

Lock-in management in technology solutions: each choice a resignation

Gerenciamento de lock-in em soluções de tecnologia: cada escolha uma renúncia

Fabio Wilson Barreto de Queiroz^a , Kadígia Faccin^b , Rosemary Francisco^a 

^a Universidade do Vale do Rio dos Sinos - Brazil

^b Fundação Dom Cabral - Brazil

Keywords

Technology.
Supplier.
Multi-criteria.
Lock-in.

Palavras-chave

Tecnologia.
Fornecedor.
Multicritério.
Lock-in.

Article information

Received: May 15th, 2022
Approved: August 31st, 2023
Published: October 26th, 2023
Responsible publisher: Dra. Elisabeth de
Oliveira Vendramin

Abstract

This text describes a teaching case of technology management, to be used as learning material in graduate courses in Administration and related areas, and prepared according to the appropriate methodology for teaching cases. The main characters are João, technology manager at Tradição Ltda., an accounting firm, and Afonso, representative of a firm that provides a technology solution used by the firm. The case addresses a difficult moment in the relationship between customer and technology supplier, when the customer depends on that technology, and the costs increase: to decide whether to keep the solution or replace it with another. The text approaches the reaction of a traditional company to remain competitive, in the face of new technologies, as well as the decision and implementation of a first stage of a changing plan. The data presented aim to clarify both the cost scenario and the qualitative aspects of the technology market. We emphasize that the established scenario needs a multi-criteria analysis for decision making.

Resumo

Este texto descreve um caso de ensino de gestão de tecnologia, para ser utilizado como material didático em cursos de pós-graduação em administração e áreas afins. A elaboração do texto seguiu metodologia apropriada para casos de ensino. Os personagens centrais do caso são João, gerente de tecnologia da Tradição Ltda., um escritório de contabilidade, e Afonso, representante de uma empresa que fornece a solução de tecnologia utilizada pela Tradição Ltda. O caso aborda um momento difícil na relação entre cliente e fornecedor de tecnologia, quando o cliente se torna dependente de uma tecnologia e os custos começam a aumentar: decidir se mantém a solução ou se a substitui por outra. O texto aborda a reação de uma empresa tradicional para se manter competitiva frente às novas tecnologias, assim como a decisão e implantação de uma primeira etapa de um plano de transformação. Os dados apresentados visam esclarecer tanto o cenário relacionado aos custos quanto os aspectos qualitativos do mercado de tecnologia. Ressalta-se que o cenário estabelecido necessita de uma análise multicritério para a tomada de decisão.

Practical implications

This teaching case discusses firms' technological dependence. The lock-in situation may cause a strong impact on the financial result; therefore, managers should be prepared to create mechanisms for daily operations and for the occasional replacement of the existing solution.

1 INTRODUCTION

Tradição Ltda. is a fictitious accounting services company that has a history of quality in the market. It was founded in 1990 by a group of accountants with a large experience in multinationals, who structured its processes based on the best practices at the time.

Over the last five years, the company began to lose clients due to competition from new accounting firms with a high level of automation and digitalization, which provided more quality at a lower cost. Trying to survive, the executive committee decided to start a changing process, focused on efficiency and increasing customer satisfaction.

At that time, João had just been hired by Tradição Ltda. as technology manager, to set up a helpdesk, or IT support area. He had an undergraduate degree in Computer Science from a top university, and an MBA in technology management. Despite his good education, he had experience only in operational positions, but he wanted to progress in his career.

In 2014, after a detailed analysis of opportunities for improvement, Tradição Ltda. established its transformation plan, where the first step would be to digitalize and automate customer services. To do that, it needed to replace the existing solutions of customer service channels, since the high level of obsolescence would prevent process evolution. When defining the requirements for the new solution, several demands were made, but the main one was to enable omnichannel services¹. According to recent studies, omnichannel had greater potential for improving customer satisfaction and reducing costs. After examining different solutions, by considering market leadership, degree of innovation, and price, the firm decided to purchase the product from the fictitious company Zennix.

Zennix's omnichannel customer service solution took a year to be implemented. In the first months, Tradição Ltda. managed to reverse its quality indicators and reduce its operating costs. As a result, it succeeded in attracting more customers and differentiating itself.

However, after a year of operation, Zennix began to raise prices, because it knew that Tradição Ltda. would have difficulty in renouncing the contract, the well-known lock-in situation². Given prices' upward trend, Tradição Ltda. had to decide whether to continue with the Zennix solution or switch to another solution. Since the decision involved different criteria, Tradição Ltda. would have to rely on multi-criteria decision support methods.

2 THE ACCOUNTING MARKET AND TECHNOLOGY

The accounting market has always depended on specialized workforce, where initially all calculations were done manually. However, with the rise of information technology, accounting had undergone some waves of change.

The first change took place around 1980, when calculations were still done manually, but the results were inserted into a platform to consolidate balance sheets and results. The second wave came with the possibility of digitalizing billing data and invoices, which eliminated all manual calculations. Finally, the most recent wave occurred around 2010, when billing data and invoices began to be transmitted through electronic files and Application Programming Interfaces (API)³.

In general, the companies that benefited from each wave were those that had been created using the available technology, since existing companies were slow to notice market movements and adapt to them. The evolution of the technological level benefited other market segments, such as sales and customer service solutions, which increased technological differences in all areas of the companies.

3 THE HISTORY OF TRADIÇÃO LTDA.

Tradição Ltda. was created from the learnings of three former multinational executives, who had experienced the first wave of accounting transformation. Carlos, Alberto, and Henrique graduated together in 1980 from the best Accounting college in São Paulo. At each annual meeting of their class, they always discussed the financial potential they saw in expanding to small and medium-sized companies the gains that technology had brought to large Brazilian companies' accounting.

¹ Means the integration between different channels of the same company, of sales or customer service. They work together and are easily accessed by the client.

² Situation where the cost of switching from one product supplier to another is too high.

³ A set of routines and standards that facilitate communication and information exchange between systems.

In 1990, they opened a firm, while keeping their jobs in multinational companies. Tradição Ltda. grew fast. By 1995, it already had a portfolio of 100 customers that generated much more profit than their formal jobs. The three partners decided to resign in order to dedicate themselves entirely to Tradição Ltda. The recipe for success laid in three pillars: technology tools, efficient processes, and excellence in service.

The heavy routine of balance sheets forced the partners to dedicate themselves exhaustively, in order to comply with the values that distinguished them from the competition. The only time they stopped their operational routine was during the monthly results meeting, when they spent four hours evaluating the results of Tradição Ltda.

In October 2013, they reached the goal of 300 customers, and projected 400 for 2014. However, as of January 2014, the monthly meeting showed negative results related to the loss of clients. For each month with negative results, they set even more audacious goals to try reversing the trend. In June 2014, they decided to carry out a survey with the clients that had left in the last six months, and found out a group of accounting firms with a strong technological base, charging much lower prices than Tradição Ltda.

Initially, they thought it was a process of price dumping⁴. As they weren't technology experts, they couldn't foresee other manual activities that could be eliminated by technological solutions. As a test, they asked Alberto's brother, who was a dentist, to hire the services of one of these "new" firms. Within the first month of the experiment, it became clear that everything was integrated, and there was hardly a sheet of paper in the whole process.

With the test results, they did some calculations, and it looked possible to practice the price level of these "new" accounting firms. Hence, they decided to start a detailed review of all opportunities to reduce costs and improve customer satisfaction.

4 CHANGES ANNOUNCED

In January 2014, technology manager João had just been hired by Tradição Ltda. to set up a helpdesk, or IT support area. At the time, the company still followed the same standards that were established three decades ago, even for technology management.

At the beginning of Tradição Ltda., there were few computers, and when they broke down they were sent to technical assistance. Over time, all employees started using computers, and this model was no longer feasible.

Considering that his work was in support, João got to know all internal areas and quickly learned their main difficulties. He realized that there were significant results, and he could be promoted in no time. To stay up to date, he actively participated in innovation hubs and kept regular contact with suppliers of different solutions.

Throughout 2014, the executives carried out a diagnosis of opportunities to improve efficiency, with the support of a consulting firm. João was invited to take part in this task and saw it as an opportunity to show his potential and develop his career within Tradição Ltda.

During the diagnosis, it became clear that almost all systems were obsolete, which caused quality problems and barriers to process evolution, and one of the largest costs referred to customer service. Therefore, before any process change, the executive committee decided to create an initiative for technological updating, where the first step would address customer service. The consulting firm suggested that Tradição Ltda. should acquire a platform to enable omnicanality.

At that moment, João remembered the different platforms he had known from innovation hubs and platform providers. He proposed to the executives of Tradição Ltda. taking the lead of the project on omnichannel service solution. As the suggestion was quickly accepted, he sought to mobilize all resources to complete a comparative analysis of both domestic and foreign omnichannel service solutions in a short time, and to detail the investment and implementation plan.

João relied on the solution analysis matrix from the fictitious consultancy Quanyk and on the total cost of implementation. After this analysis, he recommended the use of Zennix's solution and decided to create an internal team of developers dedicated to supporting and improving the solution.

⁴ Selling products below the cost of production to eliminate competition and win the market.

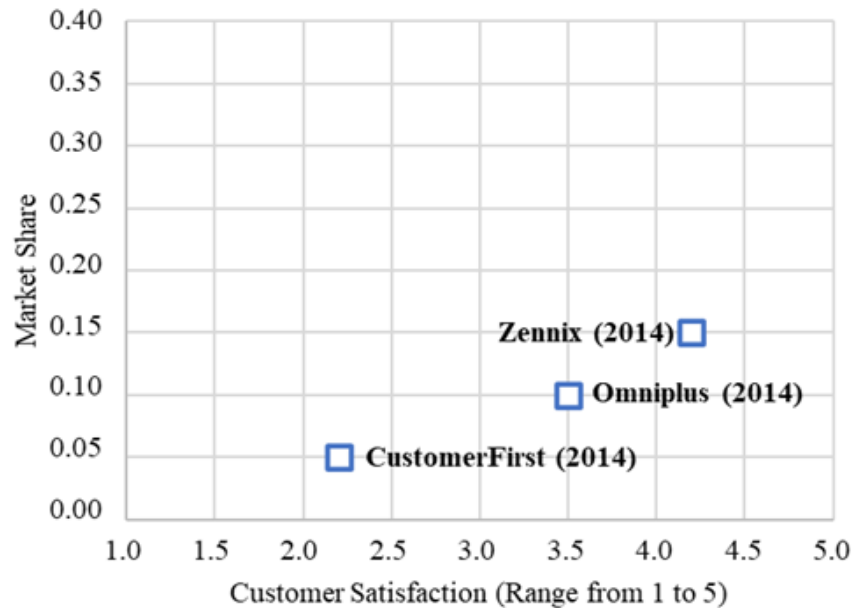


Figure 1. Market Share versus Customer Satisfaction Matrix

Source: Quanyk Consulting (2014).

Zennix was a start-up from Eastern Europe, founded in 2011, which had arrived on the Brazilian market with excellent cases of success. Its differential was the price, the high level of reliability and functionalities, including integrations, and its community of developers. The pricing model was based on the number of licenses adopted per user in the operation.

Confident in his idea, João presented it to the company's executive committee and got approval to go ahead with the project. The implementation kick-off⁵ occurred in December 2014, with an estimated cost of R\$ 500 thousand. After many challenges, the Zennix product was introduced at Tradição Ltda, and completed in April 2015, with one-week delay and within the planned budget. In 2016, one year after the Go-Live, Tradição Ltda. began to see positive impacts.

However, in January 2017, there was a turnaround at Zennix. Despite excellent customer satisfaction ratings, Zennix headquarters decided to replace the whole commercial team due to unsatisfactory sale results. Under pressure for immediate outputs, the new sales team approached customers to inform about changes in licensing rules, in order to increase revenues based on the number of licenses.

During that period, João was on vacation celebrating 2016 results. He took his whole family to a hotel in northeastern Brazil for 15 days. On the first day of his stay, he said to his family: "We're a great team and we're giving ourselves a present after all the effort over the last few years". In fact, the implementation of Zennix hadn't been easy, and João had to stay several days after hours to ensure project's success.

The next day was a sunny Tuesday when, at 8 a.m., João received a WhatsApp message: "Good morning! This is Afonso from Zennix. I hope you're well! Sorry to disturb your vacations... Do you have a few minutes to talk?" He found the message strange, because he had never spoken to Afonso, Zennix's new commercial manager. João left the room, so as not to wake anyone, and called him. After a few explanations, the result of the conversation was that Tradição Ltda. Would have to buy some licenses for service supervisors.

Hanging up the phone, João tried to remember the whole negotiation with Zennix. In his memory, at the beginning of implementation, Zennix had offered free licenses to supervisors, because they didn't work directly in the operation. Then, he called the purchasing department of Tradição Ltda. to ask for help in understanding the clauses. Tuesday evening, after analyzing the draft, the purchasing manager called João to explain that the contract signed with Zennix in 2014 used a standard contract, in English, which in fact left some "gaps". They accepted it because Zennix didn't have a legal office in Brazil yet.

On his return from vacation, João assessed the situation and concluded that, due to the changes in licensing rules, there would be a 10% increase in the total amount paid. However, it would still be interesting to keep the Zennix solution, because the cost of implementing a new solution would be much higher.

⁵ Meeting at the initial stage of a project, to align all details with the stakeholders involved.

In January 2018, after another year of excellent results, João received a message from Afonso, Zennix's commercial manager: "Happy New Year! I'd like to schedule a meeting for 2018 plans". This message reminded him of the 2017 vacations, when he received a similar message. Due to the balance sheet period, João asked for the meeting to take place in February 2018. However, he received a WhatsApp with a direct message: "We will have a new review of the pricing policy". At this point, João understood that this could mean a new increase in costs, just like in 2017, and replied: "When can we talk this week?".

What initially seemed to be just a planning conversation, could change the whole strategy that João had been practicing. After 10 minutes of meeting, Afonso concluded his presentation of the new Zennix catalog, where some products would be discontinued, and there would be a new version that would bring much more features, but with an additional cost of 25% per user. João searched a way to avoid affecting the 2018 budget, which had just been approved. However, Afonso explained that these were guidelines from headquarters. In practice, Afonso knew that it would be difficult for Tradição Ltda. to terminate the contract, given the implementation effort and the excellent results it had achieved so far.

João knew that it would be very difficult to approve the additional budget, especially without any benefit for Tradição Ltda. Hence, on the same day, he approached a market consultant and found out that this new product policy was being applied to all Zennix's Brazilian clients. The consultant suggested two other solutions, from the Quanyk company headquarters, shown in Figure 2, with a lower cost and the same functionalities: OmniPlus and CustomerFirst.

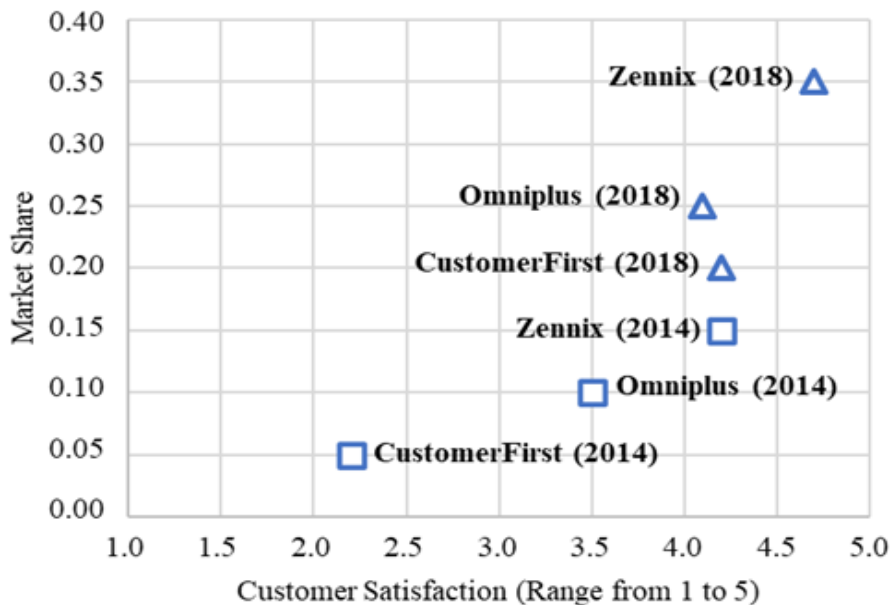


Figure 2. Market Share versus Customer Satisfaction Matrix

Source: Quanyk Consulting (2014 e 2018).

João asked for an emergency meeting with the purchasing team, to get a budget and know about companies that had successfully implemented the two recommended solutions. This was a relevant criterion for Tradição Ltda. to reduce the risk of adopting new technologies.

After a fortnight's wait, João received the commercial proposals for the two solutions and the benchmarking guidelines. He gathered his team of developers to explain the context and involve them in the evaluation process. To his surprise, the team was very resistant to changing solutions, and even to testing another solution. Since the programming interfaces were completely different, they would need to invest at least one year to learn them.

After the meeting, João recalled that it had been very difficult to hire the team of developers. Not everyone wanted to have a career in a small company like Tradição Ltda. In addition, initial market salaries were higher than what Tradição Ltda. was willing to pay. João had to convince the human resources team of the importance of this solution in order to make the benefits package more flexible and attract some new talents.

The upward trend in Zennix prices put at risk the project's financial feasibility, as the cost of the solution

was high compared to the initial gains. João had to decide the next steps regarding the use of the Zennix solution.

5 THE CASE DILEMMA

After three years of contract with Zennix, João realized that the dependency had created an imbalance in the relationship, and all the gains achieved so far could be compromised.

Still a little dizzy, João called Alex, the director of information technology, to explain the situation. Alex asked him to prepare a quick summary of the history and learnings of the Zennix solution, in order to take it to the weekly board meeting, to be held in two days. When he hung up, João could only think that, depending on the decision, he would have to make the transition to a new solution.

He rushed to get as much information as possible from the consulting firm, the internal team of developers, Zennix, and other Zennix clients. He summarized the following issues to present to the executive committee of Tradição Ltda:

- Tradição Ltda. had been using the Zennix product for three years, and had created an internal team of 2 developers dedicated to the solution. At the beginning, given market demand, HR had great difficulty in hiring developers.
- In addition to the Omniplus solution, in the last four years CustomerFirst had substantially evolved regarding customer satisfaction, which made them interesting due to the lower costs than Zennix.
- Throughout this period, the team of developers received information from the communities of practice; despite the similarity of omnichannel solutions, there was a learning curve to migrate from one solution to another. Many developers preferred to change jobs if they had to learn a new solution.
- In 2018, they already had more than 30 customers' journeys automated through Zennix, which generated around R\$ 500 thousand in savings annually.
- To increase the omnichannel application at Tradição Ltda., the initial low cost of Zennix's licenses was a relevant leverage. Therefore, the rising cost of licenses could become a barrier and force undesirable changes, such as limiting automation only to journeys with high customer demand.

In addition, he prepared a simulation of license costs from 2016, when the first price quotations were made, until 2021, comparing the Zennix solution with those of Omniplus and CustomerFirst. The results are presented in Figure 3, and show a strong increase in Zennix's costs. For the simulation, the consultant recommended using the amount of R\$ 300,000 for the implementation cost, due to the learnings they had from Zennix.

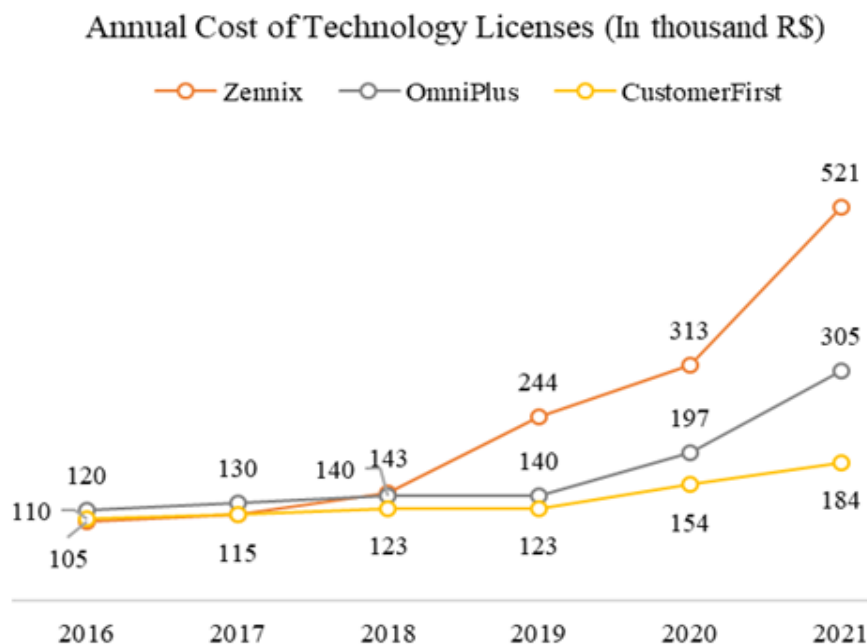


Figure 3. Evolution of Licensing Costs

Source: Elaborated by the authors.

After the meeting with the executive committee, João received the mission of analyzing in depth all the aspects that could involve replacing Zennix's solution, and return with a recommendation within 30 days.

Since he already had a financial analysis, a qualitative survey was lacking to support the decision. To do that, João prepared two rounds. In the first round, he benchmarked customer companies of OmniPlus and CustomerFirst with a multi-functional team, including their developers and the human resources team. The purpose of this benchmarking was to generate knowledge for the second round, when qualitative comparison parameters would be created and classified by focus groups.

In the second round, he included external consultants, in addition to benchmarking participants. After several meetings, he identified that the availability of developers and the number of functionalities were the criteria that made a significant difference when comparing the solutions. The result is shown in Table 1.

Table 1. Qualitative criteria results by solution

Criteria	Zennix	Omniplus	CustomerFirst
Availability of manpower	High	Average	Low
Number of functionalities	High	Average	Low

Source: Focus Groups.

Now, João needed to finish his proposal for the Zennix solution to return to the board. He needed to weigh up the four differentiating criteria between the solutions - Total Cost, Customer Satisfaction, Manpower Availability, and Number of Functionalities.

João sought Alex, the technology director, to present the results achieved with the selected groups, and discuss the next steps. Alex had a large experience in implementing systems, so he knew that often the decision should also be based on risks. So, they drew up an analysis strategy focused on two steps:

- Step 1: Analysis of financial result by scenario;
- Step 2: Analysis of Solutions.

In step 1, João had to decide whether to keep the existing solution or switch to another. To do that, he thought about doing a financial balance between gains obtained and licensing costs, between 2019 and 2022, considering the three solutions: Zennix, Omniplus, and CustomerFirst. In addition to the elements mentioned above, João had to assume including the cost of implementation in the scenarios involving Omniplus and CustomerFirst.

If the result of step 1 was to change the omnichannel solution, João would proceed to step 2. Considering the different quantitative and qualitative aspects, choosing the solution would not be a simple decision. Hence, João remembered his MBA lessons on Multicriteria Methods for Decision Support, and planned to use the Analytical Hierarchical Process (AHP).

6 QUESTIONS FOR DISCUSSION

Axis 1: Using the solution indicated after AHP method

- In the purely financial solution, the firm should replace Zennix with either OmniPlus or CustomerFirst. When we added qualitative criteria, the proposed solution changed to keeping Zennix. Does the group agree with this solution?
- Applying AHP method simplified or added complexity to the process?

Axis 2: Criteria used for the analysis

- Could there be other more relevant criteria based on the presented data?
- If the cost of developers' wages is equivalent to that of licensing, is this the most relevant problem for the organization?

Axis 3: Steps after decision-making

- Considering that the topic is alive within the company, how Tradição Ltda. could organize itself in

the short and medium terms to ensure the expected result?

The teaching notes will be made available to professors who send an email to the *Revista de Contabilidade e Organizações* requesting the full content.

How to cite this paper

Queiroz, F. W. B., Faccin, K., & Francisco, R. (2023). Lock-in management in technology solutions: each choice a resignation. *Revista de Contabilidade e Organizações*, 17:e197809. DOI: <http://dx.doi.org/10.11606/issn.1982-6486.rco.2023.197809>