

# *77<sup>th</sup> Annual Meeting Academy of Management*

## ***ALL ACADEMY THEME Panel Symposium***

### ***"INTERRELATIONSHIP OF BUSINESS AND PUBLIC GOODS***

**Sponsor: ONE**

***Hilton Regency, Greenbriar Room  
August 6, 2017; 10:30-Noon***

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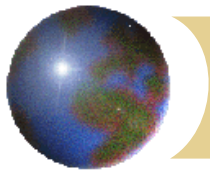
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***Designing a Corporate  
Performance Measure  
that Includes an "ROI"  
on Public Goods***



# Overview

How can sustainability issues be integrated into an overall corporate performance indicator...

The present „state of the art“ is to monitor sustainability indicators in reports which are not connected to financial performance reporting...

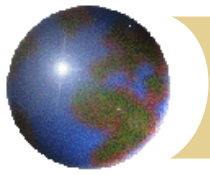
The most widely acknowledged indicator for measuring overall corporate financial performance is Economic Value Added (EVA<sup>®</sup>)...

EVA<sup>®</sup> = Net operating profit after taxes minus cost of capital, in which „capital“ relates to physical and intangible resources within the firm...

For a firm to produce value, it must also use physical and intangible resources beyond the boundaries of the firm („without“), i.e. public goods...

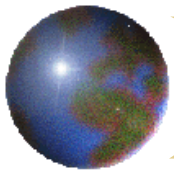
The cost of using public goods can be reflected by an „interest“ to be levied...

Assigning the (usage-) cost of capital tied up in public goods to the firm's EVA construes a performance indicator that links micro- and macro-perspectives.



## *Beyond the reasoning of EVA®*

EVA® is based on the idea that *all shareholders gain* when the return from the capital employed in a corporation is greater than the cost of that capital. From there we proclaim that *all stakeholders gain* when the value created by a corporation is greater than the cost of the capital employed *inside* the corporation and the capital employed in whichever commonly available resources *outside* the corporation are employed by its business.



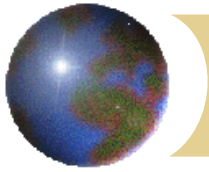
## *The inward and the outward perspectives on business capital*

The concept of resources, and hence “capital”, becomes intrinsically ingrained in the definition of sustainability: Sustainability is equal to “adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining and enhancing the *technical, the human and natural resources* that will be needed in the future” (Deloitte & Touche, 1992).

“Sustainability is about the balance or harmony between economic, social and environmental performance” (Elkington, 1997).

“Sustainability is about consuming the income and not the capital” (Gilbert et al., 1996).

**= > All this is versed both towards the inner and the outer perspectives of a business and the capital it employs.**



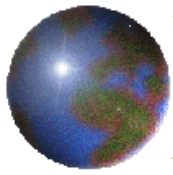
## *The constant capital rule*

### **=> Towards the inner perspective:**

In order to maintain its business, a firm will have to maintain a stock of the resources to be employed or consumed, whether that stock is part of its assets or is warehoused by a partner (Capital maintenance).

### **=> Towards the outer perspective:**

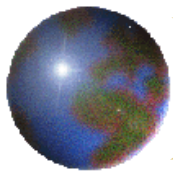
Maintenance of a constant natural capital stock (including the renewable resource base and the environment) is necessary to yield an indefinite stream of output or "income" (Capital theory of sustainability economics).



## **The controversy on *the constant capital rule in sustainable resources: "Weak" or "Strong" Sustainability***

There is an interrelation between the various forms of capital (man-made, natural, human, ..) and the elements which form the whole may be substituted by each other: We can consume some of our natural capital (in the form of environmental degradation, for example) as long as we offset this loss by increasing our stock of man-made capital, making use of the technological advances mankind is continuously adopting. This way of dealing with resources has been called "***Weak Sustainability***".

***Strong sustainability*** requires that the resource-structure remain unchanged as nature is an indivisible heritage and does not tolerate "commodification". Hence, it denies that value of the environment can be expressed in money.



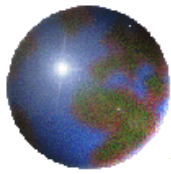
## Reconciling “weak” and “strong” sustainability through an extended concept of value added

Seeking for ways to connect *microeconomic accounting* with the largely *macroeconomic terms* of sustainability theory: Pezzey and Toman 2002, by Figge and Hahn 2004, Brätland 2006, Johnson and Bourguignon 2006, Ricci 2010

Seeking for ways to connect *financial reporting* (IFRS, GAAP) with *sustainability reporting* (Global Reporting System, Sustainability Accounting along SA 8000 and AA 1000): The International Integrating Reporting Committee (IIRC)

Extending the concept of value added: From *Economic Value Added* (EVA) to „*Sustainability Value Added*“ (SVA)\*

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- The acronym „SVA“ is also used by Figge (2004) for „*Sustainable Value Added*“ which however only determines the impact of *isolated* sustainability measures



# Extending the concept of value added:

Sustainability  
Value Added

=

Net profit after taxes

minus cost of capital employed in  
economic resources (property, plant and  
equipment, intangible assets, inventory,  
receivables, etc.)

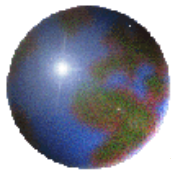
minus cost of capital employed in  
ecological resources

minus cost of capital employed in social  
resources.

Three  
problem  
areas:

- (1) How to value ecological/social resources;**
- (2) how to assign ecological/social resources to the corporation/to a business line;**
- (3) how to compensate for contributions made to the community by the corporation.**





# *Valuation of ecological/social resources (I)*

## „Competing“ approaches:

Externality accounting

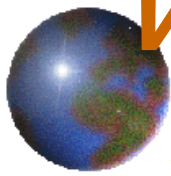
Willingness-to-pay approaches

Contingency valuation

Defining property rights in providing stewardship of ecosystems and of social systems

Impact Assessment

**A mix of cost-based and value-based perspectives**



# Valuation of ecological/social resources (II)

.. a broad array of (competing) indices:

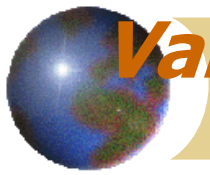
Index	Reference	Countries	Variables
Living Planet Index (LPI)	WWF (1998)	n.a. <sup>1</sup>	1100
Ecological Footprint (EF)	Wackernagel and Rees (1997)	148	arbitrary
City Development Index (CDI)	UNCHS (2001)	125 <sup>2</sup>	11
Human Development Index (HDI)	UNDP (2005)	177	4
Environmental Sustainability Index (ESI)	Esty et al. (2005)	146	76
Environmental Performance Index (EPI)	Esty et al. (2006)	133	16
Environmental Vulnerability Index (EVI)	SOPAC (2005)	235	50
Index of Sustainable Economic Welfare (ISEW) <sup>3</sup>	Cobb (1989)	6	25
Well Being Index (WI)	Prescott-Allen (2001)	180	87
Genuine Savings Index (GS)	Hamilton et al. (1997)	104	5
Environmentally Adjusted Domestic Product (EDP)	Hanley (2000)	n.a. <sup>4</sup>	(many)

1: LPI measures the number of individuals of specific species in a certain population (beyond national borders).

2: CDI has been applied to cities, regions, and countries.

3: Identical with the Genuine Progress Index (GPI).

4: EDP is calculated through implementing SEEA (System of Integrated Environmental and Economic Accounting), and the number of countries that apply this has been rapidly growing during the last years.



## *Valuation of ecological/social resources (III)*

The “inventory” approach of the United Nations System for Integrated Environmental and Economic Accounting (SEEA):

- ❖ flow accounts for pollution, energy and materials; these provide information at the industry level about the use of energy and materials as inputs to production and the generation of pollutants and solid waste;
- ❖ environmental protection and resource management expenditure accounts, which identify expenditures incurred by industry, government and households to protect the environment or to manage natural resources, based, in part, on existing elements of standard national accounts;
- ❖ natural resource asset accounts which record stocks and changes in stocks of natural resources such as land, fish, forest, water and minerals.

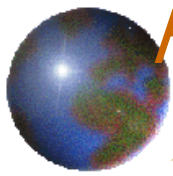


# *Valuation of ecological/social resources (IV)*

## **An example for viable quantification: The Swiss „National Commons Product“ (NCP)\***

Weight	Class of Goods	Metric / Database
25% natural resources	40% renewable energies 20% water 20% land, sea 20% capacity of renewable energies (coal, etc.)	Capacity in GW/year Capacity in m <sup>3</sup> /year sq km of usable land/inhabitant world market prices
32% social resources	20% security and peace 20% health 20% education 10% information 10% law and order 5% public transport	Ranking in Global Peace Index percentage of population having free access ... ... ... sqm/inhabitant (% of all land)
15% volunteering and unpaid community services	...	...
7% religion	...	...
7% happiness / life satisfaction		World Database of Happiness
7% families with children	...	...

\* Source: Dill (2009): "Wealth beyond GDP". English version: <http://commons.ch/english>



## *How to assign ecological/social resources to the corporation/to a business line*

Assuming that a „National Commons Product“ (NCP) has been quantified for the country where the corporation operates ...



$SVA = EVA \text{ minus } (WACC + EVA : NDP) \times (Revenue : NDP) \times NCP$ ,  
where EVA, WACC (weighted average cost of capital) and Revenue refer to a specific company headquartered in a given country, and NDP and NCP refer to that country's Net Domestic Product and "National Commons Product". "EVA : NDP" would reflect the spread of this company's use of common resources over the macroeconomic return, and "Revenue : NDP" reflects the company's share of NDP.

**From there, improvements can be made by**

- (1) disaggregating NCP into its ecological and its social components;**
- (2) disaggregating the revenue into where it was produced (locations);**
- (3) incorporating the NCPs (if available) for the locations beyond the homeland;**
- (4) applying (1) to (3) for the business lines of the corporation.**

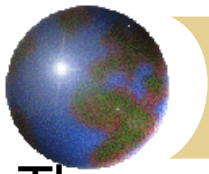


## *How to compensate for contributions made to the community by the corporation*

### Adjustments

- .. for the purchase of emission rights, charges for effluents, excises and tolls for the use of public land etc. ;
- .. for taxes paid, levies paid, etc.;
- .. for grants, subsidies, given to universities etc.

**The intrinsic logic: Income tax, e.g., is not paid by a corporation which has no profit, but it still uses the public goods provided by the community (law and order, legal system, labor market, etc.). Thus, placing a “burden” on any entity for the benefits provided by those goods conveys fair treatment to all who share their use.**



# Conclusion

The metric "SVA" (= EVA - capital cost of public goods) would demonstrate that an enterprise only creates value for its constituency (which is all the stakeholders) if the outcome of its activities cover the cost of capital employed in economic, ecological and social resources.

By calling for an SVA which is higher than EVA we stipulate that sustainable development can only be achieved if the resources available to any societal endeavor are preserved and ameliorated instead of being consumed, reduced or just maintained.

If  $\Sigma SVA > \Sigma EVA$  in an economy, it has produced enough value for the increase of public goods (e.g. for improving education, legal frameworks and other infrastructure).

Procuring harmonization in the field of public goods valuation may produce an advantage over the search for purely micro-economic disclosure on environmental, social and governance matters.