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Business process reengineering (BPR) using alternate histories

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Abstract. Reengineering involves abandoning previous procedures to develop a new way forward, bringing down old systems, inventing a way to improve, and breaking away from rules and traditions to create radical organization-wide changes. This work presents the use of alternate histories, particularly nightmare scenarios, in Business Process Reengineering (BPR). The main objective is to show the value of alternate histories in organizational interventions and consulting activities in which radical process redesigns are required, stimulating transformative thinking and prospective research. A novel framework for the introduction of alternate histories into BPR is proposed, sustained by a literature review. The proposed framework addresses how the worst possible pasts can be used to encourage employees to develop fundamental revisions and radical redesign of processes, providing change development teams with complete freedom to act.

Keywords: Business process reengineering; Redesign; Alternate history; Consulting; Change management.

1. Introduction

The rapidly changing business environment and the pressure to create dramatic improvements have resulted in an increase in the use of Business Process Reengineering (BPR). In the beginning, BPR became popular because the United States (US) was facing a severe crisis in which customers were taking charge, competition was intensifying, change had become constant, and solutions were needed [1].

BPR has attracted attention due to the COVID-19 pandemic. These same conditions that led to the emergence of BPR have escalated during the health crisis, which has led to a renewed interest in these types of practices to implement radical change. In fact, the coronavirus crisis has been called a large-scale social reengineering [2]. Changes such as incorporating biosecurity measures, digital transformation [3], transition to remote and hybrid work, incorporating digital platforms, space reductions, and others, can be done through BPR [4].

Studies have suggested that during these times, top management commitment, organizational readiness for change, information technology capabilities, and people management are among the BPR dimensions that have a significant and positive impact on organizational performance [5].

Considering this newfound gravitation towards change management and process interventions, this article aims to provide a different perspective to BPR and the methods that can be used to promote, develop, and implement these types of practices. The article presents a general background of BPR, focusing on a literature review of related concepts that allow considering the introduction of alternative histories in such interventions in a way that allows for innovative perspectives, as well as participatory methods to reduce the resistance to change.

2. Background

2.1 Business Process Reengineering

BPR became one of the most relevant buzzwords of the '90s, referring to the act of recreating a core business process and deliberately creating radical change in organizations. BPR is a dramatic improvement through process redesign, which can be thought of as a quantum leap in organizational life and a particular strategy to plan and control change [6].

BPR emerged as a response of the US to Japan's quality movement. The Just in Time (JIT) philosophy made it possible to integrate quality and speed into production processes. Michael Hammer, one of the developers of BPR, has been credited for the phrase "*Don't automate, Obliterate!*" [7] which has become a key reference to BPR. Other relevant phrases that integrate the essence of what BPR was supposed to include are "*Break the china!*" [1] and "*If it is not broken, break it!*" [8]. Phrases such as these have led to issues regarding the understanding of BPR as a way to eliminate, destroy, and eradicate, which fuels the fear of change through layoffs and unemployment.

By definition, BPR involves the ability to rethink and restructure businesses, from production processes to external relationships [9]. Different conceptualizations suggest that the goal of BPR is the improvement of processes, which can be achieved through different techniques such as process visualization, process mapping or operational method study, change management, and benchmarking, among others [10].

The main characteristics of a BPR intervention are based on the radical redesign of business processes; it generally employs information and communication technologies directed to achieve strategic outcomes at the organizational level, and is usually an inter-functional effort [9]. "BPR

entails activities of business processes renovation, automation, and networking” [11].

The overall focus of BPR is the search for improvement through fast and substantial gains in terms of general organizational performance [9]; therefore, it can be applied to different contexts, sectors, and issues, when development, change, progress, or recovery are required.

2.2 Alternate histories within business contexts

Alternative and Alternate History can be considered as a branch of literature that focuses on history turning out differently than what actually happened by changing certain details of historical events and exploring different possibilities in the past which would also change the present. In particular, Alternate History uses the basis of cause and effect [12], and the methodology for creating alternate histories can be used as an innovative tool in diverse settings, business and management being one of them [13].

Although alternate histories are set in the past, they also create alternative presents and futures [14]. Alternative History allows to fictionalize the counterfactuals that are embedded in historical thinking [15]. Imagining what could have been helps broaden the possibilities regarding what could be [13].

In organizations, building alternate histories can help the learning and changing processes by analyzing different versions of the past, positive and negative, and establishing courses of action to either get where the ideal past would have led or avoid the possible consequences of the negative past. Learning from alternative analyses or constructions of the past helps in reinventing and reengineering the present and the future in more proactive and creative ways [16]. BPR could benefit from this way of thinking by changing the past

to build even better futures.

3. Material and methods

This article analyzes the most relevant aspects of BPR and the way in which alternative histories can be used as part of consulting practices to promote the dramatic change required. A literature review was conducted to identify the core concepts surrounding BRP that intersect with alternate histories methodologies, making the latter a viable option to think about transformation in an innovative manner and allow the implementation of strategies involving collective narratives as a push-and-pull from the alternate pasts and possible or desired futures. The methodology for the literature review included an online search for articles, books, and research materials on the subject of BPR, using primarily the Elton B. Stephens CO (company), i.e., EBSCO, database and Google Scholar (accessed through <https://www.ebsco.com/products/research-databases> and scholar.google.com respectively). Over 50 research articles were reviewed, and considering the scope of this article, around 30 were selected as sources of information. The sources were selected because they led to the identification of several theoretical contributions and philosophical approaches—namely enterprise ontology, intersubjectivity, and the study of systems through interpretative paradigms—that allowed to evaluate points of convergence between BPR methodologies and alternate histories and propose a framework to integrate both into change management practices that use alternative pasts to reimagine and reengineer business processes in the present with a vision set on the desired future.

4. Alternative History and BPR; a literature review

4.1 Potential of Alternate History methods in BPR

There are certain conditions that have to be met during a reengineering process to achieve the desired results [6]. First of all, the process has to be oriented by an ample and systematic methodology that provides a diagnosis of the current state in a way that allows for the understanding of the nature, purpose, challenges, and issues regarding an organization; this can be done through enterprise ontology exercises. Additionally, the organization has to have the ability to evaluate, plan, implement change in a continuous manner, and analyze the total impact of the proposed changes. There also has to be a disposition and capability to visualize and simulate the proposed changes, which is where alternative stories, in the form of scenario planning or other methodologies, or alternate histories can come into play. Through the alternative stories, organizations can visualize changes in the future. Through alternate histories, they can imagine and project changes in the past and their possible outcomes in the business' present state.

4.2 An introduction to enterprise ontology

BPR is used to improve the efficiency of organizational processes; however, it still faces several obstacles, particularly the tendency to place too much emphasis on a specific business process itself, without consideration of other important knowledge regarding the organization as a whole [17].

Enterprise ontology is a concept that has been linked to BPR in several ways. It has been studied and implemented as a way to create knowledge and structure maps to analyze, develop, and facilitate BPR methodologies [18] with a broader perspective on the issues or areas of opportunity for improvement.

There are several definitions of ontology; nevertheless, it can be understood as “a formal, explicit specification of a shared conceptualization” [19]. In this sense, the concept of ontology has a definite practical goal; it helps to provide common ground on the understanding of a particular area of interest in a group, community, organization, or even society [19].

For its part, the notion of enterprise ontology encompasses the several concepts, elements, and structures of a business [18], which come from the common understanding of members of the organization and other stakeholders in relation to the business' mission, vision, and processes. Enterprise ontology allows people to discover, understand, and reveal the essence of an organization [19].

Enterprise ontology provides insights into the dynamic nature of an organization [20]. It can be used to show the structure and environment that surround an organization's processes, using diverse methodologies to identify the elements that lead to inefficiencies, difficulties, and losses and prioritize processes that need to be redesigned [21].

4.3 Philosophical basis for Enterprise Ontology

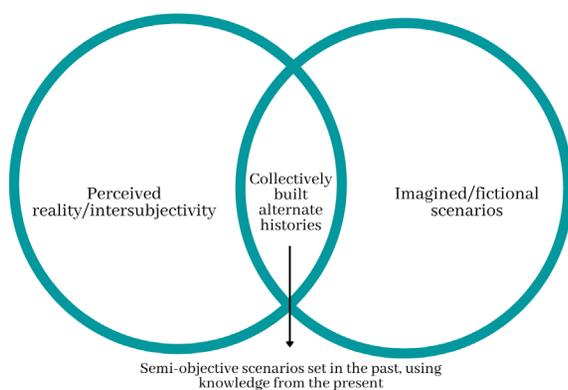
4.3.1 Intersubjectivity and alternate history

According to Dietz and Mudler [19], three main philosophical positions give way to understanding enterprise ontology and how it is linked to BPR through methods and practices such as alternate histories. The first one is the objectivist approach which is based on the idea that the world exists in itself and that there is a true objective reality, independent from human perceptions. Then, the subjectivist approach stems from the idea that there is no reality outside the subject, humans, and that every human has their own perception of reality. Finally, the constructivist approach suggests that there is no absolute objective reality

but a semi-objective one denominated intersubjective reality, which emanates from a continuous process of intrinsic negotiation to achieve social consensus [19]; it results from a history of participatory sense-making [22].

This last philosophical position is in which ontology comes into play -as it is the basis for sensible communication about a particular part of reality- be it an issue, a process, or an organization, among numerous other possibilities; ontology is structured and adapted through communication [19]. However, intersubjectivity is also how alternate history meets and intersects with the rest of these concepts. The idea of a semi-objective reality fits into the process of creating alternate pasts, as they can be built with knowledge available in the present; alternate histories can involve a mix of the subjective and imagined, with the real and perceived. Figure 1 presents an overview of this dynamic.

Figure 1. Visual representation of the relationship between intersubjectivity and the construction of alternate histories.



Source: Developed by the authors, 2022.

5. Building a framework to integrate alternate histories into BPR

5.1 Functionalist paradigm: traditional BPR

The functionalist paradigm provides the dominant framework for the study of organizations. It represents a sociological perspective rooted in an objectivist point of view, with a focus on regulation [23]. It aims to ensure that every element in the system is operating efficiently, promoting adaptation, and aiming at the organization's survival [19]. In this sense, it is often a problem-oriented approach that focuses on practical solutions through a philosophy of social engineering as a methodology to implement change [23].

The paradigm has a pragmatic orientation, analyzing systems to produce useful knowledge by promoting research processes based on distanced observation of the subject and strict scientific methods [24]. It includes assumptions such as classifying into dependent and independent variables, verification, searching for quantitative methods, and cumulative knowledge to obtain a unanimous answer about what an organization is at its core and what corporate qualities are required in order to manage, produce, and provide successfully [25].

An understanding of how systems work can be achieved through diverse scientific methods and techniques that evaluate the different parts of the system and the interrelationships that exist internally between them or externally with the environment [19]. This paradigm dominates BPR methodologies and practices, which are structured on the premise that key processes are transversal to traditional functions, and they can cut through hierarchies to produce process-based structures [26]. As a result, it can help managers be more in control of their operations and eliminate inefficiency [19].

5.2 Interpretative paradigm: introducing alternate histories in BPR

The interpretive paradigm is based on the belief that social systems, such as organizations, stem from human beings' interpretations of situations and how they act and interact accordingly [19]. In this sense, social reality does not have a concrete external form because it is the product of intersubjective experiences [24]; it is regarded as being a "network of assumptions and intersubjectively shared meanings" [23].

The paradigm seeks to explain organizations' nature, functioning, and problems through individual consciousness and subjectivity, which involves using the subject as a participant to create a framework instead of observing from a distance [23]. Through this perspective and method, one can analyze perception, interpretation, and definition in order to create and verify hypotheses and generate action plans [26]. It aims to understand the different forms and meanings of collaborative activity, discover where they overlap, and give way to shared and purposeful activities [19]. Research results are not objective but intersubjectively communicated [26].

An interpretative approach can help guide managers to seek an appropriate level of corporate culture based on participative involvement [19]. As a matter of fact, many ideas related to management, change, corporate culture, and reengineering are based on epistemological assumptions of the interpretative approach [26].

As its nature is intersubjective, the interpretive approach fits well with the premise of alternate history, and particularly with its application in BPR. Analyzing different perspectives of a process generates alternative stories set in the past and in the present that correspond to one reality about the process in question. This can be taken deeper to build alternate histories through

methods such as dramatized scenarios, business archaeology, appreciative inquiry, and collective narratives that allow reflection and provide learning moments through two imagined possibilities: a nightmare scenario set in the past and an ideal future as a result from fixing the past.

6. Applying alternate histories to BPR

BPR can be implemented in different ways, but it usually involves specific steps that have to be completed. Bayomy, Khedr, and Abd-Elmegid [27] propose the following general model for BPR.

1. Identify the process to intervene: Gather basic information of the current process.
2. Review, update, and analyze (as-is): Analyze and measure the current process and identify disconnects, documenting activities and process models. A simulation is executed to evaluate different elements of the process.
3. Design (to-be): Create one or several alternatives to the current process to meet the organization's strategic goals.
4. Test and implement (to-be): Develop a transformation plan and put it to the test through a new simulation. Re-train the staff according to the validated changes and implement the transformation plan.

Using the previous model as a starting point, the following table proposes an adaptation of traditional BPR tools and techniques to shift the perspective and integrate alternate histories as a way to reimagine processes.

Table 1. Traditional BPR strategies and alternate history approach adaptation.

Traditional BPR steps	Alternate histories adaptation	Description of the implementation of alternate histories in BPR practices
Identify the process to intervene	Identify the point of divergence	Establish the starting point, (divergent point in alternate histories)
Review, update, and analyze (as-is)	Review and analyze (as-is and as-is-perceived)	Analyze the current process in terms of quantitative, objective results, as well as qualitative, subjective perceptions from employees and other stakeholders. Identify disconnects along the process, considering the gap between what “is” and “is perceived”.
Design (to-be)	Re-imagine and re-write (as-could-have-been)	Create one or several past alternatives to the process as a dramatized nightmare scenario of what could have been worse and where that would have led (this is where intersubjectivity comes into play, as it is a collaborative reimagining based on existing knowledge, which makes it semi-objective but hypothetical nonetheless).
Test and implement (to-be)	Test (as-could-have-been)	Use business archaeology methods that allow analyzing the only things that survived the dramatic alternate past, what went wrong, and how to not let that happen in the present or the future.
-	Implement (as-could-have-been and could-be)	Promote collective narratives built on hindsight and foresight as a form of time-travel to fix the problems in the alternative past and identify and analyze improvement opportunities for the present and desired future state.

The literature review - which included the exploration of business ontology, intersubjectivity, and interpretative paradigms- along with the construction of a theoretical framework for BPR with the added value of an alternate history approach allowed the identification of common areas or convergence points in both methodologies. This helps validate the possibility of implementing alternate history exercises into real-world BPR practices. The adaptation of the traditional BPR methodologies in order to include the alternate histories perspective in a way that makes it viable is presented below.

6.1 Alternative history approach to BPR: steps and methods

6.1.1 Identify a business process that needs intervention

There are three innovation meta forces that are dynamically linked to the organization’s propensity to implement BPR. These are organization learning, knowledge sharing, and organizational culture, including the organization’s internal and external awareness and the methods for information gathering and conceptualizing [28]. Identifying the process that needs intervention derives from these conditions. Through a functionalist approach, the manager or consultant who will lead the change initiative needs to define the con-

crete actions of a process that evidently presents dysfunctionalities. There is a problem that needs to be fixed; therefore, looking at it objectively at first can lead to a concrete understanding of the place to start. This will serve as the point of divergence, the moment in time when the alternative scenario will begin to take shape.

6.1.2 Review and analyze (as-is and as-is-perceived)

This step requires both a functionalist and interpretative approach since it consists of identifying disconnects along the process in question, which involves analyzing the process but also how different actors participate in it. This entails considering the gap between what is objectively known about the process and how it is subjectively and intersubjectively perceived (individually and in groups). This can be achieved through the adoption of a high-quality ontology for the organization, which represents the knowledge that gives meaning to the relationships between actors, decision-makers, behaviors, tasks, and resources [21]. Through an interpretative approach, different perspectives on a specific process can be collected, which in turn generates alternative stories of the reality in question. These subjective views can help build alternate histories in the form of dramatized negative scenarios set in the past.

6.1.3 Reimagine and re-write (as-could-have-been)

Instead of focusing only on what has already been identified as issues in the process, this step involves using alternate histories to reimagine the past and re-write it as the worst alternative. This involves formulating one or several nightmare scenarios, which are dramatized versions of the current state, making the bad worse. This approach feeds off the intersubjective perspective of the problem, integrating different perspectives.

Questions that can be used to build this alternate history are:

- What was the general state of the business/process?
- What led to that state?
- What destroyed the process?
- What proof can be found?
- What could have made the problem worse?
- What was the tipping point?
- What else could be affected by the dysfunctional process?

6.1.4 Test (could-have-been)

The purpose of this phase is to analyze the things that survived the dramatic alternate past, pinpointing what went wrong and figuring out how to not let that happen in the present or the future. A method that can be used to complete this step is business archaeology. It involves techniques similar to reverse engineering in order to retrieve business-aware artifacts at higher abstraction [29]. Determining what went wrong in the alternate past can be done by imagining what would be left after the worst-case scenario happened, examining the vestiges of the process or organization. According to Pérez-Castillo, Rodríguez de Guzmán, and Patting [30], some questions that can be posed during this process include “What are we looking at?”, “How does it fit in with the rest of the organization and environment?”, and “What were people thinking that led to this state?”.

6.1.5 Implement (contrast as-could-have-been and as-could-be)

Through this step, organizations can promote the creation of collective narratives built on hindsight and foresight that transform the nightmare alternate history into improvement opportunities for the present and desired future, using the basis of time travel to fix the problems in the alternative past, and generate innovative ideas to implement

change in the current state, with a vision on a future that aligns with the organizational goals.

Collective narratives are compelling, and they help to moderate the human factors throughout the implementation of BPR through a collaborative process of recognizing the company's proven problems [22] and their possible consequences, as well as the inherent need to change in order to not fall into the mistakes analyzed through the alternate histories exercise. Managers should encourage employees to participate in the process redesign, as it can reduce resistance to change [27].

The narrative strategy includes a push-and-pull from the alternate past and the future. It entails a new, changed history, with the benefit of precognition regarding the tipping point, where process participants can come to the realization that “little things can make big differences” [31]. It is an opportunity for a do-over that leads to new trajectories. Questions that can help build a collective narrative are:

- What should be done?
- What should be eliminated?
- How can a positive tipping point be developed?

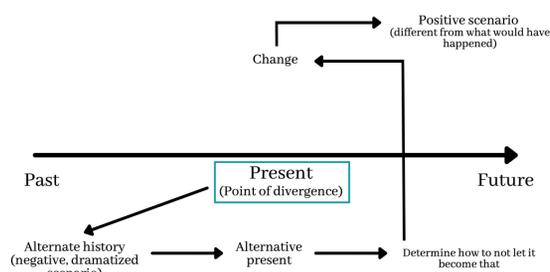
This final process involves turning the negatives into positives. It can be promoted through appreciative inquiry methods to identify and analyze improvement opportunities, design future state processes, develop future state changes, and implement changes in a sustainable way. For the implementation phase, it is suggested to find the nudges [32] that can be used to promote the required changes.

Nudges aim to influence the choices people make, but without taking away the power to choose. Positive reinforcement can influence the behavior and decision-making of an individual. This entails communication processes that translate the ideas and vision into the actions, attitudes, and behaviors of those involved in the change. It

is recommended that the communication efforts start before the BPR implementation phase, as uncertainties can result in a lack of motivation and resistance [9], and what is desired is to build the future without coercive means [32].

Figure 2 shows the steps discussed in sections 6.1.1 – 6.1.5, illustrating the use of alternate histories in the process.

Figure 2. Visual representation of the application of alternate histories in BPR



Source: Developed by the authors, 2022.

7. Solutions and recommendations

Although relevant in its use, BPR has been the subject of severe misunderstandings. This is partly due to the fact that some authors have suggested that BPR projects have a failure rate of 70%, although there is no actual scientific proof of that situation [33]. The main reasons why BPR projects tend to fail are when unrealistic expectations are established, focusing on the process itself regardless of the surrounding environment [21], bad timing for the transformation, having a too narrow or too wide scope, and inadequate resources. Other reasons for the failure of BPR can be that the people in charge do not have a clear vision of what they intend to achieve, the lack of tools to determine the causes of inefficiencies [21], or that change is poorly communicated [9].

The proposed method for applying alternate history to BPR stems from the notion of enterprise

ontology that aims to perfect the scope and provide tools and techniques to analyze the process, the actors involved, their perspectives, the environment surrounding the process, and generate a collaborative and innovative way of thinking about problems and solutions, while promoting effective change management. This is intended to tackle some of the most important reasons for BPR failure and create new alternatives that feed off of creativity, collaboration, and a new way of thinking about the past, the present, and the future of organizational life.

8. Future perspectives

BPR is a method that has not gone without criticism [17]. Yet, in times of more frequent and intense changes, it seems to be the answer for organizations that need to be redesigned to adjust to a new context and ever-changing business and environmental conditions [6]. The pandemic has been the best example of the wide implementation of BPR and has provided organizations with the opportunity and the push for change.

The COVID-19 pandemic has created a fertile ground for reconsidering the value of BPR since businesses, government, and society in general had to face dramatic changes. This is the time to document new experiences and incorporate alternative histories as part of the process. Once the pandemic is over, or at least controlled, future perspectives could include a deeper dive into the use of alternative history as a tool for transformation, with applications in consulting practices and the analysis of documented experiences, which could be done through the use of the framework, methods and steps presented in this article, as a way to put them to the test.

9. Conclusion

BPR is not a one-size-fits-all kind of practice; it requires adapting tools and techniques to the context, the organization, the process, and the people involved. Introducing innovative, imaginative,

and sometimes controversial approaches and methods can be beneficial to shift existing paradigms and promote new ways of thinking about goals and obstacles.

When analyzing the notions that surround and constitute BPR, interesting common ground aspects can be found in terms of alternate history. It is all about facts, perspectives, and the art of playing with the semi-objective. Whether it is imagining alternative futures stemming from current issues that need to be solved and a vision of where organizations want to be or reimagining the past to gain insights into the dynamic world of causes, consequences, and uncertainties, change originates from a need or desire for something different and requires creativity to overcome the limits set by a current state of events.

There is great value in the use of alternative histories in BPR. Alternative stories help create a change of mindset that can result in less resistance to change and higher personal involvement. At the same time, as narratives that are developed collectively, these stories -be it in the past, the present, or the future- help build strong connections among the members and provide a trial phase or an opportunity to do a reengineering on paper, before the actual change process, providing a critical perspective of what needs to be changed and why, as well as re-analyzing decisions before they are translated into actions.

Additionally, through the creation of alternative histories, it is possible to make the invisible visible, highlighting elements, functions, activities, and situations that are frequently overlooked and that might be essential for the success or failure of the change process.

10. Round Table Insight

The core of this work was presented at the 1st International Conference of ‘What If?..’ World History, at an Oral Presentation Round Table

session, which was chaired by Sofia Sousa, and it included the oral presentations regarding the Fake Museum by Rui Macario Ribeiro and the alternative history of the Upper Palatinate by Bastian Vergnon. Although initial differences were apparent, the topics were linked in more ways than one, especially through history and culture. The Round Table also made it possible to identify the importance of human involvement in creating alternatives, the importance of collective narratives not only in the past but also how those narratives are visible in the present and have created, in some cases, better futures. The presentation of the Fake Museum prompted the idea of creating these types of spaces for collecting fake artifacts of human archaeology that could help develop the nightmare scenarios and track down alternative moments in business history, using ready-made concepts. The alternative history of the Palatinate was useful in understanding that developing stories for BPR creates the possibility of making mistakes on paper and not in real life, since the decision to create a highway over the city centre in a moment in which the city centre was dying could have been right by certain stakeholders. However, the changes developed towards creating a university and incorporating progress in other areas resulted far more beneficial. BPR is not just about wiping a specific process but also analyzing what needs and does not need to be changed. Alternative histories provide additional views of what might happen, which are useful in creating cultural products, urban planning, and change management in organizations. The Round Table introduced new ways of playing with time by building alternative paths in the past and the future, creating ways to improve and enjoy culture either at the country, region, or even at the business level. It was refreshing to observe that in the three presentations, a common denominator

was the involvement of normal people, not just historians, academics, or businessmen, creating meaningful and emotional connections through histories and stories.

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