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In humans, the flow of business processes: an aesthetic perspective using business process patterns

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Summary: "Life is form, and form is the modality of life," declared the art historian H. Focillon, celebrating the various forms in our universe. This conceptual article explores business process patterns that are perceived, analyzed, and visualized as whole entities or Gestalten. Sensually understanding business processes – specifically, the collective routines, the implicit knowledge that is expressed therein, and, lastly, their uniqueness – is the objective of aesthetic analysis. Aesthetic business processes are determined by individuals that attribute significant value to the work practices and their outputs. This analytical perspective emphasizes the human factor, the unusual, and the power of imagination in light of the numerous transformations, particularly in matters of sustainability, which also present challenges for business process management. A multimodal repertoire that provides texts and images for aesthetic perception is being developed through the use of a pattern format. To figure out the inherent quality of a business process pattern, one must engage with both the problem-solution scheme and its dynamic characteristics inside the process flow. The article illustrates how a specific business process pattern was visualized in collaboration with companies so that aesthetic experiences are also possible during the reception of the visualizations. The value of business process patterns is realized when the dynamics of the process flow are recognized, which establishes the link between what is happening in the process and the process structure, time and space, and knowledge of various domains, thereby encouraging innovative thinking.

Keywords: Business processes, aesthetics, organizational patterns, pattern language, knowledge management, process visualization, organizational transformation, business innovation

In Menschen, der Fluss von Geschäftsprozessen: Eine ästhetische Perspektive mittels Geschäftsprozessmustern

Zusammenfassung: „Leben ist Form, und Form ist die Art und Weise, wie sich Leben abspielt", meinte der Kunsthistoriker H. Focillon und feierte die Formen in unserer Welt. In diesem konzeptionellen Artikel geht es um die Form von Geschäftsprozessmustern, die als Ganzheiten oder Gestalten wahrgenommen, analysisiert und visualisiert werden. Ziel der ästhetischen Analyse ist es, Geschäftsprozesse sinnlich zu verstehen, insbesondere die kollektiv durchgeführten Routinen, das implizite Wissen, das darin zum Ausdruck gebracht wird, und schließlich deren Einzigartigkeit. Ästhetische Geschäftsprozesse zeichnen sich durch die Menschen aus, die der Arbeitspraktik und dem, was darin hergestellt wird, einen besonderen Wert verleihen. Vor dem Hintergrund diverser Transformationen

insbesondere in Richtung Nachhaltigkeit, von der auch das Geschäftsprozessmanagement herausgefordert wird, möchte diese analytische Perspektive dem Menschlichen, dem Ungewöhnlichen, der Vorstellungskraft mehr Aufmerksamkeit schenken. Mit dem Format eines Patterns entwickeln wir ein multimodales Repertoire, das Texte und Bilder für die ästhetische Wahrnehmung anbietet. Um die Inhärente eines Business Process Patterns zu erfassen, ist es von Bedeutung, nicht nur die Problem-Lösungs-Struktur, sondern auch deren dynamischen Charakter im Prozessfluss zu erleben. Der Artikel zeigt am Beispiel eines konkreten Business Process Patterns, wie dieses gemeinsam mit Unternehmen visualisiert wurde, so dass auch in einem rezeptiven Umgang mit dokumentierten Patterns ästhetische Erfahrungen möglich werden. Der Wert von Business Processs Patterns entsteht, wenn die Dynamik eines Prozessflusses erlebt wird, der die Handlungen mit der Prozessstruktur, die Zeit mit dem Raum, das Wissen verschiedener Domänen verbindet und so zu einem neuen Denken anregt.

Stichwörter: Geschäftsprozesse, Ästhetik, organisatorische Muster, Mustersprache, Wissensmanagement, Prozessvisualisierung, organisatorischer Wandel, unternehmerische Innovation

1. Introduction

A business process is typically defined as a sequence of operations that starts with a customer-oriented idea and delivers services to the customer (Schmelzer & Sesselmann, 2020; Suter et al., 2019). In contrast to normal processes, business processes primarily seek to address the functional division of labor created by the organizational structure. Business processes facilitate the organization of internal and external interfaces, hence enabling the design of value creation to be particularly effective and efficient (Suter et al., 2019; Wagner & Patzak, 2020). Secondly, business processes only exist with information technologies, perhaps specifically since 1969 when P. Drucker recognized the information industry as one of the new industries: "Electricity is the cheapest, most plentiful, and most versatile energy for mechanical work. But information is energy for mind work" (Drucker, 2016, p. 43). Within all of this, business processes ensure networked business architectures, which are the basis of H. Österle & R. Winter's (2003) vision and version of business engineering. In business processes, making use of information generates knowledge that is not necessarily articulable. This knowledge, which is deeply embedded in the company, associated with humans and challenging to describe, empowers companies to achieve exceptional performance when integrated with the infrastructure of business processes. Thirdly, business processes constitute the core competences of a company that ensure competitive advantages and cannot be transferred or purchased (Barney, 2013; Schmelzer & Sesselmann, 2020). This paper focuses on this implicit knowledge that flows through humans inside a business process (Bititci, 2016; Dumas et al., 2021).

The objective of business process management is to enhance the effectiveness and efficiency of the organization (Davenport, 1993; Schmelzer & Sesselmann, 2020). Numerous factors influence the efficacy of business process management, including strategic orientation, control, methodologies, information technology, employees, and organizational culture (Rosemann & de Bruin, 2005; Kerpedzhiev et al., 2021). The human factor differentiates a "Business-BPM" from an "IT-BPM", since it seeks to understand business processes through the lens of the consumer. "The need for a holistic approach" (Valiris &

Glykas, 1990) arises mostly from the desire to approach business processes from multiple perspectives and to emphasize "Business-BPM" in both research and practice (Sesselmann & Schmelzer, 2020). The digital transformation and the transition to sustainability both present challenges for organizational management, which is why people and culture are becoming increasingly significant as determining factors. The "triple bottom line" approach integrates economic, ecological, and social values. New Work, a concept that F. Bergmann developed in the 1970s, has attracted new attention in light of this (Foelsing & Schmitz, 2021). The needs of employees have become a priority for companies, job advertisements remind us of "perfect images of work" in which professional self-realization occurs, and new social living and working spaces may arise (Lemberg, 2023). Organizations emphasize the needs of their workforce and employment possibilities. This refers to a social environment where subjects and things are interconnected on an emotional level.

Business processes, as systems of action (Weick, 1985) wherein humans collaboratively execute tasks, are relevant to the ongoing exploration of concepts for future successful employment. Understanding affectivity in business processes – particularly when it leads to practices based on positive moods in relationships – is the goal of this study. We seek to visualize implicit knowledge that, in conjunction with habitus and the corresponding process structures, frequently results in particular rules for problem-solving (Mutch, 2003; Bourdieu, 1992; Wenger et al., 2002). Consistent with organizational aesthetics, we assume that implicit knowledge emerges from sensory perception. This conceptual article aims to find a format for a business process pattern that facilitates the visualization of implicit knowledge. Visualized business process patterns direct attention to unusual aspects. Those who perceive find themselves elevated beyond their ordinary perception. They recognize novel influences, the present moment, and what is unique. Alongside empathizing and stimulating the senses, comprehending sensory experiences derived from business process patterns indicates the generation of new knowledge. The findings are categorized into three sections that build on each other: Firstly, we show the potential of an aesthetic perspective on process flows, and, secondly, in a descriptive section, we determine the format of a business process pattern. We present a repertoire for its visualization, which includes the format as a compass to guide the visualizations and their perception. A third section will utilize an example from an ongoing research project to illustrate how a business process pattern might be visualized, experienced, and aesthetically understood.

2. Conceptional foundation: patterns in business process management

To find a format for a pattern that allows an aesthetic perspective on behaviors inside business processes, we will first examine the application of patterns in business process management thus far. We want to know what features of patterns are described as well as how and why they are used. Within the fields of business models and business process models, patterns serve as reusable structures for problem-solving, analogous to their interpretation in software development just as defined by architect C. Alexander. "The pattern concept is an inspiring format that is a good way of exchanging fragmentary, atomic ideas about programming," C. Alexander (1999) admitted in his keynote speech at the ACM Conference on Object-Oriented Programs Systems, Languages, and Applications (OOPSLA). He additionally pointed out, "Indeed, as I understand it, that part is working very well. But these other two dimensions, (1) the moral capacity to produce a living structure and (2) the generativity of the thing, its capability of producing coherent wholes

– I haven't seen very much evidence of those two things in software pattern theory." In keeping with C. Alexander, we continue by outlining how we apply a business process pattern to expand the logical connection between the problem and its solution, so generating new perspectives on human-centered business processes.

2.1. Patterns for business models

Patterns for business models are defined, described, and employed for innovations in business models. Business model patterns comprise foundational elements that are prevalent throughout different business models, exhibiting similarities, and can be reconfigured to create new business models. Due to the fact that a business model "describes the rationale of how an organization creates, delivers, and captures value" (Osterwalder & Pigneur, 2010, p. 18), it can be used to specify the customers, the promising delivery, its value chain, and the question of which mechanism is used to implement the value (Gassmann et al., 2015). Business models can be looked at with Osterwalder's Business Model Canvas, which includes nine components: groups of customers, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partners, and cost structure. The canvas should serve as the foundation for collaborative modeling, enabling the development of business models that expose a profound empathy for the consumer. Patterns are employed to develop new business models through imitation, recombination, and adaptation. Gassmann et al. (2015) outline a pattern adaptation based on the similarity principle, which reflects an evolutionary approach, whereas the confrontation principle involves interaction with entirely unfamiliar patterns. Business models constitute the foundation of business strategy: they facilitate the establishment of objectives, the identification of business processes and models, and the cultivation of core competencies. Core competencies are a company's competitive advantage, arising from its unique infrastructure, engagement in business processes, and expertise that is fundamentally embedded inside the organization. In this regard, business capabilities should be perceived as assets rather than core competencies, as they are activated by "by people or systems through processes utilizing technologies and other resources to deliver the organization's ability to perform" (Hanschke, 2024, p. 226). These are business entities, which encompass business objects, business functions, and IT services. Patterns that inspire business models may integrate individual knowledge as a resource inside the business plan, facilitating the development of core competencies (Barney, 2013) through organizational learning, for instance.

2.2. Patterns for business process models

The business models discussed in the previous section relate to business processes: Business processes are influenced by the business strategy outlined in the business model, and they also originate from the business model. With the maxim "structure follows process and process follows strategy," companies have the opportunity to overcome challenges in a particularly agile way. In business process management, patterns are mostly used for modeling, which involves creating as realistic process objects as possible. These objects are made up of a series of sub-processes that are automated via workflows. In business engineering, a "method- and model-based design theory for companies in the information age" (Österle & Winter, 2003, p. 7) integrates business processes and business strategy

with information and communication technologies to ease the execution of the business model. Workflows enhance business operations by articulating instructions with such precision that they can also be executed by information systems. Although workflow management systems, or more specifically, business process management systems, are designed to automate processes, business process modeling provides the advantage of ensuring that operational processes are transparent, communicated, and documented (Aldin & de Cesare, 2011). Modeling becomes more efficient and effective through the provision of modeling instructions by patterns (Van der Aalst et al., 2003). A definition of object-oriented programming referred to by Van der Aalst et al (2003) states that patterns are understood as reusable conceptual artefacts, which are "the abstraction from a concrete form which keeps recurring in specific nonarbitrary contexts." The three-part rule, which provides "a solution to a recurring problem in a particular context," is once again emphasized by Fellmann et al. (2019). Notations enable the description and modeling of various process perspectives. Each view is a representation of a distinct aspect of the process, including process activities, process outcomes, organizational entities and roles, resources, data, information, documents, business rules, and control flows. Fellmann et al. (2019) argue that patterns should also be employed for process design, addressing the differences, similarities, and innovations of other categories of business process model patterns. Expanding the business and IT language with business process patterns that also convey core competencies could be beneficial in this regard.

2.3. Patterns for implicit knowledge in business processes

Through business process patterns, we aim to utilize patterns for designing business processes where capital optimization is no longer the primary focus (De Geus, 1997). A pattern-based business process structure should, firstly, allow everyone to contribute to a company's originality, secondly, make the beauty of work tangible, and thirdly, provide people's expertise and knowledge a high value as a consequence. In contrast to Japanese success concepts, the emphasis lies not on simplicity, but on subtlety. In light of this, business process patterns act as ***models*** for companies, encouraging them to replicate the true invariance of these patterns or important components. Companies draw similarities between effective practices enclosed in a pattern and their potential implementations inside their business operations. If a pattern functions as a model, it must possess "as many analogies as spines from the body of a porcupine" (Daston, 2022, p. 20). Working with business process patterns prevents us from using strategies and tactics without taking the relevant context into account. Thus, cultures establish their own patterns based on shared fundamental concepts since they have been successful in resolving their issues. A business process pattern is an ***instrument*** for analyzing, reflecting, and improving the understanding of other contexts and, eventually, one's own context. When a pattern is well-suited to the business context, a business process that distinguishes and makes the organization competitive emerges. C. Alexander asserts that the process of differentiation always consists of two components, as illustrated by the following example: A Guatemalan farmer builds terraces in a field, while simultaneously, a broader process combines the individual activities of this farmer and maybe his coworkers, resulting in the formation of the terrace on the hill (Alexander, 2002, p. 205). Finally, a business process pattern enables us to assess the quality of the process itself. A pattern teaches us how to solve problems while also providing us with ***experience***. A business process can thus be perceived as a progression

away from a problem rather than towards an objective. This perspective liberates actors in the business process from rigid, perhaps unrealistic objectives, enabling the evolution of visions and emotions inside the process. A problem-solving business process is thus more suitable for complex circumstances where the final outcomes are difficult to manage. In summary, as reusable problem-solution structures, patterns support business process management, allowing companies to create value effectively, efficiently, and agilely, particularly in modeling business strategy, business processes, and workflows. Patterns outline logical linkages, are described within the framework of a modeling language, and are utilized primarily by business analysts. From an aesthetic perspective, we hope to broaden the use of patterns by allowing them unfold in generative sequences rather than putting them together as "mental tool boxes" in a pattern language. C. Alexander illustrates "the process of creating life" by describing his friend's progressive development of beautiful meadows in the hills of Berkeley: „He clears the land of that scrub which makes the land too vulnerable to fire. He opens it, concentrates its beauty. Under the hand of this embellishment, each part becomes better; its uniqueness is preserved, its character intensified" (Alexander, 2002, p. 4). How can we utilize business process patterns to stimulate a perception of the unconventional and distinctive elements of business processes that establish a connection between perceiving people and the present moment? This question forms the foundation for the following parts.

3. About a format for the aesthetic dimensions of business process patterns

This section clarifies a format for the description and visualization of business process patterns using text as well as images. We want to enhance the current understanding of a pattern in business process management to establish a foundation for aesthetic business processes. Therefore, we are interested in the following: what constitutes an aesthetic experience (cf. section 3.1)? How does an aesthetic perspective impact business processes (cf. section 3.2)? What does it mean to implement aesthetic practices in business processes (cf. section 3.3)? The format and form of a pattern for aesthetic business processes should ideally help to reflect a business process pattern as a Gestalt (Blattmeier, 2023a, 2023b, 2023c), in Alexander's words as something whole. To assist with this aesthetic experience as a process of visualization, knowledge creation, and reflection, we offer a multimodal repertoire, which will be demonstrated in practice in a further part of our contribution.

3.1. Business process patterns as a Gestalt

In aesthetic business processes, business process patterns take on a certain form – a Gestalt – that we perceive as a whole, which, according to Gestalt theory, is "more" or "different" than the sum of its parts. The Gestalt of business processes can be perceived through three distinct qualities: Firstly, according to G. Böhme (2013), "aesthetic work" creates an ***atmosphere*** that we can perceive when, for example, we are put in a cheerful mood by of a spring morning or feel the tension in a meeting. The prerequisite for this is that we are emotionally affected. The atmosphere is the foremost element of perception, preceding the Gestalt, individuals, objects, their interactions, or relationships. Secondly, these elements of business processes allow us to link actions in time to the process ***structure*** in space. As an architect, C. Alexander wanted to understand why people feel particularly alive in certain cities and buildings. He noticed that these places were characterized by a special quality, which he was unable to

name and even less able to describe with words. As "alive" was not enough, he often used terms such as "whole," "comfortable," "free," "exact," "egoless," and "eternal" (Alexander, 1979, p. 30). In the end, he worked with patterns to reconstruct a structure containing two fields: the field of geometric relations (space) and the field of human behaviors (action). He explained that a sidewalk in Bombay exhibits a distinct pattern compared to a sidewalk in New York, because people in Bombay often sleep on the sidewalk, whereas in New York, it is primarily utilized for walking (Alexander, 1979, p. 73). A pattern is consequently deeply connected to a cultural context. C. Alexander was able to finally grasp the quality without a name by allowing patterns to overlap (Alexander, 1965; Alexander et al., 1977). He stated, "The more living patterns there are in a place – a room, a building, or a town – the more it comes to live as an entirety, the more it glowes, the more it has that self-maintaining fire which is the quality without a name" (Alexander, 1979, p. x). We cannot think of a business process pattern as "an element in an erector set" if we permit this overlap or any other unfolding. In "The Nature of Order," C. Alexander described how he and his architectural colleagues suggested theoretical systems to replicate the style of traditional societies. These systems, called pattern language, allowed for the definition of patterns or generic units that could be employed successively in design (Iba, 2016; Finidori et al., 2021). He expanded this approach with artificial languages: "We discovered that it is possible to create pattern-language-like systems, artificially" (Alexander, 2002, p. 344). However, these artificial languages can only be accepted if they create something holistic. Thirdly, we can also perceive the Gestalt of business processes as patterns progressively unfold in business processes based on the context, leading to the emergence of ***unique characteristics***.

3.2. A business process pattern has forms and a format

The Gestalt of a pattern for aesthetic business processes can take on a variety of forms, which we aim to describe using a format (cf. Figure 1). Initially, a business process pattern is a ***three-part rule*** that "expresses a relationship between a certain context, a problem, and a solution," similar to other patterns that are typically attributed to C. Alexander (1979, p. 247). This type of rule is commonly followed in business processes, usually unintentionally. Process participants have implicitly acknowledged the rule. Because the rule has demonstrated its usefulness in solving problems it has been kept as knowledge in the company's memory. It may even have become indispensable. A pattern is not merely a simple rule; rather, it is a rule that evolves within a specific environment. C. Coplien & N. B. Harrison (2004) identified a "short and necessarily incomplete" definition that best describes a pattern of aesthetic business processes: „A recurring structural configuration that solves a problem in a context, contributing to the wholeness of some whole, or system, that reflects some aesthetic or culutural value." A pattern appears in the form of a ***process culture*** that has been studied, interpreted, and defined from a variety of perspectives. We adhere to E. H. Schein's definition, which characterizes culture "as a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 2004, p. 17). This definition is grounded in a model with three "Levels of Culture", which clarifies the content and interrelations of various business process patterns. Analogously, we put together a three-level model for identifying business process patterns in aesthetic business processes, shown on the

left-hand side of Figure 1: Initially, E. H. Schein describes the fundamental assumptions that unconsciously influence the perceptions and behaviors of individuals within a culture, thereby establishing patterns as ***rules***. This leads to the development of values that are shared, accepted, and lived by all members, whether consciously or unconsciously. When the values that are lived in companies are expressed in specific contexts, we attribute patterns to this level as part of the process culture. Furthermore, E. H. Schein integrates explicit artifacts that consist of technical systems, documents, stories, or individuals in business process patterns. At this level, we can perceive a pattern in the form of ***common practices*** in a business process that contribute to the competitiveness, uniqueness, and ultimately, the success of a company (Rummler & Ramias, 2015; Suter et al., 2019; Schmelzer & Sesselmann, 2020). It is important to note that the business process pattern is not described as a distinct process unit. Similar to the arts and crafts (Daston, 2022), the expertise embodied by a business process pattern is passed on through experience. At this level, we identify business process patterns that generate unique value through standardized or routine work practices. G. Böhme describes this as "all human activities that lend to things, people and ensembles that more which goes beyond their handiness and objective presence" (Böhme, 2016, p. 27). In presenting business process patterns, we adhere to C. Alexander's format, which initially introduces the pattern with a picture and a context description. He addresses the problem and its associated tensions, outlines the solution using a diagram, and ultimately articulates the consequences that connect the pattern to other patterns (Alexander et al., 1977, p. x). The right-hand side of Figure 1 gives a symbolic representation that helps with the production and reception of pattern visualizations.

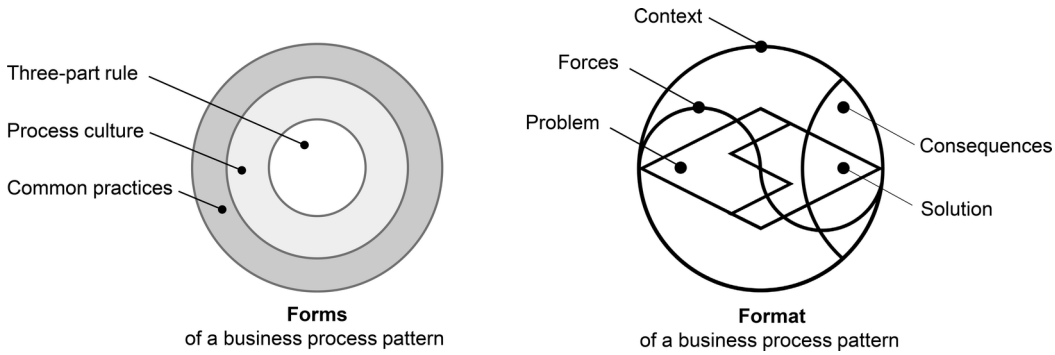

Figure 1: One format to reconstruct, describe and visualize business process patterns which can be applied in several forms (author: Blattmeier; graphic elements: Wolters-Schaer)

3.3. A repertoire for the aesthetic experience of business process patterns

In order to configure, specify, and standardize business process patterns in texts and images, C. Alexander's format is a valuable tool. C. Alexander pointed out that the format is important for him, firstly, to recommend patterns in connection with other patterns and, secondly, to present the problem and solution in such a way that the essence of a pattern is never lost, regardless of how the pattern is used. He therefore refers to descriptions in which the elements are presented in a specific order (Alexander et al., 1977). In an attempt to provoke an aesthetic understanding of business process patterns, we intend to multimodally weave language, image, and text using the repertoire. Analysis, interpreta-

tion, and combination are necessary for the various modalities of communication. Because sensuous, physical, holistic, and implicit knowledge is communicated, the ultimate goal is to experience business process patterns aesthetically (Strati & Montoux, 2002). Figure 2 provides an overview of the information gathered in the repertoire, particularly its complexity of information (The essence – Gestalt) and its communication characteristics (Textual – Visual). The format of Figure 1 determines the organization of the reconstructed information in Figure 2, helps searching for it, and verifies the completeness of the information presented. The horizontal line separates textual from visual information, while the vertical line distinguishes the essence of the business process pattern from its Gestalt on both areas. Four fields are set up as follows: The first field provides a ***short description*** containing a pattern name, the problem-solution scheme (VanLehn, 1990) and the keywords. In general, the purpose of the brief description, which is referred to as a patlet, is to assist users in rapidly identifying a pattern for a problem in their own context (Coplien & Harrison, 2004). The second field of the text area describes the three-part structure of context-problem-solution as a ***story*** comprising exposition, complication, and resolution. Through a narrative, we aim to articulate the forces operating inside a pattern as pairs of oppositions that determine aesthetic perspectives (Blattmeier, 2024).

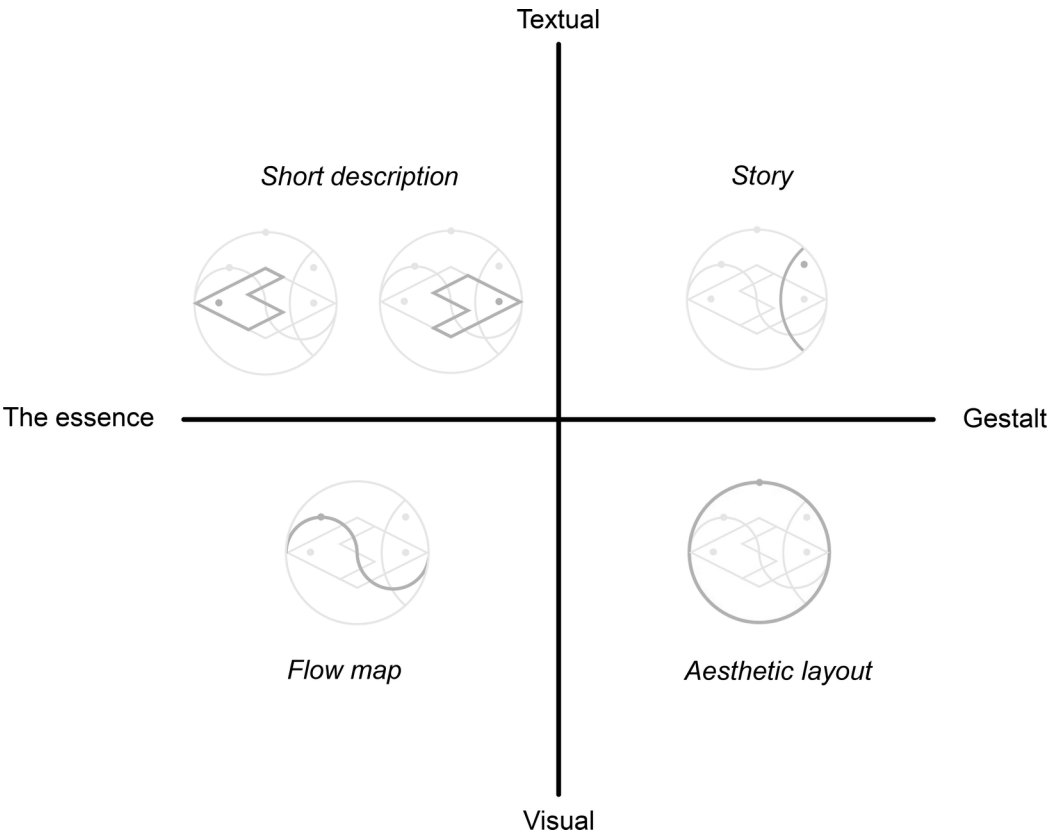

Figure 2: The repertoire that contains multimodal information that is represented as an image or text, reduced to its essence, or as a complex Gestalt, using the pattern format (author: Blattmeier; graphic elements: Wolters-Schaer)

The objective of this field is for recipients to grasp the meaning on their own thereby becoming aware of the consequences linked to the solution of a pattern. The ***flow map*** in the third field emphasizes the process flow generated by actions happening in patterns: Problems are solved or tasks are accomplished to balance the forces within an overall structure of action. Human behaviors establish a process structure, which subsequently affects those behaviors. Consequently, in the fourth field, we seek to avoid differentiating between the process flow and the structure. We perceive business process patterns as spatiotemporal phenomena within an ***aesthetic layout***, existing merely to the degree that they are utilized in or arise from relationships. In the aesthetic layout, we differentiate between process flows that generate or sustain a sphere spanning the problem-solution (***space***), that evolve things incrementally, in relation to time, with ups and downs (***direction***), and that are related to frequency, which is infinite and cyclical (***continuum***). Thus, the form dynamically arises from the corresponding force system, similar to a drop of water that forms itself from its own forces and is capable of compensating for disturbances from its own forces. Process flows also influenced by the presence of individuals who follow visions. Values and norms support maintaining the integrity of the process structure. At some point business process patterns in the aesthetic layout are characterized by moments of sensory experience. Ultimately, the moment of experience provides opportunities for the self-referentiality and, as a result, the uniqueness of an individual (Dewey, 1934).

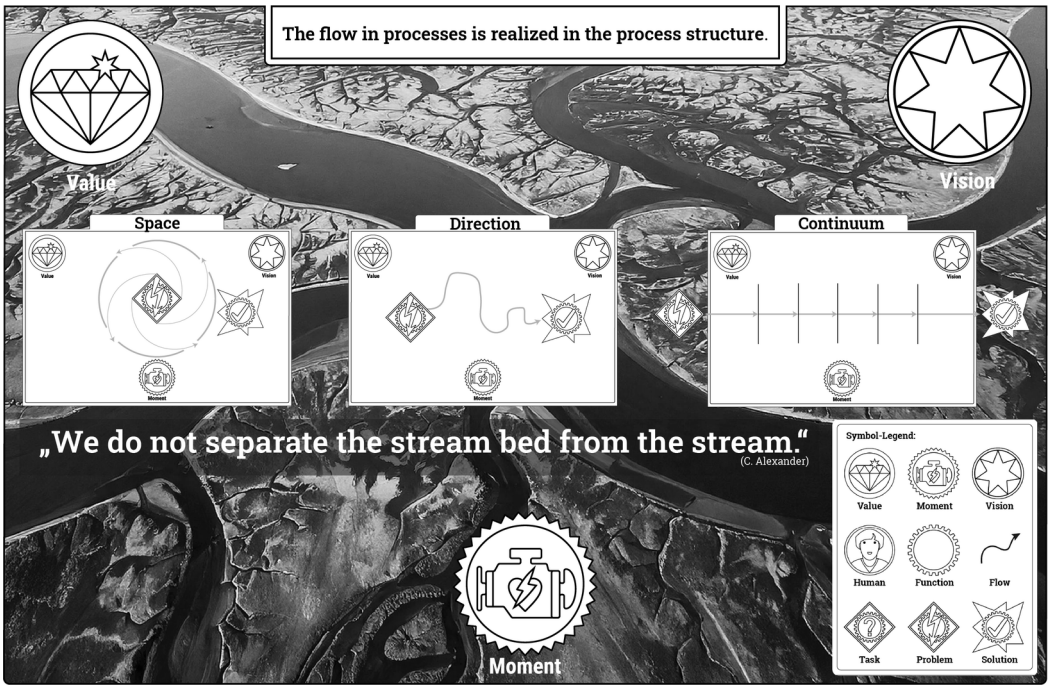

Figure 3: An aesthetic layout that can be used to experience the Gestalt of a business process pattern (graphic: Wolters-Schaer; concept/lyrics: Blattmeier)

The repertoire lacks any kind of hierarchy, has no back and front, and contains no steps. The repertoire should be applied to initiate, assist, and enhance an aesthetic experience, or

alternatively, a multimodal discussion in the context of learning. The production process in which we incorporated C. Alexander's format in text and image will be detailed in the subsequent section. Consequently, we aim to provide managers, consultants, and process participants with information on how to integrate the multimedia content of texts and images into the reception. This should allow them to experience business process patterns aesthetically, gain insights, and learn within their organizations.

4. Illustration: Aesthetic experiencing of a business process pattern

This section uses the example of a business process pattern to illustrate our aesthetic experiences with it in business processes. We are referring to the process of producing texts and images in which we follow the format outlined in section 3.2 to complete the repertoire of section 3.3. In doing so, we aim to communicate how the repertoire, its content, and ultimately the format of a business process pattern can be used in a reception, such as when business processes or their business process models are to be adapted, redesigned, or understood using business process patterns. Here, "aesthetic experience" refers to the sensual understanding of business process routines. We are examining perceptions with positive connotations, through which we discover something unusual or acquire knowledge in general. The illustration stems from our approach in the current research project "Process Design for Living Organizations (ProlOg)," wherein we perceived business processes aesthetically through making implicit knowledge explicit in the form of a pattern. Knowledge that has been described and visualized is made available for documentation, reflection, and application in a knowledge management system, which is a pattern pool for aesthetic business processes. The objective of the project is to create a knowledge management concept that activates knowledge and, consequently, business processes. The project is funded by NBank, the investment and development bank of Lower Saxony, and the European Union's "Social Innovation" program through the European Social Fund Plus (ESF Plus). Considering the lack of trained labor in the East Frisia region, small and medium-sized businesses in particular tend to profit from creating an inclusive and diverse workplace culture. In collaboration with seven firms from various industries participating in the project, we have collected 30 business process patterns to date. The illustration displays the business process pattern "Breathing in and out in a network of personal relationships," identified in the car body shop of the VW plant in Emden. Following pattern mining, we proceed to the pattern visualization and subsequently demonstrate how the pattern was reflected in the learning community of the project. The pattern's problem-solution was recognized in pattern mining (cf. section 4.1), while its interpretation of a Gestalt was the focus of pattern visualization (cf. section 4.2). Subsequently, the repertoire's multiple information were the subject of pattern reflection (cf. section 4.3). This process is illustrated in Figure 4.

4.1 Recognizing the business process pattern (pattern mining)

The visualization process began with a short description we developed following the identification of the pattern during the pattern mining phase with the participants in the body shop. The term pattern mining is associated with digging for gold, because it is about recognizing the essence of a pattern. This short description served as the foundation for both the aesthetic layout and the flow map.

Pattern name: "*Breathing in and out in a network of personal relationships*"

Short description: *To compensate for unforeseen events that affect your process, you organize your own communication channels in the network of relationships, search for new relationships and thus further develop process structures.*

Keywords: *Relationship, individuality, self-organization*

This is a distillation of our common experience, which we consciously picked to find a specific approach to the routine in car body production: For example, the body shop at the VW plant in Emden has a hierarchically organized value-added structure in which teams take on responsibility, interfaces are clearly defined, and function transfers happen at the interfaces. If the teams are confronted with a situation for which they have no solution, such as a system failure, they will work independently to discover a solution inside their team or network. The prerequisite for this is that decision-making authority has been agreed with the management. Self-organizing teams breathe in when they acquire ideas from collaborations inside their own network and exhale when they can share solutions in return. In the background of pattern mining, we carried out interviews, participant observations, and workshops to comprehensively capture the circumstances of employees participating in the relevant business process. The initial goal was to remind those involved in the process of their roles, responsibilities, and knowledge. We also sought to gain a deeper understanding of the problem-solving strategies, competencies, and standards. Finally, we clarified the shared values inside the lived process culture. Throughout our interactions with the organizations, we employed the principles of ethnography (Silverman, 2006; Herrmann, 2012; Schultze, 2020): At first, it was essential to understand daily organizational life through the eyes of the participants in the process. Rather than presenting ourselves as "tourists" in search of freshness, we intended to be perceived as students actively ***engaging with the experiences of individuals*** involved in the process. A second principle was derived from P. Bourdieu, particularly from his note: "it is because subjects, strictly speaking, do not know what they are doing that what they do has more meaning than they know" (Bourdieu, 1977, p. 79). By asking about the purpose, we hoped to learn how and why something is done. Nonetheless, it became evident that ***understanding the conditions***, or the needs that are driving the behaviors of those involved in the process, is sometimes more important than focusing on their stated thoughts and emotions. Thirdly, we concentrated on ***being attentive*** to the stories of people, even though they might not have directly addressed our questions. This open approach assumed that the interviewees had been briefed by the management with whom we initially spoke and had provided their approval. We also left it to the managers as "gatekeepers" to determine the respective business process, the roles in the business process and the people who held these roles for the interviews. A questionnaire that asked about problem-solving techniques, problem analysis, and business process culture served as the basis for the interviews. From the beginning, we made an effort to record people's true words, including exact quotes and straightforward descriptions. "*With head, hand and heart to the doer mentality to master the daily challenges; information and ideas are obtained from other departments; the store must run.*" These are the phrases from the business process pattern "*Breathing in and out in a network of personal relationships*."

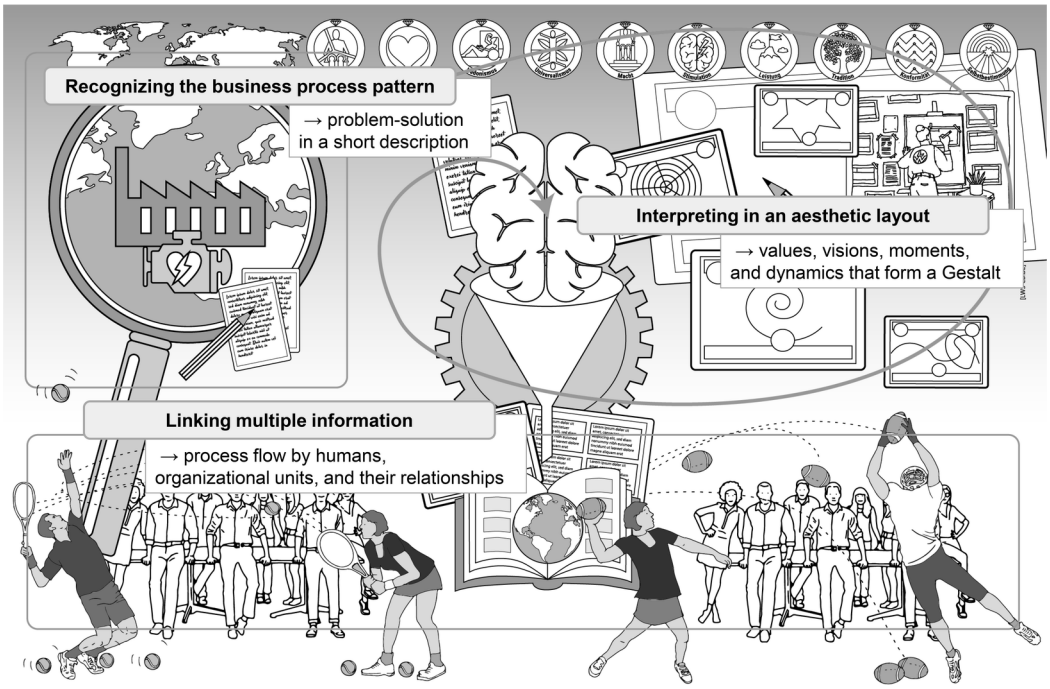

Figure 4: The aesthetic experience is a process that includes visualization used to fill the fields of the multimodal repertoire (cf. Figure 2). Visualization refers to the phases of pattern mining, pattern writing/visualizing, and pattern reflecting. (text addition: Blattmeier; graphic: Wolters-Schaer)

4.2 Interpreting in an aesthetic layout

The problem-solution structure outlined in the short description was converted into an aesthetic layout following pattern mining, which was refined during the visualization processes of the 30 patterns. The objective of the aesthetic layout is to comprehend business process patterns as Gestalten. Aesthetics serves as an analytical perspective, as we examine elements from the full spectrum of experience, resulting in the perception of a Gestalt. Our analytical-aesthetic approach focuses on values, visions, experiential moments, and the dynamics of problem-solving that we perceive sensually. We represented the elements of the pattern "*Breathing in and out in a network of personal relationships*" as follows (cf. Figure 5):

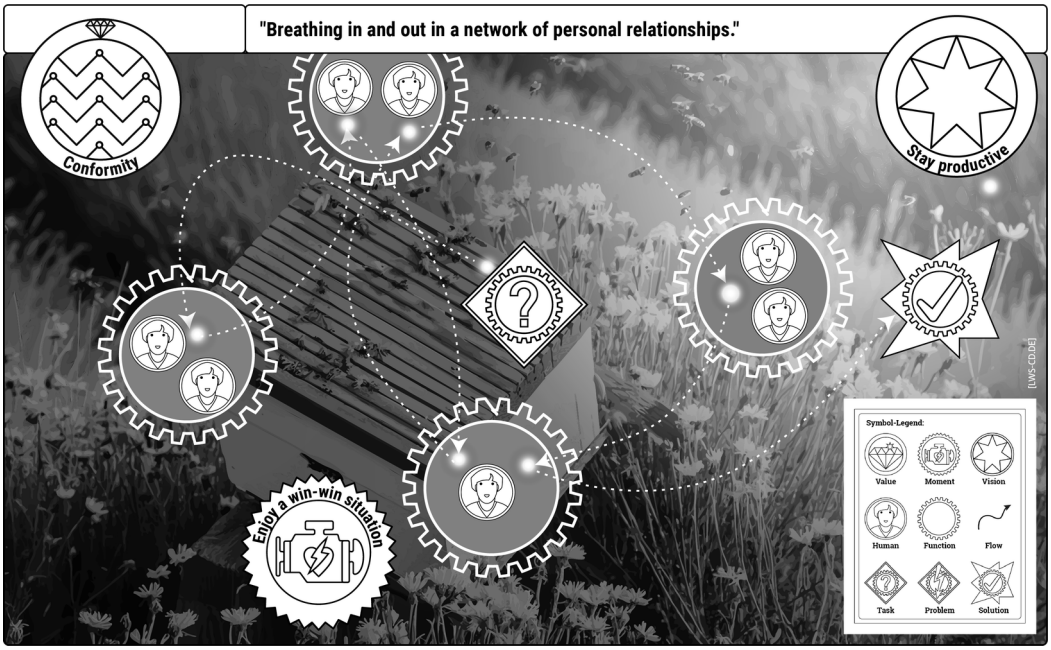

Figure 5: The aesthetic layout for the business process pattern "Breathing in and out in a network of personal relationships" (Pattern discovery and description: Blattmeier; graphic: Wolters-Schaer)

The visualization's leading ***value*** in the VW plant's production system is conformity, which is indicated in the upper left corner. This value has been espoused as behaviors in the production process are directed by politeness, obedience, and self-discipline. The process participants gained experience with this value, cultivated it into a shared fundamental nature, and assert that this value defines their work. It has become an accepted assumption that they neglect. *Conformity* is a value described by social psychologist S. H. Schwartz (Bardi & Schwartz, 2003), alongside power, achievement, hedonism, stimulation, self-determination, universalism, benevolence, spirituality, tradition, and security. Each business process pattern has been categorized according to its motivating value type. The ***vision*** in the upper right-hand corner is tied to the value. People who are engaged in the process of "*breathing in and out of a network of personal relationships*" have a clear vision of *staying productive*. They prioritize fulfilling the duties assigned to them by the body shop. Vision and values are somewhat associated with the purpose of an organization. A company's purpose demonstrates the value it aims to provide to its employees and society (Fink & Moeller, 2018). Nevertheless, the purpose of an organization does not necessarily provide an answer to the concerns that employees have regarding the meaning of their work. Meaning, according to V. Frankl, is the personal fulfillment of values in a concrete situation (Von Devivere, 2021). Meaning develops in a business process pattern because it provides a concrete vision for individuals. In every business process pattern, there are also ***moments*** when someone feels something. The term "feeling" is suitable for at least two categories of "feeling events" in German: We experience a physical sensation, such as stomach pain, and a mental experience, such as the sensation that arises when we recall

and subsequently experience it (Stalfort, 2010). The individuals engaged in the body shop at the VW production plant in Emden expressed satisfaction when they successfully established a *win-win situation* with interface partners within the production system. Through sensory experiences in visualization, we aim for companies to aesthetically understand the patterns of business processes. It should be possible for companies that are unfamiliar with the business process pattern "*Breathing in and out in a network of personal relationships*" to emotionally engage with it in order to perhaps remember and learn from it. The visual representation of a business process pattern aims to clarify the core of the problem-solution. Consequently, the aesthetic layout shows how the pattern influences the dynamics of the problem-solving process. The visualization explores a process flow that starts with a time-based initiation, which is the problem or task, and concludes with the solution of the problem. Each process flow indicates an "ensemble" of activities in space and time that can be assigned to three space-time paths in accordance with Figure 4. During a visualization workshop, the car body shop employees analogized their workflow to that of a beehive. They highlighted the distinctive relationships within a bee colony structure, wherein some bees depart while others tend to the honey. Consequently, we have employed this metaphor to explain the problem-solution inside a natural framework. Business process patterns are metapatterns that have a transdisciplinary influence. T. Volk identified metapatterns "throughout the spectrum of reality: in clouds, rivers, and planets; in cells, organisms, and ecosystems, art, architecture, and politics" (Volk, 1995, p. viii). His metapatterns inspired us to focus on the diverse process dynamics of business process patterns.

4.3 Linking multiple information

During the collaborative visualization processes, a learning community has been established among the companies involved in the ProlOg project. The companies, similar to a community of practice, have a common interest in acquiring a fresh perspective on processes through the use of visualizations. Their objective is to acquire, implement, and maintain expertise in a field that is significant to their organization, specifically process management. In order to establish a shared understanding, the short descriptions were arranged in accordance with the aesthetic layout, both within and between the companies. A variety of multimedia content, including text and images, as well as logical and aesthetic information regarding the problem-solution structure and design, had to be combined. We recognized the necessity of making the essence of a business process pattern more accessible to companies who want to combine it with their own business process patterns. Consequently, we have created a flow map (cf. Figure 6) that distills the variable context to the invariant of a business process pattern, particularly focusing on the dynamics of the problem-solving process that arises from and balances a system of forces. The flow map for the pattern "*Breathing in and out in a network of personal relationships*" concentrates more specifically on the ***flow*** of relationships between inside and outside, across boundaries, and in two directions within a whole. In addition to the sequence and interaction of activities, the flow map references ***humans***, their ***responsibilities*** and ***organizational units***, as well as sub-goals, beginnings, and endings. The flow map has been compared to the present flow maps at the sub-process level in the production system. The purpose of these flow maps, which are equivalent to swimlane diagrams, is to demonstrate the way in which the processes in a quality management system meet the requirements specified in

ISO 9001, chapter 4.4. As shown in Figure 7, the surface correction procedure starts with a complaint from body shop production or quality assurance and ends when the message "No complaint" is proved. It clarifies the interplay among body shop production, single part procuction, the planning department, quality assurance, and a centralized IT-system. The quality assurance staff charged with conceptualizing this diagram prioritized an accessible and clear representation that workers could easily comprehend and regularly follow. Our aesthetic analysis's multimodality really made process participants from production and quality assurance, whose work was symbolized using the swimlane diagram, more conscious of the significance of the process, their role, and the steps themselves. They collectively concluded: "Novel representations inspire me to think differently."

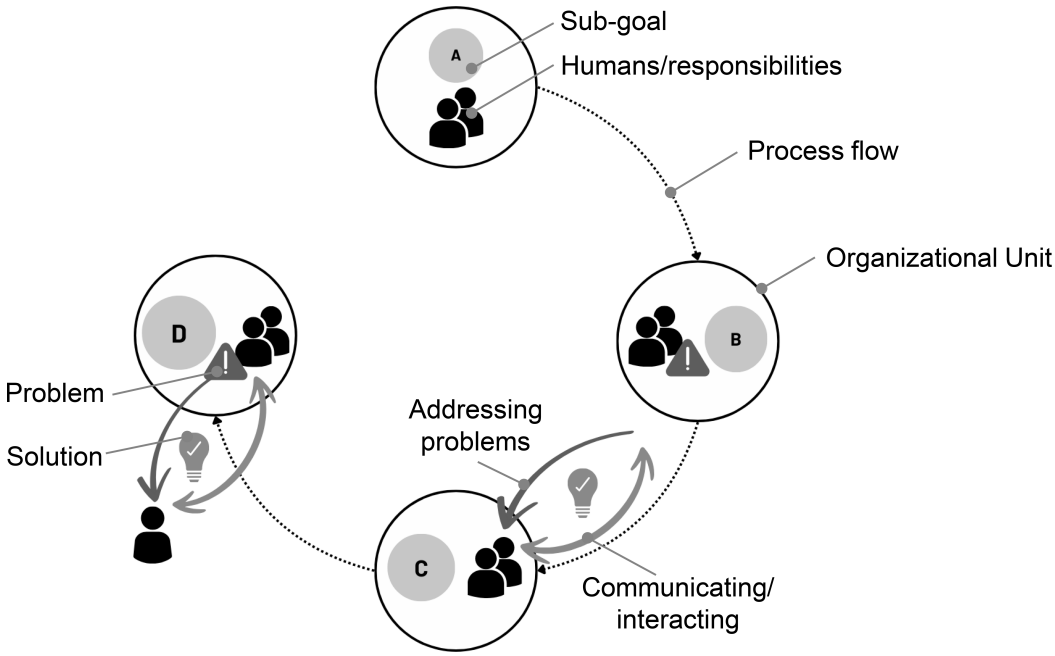

Figure 6: The flow map for the business process pattern "Breathing in and out in a network of personal relationships" (author: Blattmeier; design: Herrmann)

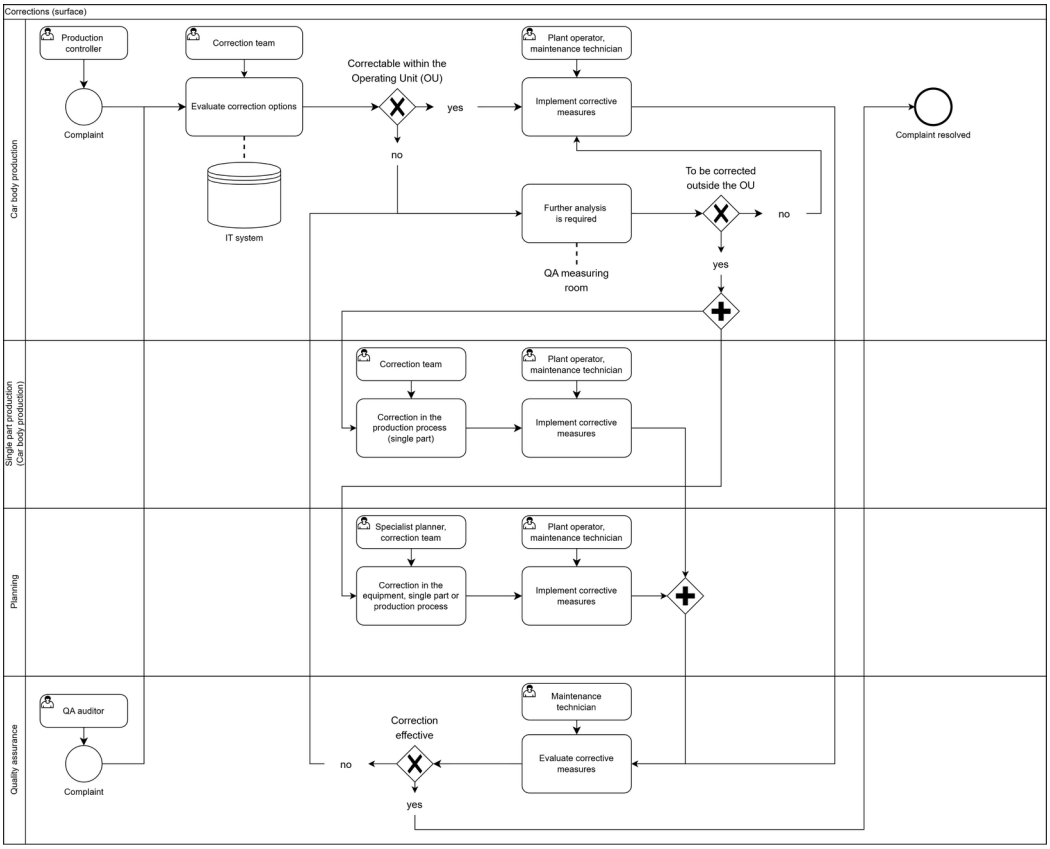

Figure 7: The sub-process of surface correction in a car body shop modeled as a swimlane diagram with BPMN (Business Process Model and Notification)

5. Conclusion of the aesthetic analysis

This article explores the knowledge within business processes from an aesthetic perspective, particularly focusing on the implicit knowledge embedded in humans (Polanyi, 1962), their activities, and the underlying structures. It relates to aesthetic experiences, which provide sensual insights that indicate the existence of something novel, unique, and extraordinary. Values, visions, and moments of self-experience for those involved in business processes should be made visible. The article follows the format of a business process pattern to visualize the spectrum of sensory experiences. The format contributes to the development of a multimodal repertoire that enables us to not only rationally comprehend the problem-solution structure but also perceive the business process pattern as a whole (Gestalt). This expands the possibilities for disseminating knowledge through business process patterns in business process management. The traditional problem-solution scheme in business process modeling has predominantly been conceptualized in the context of software development; in our view, business process patterns can also emphasize the dynamic and sensory aspects of the process flow through which problems are addressed. The aesthetics of business processes can be perceived when they create

unique value because they express a company's core competencies. In aesthetic business processes, individuals are emotionally engaged in their tasks, experience them sensually, and learn how significant they are. Aesthetic business processes are characterized by their receptiveness to the unconventional, diversity, and creative approaches. Because of this, business process patterns must have an opportunity to evolve generatively allowing for dynamic and self-organizing process structures (Gestalten). A pattern language designed for aesthetic business processes is less beneficial to problem-solving by iteratively assembling patterns as basic building blocks of a language. C. Alexander's later work, "The Nature of Order," outlines a pattern language that, dependent upon the specifics of the project, may be either newly developed or a fusion of existing languages. This language serves as a bridge between multiple domains of knowledge, particularly in the context of aesthetic business processes. Although this article's aesthetic analysis attempts to increase awareness of, characterize, and visualize aesthetic behavior in business processes, it is insufficient on its own to offer thorough recommendations for economic action. The visualization in the article, which utilized a particular business process pattern as an illustration, stimulated the senses of those involved in the process, promoting self-observation and intuition, as well as the development of knowledge and creativity. This was achieved by companies learning collaboratively, as they gained a better understanding of their own processes and those of other companies. The value of visualizations for business process management, however, is only realized when they are looked at in detail. The repertoire of texts and images requires that managers, consultants, and process participants engage with diverse, often conflicting, realities. It is not always possible to explain some circumstances; instead, one must engage with them through an interplay of emotion and rationality. In business process management, business process patterns as Gestalten can guide perception towards distinctive and unforeseen elements that link the perceiver to the present moment.

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