveness	Evaluation of current data retrieval options.
How can Carve translate hard- and soft facts into execution savings and visualise it?	Which assumptions must be made to create the translation between hard facts and execution savings?	The RPA will increase the client's savings by having a robot that is more efficient than the employees	Average employee and robot salary cost
	Is it possible to create a generic template to translate hard facts into savings?	A generic template to translate hard facts into execution savings is possible	Scenario analysis of the product implementation for different clients
	What are the key metrics in relation to execution savings and do they differ across clients?	The error estimation will decrease after implementing the RPA product, which will increase savings	Cost-Benefit Analysis of error reduction and the savings
	Which visualisation tool should Carve employ to demonstrate the impact product?	Power-BI is the preferred tool to visualise the impact product	Comparison analysis and hands-on testing

Assumptions used to estimate the total savings

These assumptions are based on implementing one small robot		
	Price	Hours
Employee hourly salary	350 kr.	1 hour
Robot hourly cost	11 kr.	1 hour
Employee time to complete proces 1	1,050 kr.	3 hours
Employee time to complete proces 2	2,100 kr.	6 hours
Employee time to complete proces 3	3,150 kr.	9 hours
Robot time to complete proces 1	2 kr.	0.2 hours
Robot time to complete proces 2	4 kr.	0.3 hours
Robot time to complete proces 3	6 kr.	0.5 hours
1. Process execution time reduction is employee hours spent subtracted by robot hours spent times employee salary (350).		
2. Error Reduction is 20% of total employee hours spent completing each proces.		

The robot has a significant impact on the total savings by being 18X more efficient

Estimated Execution Savings	Carve Proces 1	Carve Proces 2	Carve Proces 3
Robot hours	0.2	0.3	0.5
Employee hours	3	6	9
Completed cases in processes	15	20	24
Robot hours spent	3	7	12
Employee hours spent	45	120	216
Robot cost	28 kr.	73 kr.	132 kr.
Employee cost	15,750 kr.	42,000 kr.	75,600 kr.
Total Savings	15,722 kr./month	41,927 kr./month	75,468 kr./month

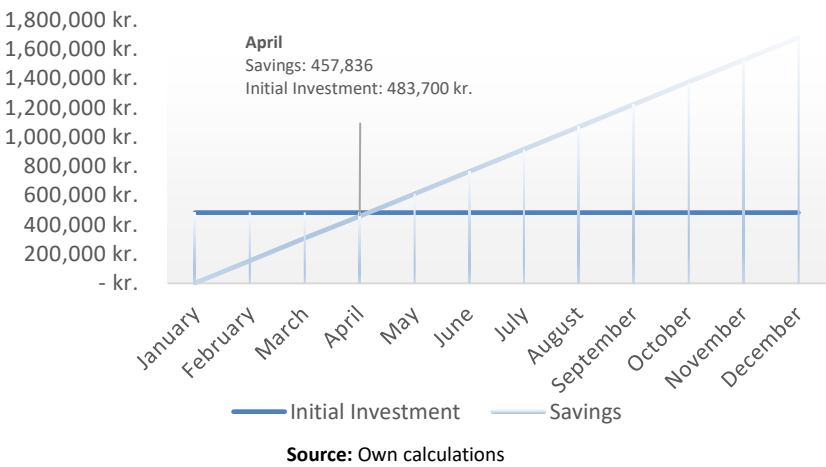
The robot reduces the process execution by 360 hours and time spent on errors by 76 hours

Benefit Metric	Savings	Released Time in Hours
Process Execution Time Reduction	125,942 kr.	360
Error Reduction in hours	26,670.00 kr.	76
Total Savings	152,612 kr./month	436 hours/month

Source: Own illustration with assumptions, and hard facts from UiPath presented on slide 9.

Note: Robot cost is “Robot hours spent” times “Robot hourly cost”, and Employee cost is “Employee hours spent” times “employee salary” of 350 kr. See Section 5.3 in the report for a more detailed explanation of the calculations and assumptions. Be aware that I have rounded the numbers up.

Client: Initial Investment VS. Savings



Initial RPA investment for the client:
421,200+21,000+21,000+20,500 = **483,700 kr.**

The above figure indicates that after implementing the robot, clients achieve a time saving of **1,308 hours**, which yields **457,836 kr.** in savings over three months, nearly surpasses the initial investment.

Additional prices and costs			
Consultants' wage at Carve is 350 kr, while clients are billed 1,200 kr. per hour.			
	Price 1,200 kr.	Hours	Cost 350 kr.
IT-Alignment	21,000 kr.	17.5 hours	6,125 kr.
Unexpected tasks	21,000 kr.	17.5 hours	6,125 kr.
Project Manegement min	8,400 kr.	7 hours	2,450 kr.
Project Manegement max	20,500 kr.	17 hours	5,982 kr.

Carve: Below dashboard illustrates the costs associated with the RPA-Product

64,050 kr.
Min cost

122,850 kr.
Max cost

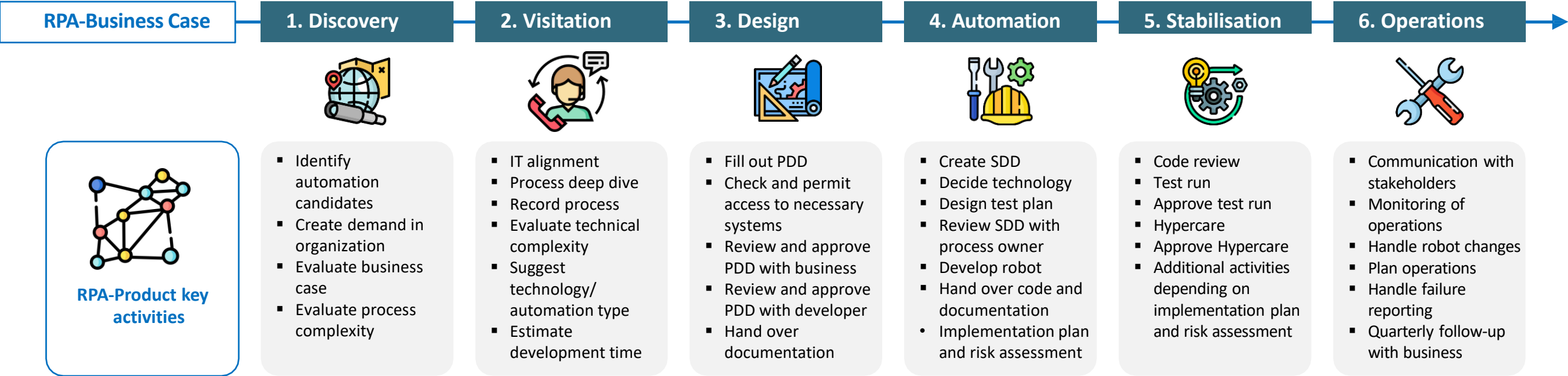
155,550 kr.
Profit phase min

298,350 kr.
Profit phase max

Phase	Total hours min	Total hours max	Min cost	Max cost	Total price min	Total price max	Profit phase min	Profit phase max
Discovery	2	10	700 kr.	3,500 kr.	2,400 kr.	12,000 kr.	1,700 kr.	8,500 kr.
Visitation	5	9	1,750 kr.	3,150 kr.	6,000 kr.	10,800 kr.	4,250 kr.	7,650 kr.
Design	10	19	3,500 kr.	6,650 kr.	12,000 kr.	22,800 kr.	8,500 kr.	16,150 kr.
Automatisation	42	72	14,700 kr.	25,200 kr.	50,400 kr.	86,400 kr.	35,700 kr.	61,200 kr.
Stabilisation	9	12	3,150 kr.	4,200 kr.	10,800 kr.	14,400 kr.	7,650 kr.	10,200 kr.
Operations	7	13	2,450 kr.	4,550 kr.	8,400 kr.	15,600 kr.	5,950 kr.	11,050 kr.
Impact	108	216	37,800 kr.	75,600 kr.	129,600 kr.	259,200 kr.	91,800 kr.	183,600 kr.
Build Power-BI report	20	40	7,000 kr.	14,000 kr.	24,000 kr.	48,000 kr.	17,000 kr.	34,000 kr.
Build surveys	16	32	5,600 kr.	11,200 kr.	19,200 kr.	38,400 kr.	13,600 kr.	27,200 kr.
Create interviews with client	24	40	8,400 kr.	14,000 kr.	28,800 kr.	48,000 kr.	20,400 kr.	34,000 kr.
Data extraction	24	56	8,400 kr.	19,600 kr.	28,800 kr.	67,200 kr.	20,400 kr.	47,600 kr.
Discuss relevant KPI's with client	8	16	2,800 kr.	5,600 kr.	9,600 kr.	19,200 kr.	6,800 kr.	13,600 kr.
Handover & user guide	16	32	5,600 kr.	11,200 kr.	19,200 kr.	38,400 kr.	13,600 kr.	27,200 kr.
Total	183	351	64,050 kr.	122,850 kr.	219,600 kr.	421,200 kr.	155,550 kr.	298,350 kr.

Source: Own illustration, with price and hours for each phase provided by Carve at an hourly rate of 1,200 paid by the client. However, the salary cost for Carve is self-created with an assumed hourly salary of 350 kr.

Situation: Carve's current RPA-Business plan is missing an impact element to show the effect of the RPA product





Seminar: Applied Economics and Consulting Method. Autumn 2023

Robotic Process Automation

- How Carve will improve their RPA-business case

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ECTS: 7.5

Keystrokes: 36.058 (15 standard pages)

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1 Introduction and Purpose of This Report

The primary objective of Robotic Process Automation (RPA) is to precisely capture an organisation's operations to facilitate efficient management. The adoption of RPA yields numerous advantages, encompassing improved internal processes, enhanced customer experiences, cost reductions, reduced operational risks, and increased productivity. These solutions are gaining paramount significance within organisations due to their capacity to automate business operations and manage intricate data and information (GlobeNewswire, 2023). However, quantifying both the direct and indirect impacts of the robot on an organisation poses a significant challenge. Clients who have made substantial investments, amounting to millions of Danish kroner, currently lack the tools to effectively measure and analyse the returns on their RPA investments.

This report is designed for the partners at Carve, a specialised consulting firm in the field of RPA solutions. Carve faces the pressing challenge of illustrating the benefits of its RPA product to its clients. The clients seek full disclosure and an in-depth insight into the operational impact of the RPA solution within their company. They are interested in understanding the specific ways in which the RPA product will influence their workflows, efficiency, and overall business performance. Nevertheless, articulating the impact of RPA is a complex endeavour, encompassing both quantitative (hard facts) and qualitative (soft facts) dimensions. Furthermore, ensuring that the impact assessment covers all relevant facets and aligns with the client's specific objectives adds another layer of complexity. Consequently, the primary question addressed by this report is as follows:

How can Carve effectively measure and communicate the impact of its RPA product in a transparent and comprehensive manner?

The question is resolved by combining numerical data with in-depth analysis to measure both objective and subjective dimensions. This report examines how Carve can smoothly blend quantitative and qualitative data to evaluate the effects of the robot while managing potential complexities.

To acquire the hard facts, this report suggests that Carve utilise UiPath's Orchestrator REST application programming interface (API) for extracting essential information about the robot. Additionally, leveraging Orchestrator's built-in report features and accessing clients' RPA logs will improve the quantification process. Soft facts, on the other hand, will be collected through the recommended surveys and interviews, providing valuable insights into the indirect impact of the RPA product.

In the final stage, I collect the acquired data and visualise the impact product in Power-BI, offering Carve's clients a comprehensive 360-degree perspective on the impact of their RPA investments. This comprehensive approach, incorporating both quantitative and qualitative data, ensures that the clients will be able to make better-informed decisions, leading to positive changes within their organisation.

2 Methods Utilised to Develop a Robust Recommendation

Both quantitative and qualitative methods have been employed to analyse the impact of the RPA product and to provide actionable recommendations related to the primary question stated above. This report is structured around the SCR framework, which stands for Situation, Complication, and Resolution, (StrategyPunk, 2023). To break down the overall research question into the SCR framework, this report utilises an issue tree, as illustrated in Figure 1. This issue tree divides the main question into three overall questions, each followed by sub-questions. These sub-questions are substantiated by multiple hypotheses and various methods of analysis. The first question primarily focuses on addressing the situation, while the second question delves into the overall complication. The final question aims to leverage the insights from the previous two questions to achieve a resolution for the impact product, translating these insights into execution savings.

Figure 1: Issue-Tree Including Hypothesis and Analysis

How can Carve effectively measure and present the impact of its RPA product in a transparent and comprehensive manner?			
Question	Sub-question	Hypothesis	Analysis
What are the key reasons for implementing the impact product?	Will the impact product increase Carve's revenue?	The impact product will increase Carve's revenue significantly	Own calculations and analyses of Carve's pricing model
	How can the impact product help Carve's clients?	Clints will be able to make better decisions based on the RPA impact product	Qualitative assessment of the influence of RPA impact
	How can the impact product help Carve to gain more clients?	The impact product will help Carve gain more clients by being able to better demonstrate benefits behind the RPA product	Benefit analysis of the impact product
Which data is required for the RPA impact product's success?	How can the impact product help Carve to gain more clients?	Carve becomes clearer on the benefits and weaknesses behind the RPA impact	Qualitative research
	Which questions are best suited for surveys and interviews?	Carve becomes clearer on the benefits and weaknesses behind the RPA impact	Qualitative method applied to handling qualitative data
	What hard facts and data sources are available to Carve for decision-making?	Questions that have the robot's function and its influence on the employees are the optimal questions.	Analysis of existing data extraction possibilities
	How can Carve continuously monitor and measure the effectiveness of its cost-saving initiatives driven by hard facts?	SQL databases are available for Carve to extract hard facts about the robot performance	Interviews with different Carve employees combined with case analysis
How can Carve translate hard- and soft facts into execution savings and visualise it?	How can Carve continuously monitor and measure the effectiveness of its cost-saving initiatives driven by hard facts?	UiPath rest API allows for continuous monitoring and connected to Power-BI allows measure effectiveness	Evaluation of current data retrieval options.
	Which assumptions must be made to create the translation between hard facts and execution savings?	The RPA will increase the client's savings by having a robot that is more efficient than the employees	Average employee and robot salary cost
	Is it possible to create a generic template to translate hard facts into savings?	A generic template to translate hard facts into execution savings is possible	Scenario analysis of the product implementation for different clients
	What are the key metrics in relation to execution savings and do they differ across clients?	The error estimation will decrease after implementing the RPA product, which will increase savings	Cost-Benefit Analysis of error reduction and the savings
	Which visualisation tool should Carve employ to demonstrate the impact product?	Power-BI is the preferred tool to visualise the impact product	Comparison analysis and hands-on testing

Source: Own visualisation

Note: Larger version is available in the pptx Appendix-slide 1.

The **situation** is analysed in Section 3 through a comprehensive examination of the key drivers behind the implementation of the impact product and an assessment of the deficiencies in Carve's current RPA product. Furthermore, this section explores the significant growth and potential of the global RPA market, emphasising its promising trajectory.

In Section 4, the focus shifts towards the **complication**, outlining how Carve can effectively measure both the hard and soft aspects of the impact product, while also exploring various available data options. To accomplish this, the report employs an API connected to UiPath's Orchestrator to showcase data relevant to the impact product. Additionally, metrics such as the internal rate of return (IRR)

are derived to illustrate the profitability of the impact investment. This is achieved by utilising Carve's existing pricing model, extended to include the newly recommended impact phase, along with the associated costs and profits for each phase.

Furthermore, dummy email surveys are deployed to demonstrate the qualitative aspects of RPA and its valuable insights. However, creating an effective email survey requires meticulous planning, well-defined objectives, and the utilisation of established survey methodologies to ensure the data collected is meaningful and reliable. Therefore, various analytical methods, including content analysis, thematic analysis, and discourse analysis, are discussed and recommended for Carve to adopt. This approach will enable Carve to obtain improved outcomes from the qualitative data.

The underlying theoretical principles guiding the qualitative approach include survey objectives, which aim to clearly define the survey's goals. In other words, the questions must focus on the robot's implementation and its impact on employees. Secondly, the survey population is emphasised, highlighting the importance of identifying the appropriate target audience. In this context, the ideal audience comprises all employees directly affected by the robot. Moreover, theoretical principles including randomisation, question clarity, and response scale are also utilised to enhance the survey's effectiveness and validity.

Section 5 focuses on the **resolution** aspect, utilising the insights derived from Sections 3 and 4 to illustrate the impact of the product. However, to identify the optimal visualisation tool for the impact product, an in-depth comparative analysis is first conducted, encompassing a thorough examination of various tools and hands-on testing. This approach results in a more robust report and more refined recommendations, thereby enhancing the overall quality of the insights provided.

Subsequently, this report translates these hard facts into execution savings and delves into examining the cost and pricing aspects of the impact product. This particular aspect is crucial for cost management and effective pricing strategies. To facilitate this analysis, the report employs a cost-benefit analysis (CBA), which quantifies the costs and benefits associated with the implementation of the impact product, (Asana, 2023). Moreover, cost transparency is integrated to ensure that all cost components linked to the impact product are thoroughly documented and accounted for.

The hypothesis, which states to increase client savings, is analysed through the CBA. This analysis confirms that four months post robot implementation, the client will realise an increase in savings of 610,448 kr., attributed to 1,744 hours of released time. This results in a positive net return of 126,748 kr., following an initial investment of 483,700 kr. Additionally, the impact product reveals a decrease in salaries linked to the specific task automated by the robot, resulting in direct cost savings. Furthermore, the impact product highlights the indirect effects in the soft facts dimension, such as reduced employee stress levels, and enhanced productivity. This product is thus able to validate the hypothesis and further support the anticipated growth in client savings.

3 Key Reasons for Implementing the Impact Product

Given the growing potential of the global RPA market, it is crucial for Carve to incorporate an impact phase into its RPA-business case. This adjustment not only boosts Carve's revenue but also provides a comprehensive view of the benefits and transparency that RPA introduces. Details on the market's growth potential are examined in Section 3.1. A description of Carve's existing RPA-business case and the absent impact phase is analysed in Section 3.2.

3.1 High Growth Potentials for the Impact Product

The global RPA market reached USD 3.5 billion in 2021. Projections suggest it could grow to USD 24 billion by 2030, with a compound annual growth rate (CAGR) of 27% between 2022 and 2030, as reported by (GlobeNewswire, 2023). The article further discusses factors driving this growth, including the increasing need for automation and the growing demand for RPA in healthcare to improve patient care. These statistics highlight the promising trajectory of RPA.

According to GlobeNewswire (2023), the advantages of integrating RPA include improved internal processes, enhanced customer experiences, cost savings, reduced operational errors, and increased productivity. This implies that Carve's RPA implementation could not only enhance revenue streams and achieve cost efficiencies for clients but also create a better work environment, characterised by reduced stress and increased job satisfaction. Given the significance of the RPA sector, enhancing Carve's RPA product with an impact phase that visualises these benefits appears highly advantageous.

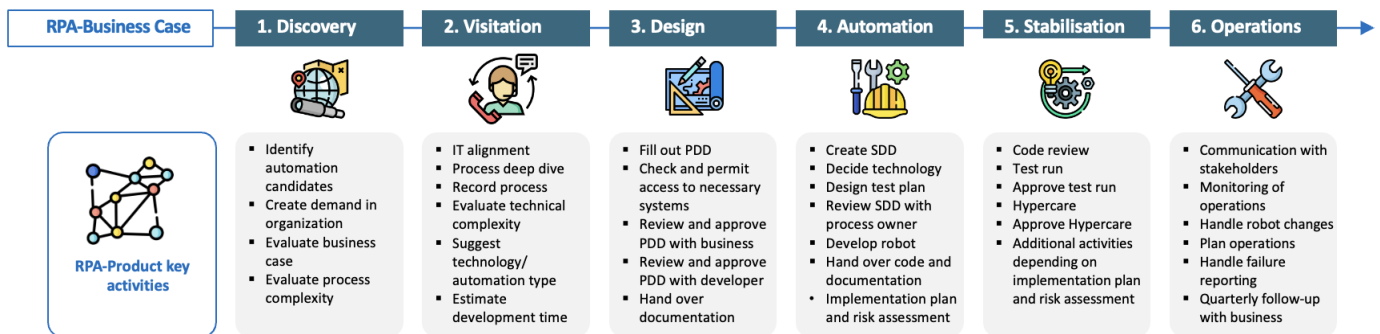
Additionally, a study conducted by PWC (2023) shows that 45% of business leaders participating in a pulse survey believe that robotics will become the most revolutionary technology for the Danish business community. The survey also highlights that RPA has the potential to transform workplaces as we know them today. By employing RPA, enterprises can streamline processes, allocate resources more efficiently, achieve higher quality, and make fewer errors. This further emphasises the importance of expanding Carve's RPA-business case with an impact phase.

Lastly, Gartner (2022) reports a strong growth in spending on RPA software. In 2022, spending on RPA software is expected to reach USD 2.9 billion, a 19.5% increase from the previous year. Although this growth may decelerate slightly in the future, the RPA software market is still anticipated to expand significantly. Gartner's insights further justify the inclusion of an impact phase. This phase is crucial in continually assessing the insights from the implemented RPA, aligning seamlessly with Carve's ambition to enhance the efficacy and value proposition of its product.

3.2 Carve's Current RPA Product and its Missing Impact Phase

Carve's current RPA-business case is structured into six phases, as illustrated in Figure 2. In the Discovery phase, Carve's team meticulously identifies processes within an organisation that are suitable for automation, prioritising those ready for RPA implementation. This entails a thorough analysis of the processes to comprehend their complexities and potential benefits. During the Visitation phase, Carve ensures the seamless integration of these selected processes with the client's IT systems, delving into the details of the processes to offer technology recommendations.

Figure 2: Carve's Current RPA-Business Case



Source: (Carve, 2023)

Note: Larger version is available in the pptx Appendix-slide 4.

In the Design phase, Carve finalises the Process Design Document (PDD), arranges system access, and gains approvals, setting a solid foundation for the next phase. In the Automation phase, they devise the Solution Design Document (SDD), detailing the automation specifics, select technological tools, conduct thorough testing, and initiate robot development, leading to the handover of code and documentation.

The Stabilisation phase involves rigorous code review, testing, and approval processes, alongside implementing Hypercare for seamless robot integration. The Operations phase includes continuous stakeholder engagement, operational monitoring, robot adjustments, and failure reporting, (Carve, 2023).

Currently, Carve's RPA-business case lacks a crucial impact phase, leaving clients unaware of the significant investment's effects on their organisation. Therefore, introducing this phase is vital.

4 Data Required for the Impact Product's Success

This section outlines the data required to create a robust impact product. Section 4.1 elaborates on the extraction of quantitative metrics from UiPath Orchestrator. Section 4.2 explores how Carve should gather qualitative data for the RPA impact phase via surveys and interviews. Section 4.3 offers insights into the financial aspects of the RPA product, focusing on the impact phase and its activities.

4.1 Quantitative Insights from UiPath

As a platinum-certified partner of UiPath, a leading RPA platform, Carve is able to retrieve a comprehensive set of quantitative metrics post-RPA implementation. These metrics are essential for an in-depth evaluation of the automation process. Key metrics include:

Process Execution Metrics: Central to RPA evaluation is understanding the frequency of robot process execution, including data on successful runs and any exceptions or errors. Additionally, assessing the time efficiency of these processes is vital, particularly the average duration for process execution, (UiPath, 2023).

Transaction Volume: A significant metric for businesses is the volume of processed transactions, indicative of the robot's workload. Carve must use UiPath's Orchestrator to accurately track successful transactions and those with issues, (UiPath, 2023).

Work Distribution: Beyond quantity, the quality of work distribution among robots is essential. UiPath provides insights into task distribution across multiple robots, helping to understand each robot's workload and the efficiency of this distribution, ensuring balanced robot utilisation without overburdening or underutilising any robot.

4.2 Qualitative Insights through Surveys and Interviews

Beyond quantitative data, Carve must acknowledge the significance of the human element in RPA implementation. To access the sentiments, perceptions, and experiences of the workforce post-RPA implementation, Carve must adopt a dual approach of surveys and interviews. The structured survey, as outlined in Table 1, is designed to capture a spectrum of emotions. Respondents can indicate their agreement or disagreement with the provided statements, with ratings ranging from 1, symbolising disagreement, to 10, reflecting strong agreement. Furthermore, the statements are split into two categories: the 'before' statements, which are assessed by the respondents before the implementation of the robot, and the 'after' statements, addressed after the robot implementation.

Interviews are vital for capturing the RPA's impact, providing deeper insights than surveys, which, while easier to collect and present, do not capture the RPA's entire effect. Interviews allow employees to share detailed experiences with the robot and its organisational effects, offering the opportunity for follow-up questions and clarification of complex responses.

The significant impact of RPA is exemplified in RegionMidt (2022), showcasing Region Midtjylland's partnership with Carve and demonstrates the effectiveness of interviews. Their RPA solution aimed to streamline the identification and classification of test results, easing the workload of medical professionals. It enabled clinical staff to concentrate on critical test outcomes, with the robot handling routine

Table 1: Survey Statements by Theme

Theme	Statements
Job Satisfaction	• Before RPA, you often feel dissatisfied with the repetitive aspects of your job. • After RPA, the system positively impacts your job satisfaction.
Productivity	• Before RPA, you experience challenges in maintaining high productivity levels. • After RPA, the system improves your overall productivity.
Stress Level	• Before RPA, job-related stress is a significant concern in your daily tasks. • After RPA, it decreases your job-related stress.
Work-Life Balance	• Before RPA, you often struggle to maintain a healthy work-life. • After RPA, it increases your ability to maintain a healthy work-life balance.

Source: Own illustration.

Note: The scale ranges from 1 to 10, where 1 indicates disagreement and 10 signifies strong agreement with the statements.

sorting. This story of improved workflow for nurses, reducing the need for manual verification of test results, thus highlights the significance of interviews in comprehensively capturing the wider impact of RPA. However, the time and resources required for interviews, compared to surveys, are noteworthy. As Figure 3 shows, interviews are more costly than surveys. Therefore, the choice between the two hinges on the depth of understanding a client desires about RPA's effects.

4.3 Assessing the Financial Aspects of the Impact Phase

For a comprehensive understanding of the RPA product's financial aspects, Figure 3 is provided. It outlines the estimated hours for each phase of Carve's project, along with the associated costs and prices, and visualises the activities involved in each phase. The impact product involves six key activities. According to Carve (2023), the 'Build Power-BI Report' activity is estimated to require between 20 to 40 hours, with costs ranging from 7,000 to 14,000 kr. and a price range of 24,000 to 48,000 kr., leading to a potential maximum profit of 34,000 kr. Following this, the 'Build Survey' activity is expected to yield a profit of 27,200 kr., while 'Creating Interviews with Clients' could also bring in 34,000 kr. in profits. 'Data Extraction' emerges as the most lucrative activity, with an estimated profit of 47,600 kr. Conversely, 'Discussing Relevant KPIs with the Client' is anticipated to be the least profitable, potentially earning 16,600 kr., given its shorter estimated duration of only 16 hours. Lastly, the 'Handover and User Guide' activity is set to generate a profit of 27,200 kr.

In total, the time allocated for the impact product spans from 108 to 216 hours. Consequently, Carve's expenditure could range from 37,800 to 75,600 kr. Regarding pricing, the impact product is estimated

to be valued between 129,600 to 259,200 kr. These estimates does not account for additional costs such as unforeseen tasks, IT adjustments, or project management. Nevertheless, this leads to an estimated Investment Return Rate (IRR) of 243%, calculated as follows:

$$0 = NPV = \sum_{t=0}^T \frac{C_t}{(1 + IRR)^t}$$

where NPV is the net present value, C is the cash flow at time t , IRR is the discount rate also expressed as the internal rate of return. Solving for IRR at period $t=1$ yields:

$$\frac{C_1}{NPV} - 1 = IRR$$

and lastly inserting the numbers times 100 yields an IRR of 243% for the impact project:

$$\left(\frac{259,200}{75,600} - 1\right) * 100 = 242.86\%$$

The IRR is a discount rate used to analyse a given project that makes the Net Present Value (NPV) of future cash flows equal to zero, (Fernando, 2023). In this instance, the impact product is anticipated to yield a return of 243%, indicating that this investment is poised to grow more than two and a half times its initial value. Given that Carve only receives cash flow in the first year, the time period t is set to 1.

Figure 3: Price and Cost for the RPA and Impact Product

Phase	Total hours min	Total hours max	min cost	max cost	Total price min	Total price max	Profit phase min	Profit phase max
Discovery	2	10	700 kr.	3,500 kr.	2,400 kr.	12,000 kr.	1,700 kr.	8,500 kr.
Visitation	5	9	1,750 kr.	3,150 kr.	6,000 kr.	10,800 kr.	4,250 kr.	7,650 kr.
Design	10	19	3,500 kr.	6,650 kr.	12,000 kr.	22,800 kr.	8,500 kr.	16,150 kr.
Automatisation	42	72	14,700 kr.	25,200 kr.	50,400 kr.	86,400 kr.	35,700 kr.	61,200 kr.
Stabilisation	9	12	3,150 kr.	4,200 kr.	10,800 kr.	14,400 kr.	7,650 kr.	10,200 kr.
Operations	7	13	2,450 kr.	4,550 kr.	8,400 kr.	15,600 kr.	5,950 kr.	11,050 kr.
Impact	108	216	37,800 kr.	75,600 kr.	129,600 kr.	259,200 kr.	91,800 kr.	183,600 kr.
Build Power-BI report	20	40	7,000 kr.	14,000 kr.	24,000 kr.	48,000 kr.	17,000 kr.	34,000 kr.
Build surveys	16	32	5,600 kr.	11,200 kr.	19,200 kr.	38,400 kr.	13,600 kr.	27,200 kr.
Create interviews with client	24	40	8,400 kr.	14,000 kr.	28,800 kr.	48,000 kr.	20,400 kr.	34,000 kr.
Data extraction	24	56	8,400 kr.	19,600 kr.	28,800 kr.	67,200 kr.	20,400 kr.	47,600 kr.
Discuss relevant KPI's with client	8	16	2,800 kr.	5,600 kr.	9,600 kr.	19,200 kr.	6,800 kr.	13,600 kr.
Handover & user guide	16	32	5,600 kr.	11,200 kr.	19,200 kr.	38,400 kr.	13,600 kr.	27,200 kr.
Total	183	351	64,050 kr.	122,850 kr.	219,600 kr.	421,200 kr.	155,550 kr.	298,350 kr.

Source: Carve (2023), and own visualisation

Note: Price and hours for each phase is estimated at Carve's hourly rate of 1,200 kr. The costs are based on an assumed employee wage of 350 kr. Larger version is available in the pptx Appendix-slide 3.

5 Impact Demonstration and Saving Estimations

In the following sections, this report highlights the significance of Power-BI and explains how quantitative data can be converted into actionable savings. Section 5.1 conducts a comparative analysis of Power-BI, Tableau, and UiPath Insights. Section 5.2 presents the recommended Power-BI dashboards for Carve, demonstrating both measurable and abstract metrics. Finally, Section 5.3 outlines the methodologies employed to calculate execution savings.

5.1 Power-BI's Advantage Over Other Visualisation Tools

Power-BI, Tableau, and UiPath Insights are all powerful tools, each designed for specific goals and excel in presenting both number-driven and narrative data, especially in the context of assessing RPA robots. Carve seeks to identify which tool aligns best with its requirements through a comprehensive comparison.

Power-BI, known for its user-friendly design, is suitable for users of various technical levels. Its strong reputation in Denmark stems from its capability to merge different types of data, offering a complete data analysis by combining both number-driven and narrative information. It also provides a wide variety of visualisation options suitable for different data types, (GeeksforGeeks, 2023). However, a limitation of Power-BI is its lack of direct integration with the RPA robot, requiring data to first be pulled from UiPath.

Tableau, recognised for its advanced visualisation features, effectively presents both types of data in various ways. Its ability to combine data from multiple sources makes it a top choice for in-depth analysis. With a large user community, Tableau users have access to numerous shared resources, as highlighted by (Tableau, 2023). On the downside, learning Tableau can be more challenging compared to Power-BI, requiring more time and training. Also, its cost might be a concern for smaller organisations.

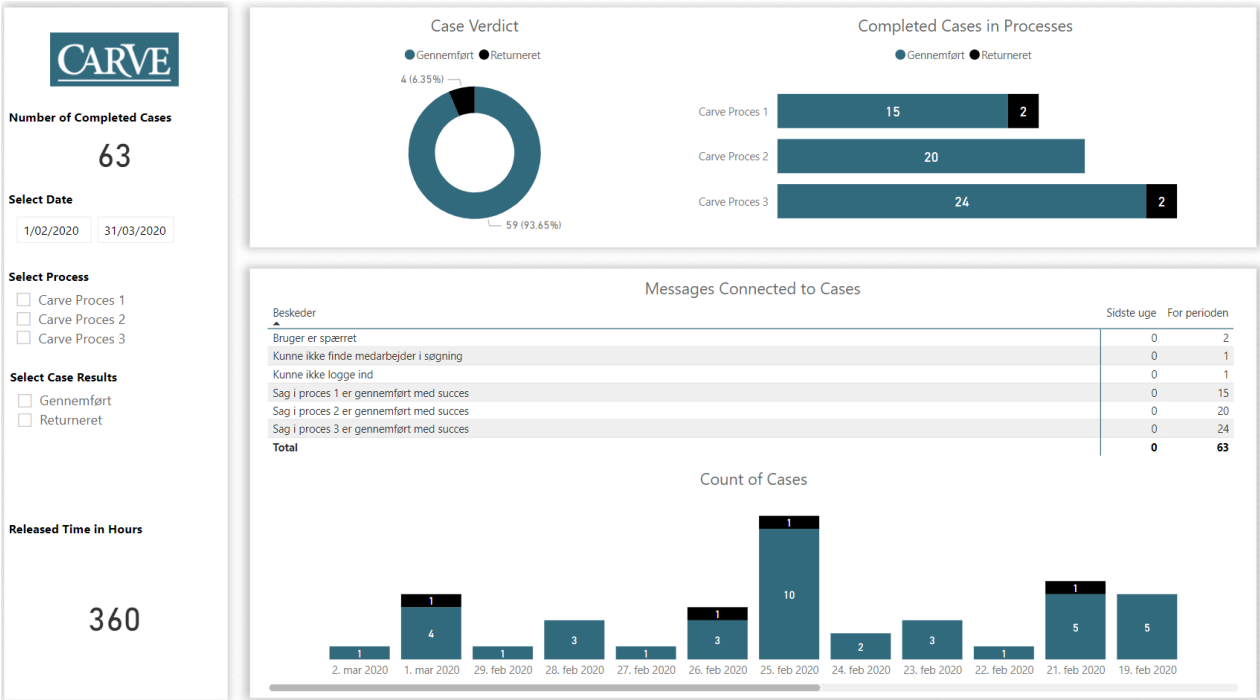
UiPath Insights is specialised for in-depth analysis within the RPA context. It excels in processing data from RPA robots, thus positioning itself as a strong tool for measuring RPA's impact. It offers features that track and pinpoint potential inefficiencies, thereby refining the data analysis process, as outlined by (Insights, 2023). However, a notable limitation is its narrow focus. It struggles with data outside of its core RPA functions, limiting its capacity to incorporate feedback from surveys or interviews.

In summary, Power-BI distinguishes itself with its user-friendly interface, integration capabilities with other Microsoft products, and flexibility in managing diverse data types. Therefore, this report recommends Carve to utilise the Power-BI platform, which is already a familiar tool within Carve's organisation. In contrast, integrating Tableau or UiPath Insights would require Carve to undergo a significant learning curve to integrate these software solutions into this impact product.

5.2 Demonstrating the Impact Product and its Hard and Soft Facts

Utilising data from UiPath, a Power-BI dashboard has been developed to display the robot’s impact on the client’s operations. Figure 4 displays the quantitative data from UiPath. The ”Case Verdict” pie chart stands out, highlighting a significant 93.65% of cases marked as ”Gennemført”, reflecting RPA’s effectiveness. For the specific processes, Carve Process 1 had 15 completions and 2 returns. Carve Process 2 achieved 20 completions with no returns, and Carve Process 3 reported 24 completions with 2 returns. These returns might suggest instances where processes faced unexpected issues. Additionally, the dashboard includes a ”Messages Connected to Cases” section for further context, while the ”Count of Cases” bar graph depicts the case distribution for February and March 2020. Notably, the ”Released Time in Hours” indicates a total time saving of 360 hours over these two months, which is later translated into execution savings.

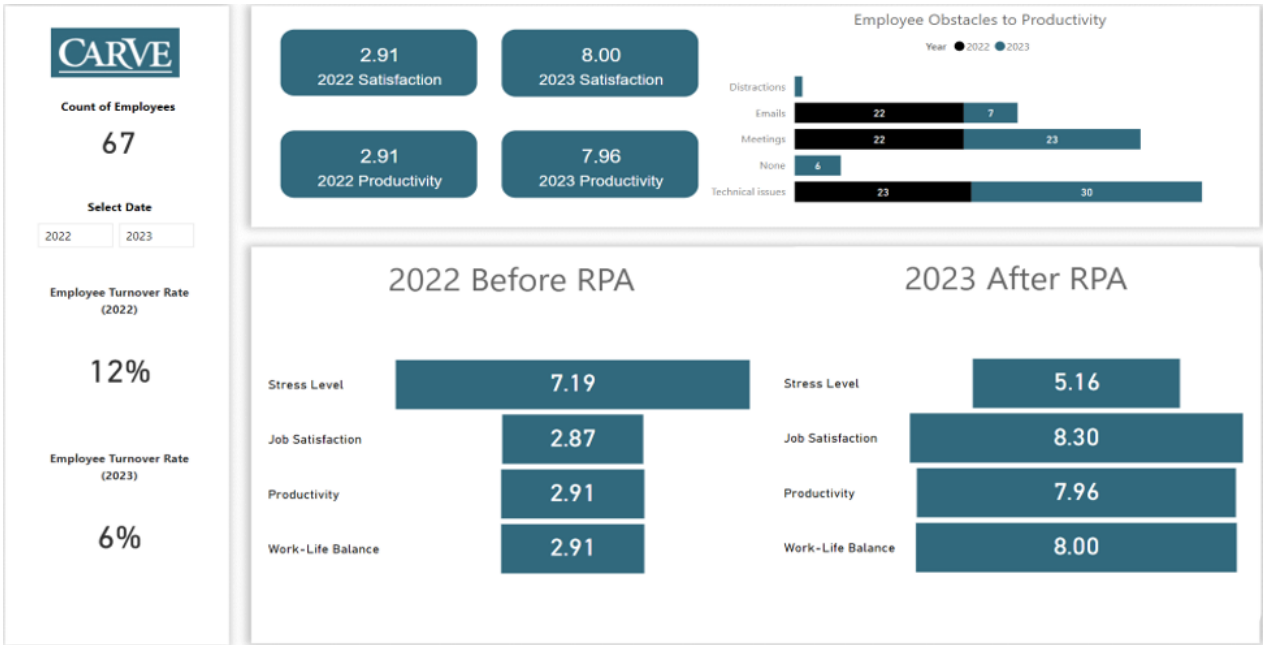
Figure 4: Power-BI Dashboard Visualising the Impact Product’s Hard Facts



Source: Carve (2023), and own visualisation

Focusing on the soft facts, Figure 5 presents pre- (2022) and post- (2023) RPA implementation dummy survey results, using the statements listed in Table 1. These results mimic potential answers from a client. The comparison between 2022 and 2023 is notable. Both satisfaction and productivity scores have increased significantly, moving from 2.91 in 2022 to 8.00 and 7.96 in 2023, respectively. This positive trend is also supported by the reduction in the Employee Turnover Rate, which decreased from 12% in 2022 to 6% in 2023. High turnover can be costly for organisations due to the expenses associated with recruiting, hiring, and training new employees, not to mention the loss of institutional knowledge and the potential disruption to operations. Reducing turnover can lead to substantial cost savings. In addition, in 2022, there is a notable high stress level at 7.19, which is reduced to 5.16. High stress can lead to

Figure 5: Power-BI Dashboard Visualising the Impact Product’s Soft Facts



Source: Own visualisation
Note: The survey questions applied for this visualisation is presented in Table 1.

burnout, decreased productivity, and increased turnover, all of which have financial implications. Lower stress levels can improve overall employee health and well-being, which can reduce healthcare and overall employee costs. However, not all metrics are positive. The section 'Employee Obstacles to Productivity' highlights a rise in technical issues from 2022 to 2023, indicating areas that might need further attention.

These Power-BI dashboards effectively visualise the recommended impact product. Figure 4, using quantitative data from UiPath, provides a clear view of operational outcomes. Conversely, Figure 5 offers insights into employee experiences and perceptions, shedding light on the qualitative aspects of RPA. Together, these dashboards combine both tangible and intangible information, offering Carve’s clients a comprehensive understanding of the robot’s impact. Hence, these visuals can be used as a valuable tool for informed decision-making.

5.3 Translating Hard Facts into Execution Savings for the Impact Product

The information extracted from UiPath depicted in Figure 4 makes it possible to build a detailed savings template for the impact product shown in Figure 6. In particular, the bar chart from Figure 4 "Completed cases in processes" is applied. Figure 6 compares one robot executing three tasks with one employee performing the same trio of tasks. Employee hours are determined by Carve’s understanding of each process and their estimated time for task completion. All assumptions are enumerated on the left-hand side of the figure.

The presented figure details the savings achieved for each Carve Process: Process 1 accumulates 15,722

Figure 6: The Savings Aspect of the Impact Product

Assumptions used to estimate the total savings			The robot has a significant impact on the total savings by being 18X more efficient			
These assumptions are based on implementing one small robot			Estimated Execution Savings	Carve Proces 1	Carve Proces 2	Carve Proces 3
	Price	Hours	Robot hours	0.2	0.3	0.5
Employee hourly salary	350 kr.	1 hour	Employee hours	3	6	9
Robot hourly cost	11 kr.	1 hour	Completed cases in processes	15	20	24
Employee time to complete proces 1	1,050 kr.	3 hours	Robot hours spent	3	7	12
Employee time to complete proces 2	2,100 kr.	6 hours	Employee hours spent	45	120	216
Employee time to complete proces 3	3,150 kr.	9 hours	Robot cost	28 kr.	73 kr.	132 kr.
Robot time to complete proces 1	2 kr.	0.2 hours	Employee cost	15,750 kr.	42,000 kr.	75,600 kr.
Robot time to complete proces 2	4 kr.	0.3 hours	Total Savings	15,722 kr./month	41,927 kr./month	75,468 kr./month
Robot time to complete proces 3	6 kr.	0.5 hours				
1. Process execution time reduction is employee hours spent subtracted by robot hours spent times employee salary (350). 2. Error Reduction is 20% of total employee hours spent completing each proces.			The robot reduces the process execution by 360 hours and time spent on errors by 76 hours			
			Benefit Metric	Savings	Released Time in Hours	
			Process Execution Time Reduction	125,942 kr.	360	
			Error Reduction in hours	26,670.00 kr.	76	
			Total Savings	152,612 kr./month	436 hours/month	

Source: Carve, UiPath 2023, and own visualisation

Note: Data is one month post robot implementation. Larger version is available in the pptx Appendix-slide 2.

kr., Process 2 attains 41,927 kr., and Process 3 gathers 75,468 kr. The benefit metric reveals that the released time sums up to 436 hours. This results in a combined savings of 152,612 kr. and a notable error reduction of 26,670 kr. in the initial month following the robot's deployment. These calculations are based on the estimated hours the robot requires to complete each respective Carve Process. By considering the number of processes and the cost of the robot, it is possible to estimate the complete financial implications. Moreover, using the hourly wage of employees, assumed to be 350 kr., alongside the projected execution time, allows for the derivation of the total employee cost. Ultimately, the savings are calculated by comparing the employee cost against the robot cost. However, conducting interviews may provide Carve with a more nuanced estimate of time required by the employees to complete each Carve Process.

Estimating the hourly cost of 11 kr. for a small robot involves a comprehensive assessment of various factors. Firstly, consider the initial investment, which, as per Carve's financial projections, amounts to 483,700 kr. This figure is a combination of the maximum cost displayed in Figure 3, totalling 421,200 kr., along with additional expenses amounting to 62,500 kr. These additional costs encompass IT alignment, unexpected tasks, and project management, as detailed on Appendix-slide 3.

In addition to the initial investment, there is a licensing fee of 2,800 kr. per month for a single robot, where one month equals 730.5 hours. Furthermore, it is estimated that one month of an employee's time, valued at 40,000 kr., is required to make infrastructure adjustments for successful robot integration. Both the initial investment and infrastructure modifications are expected to have a useful lifespan of seven years, Carve (2023), which is equivalent to 61,362 hours. The calculations of the hourly robot expense follow

$$\text{Hourly Initial Investment is: } 483,700/61,362 = 7$$

$$\text{Hourly license fee: } 2,800/730.5 = 3$$

$$\text{Infrastructure: } 40,000/61,362 = 1$$

Adding the above components yields an hourly cost of roughly 11 kr. for a single robot. An in-depth discussion of the assumptions directing this robot cost estimation is provided in Section 6.3.

Lastly, a 20% reduction in errors is assumed. However, it is worth noting that this reduction is not constant and can fluctuate based on the specific tasks involved. In the article conducted by Infopulse (2023), the introduction of RPA in data entry tasks resulted in a 90% decrease in errors, while in the case of order processing, the reduction in error rate was 4%. Given this variability, projecting a 20% decrease in errors for tasks related to the Carve Process appears to be a reasonable estimate.

In conclusion, this comprehensive analysis and the cost-benefit evaluation offer a clear financial insight resulting from the RPA implementation. This is supported by the empirical data derived from the UiPath platform, and enriched by own assumptions. Over a four-month period following the implementation of the robot, clients can realise time savings equivalent to 1,744 hours, leading to a net savings of 610,448 kr. When compared to the initial investment of 483,700 kr., the net gain amounts to 126,748 kr. This assessment highlights the advantages of RPA, emphasising its capability to yield significant savings for Carve's clients.

6 Discussion of Data, Assumptions, and the Savings

Firstly, Section 6.1 delves into the complexities of qualitative data regarding surveys and interviews. Section 6.2 explores the implications of generic assumptions related to the RPA product and the impact product. Finally, Section 6.3 looks at the challenges in translating data into execution savings.

6.1 The Risk Behind Qualitative Data

Qualitative data delve into human feelings and perspectives, offering rich insights. Surveys and interviews reveal diverse personal views, and interpreting this nuanced data is challenging due to its subjective nature (Vaughan, 2021). People's varied responses, shaped by their backgrounds, necessitate deep analysis beyond simple aggregation, understanding potential biases and contexts.

Another complexity is that qualitative research does not have a standard format, unlike quantitative research (QuestionPro, 2023). Different forms of qualitative data each have their own depth, and each requires a unique analytical approach. Therefore, Carve needs a range of tools ready to interpret different data types. One method Carve can utilise is content analysis. This research method examines and quantifies the presence of certain words, subjects, and concepts in text, image, video, or audio messages (Hotjar, 2023). Another method, thematic analysis, involves identifying patterns or themes in qualitative data by systematically categorising the data. Lastly, to improve results from the interviews, Carve can utilise discourse analysis, which involves analysing the language used in interviews to understand how

people construct meaning (Hotjar, 2023). However, Carve must avoid over-generalising from limited data to prevent incorrect strategic conclusions.

6.2 Issues with Generic Assumptions and Impact Solutions

In RPA implementation, relying on general assumptions can be risky. These assumptions, while simplifying the process, may not fully capture RPA's potential and can lead to a misalignment between Carve's offerings and client needs (Banas, 2019). Overly optimistic assumptions risk client disappointment, especially if outcomes do not match expectations.

Furthermore, each company's unique RPA journey, with its specific challenges and opportunities, demands flexibility. Excessive reliance on general assumptions could restrict Carve's ability to adapt to evolving client needs. However, by integrating quantitative tools, such as data extraction from UiPath's Orchestrator REST API, with customised surveys and interviews, Carve can provide a detailed, realistic view of RPA's impact. This blended approach ensures that solutions remain flexible and relevant to changing organisational requirements.

6.2.1 Estimated Hours for the Impact Product Depends on the Client

Estimating hours for the impact product, as illustrated in Figure 3, involves a complex, phase-specific process. The 'Discovery' phase focuses on brainstorming and consultations, while 'Data Extraction' in the impact phase demands meticulous attention, challenging the efficacy of a uniform estimation approach.

Hours required for each activity vary widely, with the impact product needing 108 – 216 hours, reflecting task unpredictability. Specifically, Data Extraction takes 24 – 56 hours, with ease of extraction depending on direct data access and data structure, as noted by (Carve, 2023). Complex or unstructured data increases extraction time. Similarly, the hours for the activity 'Build Power-BI' vary based on report complexity and client expertise in Power-BI, ranging from 20 hours for basic reports to 40 hours for more advanced ones.

Financially, accurate estimations are critical for cost and profit predictions and for providing clients with price estimates. The impact phase's complexities, including Power-BI report creation and KPI analysis, add to the estimation challenges. Therefore, while Figure 3 gives a basic framework, the nuances of each phase, their interplay, and varying client contexts call for a versatile approach to estimation.

6.3 The Complexity Behind Translating Hard Facts into Execution Savings

Transforming hard facts into executable savings through RPA, as shown in Figure 6, is also a complex task. Although the calculation method seems direct, it is based on key assumptions, such as a standard

hourly wage of 350 kr. for an employee. This is a basic assumption, emphasising the need for real-world data for more accurate estimates. The assumed savings from replacing employees with robots focus only on salary expense reduction, overlooking layoff-related costs. Nonetheless, even when including these additional costs, the savings remain significant.

Financially, the initial investment for a single small robot is 483,700 kr., covering purchase, licensing, and integration costs. Maintenance is not included, assuming Carve provides a reliable robot with maintenance costs covered. Therefore, with a seven-year lifespan, the robot's hourly operational cost is about 11 kr., showcasing RPA's economic advantages. However, it is worth noting that the expenses related to licensing and the initial investment can vary depending on the client and the chosen RPA solution. For instance, a larger organisation may require 20 robots, resulting in a monthly base licensing fee of 70,000 kr. The estimated 40,000 kr. for infrastructure changes also depends on the number of robots purchased. In the case of a larger organisation, this cost could rise to 500,000 kr., and the initial investment would also increase. While the initial RPA cost for one robot is high, adding more robots becomes more cost-effective.

RPA's error reduction rates also vary, ranging from 90% for simple tasks such as data entry to as low as 4% for more complex tasks, Infopulse (2023), making a 20% error reduction estimate in savings reasonable.

Estimating savings from a single robot involves several variables. This report demonstrates a potential method for Carve to calculate savings, and it is not a definitive template. The actual savings will depend on specific terms between Carve and its clients, highlighting the complexity of the RPA savings estimation.

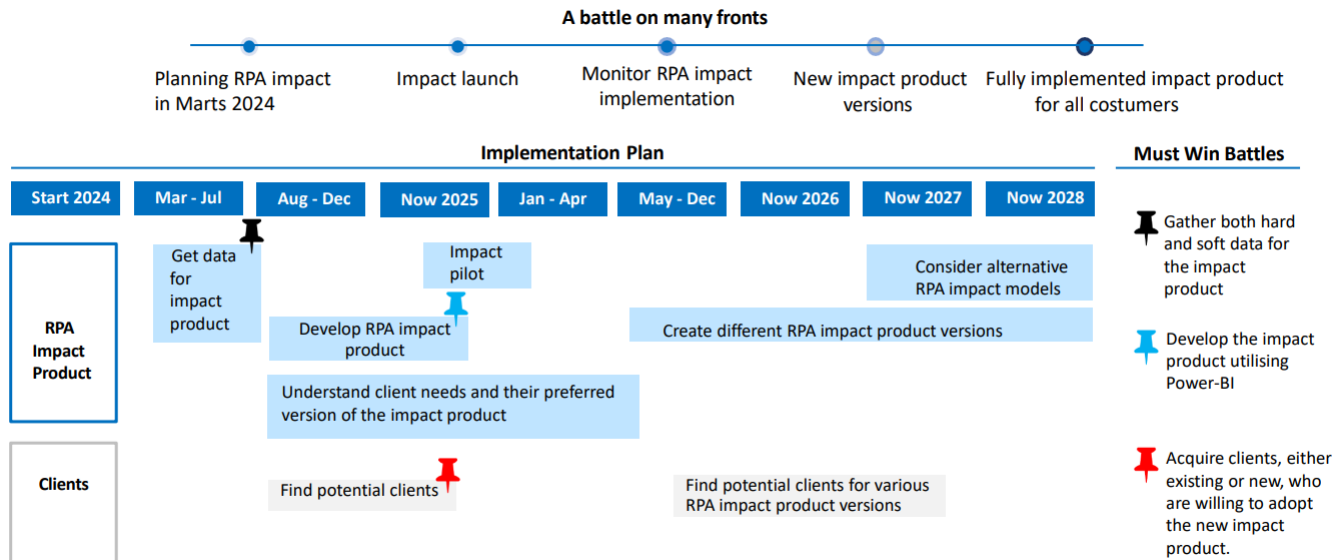
7 Concluding Remarks of the Recommend Impact Phase

To answer the main question from Section 1, I recommend Carve to demonstrate the impact of its RPA product through Power-BI, utilising data from UiPath, complemented by surveys and interviews. This is supported by the reviewed literature, which points out the growing promise of RPA and the importance of updating Carve's initial RPA-business case with a following impact phase. Therefore, Figure 7 in Appendix highlights a strategic plan from 2024 to 2028, showcasing the gradual implementation of the RPA impact product. This plan includes the use of Power-BI, as demonstrated in Section 5. This section provides a comprehensive view of the impact product, showcasing both hard and soft facts about the client's robot. Additionally, a cost-benefit review, utilising data from the UiPath platform and basic assumptions, shows the possible benefits of RPA. With an initial investment of 483,700 kr., in just a 4-month span post robot implementation, Carve's clients can expect a net gain of 126,748 kr. This impact product not only showcases the saving aspect of RPA, but also highlights its potential to add value for employees. By reducing stress and potentially increasing job satisfaction through the elimination of

mundane tasks, the impact product emerges as a valuable tool to gain insights into the robot's effects.

Appendix

Figure 7: Impact Implementation Plan



Source: Own visualisation

Note: A more detailed version can be found on slide 17.

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