

When you hear hoofs, think horses, not zebras: an evidence-based model of health care accountability

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Abstract

Health care organizations are increasingly asked to show accountability about their performance. This paper proposes that accountability can best be achieved through evaluative methods that are based on evidence regarding the relationship between processes of care and expected outcomes. Root cause analysis (RCA) is used as an illustration of how a generic method of inquiring can be transformed into an ongoing monitoring, evaluation, user education and accountability strategy. The role of performance indicators, as well as patient and community expectations, is discussed.

Keywords: accountability, disclosure,
root cause analysis, indications of
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Introduction

Performance-based evaluation of health care has become a common goal in health care, where the assessment of goodness has shifted from the domain of providers to that of communities and government (World Health Organization 2000). The use of measures that are discretely defined and tested for their validity occupies a central stage around which educational and disclosure activities are increasingly being designed. For example, the introduction of primary care groups (PCGs) within the British National Health Service and the reformulation of national policies towards the provision of a health care system is a well-thought and carried out strategy in the UK (Bindman *et al.* 2001). In the USA, the accrediting organizations such as the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) and the National Committee on

Quality Assurance (NCQA) are among a number of groups that have embraced the idea that systematic and ongoing measurement of performance is a necessary component of accreditation. In Asia, countries like Taiwan and Singapore are among the many where governmental involvement in establishing national strategies on health care quality is increasingly based on the wide use of performance measures.

Most intriguing is the fact that the common objective of performance measurement from global examples seems to narrow steadily into the concept of accountability. Although not a new concept, accountability is being revisited within the context of increasing knowledge on how measurement, especially when derived from evidence-based information, can fulfil both a professional responsibility for safe and effective care, and a social requirement to demonstrate the responsiveness of the health care system to local and regional needs.

The purpose of this paper is to review the tenants of accountability and discuss how evidence-based knowledge gleaned through indicators can assist individual organizations, health care systems and even regulatory entities, become more accountable to their target audiences. This paper proposes that the performance-based initiatives, especially when supported by evidence on their effectiveness, can enhance the responsiveness of performers to the recipient of their services and consequently pave the way to a collaborative evaluation of performance and a reshaping of various groups' expectations from health care systems.

An operational definition of accountability

Accountability is the fulfilment of a contract. It involves a provider of a service, the recipient of that service, and a social context within which that exchange takes place. In its most effective definition, accountability needs to incorporate the capability of the recipient to revoke the contract based on the goodness of the service. That ability to revoke the contract is present in health care and takes a number of forms. Accreditation of health care providing organizations allows for the revoking of the contract by not permitting the unable providers to continue their services. On the individual professional level, certification, granting of privileges to practice and certain legal boundaries are examples of how societies have instigated the concept of the contract and their right to revoke it. Based on those global dimensions of accountability, a working definition is proposed as follows: Accountability is the extent of liability ascertained through an evaluation of the goodness of a performance by a party in response to the requests of another (other) party(ies) based on some type of agreement between all involved. Accountability also incorporates the requirement that the performers do accurately, completely and continuously educate the beneficiaries about the reasonable expectations they should have regarding the goodness of the outcome.

The key terms within this definition will be discussed throughout this paper as they relate to the performance-based approaches and the importance of evidence-based knowledge at the core of decisions made towards the strategies of evaluation.

The role of process analysis

Although it has been said that many are not interested in or are incapable of understanding the intricacies of a process, we all recognize outcomes. Indeed, the implicit nature of a process when contrasted with the explicit nature of an outcome seems to predispose immediately to the popular understanding that what is observed is, in part, the impact of a series of activities that constitutes process. As an outcome is more readily observed, and perhaps more narrowly defined, disclosure of outcomes is often used towards accountability. Outcomes therefore are suggested to provide the external evaluators of care more ownership over the review of the care and its goodness. The arguments in using either outcomes or process descriptors are summarized as follows:

- The history, language and tools of the processes in care delivery are the domain of the providers. Throughout the development of the profession of medicine, the providers of the care have appropriated the language of defining and evaluating the processes of care.
- The outcomes of care are primarily the domain of the recipients. Although the nature of the outcomes is necessary for the providers to understand processes, it is incompletely used to validate or question the goodness of the process by the providers themselves (Caplan *et al.* 1991).

Within the context of accountability, evidence-based practices cannot ignore the expectations of the recipients. Understanding the relationship between process and outcome is a necessary component towards establishing the evidence that a certain practice is beneficial and appropriate. Yet, the concept of appropriateness will be affected by the ambient expectations of both the providers and the recipients of the services. Process analysis is proposed to be most successful when the professionals who have appropriated the language and tools of these processes find an ongoing channel to discuss the relationship of processes and outcomes with the recipients. Evidence-based approaches therefore, at least within the context of accountability, may not be sufficiently complete by satisfying the requirements of the science and effectiveness that the providers require. Rather, process analysis placed within the

context of expectations about outcomes by the recipients and the communities that have given the contract for the delivery of the ultimate social good (which health care is, in most cultures) will achieve the goals of evidence-based practices.

Evidence-based disclosure methods

The importance of evidence-based medicine in linking processes to outcomes during the evaluation of any performance profile disclosure is fundamental. While the successes of identifying evidence-based practices have been slower and more meagre than anticipated (Maisonneuve & Tiiu 1999), the steps towards disclosing and interpreting any performance data necessitate some reliance on evidence-based aspects of practice. In the USA report cards have led the way to the painful realization that the disclosure of performance is often based only remotely on unknown relationships between processes and outcomes (Kazandjian 1995). The challenge of interpretation is furthered when suggestive evidence by the providers rather than evidence-based knowledge from research is used as reference.

The approach has been more cautious in the UK, where league tables have tried to accommodate for uncertainties in interpretation and reporting caveats. However, in most instances, the impetus for those disclosures has been sensational, albeit unacceptable, outcomes that have been first disclosed in the popular press rather than through the incentives of the providers to achieve accountability (e.g. the Bristol case). Be that report cards or league tables, be the purpose performer accreditation or purchaser's interest in assessing the value for the monies they spent, the disclosure accountability methods have used a very basic and sometimes difficult to interpret methodology, commonly known as root cause analysis (RCA) (The Joint Commission on Accreditation of Healthcare Organizations 2000). The benefit of RCA methods is primarily to proceed from outcomes to processes and identify the reasons for the observed outcomes.

Accountability, RCA and disclosure

It is recognized that in most situations, RCA is performed to understand why an accident happened.

Thus, it is both retrospective as a technique and pursues the goal of describing failures and their nature. It is important to note that disclosure towards accountability does not need to necessarily deal with untoward outcomes. A successful report card should celebrate good outcomes and effective and efficient processes along with those that were variable from the expected. A thoughtful accountability disclosure model should not have the reprimand or punishment as its real or perceived *raison d'être*; it should have plentiful goals towards rewarding the good and tentatively questioning the bad.

It is therefore possible also to explore the usefulness of RCA in identifying better practices. As such, the triggering event will be an excellent outcome or a pattern of highly efficient processes. The goal of such an investigation would be to find performance aspects worth celebrating and especially sharing with others. Such is not the usual purpose of process analysis, where RCA can be used for benchmarking with better practices seen in other settings.

RCA: a celebration methodology

It is appealing to think that RCA can also be used as a celebratory methodology when identifying good practices. Although the concept of better or best practices is often pursued in health care, the trigger for understanding better practices is undeniably the better outcome examples. That is, a better practice is first identified by seeing better outcomes and then having the various interested groups (clinicians, researchers, policy makers) try to learn more about the processes that led to those outcomes. The relationship between processes and outcomes being probabilistic in nature, a focus on outcomes to trigger our interest in learning about the processes can be misleading and faulty. There are numerous processes in the application of technology, management of patient flow, communication with patients and families, and application of acceptable protocols of care that, while conducted both efficiently and effectively, may not result in desirable outcomes and highly desirable levels of satisfaction (Cleary *et al* 1993). Therefore, the common problem with RCA, especially when dealing only with untoward outcome analysis, is that it diminishes the potential for an ongoing monitoring and documentation of both

processes and outcomes regardless of the goodness of the outcome.

The attractiveness of the idea of using RCA as a monitoring methodology is certainly not matched by the interest health care Chief Executive Officers (CEOs) or direct care providers would show when presented with this proposal. Indeed, to use the methodology of inquiry on an ongoing basis would require a significant amount of resources dedicated to the cause of learning about processes and contrasting and comparing processes with outcomes. However, that is exactly how evidence-based approaches can be determined. The establishment of the relationship between processes and outcomes on a repeated basis requires multiple measurements at multiple points in time (Weingart *et al.* 2000). It also requires that temporal and geographical variables be contrasted with patterns of practice and patient complaints by type and acuity. All these require the same epidemiological methods of establishing the relationships between confounding factors and identifying the common reasons for the effects organizational set-up, patient complaint type or clinical decision-making can result in. Eventually, when a consistent, repetitive and reliable relationship is established between a number of those factors, there can be a discussion about evidence-based findings.

The importance of the investigative methods that the RCA methodology provides is therefore crucial to understand and especially interpret. When applied on an ongoing basis, RCA can show results about positive, laudable and even desirable types of practices that could be used for incentives and rewards within an organization or a group of care providers, while simultaneously building the groundwork for documenting increasingly evidence-based practices.

Arrows in any other name . . .

The usefulness of RCA is often matched by the tenuous expectations of its users. Perhaps the nomenclature of RCA is at the root of the users' expectations. A closer look at the promises of RCA seems warranted.

There are clearly three key words in the nomenclature, namely root, cause and analysis. Each one of those terms has a specific meaning for the professionals using them, and linking them together is

expected to provide a value-added meaning to the process of carrying out an RCA. In the quantitatively inclined person's mind, an RCA brings virtual images of arrows and boxes, flow diagrams, run charts, structural hierarchies, even a fish-bone diagram! And all the tools end up pointing to one box, the cause box! Delirium or unjustified expectation? Is the promise of RCA tenable? Is there a *caveat lector* interred within the fine print? Let us start with the description of each term separately.

Root

When faced with the term root, most interpreters would be inclined to believe that it is a description of the deepest level of a process (or an event) and that the root also somehow feeds what is observed initially as a trigger for the investigation. Thus, there is an expectation built around this terminology that the process of the investigation is able to get to the very origin of the issue and extirpate its essence.

Causality

Perhaps more challenging is the definition of causality. When cause is part of the definition, it is usually assumed that by going to the root of the issues, a unique cause will be identified as the reason for the observed. Although causality is part of the definition of an association (all causes are associations; all associations are not causes), it has a very specific requirement that deals with its capability to be replicated in every situation where the same observation is recorded. In the case of understanding performance, causality would imply that in every hospital, when the same observation is taking place (e.g. high readmission rate or long waiting times or wrong site surgery) the same enabling factors would be identified through the analysis. The immediate challenge of this concept is that, not only hospitals have rightly or wrongly always claimed to be different from each other, but that there are no standardized procedures, protocols, philosophies of practice that transcend each institution's historical approach to health care.

The further implication of searching for causality is that if causality were in fact present and identified, it would establish a golden rule that would bypass the need for the so-called RCA. Indeed, identifying

causality would be enough to direct the investigators to the identification of those causal dimensions without passing through all the other steps an RCA may suggest. A causal relationship when defined as replicable across any situation that ends with the observed topic of investigation does not require repetitive root cause analyses. It requires an immediate and narrowly focused action to rectify those dimensions that have been established to be causal. In a word, it would be evidence-based, the evidence in this case being the causality established through previous studies.

Analysis

The term analysis defined as separation of an abstract entity into its constituent elements (Pope & Mays 1995) goes beyond the concept of description. Analysis commonly connotes the ability to interpret what is observed using inductive and deductive techniques. In that sense, a purely observational approach may be a component of an analysis but not synonymous. Both inductive and deductive reasoning that constitute part of the definition of an analysis, include the reaching of general conclusions from particular cases. A common example from health care is the relationship between length of stay (LOS) and readmission rates. When RCA is performed to understand readmission rates, it is often depicted as a free-standing or independent rate rather than a dimension of performance. Understanding readmissions can include understanding waiting time, length of stay, performance that predisposed to complications post-discharge, patients not understanding the care they need once discharged home, not adhering to prescribed regimen, etc. In order for an RCA for readmission rates to be productive and guiding for the institution, it is most useful that it encompasses those dimensions in an analytical way (quantitative and qualitative) (Etzioni 1975) from which associations can be deduced.

If, as described above, RCA is used for continuous monitoring of performance and outcomes, it would be able to establish over time patterns of those relationships. When more than one institution is included in such an analysis (a regional initiative or a national agenda), inductive reasoning can be injected into the process of RCA by reaching general statements from

the particular cases. If there is enough similarity over time, organizations and types of practice, then the process will inch closer to evidence-based findings rather than a point-in-time description of a process at a specific organization. The discussion of these concepts is synthesized in Fig. 1.

Is the sum different to the addition of the parts?

When those three terms (i.e. root, cause, analysis) are put together to describe a method of investigation, it is of interest to see how they affect the topic of disclosure. No matter how that investigation is conducted, there will be disclosure either to internal audiences in the organization or to external entities in the form of report cards or league tables. Thus, disclosure is a logical consequence of such analysis.

It is tempting to say that RCA in the strictest sense neither deals with causality nor analyses the root issues of an event. It does, however, address corollaries of correlation analysis and the identification of a web of factors that could explain to variable degrees the nature of the observed. Is that good enough? Often it is. Perhaps, however, in certain sit-

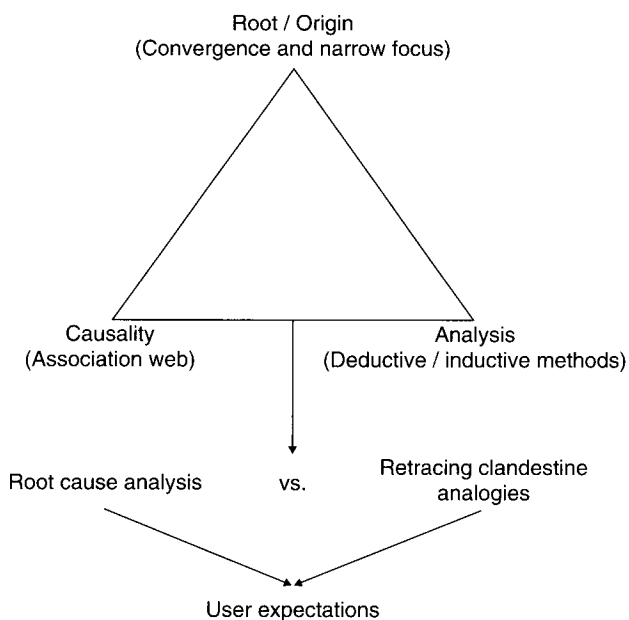


Figure 1 The vaguely defined promise of root cause analysis (RCA).

uations, RCA may provide unwarranted comfort to the investigators and unsustainable statements about the nature of performance during disclosure. In its most successful instance, an RCA could yield a description of the dimensions of factors that would be identified in more than one setting. In this situation, the result of the RCA will be intriguing and would promote discussions across organizations to learn and share. It would not, however, constitute the identification of causality and therefore be capable of establishing a standard or a golden rule for future investigation whenever such an event is observed.

This limitation or caveat of RCA is, in fact, a construct of the expectations from the users rather than a limitation of the methodology. After all, RCA or any investigative approach to the explication of an observed outcome will eventually result in an accountability model. The expectations of those who are the direct recipients of the analysis (management, organizational leadership, board and governance) are necessary to be shaped in a reasonable and timely fashion. The tendency to disclose only the best while giving the less desirable findings lesser visibility is a natural tendency, even among the most enlightened and responsible organizations.

A key factor of those expectations is the infusion of the concept of relativity rather than absolutism. The CEO or the board chairman should be ready to look at the findings of the RCA and place it within a context, period of time, and the organizational goals and objectives. A hurried or abrupt release of the data when seen as positive would certainly backfire at some point in the future. A delay in disclosure or sugar coating of the findings may predispose the readers to question the veracity of the report and the intentions of the reporter. It is a balancing act, for sure, and one that relies heavily on the readiness of an organization to use the findings towards long-term and ongoing accountability intents rather than immediate expectations for market share and visibility. Many who apply RCA do, in fact, expect the identification of root causes and thus when those dimensions are identified they are used in disclosure and eventually accountability activities as absolute reasons for the observed.

Even the relativist organization has to realize, however, that the identification of those confounding, enabling or contributing factors may not be suf-

ficient to convince its leadership to establish an ongoing monitoring system towards more desirable outcomes. There may be a need for ongoing RCA to capture the changes in the environment (Blendon *et al* 1993), practice styles (Selden July), patient characteristics, or the technology used to continuously gauge, calibrate and optimize the processes and, hopefully, their outcomes. The proof of the pudding will unequivocally require pressures for disclosure and accelerate the pace of adopting an ongoing monitoring system. It can be said that most health care organizations see the accountability handwriting on the wall when their back is against it!

Evidence-based strategies towards evaluation and monitoring of performance

Figure 2 describes the intersections of the three spheres that determine the appropriateness of the disclosure methods. The three spheres are intersecting where practitioner performance, organizational performance and community/patient expectations are met. It is in that area of overlap that the best strategy for measurement, evaluation and monitoring can be achieved. Figure 2 also presents a strategy that is stepwise and, in part, contingent upon the availability of evidence-based practices or the discovery of those practices. The accountability strategy named DIDIT requires five steps towards the identification and disclosure of performance aspect with the goal of responsiveness to various audiences. As such, the DIDIT strategy is one that requires an organization to establish the internal culture of investigation and reporting (Alchian 1967). The stepwise activities are proposed to proceed in the following sequence:

- *Deciding*. This activity is the domain of organizational leadership and government. It requires that the direction an organization takes towards accountability at the very outset recognizes the need for systematic inquiry and consequently provides the necessary tools and environment for the conduct of those inquiries.
- *Investigating*. As described at the outset, the primary method of investigation is transition from observed outcomes to the root cause analysis. That transition is usually achieved through the application of RCA but often is conducted on an

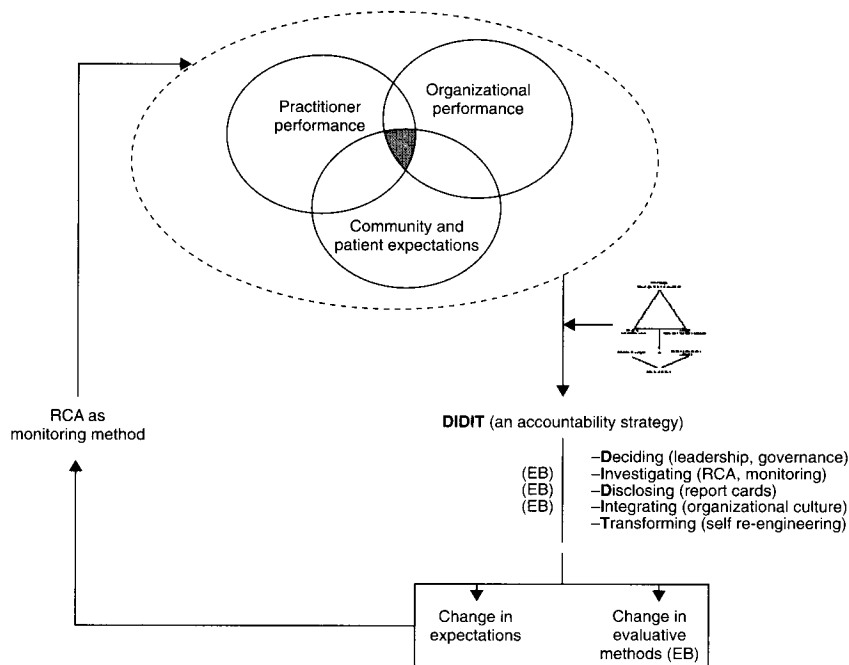


Figure 2 Evidence-based (EB) strategies during performance evaluation and monitoring: a focus on root cause analysis (RCA).

ad hoc basis and is limited to sentinel (or clandestine) events. It is proposed that, in addition to sentinel events analysis, the RCA method can be augmented to cover more epidemiological and statistical methods of establishing association between multiple dimensions of the care-providing processes. When achieved, this enhanced RCA approach can also be used for ongoing monitoring and the identification of evidence-based practices.

- **Disclosing.** This activity is often precipitated by external pressures and requirements and has taken on the shapes of report cards or league tables. Disclosing is expected to be affected by the organizational readiness to uncover and share, as well as the goodness of the investigation to identify the factors associated with those sentinel events.
- **Integrating.** As a stepwise approach, this fourth step is contingent upon the existence of the first three. Integrating the culture of ongoing monitoring of performance is an investment that an organization will make both to identify the repetitive profiles of its performance and to provide ongoing and timely feedback to the audiences it

serves in the form of the disclosure mechanisms discussed.

- **Transforming.** The transformation or re-engineering of an organization based on a better understanding of itself requires an evolutionary process. Having the first four steps in place, an organization is expected to reach for higher goals of performance and better methods of accountability. The re-engineered organization is one where the first four activities in the DIDIT model have shown their usefulness to the organization members and have achieved useful and satisfactory communication with external audiences. The transformed organization is also an organization that respects the terms of the contract (in this case the social contract of health care providers with their communities) and demonstrates that it is changing with the times and adopting the best shown evidence-based practices.

The DIDIT model is expected to change the evaluative methods of an organization's performance. It is also proposed that by ongoing feedback to the various audiences and demonstrations of its adoption of evidence-based practices, an organization can reshape the expectations about its efficiency (Sexton

et al. 2000) and effectiveness and, hence, achieve a more reasonable level of satisfaction by those reviewing its performance. The conceptual and practical final step to loop back in this proposed model is the establishment of RCA methods, expanded as necessary, to become the core strategy for ongoing monitoring of performance. By doing so, the organization not only would be able to prevent untoward outcomes but would reward good practices, better respond to external audiences during disclosure of select performance measures, and contribute to the field knowledge of evidence-based practice.

Internal reporting strategies: a dry run for accountability?

How the RCA results are shared within the organization is a microcosm of the larger accountability model. In this case, certain groups within the organization (nursing, risk management, performance improvement, pharmacy, materials management, engineering, etc.) are reporting to the internal entities about their performance. In some ways, they are addressing the internal accountability mandate, even if such a mandate was precipitated by larger external pressures. Thus, how the reporting of the RCA proceeds will be a study in accountability and integrity of communication.

The governance of the hospital should be the first target audience for the report. Although the Board (which is legally responsible for the quality of a hospital) may not need to understand all the technical issues associated with the findings, the Board is capable of initiating a series of internal reviews towards problem solving and especially future problem avoidance. To proceed as such, the Board needs to receive a clean description of the issues, the hospital's past profiles in performance germane to that issue, and the direct correlations found with aspects of the organization that may be predisposing, facilitating or even encouraging the observed problematic performance. Tactfully presented and carefully detailed, the report to the Board will initiate the trickling down of remedial and preventative activities.

The management's report has to include much more detail about the types of resources/technology involved in the study of the issue, the human resource management paths and protocols, and an analysis of

what the findings may mean for the organization's image. Clearly, the Communications and Public Relations Department will be involved in these discussions, so would be the chief legal counsel.

The roles of visual and auditory cultures during accountability

Performance improvement relies on first the ability to measure and second on the willingness to interpret. Interpreting what you see is a function of the knowledge for the identification of trends and patterns as well as the willingness to change. As performance improvement relies so heavily and continuously on performance measurement, there is a strong visual culture that develops among those voluntarily interested in improving performance and quality, or among those who have been asked to become believers in the necessity of improvement. No matter what the reason, the development of the visual culture is a necessity.

The counterpart and the undeniable continuum in the process of visual interpretation is that of the auditory culture. The culture of listening and the willingness to hear is surprisingly less developed than the culture of visualization.

In health care, the development of an auditory culture seems extremely pertinent during performance improvement. In order to understand the reasons why a certain performance profile was observed, it is often necessary to understand the details of the processes that are not or even could not be captured in a quantitative way. To understand why people have been waiting for a long time in the emergency department or why elderly patients did not know the side-effects resulting from their medication are not pieces of information that are routinely captured via indicators or ratios of production efficiency. The eventual interpretation of the indicators' message, if based on the information gleaned from listening to people's wants, would enhance the usefulness of the disclosure strategy.

Conclusion

The eventual culmination of the above methods is proposed to reside in the alteration of expectations,

be that for the providers of the services, the recipients or those paying for these services. While allowing the reviewers to evaluate rates and patterns, report cards and league tables should also proceed to promoting user education and guidance. Eventually, the caveats of the investigative methods coupled with the reasonableness of the user's expectations will determine the success of the disclosure approach and its impact upon the organization. The final arbiter of the goodness of the organizational response to the expectations of its services' recipients would result in the methods of accountability and disclosure it undertakes. Often, hoof sounds come from horses; no need to look for exotic explication!

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