



THE ART OF ACCOUNTING FOR SCIENCE: A PREREQUISITE FOR SUSTAINABLE DEVELOPMENT?

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Environmental accounting to date has been practised predominately as an addition to existing economic and accounting concepts of business activity. This practice has resulted in the marginalisation of environmental accounting and will, ultimately, hinder the development of a practise of accounting for sustainable development. A remedy for this situation may be found in an examination of ontological assumptions. This paper distinguishes between an ontology of discrete objects and an ontology of interconnected events in order to develop an accounting practise that will assist the development of sustainable business activities. An appropriate epistemology is also proposed and the use of suitable accounting tools are considered. Finally, an account of sustainable development that is compatible with an ontology of interconnected events is provided.

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Introduction

Accountancy is a part of knowledge. As the larger body of knowledge changes, so too will accountancy. In practical terms, this means that the performance appraisal of enterprises at the micro-economic level is not beyond change: what was once understood to constitute “success” could, with new knowledge, become the hallmark of “failure”. For practitioners of accountancy, this is a well known fact for certain *aspects* of accountability. In the 1970s, the importance of employee reporting diminished along with that of the power of the unions; only to be replaced by value added accounting with a strong social dimension; then came a period of inflation accounting and, most recently, an accounting for the environment using natural science and engineering.

This kind of change reveals a measure of sensitivity and willingness to change within accountancy and that is not problematic. But within such change, a fundamental assumption remains unchallenged. This is

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problematic. This particular assumption goes a long way towards underwriting the "principles of accountancy" and hence guides the development of much accounting practice and theory.

The assumption is that accountancy is based on an ontology of discrete objects. In this paper, an alternative to this assumption is derived from an ontology of interconnected events. Such ontological differences have the potential to change individual and institutional behaviour in fundamental ways. Whilst some might argue that accounting behaviour does not require fundamental change since many of us in the developed world have more goods and services provided by existing kinds of business activity than we had fifty years ago, others are alarmed by the deteriorating state of social and environmental conditions around the world and are indeed suggesting that fundamental change is needed in order to pursue a path of sustainable development¹.

The Art of Accounting for Science argues that the concept of sustainable development, and not the practical implementation, is the critical issue. Sustainable development will be achieved only by replacing (a) unsustainable development as a necessary **consequence** of an ontology of discrete objects, with (b) sustainable development as a necessary **property** of an ontology of interconnected events. This replacement is described in this paper as corresponding to a transition from environmental economics to an economic ecology.

It is also argued in this paper that many of the problems being encountered when using the new tools of the emerging disciplines of environmental accounting and environmental engineering are a consequence of attempting to graft a praxis derived from an ontology of discrete objects onto a physical and social world that is described better by an ontology of interconnected events. Typically, such problems include spatial and temporal boundary problems, comparability versus diversity issues and observer impacts upon the observed. Finally an accounting statement more suited to an ontology of interconnected events is described.

Change in Ontological Assumption

An ontology of discrete objects underpins much contemporary understanding. This ontology is perhaps most clearly revealed in the Modern scientific method. The procedures of science after Descartes were predominately reductionist and, hence, they assume an ontology of discrete objects as an implicit validity claim, i.e. a composite body may be reduced to its simple components and known sufficiently by such components. If this were not the case, laboratory based scientific experimentation would have little meaning.

Mainstream accounting describes a business as being built up of discrete component parts, capital, assets and liabilities. There is no attempt within mainstream accounting to define either a business or its component parts by referring to relations with social and ecological

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