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AN EVALUATION OF VARIOUS BUSINESS PROCESS MODELING TECHNIQUES

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Abstract
Due to its value in enhancing human comprehension and communication, business process modelling is a growingly popular research topic among academics and organizations. The characteristics of business processes have been postulated and modelled using a variety of modelling methodologies. However, the existing methodologies have various features and capabilities and view business processes from various angles. Additionally, there are currently few guidelines for choosing acceptable modelling approaches based on the features of the issue and its prerequisites. This essay compares and contrasts a few well-liked business process modelling approaches. The methodology for comparison is based on five factors: flexibility, usability, comprehension, support for simulations, and scope. Some of the most significant paradigmatic differences between the methodologies are highlighted by the study. The suggested framework can be used as a starting point for developing selection criteria and assessing further modelling approaches.

Keywords: Business Process Modelling, Academics, Approaches, Techniques, Areas

I. Introduction
Business process modelling is a crucial component of the growth and evolution of information systems (IS) within organizations. This is mostly because organisations need to be able to quickly adjust their operations to change that is brought on by both internal and external sources (Morgan, 2007). The abundance of available methods for representing organizational processes and their needs is one of the fundamental problems with business process modelling (Luo and Tung, 1999). Different aspects of process modelling can be the focus of particular methodologies. For instance, data flow diagrams (DFD) emphasize the flow of data through a system, whereas role activity diagrams (RAD) place emphasis on the interaction between roles in the Organisation (Ould, 1995). (Shen et al., 2004). This essay compares and contrasts several well-liked methods for business process modelling. The practical necessity for information systems stakeholders (among them developers) to comprehend the pragmatic distinctions of various modelling methodologies and ultimately select the most appropriate for the task at hand serves as the driving force behind this study. The evaluation of each approach individually and the subsequent comparison of the techniques are based on essential criteria. The business process modelling literature, including Kettinger et al. (1997), Luo and Tung (1999), Melao and Pidd (2000), Giaglis (2001), Aguilar-Savén (2004), Carnaghan (2006), Ortiz-Hernández et al. (2007), and Vergidis et al. (2008), recommends several factors as being crucial. The five criteria adopted by the comparison framework are flexibility, usability, understandability, simulation, and scope. In Section 3, these benchmarks for comparison will be described. The rest of this essay is organised as follows: The relevant background information and a

summary of related literature are provided in Section 2. The comparative analysis approach is presented in Section 4, and the conclusions and suggested research are presented in Section 5.

II. Background

The conceptual artefacts supporting the management of organizational processes and their ongoing evolution are produced by business process modelling (BPM) (Mendling, 2008). Effective management of a company's process models, whether the change is drastic or subtle, is essential to maintaining an organization's effectiveness and competitiveness (Morgan, 2007). Therefore, in order to improve organizational performance and enable the organization to provide clients with high-quality goods and services, business processes must be updated and revised on a regular basis (Jacobson et al., 1995). There are numerous definitions of business processes. A business process, for instance, is "a collection of actions whose final purpose is the production of a specified output that is of value to the client," according to Hammer and Champy (1993, p. 85). A business process has a goal and is impacted by things that happen in other processes or the outside world. Similar meanings of the term are given in other definitions (see, for instance, Davenport (1993), Earls (1994), Jacobson et al. (1995), Ould (1995), and Havey (2005)). It is feasible to identify the components that, according to the business modelling community, most accurately describe a business process through an analysis of these definitions. These components consist of:

- **Process**: A process is a group of actions, events, or other things that work together to deliver a good or service.
- **Activity:** A group of people engaged in specific actions
- **Service and Product:** The tangible outcomes of a process's value it is customary to distinguish between services and products as being physical and intangible, respectively.
- **Role:** The many kinds of actors or agents who participate in processes
- **Goal:** The goal of a process
- **Event:** An occurrence that occurs at a defined moment and has the potential to cause some discernible behavior is referred to as an "event" (or "activity" or "process").
- **Rule:** An established restriction that applies to all areas of the organization and its processes.

In order to create a cohesive model of the behavior necessary to deliver a service or a product to a client or another area of the organization, business process modelling is the process that aims to depict all or some of the aforementioned parts. Depending on the technique's objective, business process modelling techniques can model all or part of the aforementioned components. The focus may change depending on a number of variables, such as the paradigm in which the approach was first developed or the field for which it was created (e.g., software development, systems engineering, etc.). Although some techniques include constructs that can be used to represent the aforementioned aspects implicitly, they may not formally model any of them.

Numerous strategies have been put out over the years for BPM, as prior comparative evaluations show. In a study on business process reengineering, Kettinger et al. (1997) analysed a total of 102 tools and 72 methodologies. Given the resurgence of interest in BPM, decision-makers in IS are now faced with the challenge of deciding how to model their processes and, consequently, which technique(s) to use. The choice may depend on the goal (or justification) for implementing BPM. Modeling business processes has several uses. These goals include the following, summarized from Luo and Tung (1999), Eriksson and Penker (2000), and Caetano et al. (2005):

1. Using a common process representation so that a group can share what they know about a process can help people understand and talk to each other better.

2. Offering the benefit of reuse. The basic input for establishing the requirements of each information system can be used if the same business process model can serve as the foundation for several information systems.
3. Creating the right information systems to help the business run by providing a learning description model
4. Using business process analysis and simulation to support process reengineering and improvement. By discovering potential ways to increase the business's efficiency, BPM will be used to enhance the current operation. Typically, the current business is first modelled before being re-engineered to look for potential for expansion or improvement.
5. Enabling control and decision-support during process execution.

III. Modeling techniques evaluation methods

Businesses need to model their business processes more and more, which has led to the development of a lot of different modeling techniques. The lack of established procedures for evaluating them is the issue, not the abundance of modeling methodologies. Various objectives require different evaluation techniques. Among them are the following: to better comprehend the characteristics, strengths, and weaknesses of methods for categorizing modeling techniques and improving them , to compare various modeling techniques and gather data for using particular techniques, and to improve the information system development process. Table 1 lists a few of the evaluation techniques that have been suggested in the literature. The many modeling strategies that have been chosen for examination are shown in Table 1's third column, labeled "modeling methodology."

Table 1: Related papers on modeling approach evaluation methods

Authors (year)	Focus of Study	Modeling Language(s)
Luo and Tung(1999)	Defining a framework for choosing business process modeling methods according to the modeling goals	DFD, RAD
Giaglis(2001)	Introducing a framework for evaluating business process modeling and information system modeling methodologies	Flowchart, DFD, and 3, Petri nets, UML, and RAD
List and Korherr (2006)	Proposing a generic meta-model to evaluate BPMNs	Petri nets, RAD, UML, BPMN,

However, explicit categorized assessing techniques were not used in the majority of prior studies' comparisons. Recently, method evaluation was the subject of a survey by the authors. They gave a comprehensive analysis of evaluation techniques and divided them into three groups: feature comparison, theoretical and conceptual analysis, and empirical evaluation technique.

The feature comparison methodology is applied in the assessment method category by creating a checklist of ideal method features against which modeling strategies are assessed. However, the main issue with using this technique is subjectivity. Different interpretations that result from an ambiguous description during study analysis are a common example. Commonplace empirical evaluations have a few drawbacks that lower their level of effectiveness. For instance, the verbal protocol method and survey methods both require access to human subjects, and a model developed in a lab setting may not be appropriate in the real world. Applying the field experiment method in an information system setting is challenging. The subjectivity of researcher interpretation is another issue with adopting the case study approach.

IV Comparison standards

The aforementioned goals of BPM pave the way for the five criteria that this study uses to analyse seven business process modelling approaches. Table 2 lists and defines the five criteria.

Table 2: Criterion for business process modeling.

Criteria	Description
Flexibility	The degree to which it is possible to implement changes in the types and instances of business processes while maintaining the stability of other components If changes can be made to a business process model without completely replacing it, it is flexible.
Ease of Use	The degree to which business stakeholders who lack specialised expertise in the technique can apply it quickly.
Understandability	The degree to which business stakeholders who lack specialised expertise in the technique can apply it quickly.
Simulation	The degree to which a business process can be dynamically simulated using the approach
Scope	The degree to which the constructs of the technique represent the process modelling elements outlined in Section 2.

The criteria "ease of use" and "understandability" refer to the amount of time it takes for a business stakeholder to have a fundamental grasp of the diagram(s) underpinning the technique, even though every technique takes time to master. In some instances, the criteria may conflict or overlap. For instance, "simple to use" procedures typically also tend to be "understandable." On the other hand, highly specialized approaches (like those used in simulation) could need to be used in conjunction with specialized knowledge.

In the section that follows, seven business process modelling methodologies will be reviewed, discussed, and compared using the five criteria. A straightforward example has been taken and modelled with each approach in order to help the reader grasp the nomenclature and the paradigm that each technique is based on.

Only seven approaches are compared in this research due to space constraints. These methodologies consist of the following: (1) Flow Diagram (2) Petri Nets, (3) Data Flow Diagrams, (4) Role Activity Diagrams, (5) Business Process Modelling Notation Diagrams, (6) Business use cases, and (7) Business Object Interaction Diagrams. The decision was made with the goal of contrasting strategies that use distinct paradigms, such as (5), (6), and (7), and illustrating contrasts in approaches that use a similar modelling paradigm, like (1), (2), and (5).

V ANALYSIS

In the sections that follow, the course registration business process is used as an example to show the different types of notations and the basic idea behind each one. The scenario involving course registration relates to the standard enrollment procedure for courses at a university. On demand, information about the university and an application are given to potential students, and directions on how to enrol again are given to current students. The new student submits an application form with their personal information and the course they want to enrol in. The enrolling officer verifies the academic prerequisites with academic staff after receiving the student application and then notifies the applicants of the findings (approve or reject). When an application is accepted, the university verifies the student's enrollment by mailing the student a letter confirming that the student has registered for the course and giving the student an identity card.

5.1 Flow Diagram

A flow diagram is a graphical depiction that demonstrates how control moves throughout a process by outlining the exact steps that take place in a given situation. Despite being well known for simulating control flow in software systems, Flow Diagrams also serve as the most fundamental form of diagram for explaining business process flows (Aguilar-Savén, 2004). Although Flow Diagrams are most commonly used in software engineering, managers and business owners have begun to use them for organisational purposes as well because of how simple and straightforward they are to use.

- **Flexibility:** Flow Diagrams are reasonably easy to update, and their graphical representation of a process makes it easy to spot bottlenecks or inefficiencies that can be eliminated or enhanced (Aguilar-Savén, 2004). In terms of what they model, Flow Diagrams are rather straightforward diagrams, and because there are only a few modelling components that the modeller must mentally grasp, they can be said to be easily customizable. However, Flow Diagrams lack a robust mechanism for modularizing or packaging diagrams, making it difficult to invoke other processes from them.
- **Ease of Use:** Compared to other methodologies, Flow Diagrams are easier to learn and use for inexperienced stakeholders due to the small number of symbols used (Aguilar-Savén, 2004).
- **Understandability:** Due to their clarity in the semantics of the constructs they represent, Flow Diagrams are commonly used for communication and in conversations between analysts and stakeholders (Giaglis, 2001; Aguilar-Savén, 2004). When using Flow Diagrams, keeping things simple is the best way to remain agile. The value is frequently found in the modelling process rather than the finished products because it encourages critical thinking.
- **Simulation*:*** Numerous commercial simulation programmes use flowcharts as their primary method of operation (for example, iGrafx). Such technologies allow users to create process models that indicate the proper action to take in order to finally execute the model, allowing them to create dynamic Flow Diagrams (Damji, 2007).
- **Scope:** A Flow Diagram's modelling components are the start and end, activity, input and output, decision, and process. The beginning and end of a flowchart are indicated with the terminus symbol. A rectangle is used to depict an activity. An arrow connects one activity to the next, illustrating process flow. A decision (represented by a symbol in the shape of a diamond) designates potential directions based on a boolean statement. Consequently, a Flow Diagram can be used as a tool to model processes, and those process stages relate to the activities of a specific situation, supporting the objective that this approach attempts to depict. However, the method lacks the ability to clearly represent services, events, and rules.

5.2 Petti Net

A petri net is a mathematical or graphical representation that is suitable for simulating concurrent systems. It mixes "a standard notation-based visual representation with a fundamental mathematical representation" (Vergidis et al., 2008). Carl Adam Petri's 1962 doctoral thesis, which offered a new model of information flow in systems, is where Petri nets got their start. Petri nets are being employed to represent business processes as well as computer hardware, software, and control flow. The method was initially created for systems engineering (List and Korherr, 2006).

- **Flexibility:** Petri nets are appropriate for the study and reengineering of business process models because they combine a precise mathematical notation with a graphical representation. The mathematical modelling of Petri nets facilitates the investigation and improvement of BPM (Vergidis et al., 2008). These models' formal foundations (graphical and mathematical) make it easy to analyse and make changes to them without losing their identity as models.
- **Ease of Use:** Petri Nets' explicit expressivity in relation to the components of a business process is constrained by the fact that there are so few modelling pieces. Petri Nets' shortcomings have been addressed with numerous improvements, but they are still seen as a non-user-oriented technique, which makes it challenging for new stakeholders to adopt this technique for BPM.
- **Understandability:** Petri nets use a limited number of distinct sorts of building blocks to create models, which, according to Desel and Juhas (2001), "is a suitable basis for the easy understandability of a model and for the learnability of the language." Without any further explanation, it is simple to ensure a basic grasp of any Petri net model with just a few components. However, even though the technique's fundamental logic is very understandable, applying it to the modelling of intricate business processes may call for a certain amount of knowledge.
- **Simulation:** Petri Nets facilitate the creation of simulation models, according to Desel and Juhas (2001). Dynamic simulation models have been created using Petri nets to transform static process models. As a result, even inexperienced users can see up close how procedures are carried out and what can go wrong when a model is built incorrectly. (2007) the petri-net-based simulation applications developed by Gottschalk et al. are widely used. An illustration of such a tool is PNS (Shukla and Robbi, 1991).
- **Scope:** Petri Nets' pictorial and mathematical depiction of a process makes it possible to express a process. Figure 1 shows how place nodes, transition nodes, and arcs between places and transitions can all be used to show how activities flow. Even though transitions represent events and guard conditions on transitions can be used to define rules, the concepts of service, goal, and role are not explicitly supported.

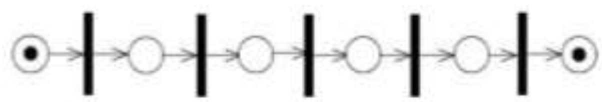

Figure 1: Petri net in its simplest form.

5.3 Data Flow Diagram

A DFD, as the name implies, is a graphical representation that is suitable for demonstrating system operation along with its underlying processes and data flow (Lee and Wyner, 2003). Modeling system analysis and design specifications is a well-known structured technique (Kendall and Kendall, 1995; Luo and Tung, 1999).By producing child diagrams for each action, the functional decomposition of DFDs permits various layers of representation (Luo and Tung, 1999). DFDs are a method for researching systems analysis and design in software engineering that was initially applied in this field (List and Korherr, 2006).

- **Flexibility:** When it comes to redesigning corporate processes, DFDs can be a potent tool. By producing child diagrams for each activity, many layers of representation (functional decomposition) can be created, which can help with system improvement and modification (Luo and Tung, 1999). Each process can be separated into subprocesses, which can then be further divided thanks to functional decomposition. Child diagrams can modularize the representation of the process through functional decomposition, enhancing the technique's flexibility.
- **Ease of Use:** Due to the few components needed to develop a model, DFD is a simple technique to use (Shen et al., 2004). (Carnaghan, 2007). Additionally, the expressivity of the modelling

components makes it easier for novice users to design a DFD model. In that regard, DFDs and Petri Nets are similar; both use a limited set of notations to build BPMs, but DFDs differ from Petri Nets in terms of the depth of their semantic richness.

- **Understandability:** DFD is simple to comprehend, both theoretically and orally. This is due to two factors. The diagrams can first display both more abstract and more detailed representations of the same process, allowing these representations to relate to one another according to the functional decomposition of DFDs (Carnaghan, 2007). Second, because they are straightforward, simple to interpret, and simple to draw, improve, and amend, DFDs are meant to be used for communication and in conversations between analysts or modellers and users (Aguilar-Savén, 2004; Damij, 2007).
- **Simulation:** DFD is a technique for the static modelling of business processes, not a technique that can easily enable simulation.
- **Scope:** DFDs model business processes using four fundamental components. To trace and represent the movement of information, these elements—process, data store, terminators, and flow—are used. The flow depicts how information moves from one place to another. The procedure is used to demonstrate how data can change from one state to another. The terminators represent the actors who interact with the various system processes but are not part of the modelled system. A reservoir of information is represented by the data store. While other components of Section 2 are at best implicitly supported, the overall process and activities are explicitly represented.

5.4 Role Activity Diagram

RADs are graphical representations of processes that include the roles played within them, the individual activities that make up those activities, how those activities interact with one another, external events, and the logic that determines the order in which those activities should be performed (when and by whom), among other things (Ould, 1995). Martin Ould (1995) is the source of RADs, which offer a more process-oriented technique. A RAD enables the diagrammatic modelling of a business process using roles, objectives, activities, interactions, and business rules (Melao and Pidd, 2000). Some believe that this method represents most process characteristics (goals, responsibilities, decisions, etc.) the most completely. (Miers, 1996).

- **Flexibility:** A process' activities and speech acts are represented via a notation that RADs use (Cordes, 2008). The notation makes it possible to represent the process in terms of participants' responsibilities, resources, activities, states, and interactions. Roles have characteristics that regulate their behavior. In order to make judgements that contribute to process development and refinement, managers can benefit from both of these features and traits. Activities in RAD are coordinated and carried out by a system, a group, or an individual (i.e., an actor or agent). Roles are the activities that are grouped together (Phalp et al., 1998). Activities are surrounded by rounded rectangles that represent roles. Roles give an analyst the ability to tweak and change activities without changing the entire model.
- **Convenience:** RAD comes with a collection of symbols that are helpful for explaining procedures. The strategy offers straightforward assistance that might assist stakeholders in keeping the "large picture" of service processes among a variety of participants. Role activity diagrams are especially beneficial for big systems with numerous players due to their flexible notation and simple interpretation (Cordes, 2008).
- **Understandability:** RAD gives a thorough graphical perspective of the process and is easy to read and understand. (2004) Aguilar-Savén As a result, RAD is considered credible for communication

among many participants and practical for big systems with many players due to the use of simple notations and the expressivity of the model produced (Cordes, 2008).

- Simulation: RAD facilitates in-depth reviews of particular process components, thereby supporting the simulation requirement. This method is particularly beneficial for simulating complex system operations (Martinez-Garcia and Warboys, 2001).
- **Scope:** The modelling components of RAD explain the process in terms of participants, states, roles, resources, activities, and interactions. As a result, each job includes characteristics that influence how it behaves, such as its interests and capabilities. When it comes to expressing processes, activities, and roles, the RAD approach is highly effective. While events and rules are implicitly represented, service is not supported.

5.5 Modeling Business Process Notation (BPMN)

Compared to other modelling tools, BPMN has a richer semantic base. It displays a model type known as a business process diagram (BPD). Based on specialised flowcharting methods for business processes, BPMN (Havey, 2005). The Business Process Management Initiative (BPMI), which developed BPMN, added it to the existing collection of Business Process Modeling Languages (BPML) in 2004.

- **Flexibility:** BPMN is a strong tool for designing business processes; it is a method that is well-structured for modelling the various facets of processes in an organization. For each process, BPMN enables the representation of extended models. Any process in the extended model can be changed or improved with flexibility thanks to this decomposition without impacting the original model.
- **Ease of Use:** BPMN was created with the main objective of being simple to use and easily comprehended by business and technology users. BPMN is especially rich in having a variety of different types of flow control and sequences, making it well defined and hence an easy solution to use for stakeholders with little knowledge. It is not required to be fully conversant in the entire specialised notation used in BPMN in order to build a comprehensive and usable BPMN diagram, despite the fact that BPMN is a complicated diagramming approach. So, both beginners and professionals can manage.

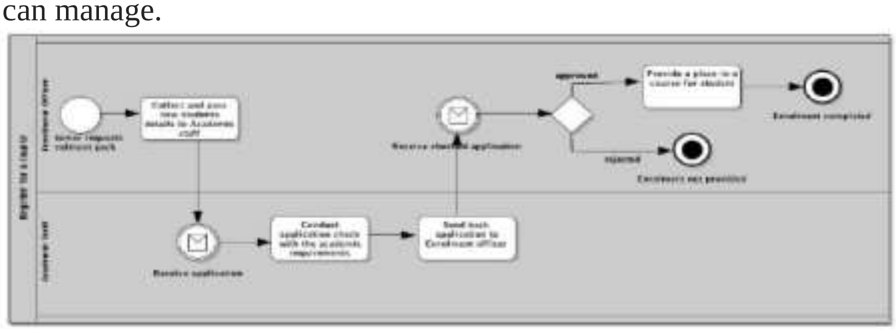

Figure 2: BPMN model of the course registration situation

- **Understandability:** One of the primary goals of BPMN is to model business processes in a way that analysts and business end users can understand. (2008) Zou and Pavlovski's BPMN provides a notation that is easily understood by all business users, from the business analysts who design the original versions of the processes to the technical developers who are in charge of putting them into practise to the business people who will administer and monitor the processes. (White, 2004) BPMN is designed for users, vendors, and service providers who must standardise business process communication.
- **Simulation:** BPMN facilitates the creation of simulation model architectures. The use of simulation technology can significantly improve BPMN. Their knowledge is greatly enhanced by the opportunity to test processes and to visualise them prior to implementation.

- **Scope:** Flow objects, linking objects, swimlanes, and artefacts are the different types of BPMN modelling components (see Figure 2 for an example). All of the elements of business process modelling described in Section 2 are supported by BPMN.

5.6 Business Use Cases

The majority of modern object-oriented development methodologies are powered by a technique called use case modeling. Use cases are used in the Unified Process (Jacobson et al., 1999) for both business and software modeling. According to the dictionary, a "use case" is "a description of a set of sequences of actions, including variants, that a system performs and that deliver an observable result of value to a specific actor" (Booch et al., 1999). A business use case, then, is a description of organizational behavior that renders a service to an actor, with the functionality being represented in terms of a business process (de Cesare et al., 2003).

- **Flexibility:** Business use cases (BUC) are mainly textual accounts of organisational procedures that provide a service to an actor. Given that the narrative may be changed easily, this trait may increase flexibility, but this benefit may be countered by the ambiguities and inconsistencies that result from using natural language in modelling procedures. BUCs represent processes based on a certain criterion, i.e., "observable result of value to a particular actor," from the perspective of modularity. Only operations that provide such an observable output (which may be regarded as a service) can be characterised as use cases according to this requirement. The criterion, which de Cesare et al. (2003) referred to as "actor perception," clearly delineates the boundary. Additionally, depending on whether the called use case is required or optional, use cases can be related to one another in one of two ways: "include" or "extend."
- **Ease of Use:** Because BUCs are mostly textual accounts of business processes, creating one is relatively simple as long as the modeller is aware of the underlying idea that underpins BUCs, which is, as previously stated, the concept of business process mapping.Textual narratives can also be combined with any preferred type of graphical representation.
- **Understandability:** Because business use cases are written in regular language, even non-experts can understand them quite well.
- **Simulation:** Business use cases don't directly support simulation, though.
- **Scope:** The name, aim, preconditions, triggering event, basic and alternate process flows, and postconditions are often included in the textual description of a BUC. All of the elements of business process modelling outlined in Section 2 are supported by BUCs. BUCs model services and the procedures used to offer such services, as stated by de Cesare et al. in 2003,

5.7 Diagram of Business Object Interaction

Although object-orientation was developed for and is frequently used in software engineering, there have been attempts to apply this paradigm to business modelling (Jacobson, 1995). In fact, the Unified Process (Booch et al., 1999) does include object interaction diagrams among its business modelling techniques to give business use cases an object-oriented perspective. The Unified Modeling Language (UML) now supports two different forms of interaction diagrams: communication and sequence diagrams. An example of a sequence diagram is shown in Figure 3.

- **Flexibility:** With the addition of "frames" in UML 2.0, sequence diagrams are now able to be activated by one another even through parameters, allowing various sequence diagrams to concentrate on modelling the particular responsibilities of the corresponding use cases that they realize. To some extent, this succeeds in separating and modularizing concerns about various organisational behaviors. Even at a more granular level, these traits of modularity and focused responsibility may be found in the objects that make up the main components of an interaction diagram.

- **Ease of Use:** Sequence diagrams are rarely used in business modelling since object-orientation expertise is needed to model business processes at more intricate levels of abstraction.
- **Understandability:** The understandability of sequence diagrams can be taken into consideration in a similar way. Even in this situation, object-orientation expertise is necessary, but because business process modelling typically involves the responsibilities of individuals or groups within an organisation, a novice in the approach would probably find it easier to read a sequence diagram than to draw one.
- **Simulation:** When using the programming language Simula-67, simulation was the first application domain for object orientation. As a result, sequence diagrams may, in theory, be the best type of diagram for use in business process simulations. In spite of the fact that all contemporary UML CASE tools have great support for modelling sequence diagrams, this method of simulation is not commonly used. As previously mentioned, several of these technologies now offer simulation using BPMN diagrams, which portray processes more closely in line with how business stakeholders see organisational operations.
- **Scope:** The business process modelling components represented by BUCs can be represented with sequence diagrams, but from an object-oriented perspective rather than a process or use case perspective, since object interaction diagrams are used to realise use cases. For instance, unlike BPMN and BUCs, sequence diagrams do not strictly support the ideas of process and activity. Processes would correspond to cooperation (between objects) in object interaction diagrams, and activities to messages sent between objects.

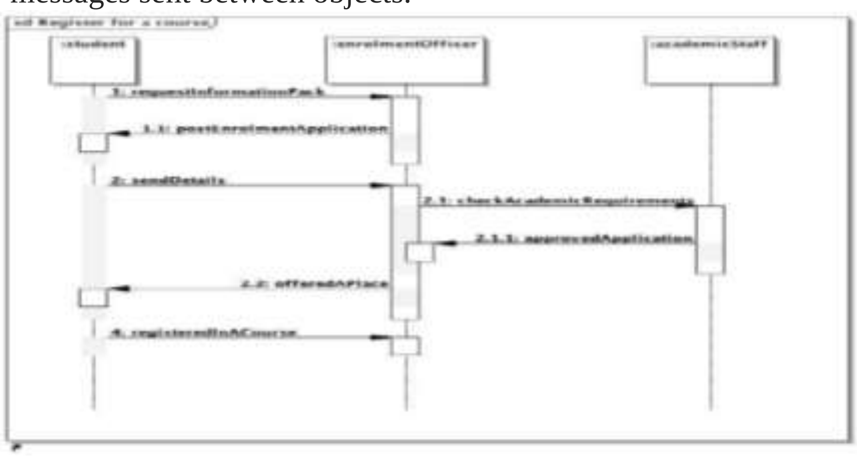

Figure 3: Modeling the scenario of course registration using business object interaction diagrams (sequence diagram)

VI CONCLUSION

Organizations are always changing. Organizations create models of their current and upcoming business processes in order to better understand and manage change. Due to the wide variety of business process modelling approaches available, organisations that truly implement BPM practises must make decisions about the representational technique(s) that are ultimately adopted; this study was motivated by this necessity. Five factors—flexibility, usability, comprehension, simulation, and scope—were taken into consideration when comparing seven different business process modelling techniques in this paper.

The findings of this study are especially valuable to organisations and academia. Academics should be encouraged to investigate current business process modelling methodologies in order to comprehend their variations and parallels. The potential mapping between business process models described according to various paradigms is one area of use for such an examination. This type of research would help us better understand the function that business modelling plays in model-driven development and, more particularly, how computationally independent models fit into the Object Management Group's Model Driven Architecture programme. Such comparisons and evaluations can also be used in the corporate world, where interest in business process modelling is expanding, particularly in light of the new service paradigm for system development.

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