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Research Article

Crandall Theory: The Usefulness of the Information/Economics Paradigm to the Future Development of Accounting Theory and Applied Information Economics Approach as a New Mainstream Accounting Theory

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Abstract

Accounting has been used for a long time as a method of recording financial transactions and it continues to grow and new accounting theories continue to emerge. Applied information economics is a method for the practical application of several proven methods from decision theory and risk analysis. The method in applied information economics involves five steps: define the decision(s), model what you know now, compute the value of information, measure what matters, make better decisions.

Keywords: Accounting Theory, Applied Information Economics.

1. INTRODUCTION

Accounting has been used for a long time as a method of recording financial transactions. In its journey, accounting continues to grow and new accounting theories continue to emerge. Subsequent developments in accounting theory led to the use of various theories in other fields such as finance, economics, management, psychology, sociology and others. Currently, accounting theory has developed rapidly and covers various aspects.

In this digital era, information is one of the most important resources in the development of accounting theory. The development of information moves very quickly and without boundaries of region or time. Anyone and anywhere can access information at the same time. One of the advantages of this is that everyone today has an equal opportunity to obtain information.

The ease of accessing information is not without weaknesses, we must choose a reliable source of information to make correct decisions. Selection of good and reliable sources of information is expected to minimize errors in decision making (Nasution et al., 2018). In decisions making, it is also necessary to review existing theories. Theoretical assumptions about a problem that can be universally accepted or also called a paradigm are a temporary solution that will continue to develop according to existing conditions. This means there are always possibilities to the birth of new accounting theories.

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Based on this, the authors conducted a literature study to discuss Crandall Theory: The usefulness of the information/economics paradigm to the future development of accounting theory and applied information economics approach as a new mainstream accounting theory.

2. LITERATURE REVIEW

Kuhn, in The Structure of Scientific Revolution following Hegel's dialectic, sees that the development of science does not always proceed linearly according to the time series. He saw that the time factor had little effect on the truth of a science. This means that the possibility that is known today is actually not a new thing, it has been around for a long time, but has just realized that it is true (Panennungi, 2001).

Paradigm can be formulated as the entire constellation of beliefs, values, techniques and so on shared by members of a given (scientific) community and the concrete puzzle solution which, employed as model of examples, can replace explicit rules as a basis for the solution of a remaining puzzle of normal science.

The role of theory in accounting is very different from the role of theory used in the exact sciences, where in the exact sciences, theories are developed from empirical observations. Accounting tends to be developed on the basis of value judgments, which are met by environmental factors in which accounting is practiced. The theory is then outlined in the form of policies as a basis for accounting practice. In accounting, practice may change to accommodate theory (Ikhsan, 2008).

Accounting that is practiced in a country actually does not just happen scientifically, but the practices that are carried out are designed and developed intentionally to achieve certain social goals. And accounting practices are influenced by environmental factors (social, economic, political). Therefore, the structure and practice of accounting will differ from one country to another (differences arise because the structure and practice is adapted to the conditions of the country, where the accounting is carried out) (Dzakiyuddin, 2018).

Crandall examines the benefits of the information/economics paradigm on the development of accounting theory in the future and offers an approach to applied information economics as a new theory. This approach consists of explicit experience with each component of the information/economics model and the development of an accounting design scope that includes all of these components. Crandall defines these components as “filters”, “models”. “Channel”, “decoding”, and “decision rule” (Ikhsan, 2008).

Applied information economics (AIE) is a decision analysis method developed by Douglas W. Hubbard. Applied information economics is a method for the practical application of several proven methods from decision theory and risk analysis. Applied Information Economics was developed as a science-based method developed for addressing investment dilemmas that are large, risky, and full of difficult measurements. Applied information economics uses a unique approach to assess major business decisions, and even “intangibles” like information-value have proven economic formulae that are exploited by applied information economics. Applied information economics synthesizes several quantitative methods from economics, actuarial science, decision theory and statistics. Applied information economics conducts a "Risk/Return" analysis with the

same degree of rigour used by actuaries to estimate loss rates in insurance pools. The method in applied information economics involves five steps: define the decision(s), model what you know now, compute the value of information, measure what matters, make better decisions (Hubbard, et all, 2012).

3. METHODS

The approach used in this study is a literature review. In collecting data, the author collects data and information related to the theory of Applied Information Economics (AIE) through supporting data sourced from research journals both national and international and supporting books. Literature review as described by Cooper in Creswell (2010) has several objectives, including informing readers of the results of other studies that are closely related to the research conducted at that time, linking research with existing literature, and filling gaps in previous research. Literature review contains reviews, summaries, and thoughts of the author on several library sources (articles, books, slides, information from the internet, image and graphic data, etc.)

This literature study aims to discuss Crandall Theory: The Usefulness of the Information/Economics Paradigm to the Future Development of Accounting Theory and Applied Information Economics Approach as a New Mainstream Accounting Theory.

4. RESULT AND DISCUSSION

4.1. Result

The development of an ideal accounting theory would be the development of a constructive theory of economic information, where in a significant number of models one can develop an algorithm that theoretically represents the best system design, within a number of existing assumptions.

The development of theory as it is currently happening should not stop but be continued so that the benefits of theory can continue to grow so that it can answer all new questions that arise.

4.2. Discussion

The step of applied information economics process are:

1. Define the Decision(s): As obvious as this step may first appear, it is the key to better understanding what to measure and real decisions are often different from what they first appear to be. Is the dilemma whether to simply approve a project or how to conduct a project given multiple combinations of alternatives? Or is the decision a matter of when to approve a given initiative? The costs, benefits, timing, risks and even external factors are identified and the real decision is clarified.
2. Model What We Know Now: Cost estimates, forecasts of benefits, project risks, and other variables in a typical big investment decision are almost never known exactly. The uncertainty about some variables, especially long-term forecasts, can seem extreme. But the consequences of even extremely uncertain variables are assessed using “Monte Carlo” simulation and a special method for training experts to assess probabilities. The Monte

Carlo method is a method for conducting decision analysis by sampling variables that do not have exactly known values (i.e. most variables in a model). This initial model is effectively a snapshot of the current state of uncertainty about a problem before additional measurements are made.

3. Compute the Value of Information: Not all variables in a decision model are worth measuring and those worth measuring are often a surprise to the decision makers. In fact, normally a kind of "measurement inversion" exists in most decisions – that is, the most uncertain variables tend to be ignored while the variables that usually receive a lot of attention frequently have less bearing on the decision. With Applied information economics, every variable in a model will have an "information value" that allows identification of high value variables in a decision. This approach targets only the variables in a decision that are the most likely to significantly reduce overall uncertainty in the decision.
4. Measure What Matters: Once the high-value measurements are identified, a variety of empirical methods can be used. Contrary to what is sometimes assumed, relatively little data or simple observations may be required for extremely uncertain variables. Applied information economics often uses efficient "Bayesian" methods, which exploit prior knowledge and can be used even when data is messy or sparse. The measured variables will have less uncertainty and then the model of uncertainty can be updated.
5. Make Better Decisions: The output of the Monte Carlo model, updated with targeted measurements, is compared to the risk/return preferences of the organization or decision maker. Research shows that the actual risk aversion and other preferences of decision makers changes frequently and unconsciously. Different preferences are applied to different investments even when management or believes they are being consistent. Applied information economics addresses this major source of decision error by quantifying and documenting preferences such as risk tolerance and the value of deferred benefits so that the results of analysis can be assessed in a controlled, uniform manner. Finally, sometimes decisions have large combinations of outcomes and have to be part of a portfolio of decisions. When necessary, applied information economics applies optimization methods to determine the best decision even from a large set of alternatives.

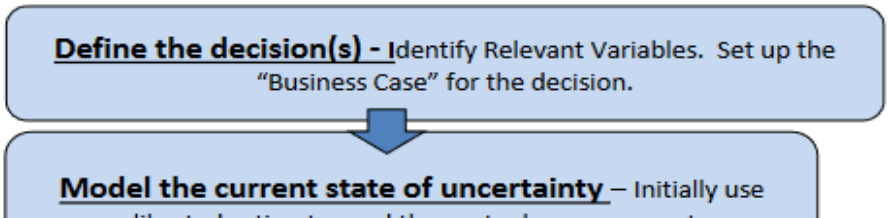

Figure 1. The Steps of The Applied Informations Economic process

5. CONCLUSION

Accounting theory is a science that continues to evolve following the needs of its users and changing times. The Applied information economics offered in Crandall theory can facilitate that development and change because it consists 5 steps that can provide a proven scientific framework to measure anything and use the results to make more informed and better decisions.

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