The Metaphysics of Internal Controls

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Abstract:

One issue that continues to plague researchers in the development of a comprehensive business ontology, concerns the specification of normative business event (sometimes referred to as tasks) models for business processes. These business events are aggregated into business processes and can be mapped to state changes within these business processes. There are two types of review for these business event models. First, are the models designed appropriately, and second are they operating as designed. These two types of reviews are the basis for evaluating an organization's system of internal controls. Thus, a quality internal control system will result not only in a sufficient design of the business event models, but will also ensure availability of sufficient information about the actual functioning of these event models. Despite this relatively straightforward conceptual foundation for a system of internal controls, to date there are still only descriptions of sufficient results as opposed to necessary conditions for a quality internal control system. In addition, these sufficient results are not of internal controls, but concern the quality financial statements created from the corporate information system. This results in a subjective evaluation of internal controls; are they good enough to provide quality financial statements? This subjective review may not be consistent from one reviewer to the next. The purpose of this paper is to examine some possible philosophical issues that may offer some insight into the nature of business events, their impact on internal controls, and the evaluation of internal control systems.

1 Introduction

While internal controls have always been considered important to the proper functioning of an organization, it is not clear exactly how to evaluate them. Organization's employees execute various events. From a state transition perspective, an organization's state at time t will transition to a new state at time t+1 as a result of employees executing a task or business event. An organization with a perfect system of internal control will exhibit two features. First, all

potentially legal (acceptable) business events will be defined.[1] Second, the organization's information system will capture information about those business events to allow a person to make a judgement concerning whether actual business events have unfolded according to that definition. Thus, for a quality internal control system these two features are necessary, defining state business events and capturing necessary information about those events (PCAOB, 2007). However, there are some concerns about the possibility of any system exhibiting these features. Some concerns are practical, while others are philosophical. This paper looks at internal controls from a nominalist perspective.

2.2 A Nominalist View of an Organization

Without the perceiving an abstract "perfect" organization one is required to define (not name) an organization. There are two potential ways to create this definition, depending on how "organization" is viewed (Whitehead, 1920). One is that organizations are continuants; an object with stable attributes and characteristics that allows for its recognition at different times. The other is that an organization is an occurrent; an object in a state of flux that allows it only to be identified by its location at region of space-time (Sowa, 2000, p. 71). Continuants have the property of firstness, that is they are actual entities (Whitehead, 1920). Secondness connects continuants to other continuants. So, "person" can be connected to "organization" as an employee. Thus, employee (employer) is a category of secondness. Employees are a group of people that have been hired by a particular company. The process of hiring is a category of thirdness which brings about the relation of firstness objects (Sowa, 2000, p. 61). The distinction between a type (person) and a group (employee) is that there is a process which adds the continuant to a group. A process then is a set of events by which an object is transformed to be a member of a group. That is a person is transformed to the group employee through the hiring process. Each of business events in the hiring process, may itself be a result of another set of business events.[2]

[1] Herein, defining a business E(vent) implies specification of R(esources) and A(gents) which encompass the accepted constellation or policy for that event. Because the specification is usually not of instances, it is more appropriate to discuss these as Resource, Event, and Agent Types. A salesperson makes a sale of finished goods inventory to a customer, as opposed to Jim makes sale #IV12112 at 11:30am to Jeff of 10 chocolate chip cookies.
[2]Business events are those events that further a business process (McCarthy, Geerts, & Gal, The REA Ontology, 2019).

Two such views are appropriate. First, there is a possibility of decomposing an event into more and more detail. For example, interviewing a prospective candidate can be decomposed into, entering the office, sitting in a chair, offering a drink, etc. This decomposition can be continued to a potentially absurd level, moving the chair the first inch, the second inch, and so on. A general rule for this decomposition is to the level management wishes to plan, control, and evaluate (David, 1997) (Denna, Cherrington, Andros, & Hollander, 1993; International Standards Organization (ISO/IEC), 2007) A second approach, which has potentially more salient issues for internal controls, is the association of business events with another set of business events. For example, before a person is a salesperson, they must be hired, and then there may be a set of events (a business process) to train the person on the characteristics of the firm's products. There could be a requirement that this training be done by a product manager; a person that has been hired, has gone through salesperson training, has gone through a product training process, and so on. Thus, there are a set of events which describe these many processes. The set can be described as $\{e_{1,} e_{2,} e_3 e_{4,} e_{5, \ldots,} e_n\}$. These events, or occurrents, will take place at a particular time, so each event must also have a subscript for time $\{e_{1t,} e_{2t,} e_{3t} e_{4t,} e_{5t, \ldots,} e_{nt}\}$. Hiring a person to be a salesperson would include a proper subset of all the organization's possible events. The hiring function operates on this proper subset $F_{hiring}(e_{a,} e_{b,} e_{c, \ldots,} e_m)$, i.e $m<n$. To test whether Joe Jones was hired is to test whether the critical event[3], e_m – the final event in the chain of hiring events, has occurred. To test whether Joe was hired correctly is to determine whether each of the events assigned to the $F_{hiring.Joe}$ has an associated time; have all the events been completed. From an evaluation of internal controls, the evaluation of whether hiring is designed correctly (AS5's process design (PCAOB, 2007)) is to determine that the $F_{hiring}(e_{a,} e_{b,} e_{c, \ldots,} e_m)$ includes all the necessarily events. For Joe to be a salesperson two critical events must have occurred, i.e. the critical event for hiring and the critical event for salespersoning. Thus, these critical events are sufficient to be a hired salesperson. To be hired and promoted to salesperson correctly requires all the events in $F_{salesperson.Joe}(F_{hiring.Joe}(e_{at,} e_{bt,} e_{ct, \ldots,} e_{mt}), e_{zt,} e_{aat,} e_{bbt, \ldots,} e_{qqt})$ to

[3] A critical event is that event which allows an accounting entry (McCarthy, Geerts, & Gal, The REA Ontology, 2019). For this discussion I have extended the definition to the more general case of an even which concludes a business process. So, entry of Joe Jones in the table of current employees is the critical event for hiring as Joe Jones is now an employee.

have a time.[45] In addition to the hiring function, there would also be a function which establishes the process of creating the hiring function, and another which establishes the function which establishes those responsible for creating this function, and so on. At any point in time in the organization's temporal self, different events will either have taken place or not. Because the organization is different before and after any hiring process it has distinct temporally related parts. As the whole organization does not exist completely at any point in time, it has only components which persist through time (Lewis, 1986).

There are two main theories about objects as the traverse time. Endurantists consider objects as wholly existing three-dimensionally. In contrast Perdurantists consider objects to be four-dimensional with subsets existing at each moment (Balashov, 1999; Hales, 2003; Merricks, 1999). It would seem that organizations map better to perdurantist objects. For our purposes, it may not be necessary to come down completely on the side of either view, but we must consider how to describe what aspects about the organization exists at each point in time. To say that an organization exists requires a definition of what makes the organization exist or what exists about an organization. An organization has a current state that is defined by the events which occur at that state in time. Its state at time t changes to a new state at time t+1 based on the events which are defined as those events which change the organization. While this might be considered a circular definition, events which change the organization's state are those which we define as those events that change the state, it raises some issues to contemplate.

The first issue concerns the consideration a current state. If we view an organization as a function of its events then its current state can be viewed as an integral: $\int_0^t f(e_1, e_2, e_3, \ldots, e_n)$. The events to be included are idiosyncratic just as is the definition of the organization. For example, Campbell (1997) argued that organizations should be more socially responsible and therefore should consider a broader group of stakeholders. This would result in more events being considered as defining the organization's current state. In contrast, Friedman (1970; 1962) argued that organizations only social responsibility is to increase profits, and therefore other

[4] The subscript t could also have subscripts indicating, which is probably the case, that the events cannot happen at the same time. For example, the event – Fill out employment form, must occur before the HR manager reads the form.

[5] The hiring function could be called recursively as the person training Joe must have also been hired and trained, and their trainer was hired and trained, and so on.

events are not necessary to define the current organization's current state. Other events that might be considered tangential by some would be considered central to others. The predisposition of a buyer to purchase only products from vendors of a certain ethnicity could be considered central to the current state of the organization, and certainly may impact the company's future buying events. This raises a second issue; the prediction of future states.

If an organization wholly exists at time t, and is a constellation of the events which brought it to point t, then it is appropriate to consider how it will get to time t+1. What will it look like at t+2 and so on? From the perspective of internal controls, is it possible to that the current state will lead to the collection of x amount of accounts receivable at t+1. Is it also possible to predict that at time t+x the company will have an internal control breach? When viewed as a function on all (relevant) events up to point t then the organization's future state can be viewed as $\frac{df}{dt}$ or as its organizational path.

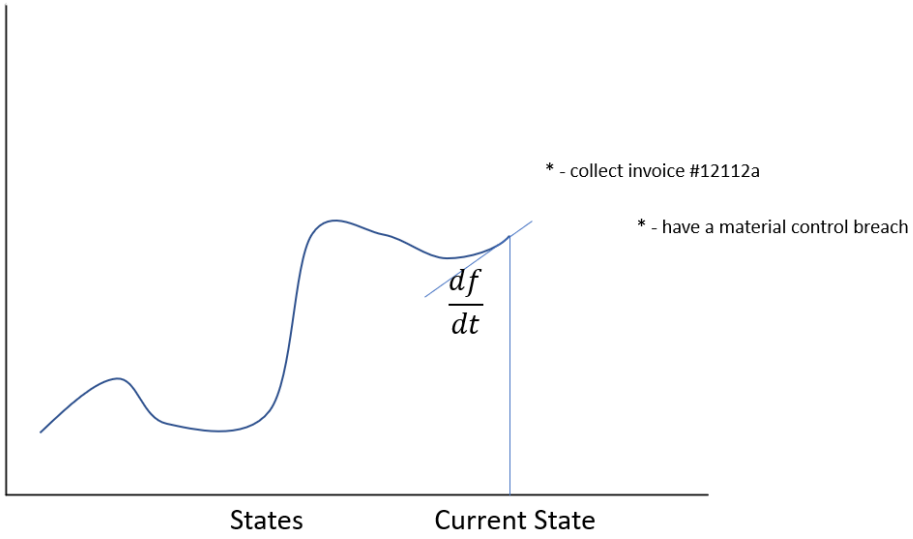

Figure 1 Expected Future States

This organization path can be used to formulate a belief as to the potential for the organization to reach a future state. For example, Figure 1 indicates that its path from the current state, does not include a future state which where invoice #12112a is collected. It also indicates that the organizational path does include a material breach of internal controls. This has always been a question in internal control evaluation; When was it apparent that there was to be a

serious problem with internal controls? Organizations build elaborate event-based models which predict problems with cash flows, but not internal control concerns.

A final consideration concerns whether a control can be considered intrinsic versus extrinsic to a process. An intrinsic explanation is one that appeals only to facts that are intrinsic to the world and are independent of mathematical entities (Milne, 1986).[6] The view of an organization in terms of function of events allows for description of certain controls as being intrinsic as future states are necessarily conditional on certain events. For example, for organization A to create a car certain event (states) are necessary. It is not possible for a car to be built if the events which deliver tires, engines, axles.,,, have not occurred. Thus any system which produces a state where a car exists without these delivery states to have occurred is not possible. It is an intrinsic fact about physical space that a car cannot be built if its components do not occupy the same (or proximate) physical space. There other controls which are extrinsic or not required by physical laws. For example, all the hiring events do not necessarily have to take place for a person to become an employee. The application does not necessarily have to be filled out or reviewed. There is only a sufficient state; they are provided access to areas of the firm restricted to employees, for example. This distinction between intrinsic and extrinsic controls or restricted states allows for evaluation of internal controls using different methods. For violations of intrinsic controls, car created without components, then the system of capturing information is flawed. In contrast violation of extrinsic controls, person hired without going through the defined process, then the business process itself requires an examination.

3 Conclusion

Researchers, auditors, managers, standard setters, etc. have attempted to develop frameworks of internal controls which could be used to evaluate their quality. Internal controls have at their core the restriction of future states of the organization. There future states are achieved through events. Therefore, it is necessary to agree upon the universe of future events which can impact the organization. Even if these future events are reduced to those that impact financial position some questions still arise. A Universalist position would argue that there is a Platonic form which can be used to compare the organization to what it should be. This paper

[6] Field (1980, p. 47) provides an example by considering geometric laws which are formulated on distance and are intrinsic facts about physical space.

takes the nominalists' viewpoint that an organization is not a universal and therefore this comparison is entirely idiosyncratic. If we try to develop some universal model of controls we are not only barking up the wrong tree, we are barking up a tree that does not exist.

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