**SERVICE BLUEPRINTING AND BPMN: A COMPARISON**

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**Purpose:** To compare and contrast a customer-focused service process diagram tool (blueprinting) with an organizational-focused process diagram tool (business process modelling notation, or BPMN).

**Design/methodology/approach:** Using a hotel stay as an example, we present both a service blueprint and a BPMN diagram and explicitly discuss the similarities, differences and where the two tools can be complementary.

**Findings:** We have found that one similarity is that service blueprinting segments processes into parts that are similar to BPMN’s idea of swimlanes. However, the swimlanes in service blueprinting separate customer actions, customer-facing employees’ actions and functions, and back-stage functions, actors, and information systems thereby effectively mandating certain swimlanes for the purpose of analyzing points of contact between the firm and a customer. Another similarity is that service blueprinting deliberately differentiates between different functional areas and roles within each area to highlight, and IT systems. But it does this to make clear where actions move across organizational boundaries to avoid damaging service support, and also to explain to back-office staff their role in supporting on-stage interactions. Unlike BPMN, service blueprinting has physical evidence as front-stage indicators to customers of service quality and to constrain customer actions by carefully designing the servicescape.

**Research limitations/implications:** A limitation is that we have only used one example (a hotel stay)

**Practical implications:** The comparison provides service managers with guidance as to how to use the two tools interactively.

**Keywords:** Service blueprinting, business process, modeling notation (BPMN)

1. **Introduction**

Service Dominant Logic (SDL) holds that “service’ is conceptualized as a process that represents the basis of social and economic exchange.” (Vargo and Akaka, 2009, p 36). This service-centered view suggests that market exchange is the process of parties using their specialized knowledge for each other’s benefit – that is, for mutual service provision. This view raises the questions of what this process might look like, who are the actors in the process, what are the key parts of a service process, what interactions are there between actors in the process, and are these service processes special sorts of processes.

SDL suggests that services are co-created processes involving a service provider and a customer. Ongoing service quality requires that the process be repeated with a predictable level of quality (Zeithaml, et al 1988). Customer experience (perception) is central to the quality of a service (process). Integrating different functions within the firm is also important. So how does a
firm actually analyze its service deliver processes? One approach to representing a service is called service blueprinting, which was initially developed by Shostack (1984; 1987). Customers are recognized as important in the general business process literature. For example, Davenport (2005, p 102) suggests

“A business process is simply how an organization does its work - the set of activities it pursues to accomplish a particular objective for a particular customer, either internal or external”.

The contemporary representation of business processes is Business Process Modeling Notation (or BPMN), an industry standard maintained by the Object Management Group (see http://www.omg.org/). Since BPMN and service blueprinting purport to represent service processes, the obvious question that arises is what are the similarities and differences between service blueprints and BPMN diagrams? In order to answer this question, this paper contains a discussion of a two-way comparison of the features in service blueprints and BPMN diagrams.

2. Representing Service: Service Blueprinting

Service blueprinting is a representation of the crucial aspects of a repeatable service process involving many actors and a customer (Bitner, Ostrom and Morgan, 2008). In fact, a blueprint takes the viewpoint of the customer, not the organization. Key features of service blueprints are customer actions, specifically interactions with individuals in the firm and/or technology (e.g., websites) and the physical evidence that is seen by the customer during the various stages of service delivery. Actors can be people or even technology such as a web site. The crucial aspects are those that require consistent reproduction to realize the full design of the process (i.e., to minimize relevant gaps in service management). An example of a service blueprint in a hotel context is shown in Figure 1.

The service blueprint allows everyone in the organization to visualize an entire service process and its underlying business process(es). It makes explicit all points of customer contact and physical evidence is made explicit. Details of all service acts are noted on the blueprint. Firms that are successful in new services develop blueprints consistently using a systematic design and development process (Bitner et al 2008):

Objectives -> idea generation -> concept development -> service design -> prototyping -> launch -> feedback
The design process attempts to manage the *gaps* in the customer experience and in service quality and experience (Zeithaml et al, 1988). Blueprinting focuses on service design which must have clarity of outcomes and processes involving the customer and a clear understanding of how experience builds via *touch-points* with the firm. Customer actions are central to a service blueprint, along with *On-stage* (visible) employee actions, *Back-stage* (invisible) contact employee actions, and support processes (presumably not involving contact employees). Physical evidence is also shown across the top of a service blueprint, since the so-called servicescape (Bitner 1992) has been shown to be a key element in a customer’s evaluation of service quality.

The theme of this paper is that one can relate a customer-focused service blueprint to internally focused process representations such as BPMN diagrams. We now turn to a brief discussion of representing business processes in this way.

### 3. Representing Process: BPMN

Business Process Modeling Notation (BPMN) is a standard for representing business processes. BPMN emerged from the need for people in an organization to communicate about business processes. The most common use of BPMN is for communication between IT practitioners.
responsible for providing IT to support business processes and the people using and managing business processes. The communication is to clarify the processes represented and the role of IT and other actors in the business processes. BPMN is also being used to automate computational or automated parts of processes (e.g., seeking service providers prepared to meet the specific requirements automatically via the internet).

BPMN is an initiative of the Object Management Group (OMG) and has substantial vendor involvement, including from prominent IT services and software companies such as IBM and SAP. BPMN builds on earlier process representation efforts (e.g., Event Process Chains from SAP) and relates to the most prominent software analysis, design and development methodology called the Rational Unified Process that is underpinned by OMG’s Unified Modeling Language (UML).

In Version 1.2 of BPMN (Object Management Group, 2011) the focus was on representing processes from one organization’s viewpoint. However, Version 2 released in 2011 (Object Management Group, 2011) has extended V. 1 to represent complex inter-organizational and multi-organizational processes found commonly today. In this paper we restrict ourselves to the parts of BPMN that apply for processes within one organization. We do this to allow an exploration of basic service blueprints without the complexity of parts of the blueprint or process being completed by employees belonging to other service providers, nor the complexity where inter-organizational processes of other firms impinge on the service. We restrict our focus to consider the actors and IT systems, internal to the firm, and customers.

Figure 2 shows a BPMN representation of the service blueprint shown earlier. It shows the business processes using swim-lanes. Swim-lanes separate actors. Each swim-lane shows the tasks and activities each actor completes in the process from beginning to end. In this example, each actor is responsible for their own processes and do not take carriage of the process alone. The steps in processes, called activities or tasks, may be complex, comprising many simpler steps, or simple.

Arrows connect activities and tasks, where the connectors are called ‘flow’, and show the way a process is planned to execute. Flow is by a solid arrow joining activities and tasks. A flow has a start event and end event indicated by special symbols. Process flows can be placed within swim-lanes (e.g., for different actors) and even in swimming-pools (e.g., for several actors belonging to one department). Each lane shows the process for that lane, with connections to other lanes. Pools show logical grouping of lanes and plays no other role in the representation. The most common use of lanes is to separate actors (e.g., reception clerk). Actors in BPMN can be IT systems (e.g., SAP).

Events occur that stimulate an actor’s activity. For example, the receipt of a message may trigger an activity. In this example the event of receiving a call at the call center may cause the activity “Record and confirm” for the call center staff. There are about forty different types of events in the full richness of BPMN.
Flow can be simple where activities and tasks are joined with an arrow showing the sequence of activity and task execution, as is the case shown above. However, flow can be made more complex by having ways of flow splitting to many activities or tasks, or joining of many activities to one. The splitting and joining of flow is shown using a diamond. The type of split or join can be complex with five basic splits (e.g., a simple split to execute only one of the paths). The simplest show whether exactly one (exclusive ‘or’), more than one (‘or’), or all (‘and’) of the activities entering or leaving the join or split respectively, are required prior to (join) or must follow (split).

Complex activities are shown using a ‘+’ symbol that indicates that more detail of the activity can be found by drilling down. Further, activities in different lanes that are related can be associated using a dotted line. An example of both of these is the complexity and association between lanes of the ‘make reservation’ customer activity with the ‘record and confirm’ activity in the call center, and the ‘record booking process’ in the reservation system. This association and complexity in the process can be explored and is shown below in Figure 3.
Make Reservation Detail in BPMN

Each activity can have complex conditions for completing with flow indicated for each condition. The example in Figure 4 (a) shows processing of a credit card payment. There are three possible ways of completing the process. Firstly, if the payment using card is accepted then flow continues normally and is shown using an arrow without an icon emerging from the task. Secondly, exceptional flow shown using the lightning bolt, is for when there is an exception beyond the actor’s control, with separate processing required. Thirdly, a failure flow, shown with an ‘X’ at the start, is used to handle the delicate situation where the credit card is declined. Figure 4 (b) shows an alternative way of handling trouble with credit card handling could be supported using the ‘compensation’ action for the task or activity where the task is reversed when any abnormal outcome occurs.

(a) using explicit process markings  
(b) using compensation
Activities or tasks can be labeled to show whether it repeats until a condition is met (e.g., in seeking quotes from suppliers), has several instances executing in parallel, or is for compensation (e.g., when the effects of the process is reversed). Compensation is best used where the reversal of the task is self-explanatory or does not require special attention in contrast to when the interaction may lead to challenging situations (e.g., where a customer may be offended).

Some processes explicitly pass flow from one actor to another by crossing swim-lanes. The Hotel example requires separate autonomy of actors while requiring messages to pass between the actors. In this way actors communicate while maintaining their own flows. Communicate is either unstructured (e.g., a verbal request for a room, or an email / letter to the hotel) or structured (e.g., a specific form being completed by a customer and passed to the receptionist). Unstructured communication is shown using a dashed line. Often documents label these flows. Dotted lines show more structured data flows between actors. These flows are more structured and often involve IT systems and follow a standard format.

4. Comparison of Service Blueprints and BPMN

Recall we are comparing BPMN with service blueprinting. Specifically, we conduct a two-way comparison of the parts of service blueprints against BPMN to see the similarities and differences between the two representations. The aim is see how well BPMN supports service blueprints, specifically, to find out the areas in which BPMN supports and areas in which it has shortcomings.

Service blueprints support specifying actions. Actions can be described simply (e.g., process credit card) or can be a more complex representation (e.g., specifying the specific sequence of steps required to process a credit card). BPMN can similarly specify actions to different degrees of specificity.

Service blueprints can represent the flow of actions and thereby structures the actions each actor type performs. BPMN similarly supports the description of the flow of processes each actor performs. However, service blueprints sometimes do not show the flow explicitly as some time may pass between the actions an actor performs in the process, thus making the links between actions not necessary to show. This does not negate the implied flow between the processes.

BPMN has a wide range of symbols to specify how each task or activity is performed and how sequences of these combine to describe the process. Blueprinting has a smaller set but nevertheless is likely to be able to describe similar ranges of action sequences. The detailed analysis of the semantics of blueprints compared with BPMN is not within scope of this study.

Moments of truth occur whenever a customer service representative interacts with a customer. This is shown on service blueprints as a crossing of the line of visibility that separates back-stage from front-of-stage actions. These are particularly important when something does not go according to the script of a smoothly running process. These are called moments of truth because there is a risk that the customer may be disappointed with the way the problem is handled and therefore will not see the service as true. For example, when processing a credit card for payment, the card may be declined. The way that a customer service representative handles such moments of truth is critical to customer satisfaction. BPMN has potential to fall short in representing moments of truth. This is because BPMN uses ‘compensation’ to reverse a task’s effect. Thus, a payment task using credit card could be represented using ‘compensation’ for cases when the card is declined. However, the way in which the actor handles the outcome
of the credit card declination would vary widely between actors. A better way to handle this would be to disallow simple ‘compensation’ actions in service blueprints represented in BPMN to avoid variable service outcomes in moments of truth.

Both service blueprinting and BPMN separates different types of actors. Blueprinting separates (1) customers, from (2) visible customer service representatives (CSRs), (3) CSRs not visible to customers (including technology actors), and (4) back-office processes.

BPMN clearly can support these different types of actors. However, full support of service processes requires specifying swim-lanes that separate the actor types into the four types specified. Specifically, this requires a swim-lane for each of the types of actors. Each swim-lane in turn could be divided into specific actors (e.g., types of customer, or different IT systems).

There is no way to adequately support the line of visibility. This line shows the demarcation between on-stage tasks and activities performed by actors and the back-stage support tasks and activities.

Props and physical evidence are important elements of blueprinting services. These are important because they help to reinforce characteristics of the service that help to reinforce the service design. For example, in a five-star hotel the props should reinforce customer views of the quality expected for that service. Thus, specifying props is critical in ensuring the service is realized in the quality expected.

BPMN does not support representing props and physical evidence. This shortcoming needs to be addressed if BPMN is to be used to effectively represent services as blueprinted by service blueprinting. Communicating these aspects of services lies at the heart of ensuring that all employees understand and realize a service according to its design. Because BPMN representations are often used to communicate with IT staff, having explicit support of describing which aspects of IT act as props (e.g., the character and quality of the user interface of IT) helps to ensure the props reinforce the desired idea of the service for the customer (e.g., a budget airline such as *Jet Blue* maintaining a light-hearted enjoyable character in its web-site).

5. Conclusions

Service blueprinting and BPMN can both be used to diagram a service process, but from fundamentally different perspectives. The customer-focused perspective of blueprinting is very useful in understanding the critical touch-points driving service satisfaction. But underneath this are service processes from the organizational perspective that can be best represented by BPMN diagrams. In our view, the two process tools can be effectively used in tandem by service organizations desiring an improved service outcome. However, BPMN has specific shortcomings compared with service blueprints. These require extensions to BPMN to include (a) representing *props* (and other evidence of service quality that are visible to the customer), (b) a *line of visibility* (to adequately separate activities that are visible to customers from back-office activities), and (c) *guidelines* to enable ‘moments of truth’ to be carefully scripted in BPMN.

Services are now central to most economies. BPMN is rapidly emerging as the standard for representing processes. Thus, improving BPMN to include key features of service blueprinting is important. Each firm must carefully describe processes that impact on other firms to which it provides services, as must firms expecting services from others. Additionally, as process standardisation gathers pace, finding ways to adequately represent service processes in these standards is also important.
Many organisations comprise business units. Business process standardisation and integration across these organisations determines the level of agreement and shared representations of business processes (Ross et al., 2006). BPMN plays an important role in maintaining process plans for these organisations and is part of the essential infrastructure for enterprise architecture. Specifically, where processes are integrated between business units collaboration becomes critical with an implied service relationship between business units for these processes. Much of BPMN version 2.0 involves choreography of these complex inter-unit processes. This can be further extended to inter-organisational processes. Exploring how service blueprinting can improve the design of these processes is an interesting avenue of future research.

References


