



Business Case

Digital Finance Program
Draft document for discussion
22 March 2018

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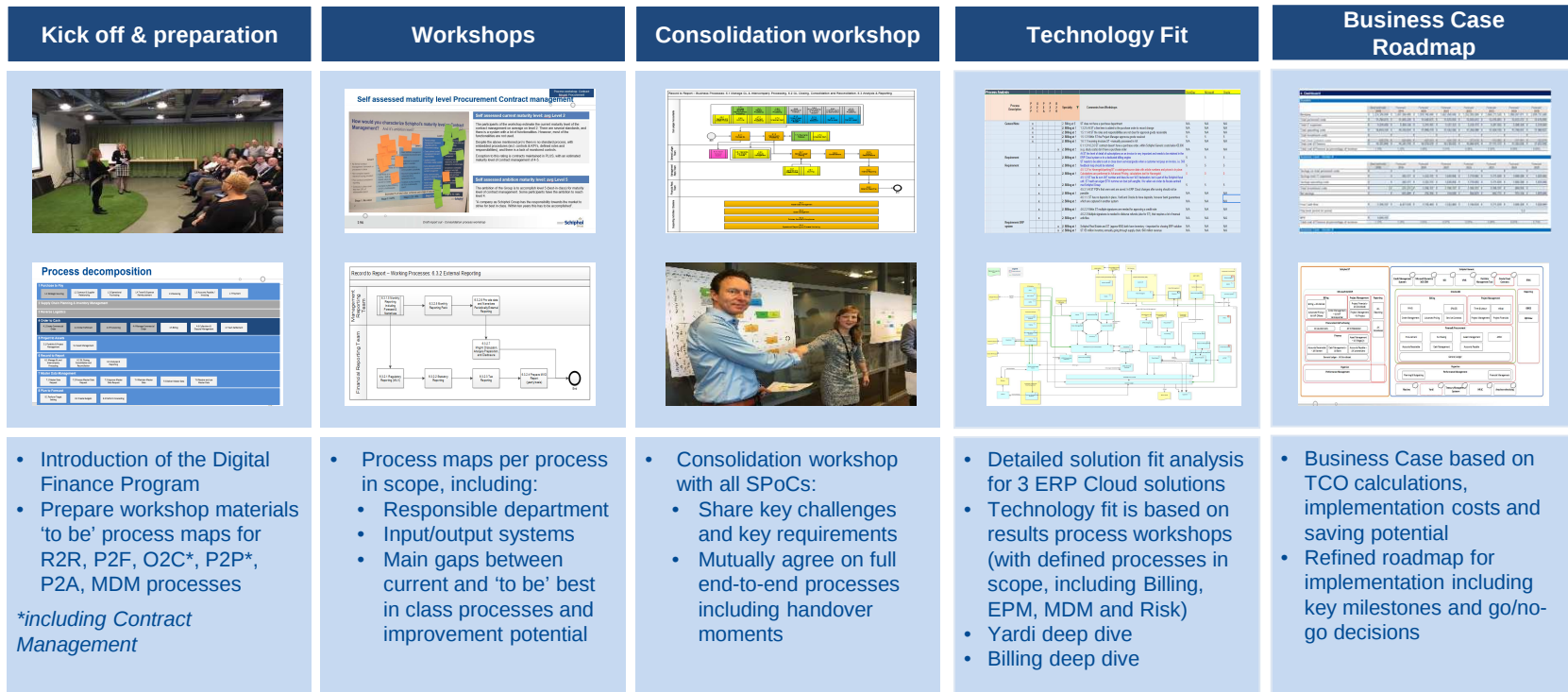
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Starting point for Business Case and Roadmap



Background and objectives of Business Case

- In the past months a high level process design has been developed. Based on this process design a technology fit assessment was conducted. In the technology fit the key requirements for Schiphol have been assessed for three selected vendors. Both process design, technology fit are used as input for development of the Business Case .
- The objective of the Business Case is to support continuation of the DFP and get first insights of the drivers and potential savings when implementing ERP Cloud.
- Given the objective of the Business Case a generic Business Case for ERP Cloud is developed. We have indicated a range of costs and savings between the different ERP Cloud solutions. The main areas of distinction are licenses, integration, change and implementation costs.
- For the implementation is assumed a deliberate and thorough approach, i.e. a phased approach for implementation over the period April 2018 until December 2019 according to the Roadmap. This period includes tendering.
- Schiphol's Finance ambition is to grow towards the median of the benchmark (based on similar revenue and complexity) within a time period of two years after the implementation of ERP Cloud. The median of the benchmark is 0.89% and the top quartile is 0.57%*.
- The ERP cloud solution is an enabler to accomplish this ambition and create a reduction of cost of Finance to grow towards the median of the benchmark. The cost of Finance contains personnel expenses and IT costs.
- In this document we will present the outcomes of the Business Case including scenario and sensitivity analysis, the key drivers and assumptions and the next steps.

*PwC, Finance Effectiveness Benchmark Report – 'Stepping up', 2017

Set-up of the Business Case

Input

IT Details

Details are given for the current and future IT license and support costs, including costs for having an ERP Cloud solution.

Assumptions

The Assumptions for calculating the running and one-off investments costs are combined in one tab. Changes regarding transition timing, costs, FTE etc. can be made on this tab.

All yellow cells are assumptions, which can be changed and will affect all the other tabs in the Business Case .

ERP Cloud transition	2018	2019	2020	2021	2022	2023	2024	2025
Microsoft AX	X	X						
Oracle eBS	X	X						
Cloud Contracts	X	X	X	X	X	X	X	X
Hyperion	X	X						
Yardi	X	X	X	X	X	X	X	X
Credit Management	X	X	X	X	X	X	X	X
Treasury	X	X	X	X	X	X	X	X
Other	X	X	X	X	X	X	X	X
OFU - Oracle eBS	X	X						
OFU - Cloud Contracts	X	X						
OFU - Hyperion	X	X						
Other costs - Oracle eBS	X	X						
Other costs - Cloud Contracts	X	X	X	X	X	X	X	X
Other costs - Hyperion	X	X						
Cloud ERP - ST		X	X	X	X	X	X	X
Cloud ERP - SG		X	X	X	X	X	X	X
EPM		X	X	X	X	X	X	X
Billing		X	X	X	X	X	X	X
Procurement		X	X	X	X	X	X	X

Calculations

Baseline costs

The current and future costs for the installed base are calculated assuming no changes are performed on the current IT architecture.

ERP Cloud solution

Based on the assumptions the costs for transferring, implementing, integrating the ERP Cloud solution are given.

All grey cells are calculations, which are based on information in the IT Details and Assumptions tabs.

Software & Infrastructure costs - CAPEX	2018	2019	2020	2021	2022	2023	2024	2025
Microsoft AX	€ 251,140	€ 141,787	€ 139,598	€ 89,804	€ 26,957	€ -	€ -	€ -
Oracle eBS	€ 131,127	€ 131,127	€ 131,127	€ 131,127	€ 65,564	€ -	€ -	€ -
Cloud Contracts	€ 200,632	€ 92,589	€ 64,608	€ 9,861	€ -	€ -	€ -	€ -
Hyperion	€ 29,311	€ 32,111	€ 34,911	€ 37,711	€ 18,170	€ 8,400	€ 5,600	€ 2,800
Yardi	€ 79,445	€ 33,445	€ 27,445	€ 21,445	€ 7,455	€ -	€ -	€ -
Credit Management	€ 182,855	€ 181,855	€ 180,855	€ 179,855	€ 118,855	€ 8,400	€ 5,600	€ 2,800
Treasury	€ 182,855	€ 181,855	€ 180,855	€ 179,855	€ 118,855	€ 8,400	€ 5,600	€ 2,800
Other	€ 182,855	€ 181,855	€ 180,855	€ 179,855	€ 118,855	€ 8,400	€ 5,600	€ 2,800
Software & Infrastructure costs - OPEX	2018	2019	2020	2021	2022	2023	2024	2025
Microsoft AX	€ 254,796	€ 139,741	€ 134,255	€ 288,955	€ 200,205	€ 340,701	€ 348,152	€ 351,690
Oracle eBS	€ 583,878	€ 593,017	€ 602,555	€ 612,145	€ 621,839	€ 631,590	€ 641,391	€ 651,273
Cloud Contracts	€ 198,613	€ 92,129	€ 64,208	€ 196,208	€ 196,208	€ 201,499	€ 204,723	€ 207,999
Hyperion	€ 51,394	€ 52,216	€ 53,038	€ 53,861	€ 54,703	€ 55,591	€ 56,529	€ 57,434
Yardi	€ 32,967	€ 33,495	€ 34,023	€ 34,551	€ 35,139	€ 35,691	€ 36,262	€ 36,842
Credit Management	€ 25,000	€ 25,400	€ 25,800	€ 26,213	€ 26,638	€ 27,065	€ 27,494	€ 27,925
Treasury	€ 650,000	€ 660,400	€ 670,800	€ 681,202	€ 691,605	€ 702,041	€ 712,502	€ 722,989
Other	€ 133,393	€ 137,638	€ 141,883	€ 146,128	€ 150,373	€ 154,618	€ 158,863	€ 163,108
OFU - Oracle eBS	€ 275,000	€ 279,400	€ 283,800	€ 288,202	€ 292,605	€ 297,011	€ 301,419	€ 305,834
OFU - Cloud Contracts	€ 50,000	€ 50,000	€ 50,000	€ 52,400	€ 53,776	€ 54,130	€ 54,496	€ 54,876
OFU - Hyperion	€ 40,000	€ 40,000	€ 40,000	€ 42,400	€ 43,833	€ 44,266	€ 44,699	€ 45,131
Other costs - Oracle eBS	€ 328,530	€ 333,796	€ 339,127	€ 344,503	€ 350,066	€ 355,667	€ 361,308	€ 367,139
Other costs - Cloud Contracts	€ 50,000	€ 50,000	€ 50,000	€ 52,400	€ 53,776	€ 54,130	€ 54,496	€ 54,876
Other costs - Hyperion	€ 40,000	€ 40,000	€ 40,000	€ 42,400	€ 43,833	€ 44,266	€ 44,699	€ 45,131
Total software & infrastructure costs - OPEX	€ 1,188,178	€ 1,209,481	€ 1,230,784	€ 1,252,087	€ 1,273,390	€ 1,294,693	€ 1,315,996	€ 1,337,299

Output

Summary

The summary sheet gives an overview of all the calculations for the different drivers for both the Baseline and the ERP Cloud solution.

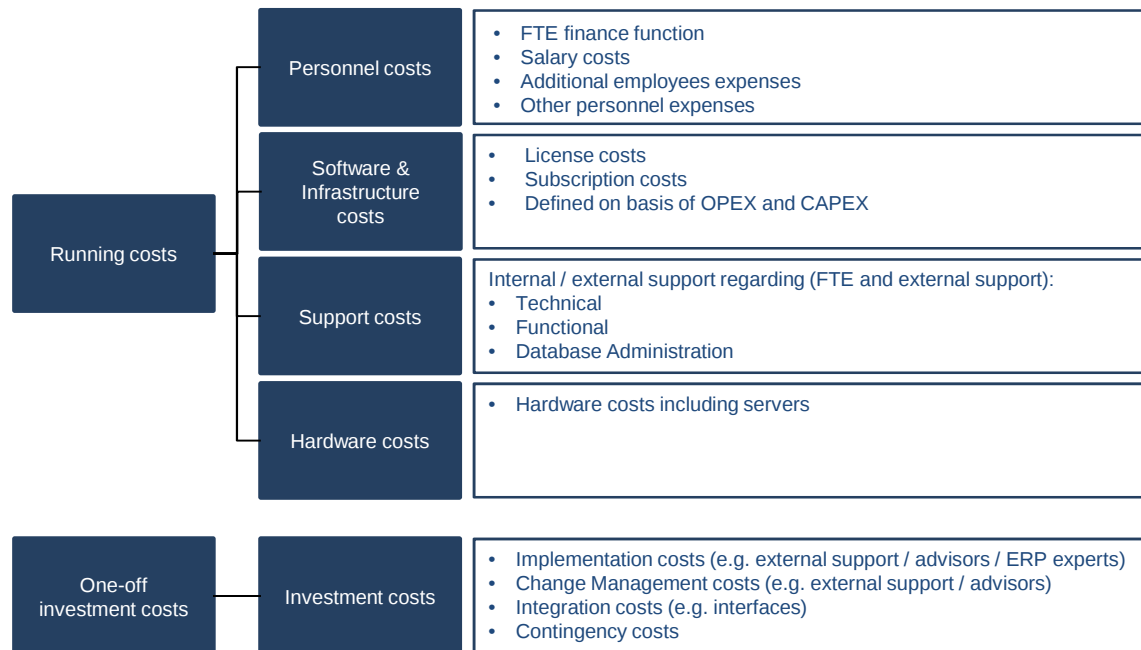
Dashboard

In the Dashboard the variances are given on a high level for the different drivers on the Summary sheet and compares the costs for an ERP Cloud solution with the Baseline costs.

The variances are illustrated as savings. These savings can be negative, showing costs for the ERP Cloud solution are higher than for the Baseline.

ERP Cloud Solution	Best estimate	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast	Forecast
€ (1,000)	2018	2019	2020	2021	2022	2023	2024	2025
Savings total IT expenses	302	1,710	1,821	1,771	1,770	1,800	1,800	1,800
Savings operating costs	302	1,710	1,821	1,771	1,770	1,800	1,800	1,800
Total investment costs	0	0	0	0	0	0	0	0
Net savings	302	1,710	1,821	1,771	1,770	1,800	1,800	1,800
Net savings (cash excluding depreciations)	1,118	4,518	4,488	4,323	4,144	3,710	3,680	3,650
Pay-back period (in years)								5.5
NPV	€ 3,302							
Total cost of finance as percentage of revenue	1.0%	1.1%	1.0%	0.9%	0.9%	0.9%	0.9%	0.9%

Business Case drivers consist of running and one-off investment costs



The Cost of Finance in the baseline – without implementation of ERP Cloud - will decrease from 1,25% to 0,92% driven by revenue growth

The current and future costs for the installed base are calculated assuming no changes are performed on the current IT architecture, i.e. no implementation of ERP Cloud.

<i>Baseline</i>								
x €1,000	Best estimate 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024	Forecast 2025
Revenue	1.368.732	1.438.432	1.533.925	1.631.603	1.730.945	1.836.320	1.948.094	2.066.653
Total personnel costs	11.960	12.778	12.982	13.190	13.401	13.616	13.833	14.055
Total IT expenses	5.529	5.301	5.352	5.327	5.236	5.208	5.288	5.370
Total operating costs	17.490	18.079	18.334	18.517	18.637	18.824	19.122	19.425
Depreciation of investment costs								
Total Cloud Contracts costs	-420	-425	-430	-434	-374	-313	-318	-323
Total cost of Finance	17.069	17.654	17.904	18.083	18.264	18.511	18.804	19.102
Total cost of Finance as percentage of revenue	1,25%	1,23%	1,17%	1,11%	1,06%	1,01%	0,97%	0,92%

Note: The revenue is adjusted in order to calculate the costs of Finance as percentage of revenue. The revenue from the regional airports and JFK are excluded.

The generic Business Case indicates a NPV of € 3,7 million and the Cost of Finance will move towards the median after seven years

	Best estimate 2018	Forecast 2019	Forecast 2020	Forecast 2021	Forecast 2022	Forecast 2023	Forecast 2024	Forecast 2025
1 Savings total personnel costs								
2 Savings total IT expenses		-382	1.703	1.621	1.771	1.772	1.800	1.829
Savings operating costs		-382	1.703	1.621	1.771	1.772	1.800	1.829
3 Depreciation of investment costs		-252	-1.259	-1.259	-1.259	-1.259	-1.008	
Net savings		-634	444	361	512	512	793	1.829
4 Net savings (cash excluding depreciations)		-1.259	-5.091	1.499	1.523	1.744	1.772	1.800
5 Pay-back period (in years)							5,6	
6 NPV		3.663						
7 Total cost of Finance as percentage of revenue	1,25%	1,27%	1,14%	1,09%	1,03%	0,98%	0,92%	0,84%

1 Savings on total personnel costs

The implementation of ERP Cloud will create standardization and a reduction in FTE is therefore expected. In this scenario FTEs remain stable despite a revenue growth. Additional efficiency savings are assumed to be zero.

2 Savings on total IT expenses

Savings are expected due to the exclusion of external support costs (Ordina), no costs for customization, and the merge of the current installed base from Schiphol Generic and Schiphol Telematics in one ERP Cloud solution.

3 Depreciation of investment costs

Implementation, change management, and integration costs for implementing the ERP Cloud solution are depreciated over a period of five years. Data migration and data cleansing are excluded from the investments costs.

4 Net savings (cash excluding depreciations)

The amount of net savings consists of the annual savings of operating costs offset by investment costs. The net savings are adjusted for depreciation costs.

5 Pay-back period

Based on the discounted cash flow a pay-back period of 5,6 years is expected.

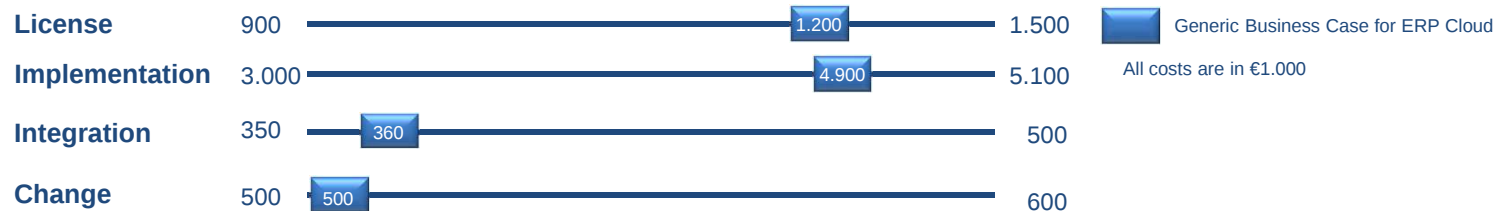
6 NPV

The Net Present Value is the accumulated net savings (excluding depreciations) of the project discounted by the WACC. This results in a NPV of €3.7 million for this project.

7 Total Cost of Finance as percentage of revenue

Implementing ERP Cloud will result in a decrease of the costs of Finance and show a growth towards the median in the market in 2025. However the level of Cost of Finance is also significantly dependent on the revenue growth.

The selected ERP Cloud solutions show deviations mainly for license and implementation costs



License

- Functionalities are covered as mentioned in the Technology Fit. Not all vendors offer a billing solution therefore billing solution are assumed to be equal for all vendors.
- The EPM requirements for Schiphol are not fully covered by all vendors. This might impact the deviations in license costs
- Since Supply Chain Management (SCM) is not in scope for DFP phase 1, license costs for SCM are excluded from the Business Case

Implementation

- The implementation costs include next to the functional implementation effort also Project Management, and Compliance & Control. Also the implementation costs for the billing solution and EPM are included
- The main drivers for the deviations are the implementation approach (traditional vs. agile) and the implementation lead time
- Since SCM is not in scope for DFP phase 1, implementation costs for SCM are excluded from the Business Case

Integration

- Moving from the installed base will lead towards higher integration costs as a result of the need for extra temporary interfaces during the implementation
- Also moving from the installed base will add complexity to develop interfaces for non Oracle vendors

Change

- When deviating from the installed base a bigger change effort is expected, since the new way of working for new vendors may significantly be different from the current way of working

ERP Cloud is a catalyst to generate business benefits



More precise insight in your operational and tactical Business to support better decision making

- Availability of standard reports that are Business Area transcending
- Quicker decision making on budgets/projects and KPIs based on real time data
- Always one version of the truth
- Faster, but standardized, management reporting



Simpler and standardized ways of working

- First time right, less iterations needed
- Faster invoicing
- Faster purchasing
- Easier project deployment
- More focus on customer service and less on manual tasks
- Greater flexibility in when and where you want to work
- Change in current (tailored) functionalities due to standardized way of working



Being in control due to more process automation and incorporated segregation of duties

- Clear agreements on who is doing what
- Secure and safe work environment
- Improved eco-friendliness
- Integral risk management approach (both GRC and automated controls)

Scenario analysis shows a significant savings potential, however additional savings are needed to grow towards the median benchmark in 2022

Baseline and scenarios	Description	NPV (x1000)	Cost of Finance In 2022	Cost of Finance in 2025	Payback period (in years)
Baseline	The IT architecture will not change. There will be no implementation of a ERP Cloud Solution.	N.A.	1,06 %	0,92 %	N.A.
Scenario 1	An ERP Cloud solution will be implemented and two assumptions are made. First, the costs for BICC will be still allocated towards Finance. Second, the number of FTE's remain stable despite revenue growth and there are no additional savings on personnel costs as a result of a reduction in FTE's.	€ 3.663	1,03 %	0,84 %	5,6
Scenario 2	As a result of the implementation of a ERP Cloud solution the need for BICC will decrease due to standard reports from ERP Cloud. Therefore the costs for BICC will not be allocated towards Finance.	€ 6,876	0,99 %	0,81 %	4,5
Scenario 3	The potential efficiency increase caused by the transition towards the Cloud is reflected by a reduction of 10% in FTE's for Finance. The reduction in FTE will impact transactional activities including data gathering.	€ 8,863	0,96 %	0,78 %	4,4
Scenario 4	This scenario is a combination of scenario 2 and 3. The ERP Cloud will lead to an efficiency potential with a reduction of 10% in FTE's. The standard reports from ERP Cloud will decrease the need of BICC for Finance. Therefore the costs of BICC are not allocated towards Finance.	€ 12.018	0,93 %	0,75 %	3,9

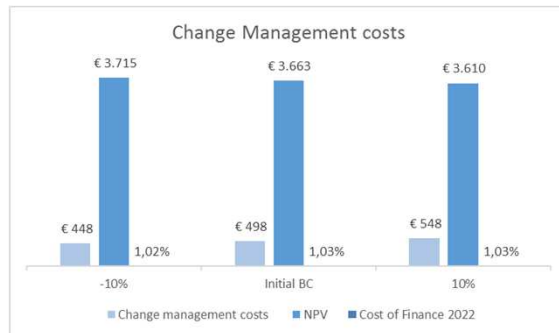
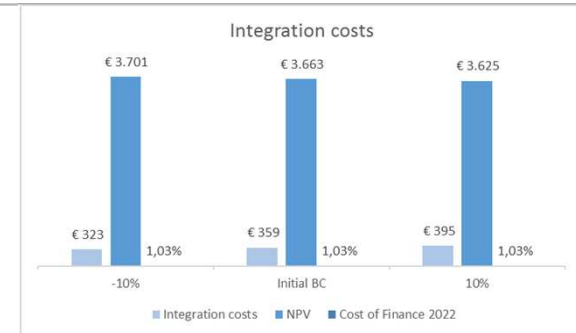
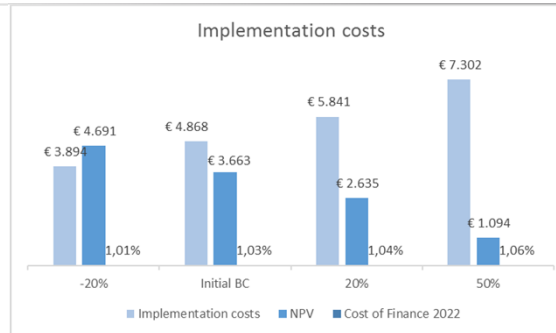
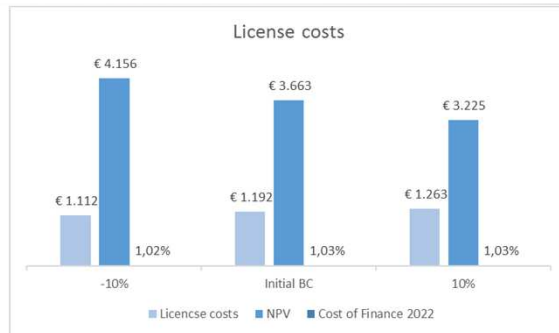
Key project risks and mitigations (1/2)

Risk	Impact	Probability	Risk mitigating techniques
General and project staffing			
Project start date delayed because of delay start date tender process			Create and monitor planning for tender process Work with the Steering Committee to ensure streamlined decision process.
No clear governance in place resulting in delayed decisions			Work with the DT/SB to ensure streamlined decision process. Have alternative plan to review and make decisions if scheduled meetings are too far apart, especially during critical decision periods in the project. These should be identified in the plan and appropriate plans made.
Constrained resources			Detail out resources required from Schiphol in implementation Monitor project schedule and staffing needs to identify potential problems early. Provide alternatives to planned staffing if problems develop and staffing is not available or able to accomplish assigned tasks on schedule.
Maturity of the Cloud solution and support vendor. The probability of this risk is addressed relatively high due to specialties such as the billing engine and the plan to asset process.			Organize reference visits during tender process Set up demo and proof of concepts during tender process Review vendor's environment and infrastructure options early and identify gaps and weak areas that need addressing. Develop and involve the Competence Centre/Community of the vendor during the project to develop support capabilities Identify business process work around to provide alternative if the future features and functions of the application are not available. Include KPI's and penalty clauses in contract
Program dependencies			List during the tender period the dependencies with other projects within Schiphol that have to be identified, including the potential risks and possible mitigation measures that can be taken to remove or significantly reduce the risks.

Key project risks and mitigations (2/2)

Risk	Impact	Probability	Risk mitigating techniques
Implementation			
Billing complexity and business impact			Make use of proof of concepts in the tendering process to assess the detailed functionalities and the match with the vendor solution Implement the billing solution for ST first and assure that the functionalities are in line with expectations. SHG will be added to the billing solution afterwards.
Working on specific solutions instead of solving underlying problems, focus on deviations instead of best practice process			Keep requirement gathering focused on the problem to be solved. Stick to design principles, and look for business process changes when standard functionality does not cover requirements. Focus on the best practice to-be situation instead of the current situation.
Master data structures and data cleansing lead time			Start data cleansing and mapping already now and don't wait till phase 2 starts.
Integration			
Missed integrations			Start completion of the integration list in more detail (including the data to be interfaced) for both ST and SHG. Validate if all adjacent applications are covered
Change			
Extra change effort required due to introduction of new technology and processes into Schiphol			Involve Schiphol user community in an early stage in the implementation (first prototype). Focus on change management throughout the project and identify and address process changes where required. Leverage SPOC's and change agents are appointed in phase 1. Also include end users in change agent community.
Ineffective communication			Review and monitor the communication plan to ensure it is being effective and is followed as designed. Utilize change management to assist sponsors and others with communication responsibilities to insure it is timely and appropriate.
Roles not clearly defined			Change Management plan to identify roles that are impacted by the project Implement transition and training program to insure needed skills are in place for testing and Go-Live.

Sensitivity analysis shows that four key project drivers dominate the impact on the Business Case



Best-case scenario:

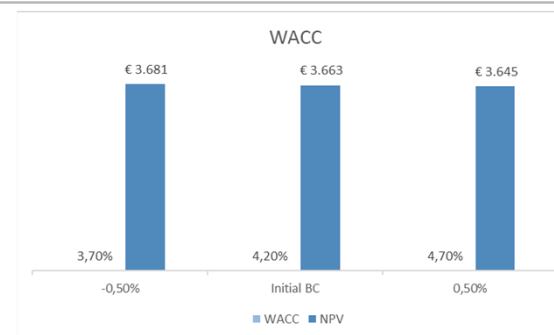
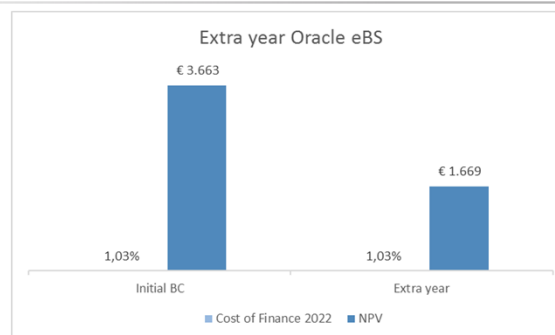
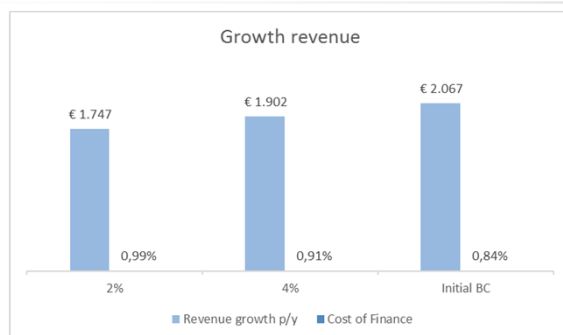
License, change and integration are 10% and implementation is 20% below the initial Business Case the Cost of Finance become 1,01% in 2022 and 0,83% in 2025. The project has a NPV of 5.3 million.

Worst-case scenario:

License, change and integration are 10% and implementation is 50% above the initial Business Case and the expected growth of the revenue will be 2% the Cost of Finance in 2025 will become 1,10% in 2022 and 0,99% in 2025. The project has a NPV of 0.57 million.

Note: Costs and NPV are in thousands. The implementation costs include € 450k for additional FTE's for supporting the running business, IT and the audit fees to align the ERP solution with the regulations.

Sensitivity analysis shows impact from three generic drivers on the Business Case



Note: Revenue in millions.

Assumptions Business Case (1/3)

Costs	Drivers	Assumptions
General assumptions	Baseline IT costs	- FTE and IT costs for Schiphol Group, both Schiphol Telematics and Schiphol Generic are determined - Actual 2017 is used as starting point for the Business Case , however for IT costs we include also the latest insights for IT costs (e.g. Docusign/OECC). Therefore we use the estimated IT costs for 2018 as input.
General assumptions	Time horizon	A time horizon of seven years is used to calculate the costs and savings for the Business Case .
General assumptions	WACC	The Schiphol internal WACC of 3,9% is used to discount the net savings of the Business Case .
General assumptions	Inflation	An inflation of 1,6% for 2018, which is based on the CPB index. The inflation rate is assumed to remain constant during the time horizon of the Business Case .
General assumptions	Salary increase	A salary increase of 1,6 % for 2018 is used, which is based on the CPB index. The percentage salary increase is assumed to remain constant.
General assumptions	Revenue	- The percentage of revenue growth is based on assumptions from the TP2018-2021, which is 6% on an annual basis. The increase of revenue is assumed to remain constant over the remaining years in the Business Case . - In order to calculate cost of Finance as a percentage of revenue, the revenue from de other airlines and the alliances (JFK) are excluded.

Assumptions Business Case (2/3)

Costs	Drivers	Assumptions
Running costs	Personnel costs	- Personnel costs are based on average salary costs multiplied by the FTEs. FTEs are based on Finance Organogram (October 2017). - Salary costs are based on the top of the salary scale. The salary costs follow the Tactical plan. - Salaries will annually increase with 1.6% based on the CPB index. - Additional annual employee benefits are based on 2017 LE Q4 divided by the FTEs. - In order to adjust the other personnel expenses per FTE the costs will increase annually with the average inflation rate in the Netherlands. The average inflation is assumed to be 1.6% for 2018 and we assume this stays constant for the remaining years. - Other personnel expenses (e.g. IT and housing costs) are based on the LE Q3 2017 benchmark, which is €14.338 per employee. - In contrast with the growth of the revenue, the FTE's are assumed to be stable. Apart from the absorption of revenue growth, no additional efficiency savings are included.
Running costs	Software & Infrastructure	- Software & Infrastructure costs are based on data received from IT Schiphol, vendors and PwC expertise. - Software Oracle eBS includes FAVIS and Spaces. - For the baseline calculation OFU (Onderhoud Functionele Uitbreiding) is included in the calculations as an average of the last two years. After implementation of ERP Cloud OFU costs will be zero. - For Microsoft AX there are no license costs invoiced anymore, therefore these costs are normalized in the baseline. - The assumption is made that after the implementation of the ERP Cloud in 2018 and 2019 the license costs for Oracle eBS can be stopped. License costs for read-only are expected to be marginal and therefore not included in the Business Case.
Running costs	Support costs	- Salary costs of IT support are based on the average salary scale. The top of the salary scale is used as input. Internal support costs will annually increase with 1.6% based on the CPB inflation index. - Total salary costs and additional annual benefits for support employees are excluding the service coordinator. - External support costs are based on the inflation rate of 1.6%. - The external support costs will be excluded in the to be situation. However therefore for internal supports costs we have made an adjustment. The internal support costs will be increased with 2 FTE for 2020 and 2021 to manage the transition of customizations to a standard ERP Cloud solution. Thereafter the FTE's will be decreased to the current level (4,5 FTE's). - The baseline is not adjusted for the extra consultancy costs which have to be made in order to keep Microsoft AX running since it is not supported any longer.

Assumptions Business Case (3/3)

Costs	Drivers	Assumptions
Running costs	Hardware costs	- For Microsoft AX, the costs are fully depreciated. - Hardware costs are included in the maintenance costs paid to Ordina under support, including costs for FAVIS and Spaces
One-off Investment costs	Implementation costs	- The costs for implementing the new ERP cloud solution, including costs for project management and compliance & control. - The costs are based on PwC expertise. - For the generic Business Case the SCM costs are excluded. - Two additional FTEs are included in order to account for the extra capacity needed from IT for the implementation. - For the implementation of a Cloud solution four additional FTEs are added in order to be able to support the running business. The costs are assumed to be project costs and can be depreciated. - The implementation costs includes € 50k for audit fees in order to align the ERP solution with the regulations.
One-off Investment costs	Change Management costs	- Training costs, engage and prepare business for change. - The forecast of change management costs is based on requirements of Schiphol defined during phase 1 of DFP and PwC expertise.
One-off Investment costs	Integration costs	- The integration costs consists of costs which are made in order to integrate the ERP Cloud solution in the IT landscape of Schiphol Group (e.g. the different interfaces needed for existing systems). - Integration costs are based on Schiphol and PwC expertise. - The assumption is made that moving from the installed base will led towards higher integration costs due to more interim interfaces.
One-off Investment costs	Contingency costs	- Contingency costs are included to correct for uncertainties in the one-off investments costs. - A percentage of 10% on top of the total implementation, change management, and integration costs is taken to calculate the contingency costs. - The percentage to calculate the contingency costs is based on PwC expertise.

Next steps

- Present Business Case and go/no go decision phase 2 DFP in Management Board (DT) of 3 April
- Further investigation and validation of saving potentials from scenario analysis
- Refine Business Case after vendor selection from tender process