The training on business process reengineering and its application in the service sector

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Abstract: *The paper presents an approach for optimizing the teaching of Business Process Reengineering (BPR). It describes the authors' experience on how some features of electronic collaboration platforms can be applied for this purpose. BPR is typically regarded as a useful tool for industrial companies. The students are given an example of how, with appropriate modifications, its capabilities can be tested in the services sector. A specific case of business process reengineering in an IT services company is provided, as the students studying the course come from IT specialties. Students are assigned tasks to develop individual and group BPR projects in the services sector, applying this less familiar and less commonly used method. They need to use electronic platforms of their choice to structure the content and present the results to their peers.*

Keywords: Business Process Reengineering, Reengineering, IT Services, Virtual Platform, Virtual Platform for Collaboration.

1. Introduction

Business process reengineering (BPR) is defined as the radical redesign of an organization's business processes to achieve dramatic improvements in productivity, cycle times, quality, and employee and/or customer satisfaction. Business processes occur at all organizational levels and may or may not be visible to customers (Weske, 2012).

The reengineering process is typically considered suitable for industrial companies, or at least they are the easiest to present and adapt. However, based on the definition of the process itself, it becomes clear that reengineering is feasible and suitable for all types of companies.

According to the Oxford Dictionary (https://dictionary.cambridge.org), a process is defined as a series of actions or steps taken to achieve a particular goal. Every process should have a clearly defined beginning and end. This implies that every action we perform daily, even in our personal lives, can be specified and described as a process.

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The topic of process definition and improvement has been a subject of study for a long time. It began as early as the 17th century when Adam Smith provided a description in his famous example of the pin factory (Smith, 1827).

American Frederick Taylor had a strong influence on the quality of industrial processes at the beginning of the 20th century. His principles focused on process standardization, systematic training, and a clear definition of the roles of management and employees (von Scheel et al., 2014).

At the end of the 20th century, Peter Drucker focused much of his work on simplifying and decentralizing processes. He also introduced the concept of the "knowledge worker," forecasting that they would become the primary assets of business entities in the 21st century and that knowledge management would become part of enterprise processes (Drucker, 2007), (Drucker, 2017).

In 1993, Davenport (Kirchmer, 2017), (Davenport, 1993) defined the term "business process," while Hammer and Champy (Hammer & Champy, 1993) further refined the definition as:

A collection of activities that take one or more types of input and create an output that is valuable for the customer.

With the students, it is discussed that this definition is the most appropriate for our considerations, given that the method will be applied in the service sector. It is also noted that Hammer and Champy have a transformation-oriented perception and place less emphasis on the structural component — the boundaries of processes and the order of activities in time and space.

The suggestion of Rummler and Brache (Rummler & Brache, 1995) is emphasized, where they clearly encompass the organization’s focus on external customers by stating: “A business process is a series of steps designed to produce a product or service. Most processes are cross-functional, spanning the 'white space' between the fields in the organizational chart. Some processes lead to a product or service received by an external customer of the organization. These processes are called primary processes. Other processes produce products that are invisible to the external customer but are essential for effective business management. These are called support processes.”

Based on all definitions, we present the following characteristics of a business process:

1. *Definition*: There should be clearly defined boundaries, input and output.

2. *Order*: It must consist of activities that are arranged according to their position in time and space (sequence).

3. *Customer*: There must be a recipient of the result of the process, a customer.

4. *Added value*: The transformation that takes place within the process must add value to the recipient, either upstream or downstream.

5. *Embedding*: A process cannot exist on its own, it must be embedded in an organizational structure.

6. *Trans-functionality*: The process that regularly can, but does not necessarily have to encompass, several functions.

2. An example of applying BPR in an IT services company

The students are presented with arguments that when analyzing business processes, it is crucial to consider that Business Process Management (BPM) aims to maintain organizational goals within and across multiple boundaries, involving many stakeholders — from employees to customers and external partners (Swenson & von Rosing, 2015). BPM also includes continuous evaluation of existing processes and identifying ways to improve them, which leads to overall organizational improvement.

On the other hand, Business Process Reengineering (BPR) (ibm.com) was initially conceptualized by Hammer and Davenport as a means to enhance organizational efficiency and productivity. It may involve starting from a "blank sheet" and completely recreating the core business processes, or it may include comparing the "as-is" and "to-be" processes and mapping out a path for transitioning from one to the other (Chartered Institute of Management Accountants, 2008).

Examples are provided to show that the use of IT in BPR can lead to significant productivity improvements (Kock, 1999), (ibm.com 1), (indeed.com), (b2binternational.com).

Our experience with using electronic platforms (e-learning systems) demonstrated that students grasp concepts more quickly and can more effectively propose suitable BPR methods for specific cases using real-world business examples. They also reach the final outcome faster and are able to present it to their peers more effectively than when working in a traditional classroom setting. This is further facilitated by their freedom to choose the platforms they want to use.

After summarizing the theoretical foundations, students are presented with a concrete example of BPR in a real IT services company. The name of the company is not mentioned, as its owners have deemed it sensitive corporate information.

When exploring BPR-related activities, emphasis is placed on the potential of various approaches and different combinations of some of the most commonly used methods, such as:

- Root Cause Analysis;
- Interviews;
- Monitoring;
- Prototyping;

- SWOT Analysis;
- Decision-Making Analysis, and more.

The goal of these activities is to start analyzing the root of the issues affecting the process or the business itself. By collecting and analyzing information through the aforementioned methods, we will inevitably identify the cause of the non-functioning process, and the next logical step would be to consider the best possible solution for addressing it. According to the authors' experience, all these approaches can be effective. Students are encouraged to try all or several of these methods as part of their independent work.

Students are also introduced to the potential of another method that is not as widely recognized or used. The main idea of BPR in this context is to "start everything anew from the customer's perspective" (strategyzer.com). Otherwise, no matter how much the company thinks, analyzes, and reconsiders, it will always do so from its own perspective, focusing solely on making the process as simple and cost-effective as possible.

The proposed approach involves a complete rethinking of the customer value proposition and a transformation of the organization's business model. Two tools are used for this purpose: the **Value Proposition Canvas** (strategyzer.com 1) and the **Business Model Canvas** (strategyzer.com 2), (strategyzer.com). Students are encouraged to familiarize themselves thoroughly with these resources.

To provide greater clarity when presenting the approach to students from the Faculty of Economics at Thracian University, Stara Zagora, as previously mentioned, we share our experience with a specific IT services company. To deepen the understanding of processes, we also present some specific data about the company.

2.1 Presentation of the specific case. Company background

The company we are considering is an IT services company founded a few years ago, serving Bulgarian clients in Southern Bulgaria. Initially, the company started as a family business, which later began to expand. In the beginning, the company had only one employee, but gradually grew to 10 employees. At some point, the company's clients began to withdraw, and the company started to scale down its operations, decreasing its revenue and profit.

The company's initial main activity was related to software development. Later, due to market requirements and changes in the profile of the staff's expertise, it gradually transitioned to services related to the implementation of information systems.

When we began analyzing, it became clear that the main advantage of the company was the fact that throughout its years of existence and customer service, the main focus had always been on providing special attention and

personalized care to all its loyal customers. Later, however, this advantage transformed into the company's main problem: the need for excessive financial resources spent on customer service, including travel, phone calls, working hours, etc., combined with the need to manage too many and too diverse customers. Seeing a significant decline in profits over a very short period, the management began desperately searching for suitable measures to stabilize the company, overcome the difficulties, and increase its efficiency and profitability.

We present our experience of conducting numerous studies, conversations, consultations, and discussions. We also show how the decision for business process reengineering was made to manage the company's rapid and uncontrolled growth and costs, and later to transition towards market and financial prosperity.

We demonstrate how, based on the authors' experience and knowledge, it was proposed to revise the value proposition for customers, as the problem initially arose in this area. The method used is well-known and widely used among marketing professionals and those focused on customer service/retention, but it is still not popular when it comes to IT companies and/or business process reengineering.

We present some tools and the possibilities for their use. How the Value Proposition Canvas can be filled out in different ways. What the authors propose is to start from the customer, as they are the main reason for the company's existence.

2.2 The following steps are recommended

Step 1 - "Customer jobs", i.e., what the customer needs/wants to accomplish. In our case, this includes all specialized software programs or applications necessary for customers' daily work.

On the other side are **the products and services** offered by the company, which in our case involve software installation and ongoing support.

Step 2 - "The Customer Pains", i.e., what the customer fears, what might be difficult for them to handle on their own, what could lead to stress, or what might hinder their normal work. In the given example, several factors are identified:

- "Lack of the necessary software/application";
- "The installed software is not functioning properly";
- "The installed software does not work at all";
- "The software is not what was expected";
- "The Customer does not know how to use it".
- On the other side are the so called "pain relievers":
- "The Company will provide the exact necessary solution";

- "The Company will ensure that the software is installed and functioning correctly before leaving the Customer their own";
- "Before purchasing or installing the software, the company will ensure it is the right solution for the customer and that no other option might work better";
- "After software installation, the company will train the customer's staff on how to use the software".

Step 3 – "Customer Gains", or what the customer will receive in addition to having their problems solved and pains alleviated. These will be covered by the "Gain Creators," which typically describe the added value and advantages that the company offers over its competitors.

Gain Creators:

- "Quick response and timely service";
- "Preliminary selection and advice on the required solution";
- "Research, purchase, installation, support, and service upgrade - all in one";
- "The company offers 24/7 support by phone and/or email".

The possibilities for in-depth analysis and brainstorming are discussed (kissflow.com), (geeksforgeeks.org), (asana.com). These tools assist in providing recommendations and making informed decisions by the management. The company's specific solutions and the new customer value proposition are presented:

"We offer you a timely 'all-in-one' service with 24/7 support".

An example of rethinking the business model is also provided using the Business Model Canvas. A new (revised) business model is proposed based on (strategyzer.com 2), (canvanizer.com), (creately.com).

2.3 The authors propose

It can be filled out in different ways, but what the authors propose and recommend as a strategy is the following (Figure 1):

1. **Place the new Value Proposition** in the center of the canvas.

2. **Define Your Customer Segments**

Consider the customer segments. One of the weaknesses mentioned earlier was the fact that the company has too many and too diverse clients. The main marketing principle states: "If you try to sell to everyone, you're not selling to anyone at all".

With this in mind, the students are presented with the recommendations given to the Company. It should focus on customers who:

- Pay the best;
- Are located in a specific area, close to the Company's headquarters;
- Can bring in new clients (add business);
- Can add more services (i.e., will be more profitable over a certain period);
- Will be loyal.

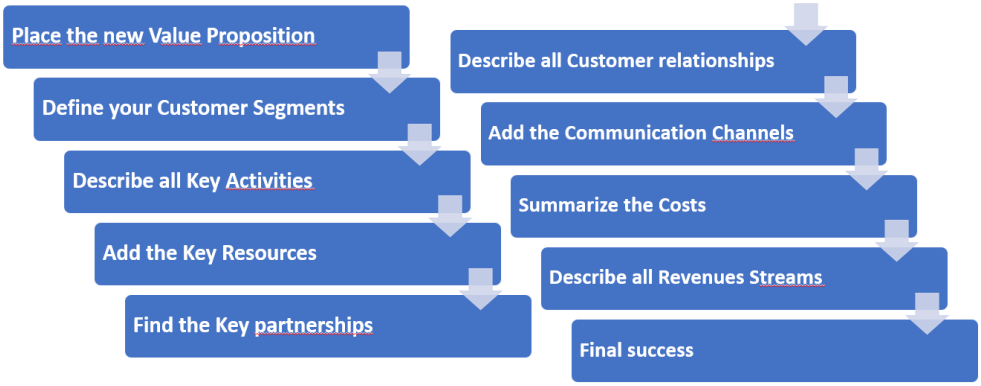


Figure 1. The authors propose

The best way to decide is to try to imagine the "ideal" client and work with so-called "personas," which can help the company place itself in its clients' shoes and thus think like them. If this is not possible or too difficult for the Company's management, they can choose what sounds "best" and try it out. In our example, the company decided to continue by focusing on the public sector, hoping that it would bring new business over time. Considering modern communication methods and upcoming changes, it was not necessary to narrow down the service area.

3. Describe All Key Activities – The key activities should gradually transition from "software installation and support" to an "all-in-one service" with 24/7 remote support. The change here will move in two directions—providing more value to the customer, addressing all issues from start to finish, and offering the much-needed support not "on-site," but rather using modern communication methods like phone, email, chat, or video conferencing. This way, the customer will still feel supported and cared for, but without the need for constant travel and associated costs. Some installations can also be performed remotely, thus saving travel expenses.

4. Add Key Resources – The key resources will remain the same—human resources. Slightly more resources may be needed to cover the "software purchase" part, but this can be managed through an advance payment or a small loan at the beginning, if necessary.

5. Identify Key Partnerships – Partnerships with software development companies, regional state institutions, and government organizations.

6. Describe All Customer Relationships – If the company's employees do not visit their clients as frequently, they should maintain contact in other ways: providing information about each step of the process; offering "Tips and Tricks" for the best use of new software; calling clients occasionally to check in.

7. Add Communication Channels – The company should begin using "modern" communication methods such as Viber, Zoom, and email marketing. The latter can be used to send a regular "Tips and Tricks Newsletter," which can also be automated, thereby saving human resources and time.

8. Summarize Costs – The main costs for the company are salaries and travel expenses. With the proposed changes, travel expenses will be drastically reduced, freeing up resources for the company to hire more staff or cover initial software purchase costs.

9. Describe All Revenue Streams – The main revenue streams will remain the same - clients. However, the addition of continuous support services will allow the company to start collecting payments for this new service.

The following key changes resulting from the reengineering process are discussed with the students.

- **Clearly Defined Customer Segments**: The company will now have a stronger focus and won't spread itself too thin.

- **New Communication Methods with Clients**: This leads to reduced travel costs and increased customer satisfaction.

- **Less Traveling**: This results in more free time for employees, leading to higher employee satisfaction.

- **Redefined Customer Value Proposition**: Closer alignment with customers, their needs, and perceptions of the service, which once again results in higher customer satisfaction.

- The Company Can Now **Rely on Loyal Customers**.

It is also discussed how the redefined business model has shifted the company's perception from being a primary software provider to a modern consulting organization that is always available for its clients.

Emphasis is placed on the fact that before even starting to think about BPR, management must keep in mind that it cannot be achieved with just a small change, an upgrade somewhere in the system, minor automation, etc. The essence of reengineering involves radical rethinking and redesign of processes, and it will only have the desired effect if done in exactly this way.

When considering BPR, companies can use various approaches and methods, most of which are analytical and can be mixed and used simultaneously.

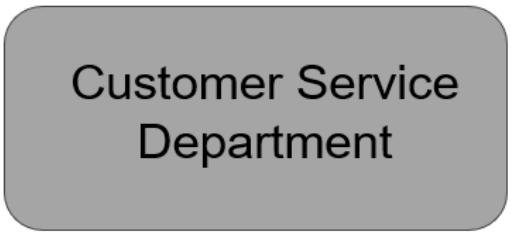
Special attention is given to the fact that the approach presented is different, taken from the field of marketing and business analysis, and successfully applied to an IT services company. Thanks to this, the company is still operating in the market and continues to grow.

3. Results and discussions

Another significant benefit was achieved through the optimization of the student training process at the Faculty of Economics, Thracian University, Stara Zagora. The approach and related materials are provided to students through the university's electronic learning system. Students are encouraged to present their own views and solutions to the case study. They can use both the university's e-learning environment as well as other electronic platforms selected by the students themselves.

The use of an electronic platform for collaborative activities is recommended for students when working on individual or group projects in the BPR discipline. In this way, both the instructor and fellow students can also participate in the discussion of the task, its solutions, and the preparation of projects on the topic of Business Process Reengineering.

As an example, excerpts from the work of our students can be provided, where both the discussed approach and electronic platforms selected by the students themselves were used (Figure 2, Figure 3). For instance, Microsoft 365 (https://microsoft.com), Canva (https://canva.com), Prezi (https://prezi.com), Google (https://google.com), Edu.uni-sz (https://edu.uni-sz.bg).



The Customer Service department processes the order or request and prepares the data received from the customer. It often happens that the customer has not submitted complete information in the request, which is necessary to proceed to the next step in the process map. In this case, the Customer Service department contacts the customer and requests additional information so that the data for the order can be filled in. Once the department has complete data for the inquiry or for the order, it sends the data using an electronic system to the Supply Chain department and, in parallel, to the Quality department, requesting detailed information about the possibility of fulfilling the order.

Figure 2. Description of the “Customer Service”

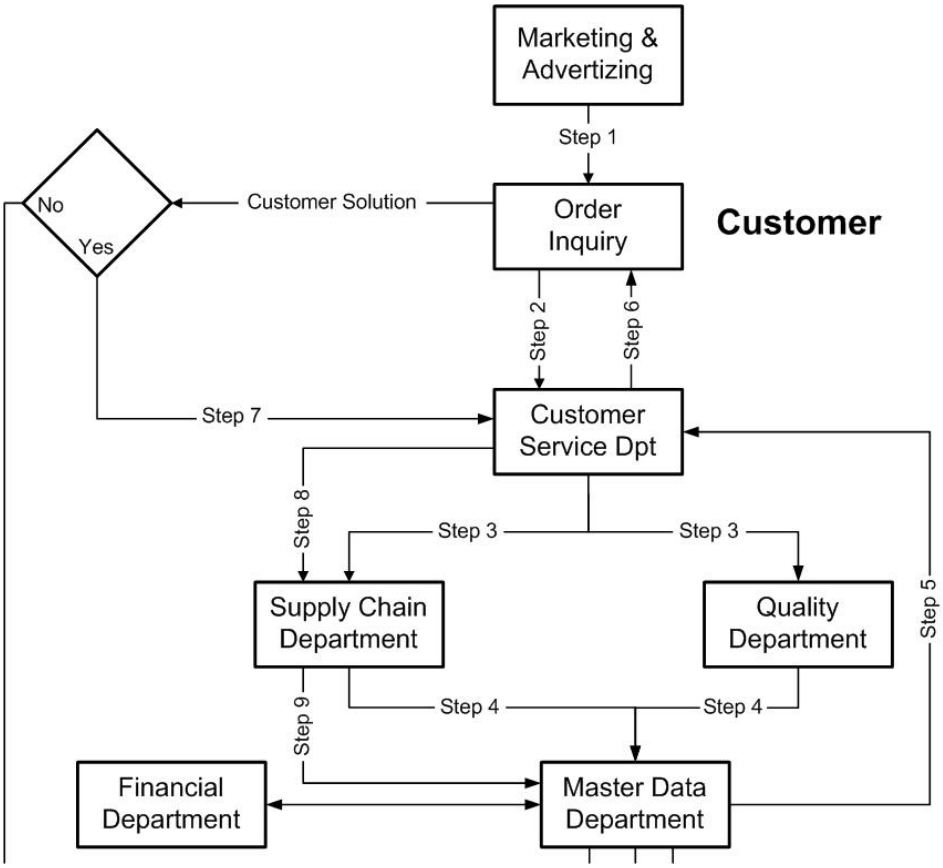


Figure 3. Order Process Flowchart

At the same time, there has been an optimization of the time and activities of both students and the instructor, as well as timely tracking of assignment progress. Better conditions have been created for successfully passing the exam and improving the final results in the course.

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REFERENCES

Asana.com (2025) *How to start fresh with business process reengineering* - https://asana.com/resources/business-process-reengineering-bpr [Accessed 06th January 2025].

b2binternational.com (2025) *What is the Value Proposition Canvas?* - https://www.b2binternational.com/research/methods/faq/what-is-the-value-proposition-canvas/ [Accessed 06th January 2025].

canvanizer.com (2025) *Create a new Business Model Canvas* - https://canvanizer.com/new/business-model-canvas [Accessed 06th January 2025].

Chartered Institute of Management Accountants, Topic Gateway No. 48 (2008) *Change Management*, page 6, published 2008 - https://kh.aquaenergyexpo.com/wp-content/uploads/2022/10/Introduction-to-Change-Management.pdf [Accessed 06th January 2025).

creately.com (2025) *Business Model Canvas: Explained with Examples* - https://creately.com/guides/business-model-canvas-explained/ [Accessed 06th January 2025].

Davenport, T. (1993) *Process Innovation: Reengineering work through information technology*. Harvard Business School Press, Boston.

Drucker, P.F. (2007) *Management Challenges for the 21st Century*. Routledge. p. 208. ISBN 9781136386312.

Drucker, P.F. (2017) *The Age of Discontinuity: Guidelines for Our Changing Society*. Routledge. p. 420. ISBN 9781560006183.

Geeksforgeeks.org (2025) *Principles of BPR* - https://www.geeksforgeeks.org/introduction-to-business-process-re-engineering/ [Accessed 06th January 2025].

Hammer, M. & Champy, J. (1993) *Reengineering the Corporation: A Manifesto for Business Revolution.* Harper Business.

Ibm.com (2025) *What is business process reengineering (BPR)?* - https://www.ibm.com/topics/business-process-reengineering [Accessed 06th January 2025].

Ibm.com 1 (2025) *Business process reengineering (BPR) examples* - https://www.ibm.com/blog/business-process-reengineering-examples/ [Accessed: 06th January 2025].

Indeed.com (2025) *7 Examples of Business Process Reengineering (With Tips)* - https://www.indeed.com/career-advice/career-development/examples-of-business-process-reengineering [Accessed 06th January 2025].

Kirchmer, M. (2017) *High Performance Through Business Process Management:*

Strategy Execution in a Digital World. Chapter 1: Business Process Management: What Is It and Why Do You Need It? Springer. pp. 1–28. ISBN 9783319512594.

Kissflow.com (2025) *5 steps to BPR* - https://kissflow.com/workflow/bpm/business-process-reengineering-bpr/ [Accessed 03th January 2025].

Kock, N. F. (1999) *Chapter 2: What Is a Process?* Process Improvement and Organizational Learning: The Role of Collaboration Technologies. Idea Group Publishing. pp. 17–28. ISBN 9781878289582.

Rummler & Brache (1995) *Improving Performance: How to manage the white space on the organizational chart*. Jossey-Bass, San Francisco.

Scheel, H.; Rosing, M.; Fonseca, M. et al. (2014) *Phase 1: Process Concept Evolution*. In von Rosing, M.; Scheer, A.-W.; von Scheel, H. (eds.). The Complete Business Process Handbook: Body of Knowledge from Process Modeling to BPM. Vol. 1. Morgan Kaufmann. pp. 1–10. ISBN 9780128004722.

Smith, A. (1827) Book I. Of the Causes of Improvement in the Productive Powers of Labour, and of the Order According to Which Its Produce Is Naturally Distributed among the Different Ranks of the People. An Inquiry into the Nature and Causes of the Wealth of Nations. University Press; Thomas Nelson and Peter Brown.

strategyzer.com (2025) Master the practice of innovation - https://www.strategyzer.com/ [Accessed 01st July 2024].

Strategyzer.com 1 (2025) The Value Proposition Canvas - https://www.strategyzer.com/library/the-value-proposition-canvas [Accessed 03th January 2025].

Strategyzer.com 2 (2025) The Business Model Canvas - https://www.strategyzer.com/library/the-business-model-canvas [Accessed 03rd January 2025].

Swenson, K.D. & von Rosing, M. (2015) Phase 4: What Is Business Process Management. In von Rosing, M.; Scheer, A.-W.; von Scheel, H. (eds.). *The Complete Business Process Handbook: Body of Knowledge from Process Modeling to BPM*. Vol. 1. Morgan Kaufmann. pp. 79–88. ISBN 9780127999593.

Weske, M. (2012) Chapter 1: Introduction. Business Process Management: Concepts, Languages, Architectures. *Springer Science & Business Media*. pp. 1–24. ISBN 9783642286162.