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# Managing Business Value-creating Organizations

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*Abstract: My study aims to present a coherent framework regarding the formal logic of value production in, or through, organizations. The subject matter is developed along the following guidelines: 1. the processes for the production of value are carried out by permanent production organizations, in particular Business Value-Creating Organizations (BVCO) or “capitalistic firms”; 2. from an internal point of view, BVOCs are operationally-closed systems that are at the same time structurally and behaviourally coupled to the environment; they perceive disturbances such as external stimuli, process these, and act (react or pro-act) to balance the network of vital processes; 3. in BVOCs the internal cognition is carried out by the management, which produces the thought of the organization (data gathering processes, rational calculations for decision-making, strategies, programmes and controls) from which the organization’s actions derive; 4. in this sense, BVCOs can be conceived as “conscious cognitive systems” that link themselves to the environment through a system of processed, up-dated, and evaluated information which we can define as the representation of the external world; 5. from an external point of view BVCOs are teleonomic systems that can continue to exist only as long as their performance as systems for the production of value is appreciated by the environment, according to a coherent system of performance indicators for the production of value (productivity, quality, economic efficiency, returns, Economic Value Added and Economic Value of the Firm). 6. the culture of value is diffused, and BVCOs not only have the maximization of value as their objective but must translate this into an operative approach to management problems.*

Keywords: Value Creation, Organizations as Autopoietic Systems, Organizations as Teleonomic Systems, Organizations as Conscious Cognitive Systems, Structural and Behavioural Coupling, Shareholder Value, Performance Indicators

## Introduction

**S**TRICTLY SPEAKING, CAPITALISTIC firms are business profit oriented organizations that are viewed as systems for the creation of economic and financial value for their stockholders. Their performance – based on profit and the value of capital – is measured by a system of monetary values.

My study aims to present a coherent framework developed using the following guidelines:

1. the processes for the production of value are carried out by permanent production organizations, in particular Business Value-Creating Organizations (BVCO) or “capitalistic firms”;
2. from an internal point of view, BVOCs are operationally-closed systems that are at the same time structurally and behaviourally coupled to the environment; they perceive disturbances such as external stimuli, process these, and act (react or pro-act) to balance the network of vital processes;

3. in this sense, BVCOs can be conceived as “conscious cognitive systems” that link themselves to the environment through a system of processed, up-dated, and evaluated information which we can define as the representation of the external world;
4. from an external point of view BVCOs are teleonomic systems that can continue to exist only as long as their performance as systems for the production of value is appreciated by the environment, according to a coherent system of performance indicators for the production of value (productivity, quality, economic efficiency, returns, Economic Value Added and Economic Value of the Firm).

Operationally, BVCOs can be interpreted as operating systems for efficient transformation that carry out five parallel transformations:

1. a productive transformation of factors into production, governed by productivity and by quality;
2. an economic transformation of costs and revenues into operating income, governed by prices and therefore by the market;
3. a financial transformation of capital into returns;
4. an entrepreneurial transformation of information into strategies;
5. a managerial (organizational) transformation of strategies into actions of management control.

The production of value does not benefit exclusively the stockholders but instead concerns a vast group of stakeholders. As a result we must also broaden our notion of the production of sustainable value in order to include both social value and environmental value.

Thus a firm must set a system of objectives for itself which is centered on its sustainable growth, and it must therefore tend toward a multi-dimensional growth that encompasses the economic, social and environmental dimensions.

## **Literature Review and Conceptual Framework**

### ***The Capitalistic Firm as Autopoietic and Teleonomic Systems***

Despite the differing perspectives from which the firm can be viewed, I believe it is appropriate to introduce the basic thesis that considers the *capitalistic firm*, or *Business Value-Creating Organizations* (BVCO), as an autopoietic and teleonomic business and profit-oriented organization (Mella, 2005), whose *fitness* resides in its capability, or efficiency, to produce adequate levels of economic and financial values through a network of efficient processes carried out by a structure of organs (processors), or by networks of specialized organizations (Alter and Hage, 1993).

Capitalistic firms are *autopoietic systems* (Varela, 1979; 1981; Uribe, 1981; Bednarz, 1988; Luhmann, 1995) in the sense that, through their metabolic processes, they produce themselves by regenerating the network of financial and economic processes, searching for the metabolic and energy inputs in the environment which are useful for *autopoiesis* and fleeing from those which are damaging (Zeleny and Hufford, 1992; Mingers, 1994).

If we define *teleonomy* as the ability of an autopoietic system to maintain its existence by regenerating its autopoietic processes then Capitalistic firms are also teleonomic systems, in that they maintain their own autopoiesis by carrying out cognitive processes aimed at

giving significance to the environmental stimuli, translating these into information that is structured in knowledge and producing a reactive and proactive behaviour in order to search for the conditions that allow individuals to benefit, directly or indirectly, from the achievement of a common end that defines the Capitalistic firms' teleology.

We can also distinguish between *endogenous* teleonomy and *exogenous* teleonomy (Monod, 1970: 124; contra, Maturana-Varela 1988; Paetau, 1997).

While *endogenous* teleonomy characterizes the internal structural dynamics of the organization, *exogenous* teleonomy characterizes its environmental dynamics. The organization has a high endogenous teleonomy if, by developing processes of *adaptation*, it continues to exist despite the unfavourable structural disturbances from the environment; it is characterized by a high exogenous teleonomy if the environment itself sets the conditions that favour its autopoiesis, and thus its lasting existence, as a unit as well as an organizational type (Toffler, 1985).

In this sense the organizational activity of cognition and learning (De Geus, 1988; Senge, 2006) is necessary for the organization's teleonomy.

If we adopt the traditional idea of a Learning Organization as an organization in which people at all levels, individually and collectively, are continually increasing their capacity to produce better results, then the VCBO can be viewed as a conscious cognitive system that develops the capacity to control its own structure, its own processes and its own dynamics in order to achieve increasingly higher levels of efficiency by constructing formal, verifiable, transmittable and utilizable models, which include:

1. market and sector models, in order to know the competitive structure of the external environment in which the organization operates (present sector, present and potential competition, markets, profile of potential consumers, profile of customers, etc.);
2. organization models, through which the internal organic structure is known (formal and informal structure, information flows, internal competition, incentive system, etc.);
3. balance sheet models, which represent a summary of the past trends in the economic and financial processes, and of the organization's impact on its environment; these models determine the economic output, the capital, and the overall surplus;
4. programme models, which represent the future trends that result from forecasts and decisions;
5. control models, such as analytical accounting and the tableau de bord, which monitor the performance variables judged to be significant indicators of the organization's vital parameters (efficiency, efficacy, quality and, in particular, economic efficiency, profitability, length of processes, potency of the organs, etc.), since the organization can maintain its identity only if it remains vital: that is, if it manages to maintain the vital parameters at levels that impede its break-up.

### ***The Capitalistic Firm as a Viable System***

Stafford Beer (1979, 1981, 1984) has developed a model of the firm as a viable system, which is briefly outlined in fig. 1. In this by-now classic model based on the autopoietic and teleonomic view of organizations Beer identifies the minimum structure that every organization must have in order to remain vital for a long time.

The viable system model (VSM) assumes that we can identify five interconnected subsystems (SS) in every organization:

1. SS1: Operations. These are the operational units that, by interacting with the environment, carry out the processes for which the organization was created.
2. SS2: Coordination. To avoid any interference and conflict among the SS1s regarding the use of common resources, the SS2s must be assigned the task of coordinating the SS1s over time and space.
3. SS3: Control. The coordination carried out by the SS2s is necessary but not sufficient without a control over the achievement of the objectives of the SS1s. The control subsystem formulates plans and programmes that represent the objectives that the SS1 units must pursue in a coordinated manner. SS3 is connected to the subsequent SS4 and SS5s to form a higher-order subsystem that produces the organization's intelligence.
4. SS4: Intelligence. The organization can survive only if it is able to observe the environment to obtain information, make forecasts and create action programmes based on foreseeable future scenarios.
5. SS5: Policy. This subsystem guarantees the unitary management of the organization by defining the policies needed to achieve the vital objectives set by the stakeholders.

The VSM interprets organizations as viable systems that are open and recursive and, thanks to their cognitive and control structure, which is capable of communicating with the economic and non-economic environment, tend to endure for a long time through continual adaptation, even in the presence of disturbances not foreseen at the time of the system's design and implementation.

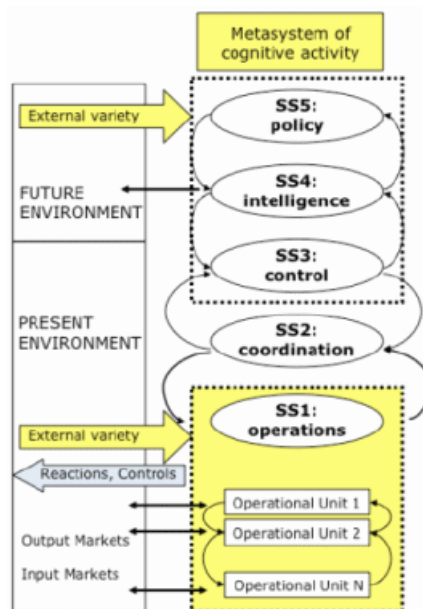


Fig. 1: A Synthesis of the Viable System Model

### ***The Capitalistic Firm as a System of Transformation***

The VSM illustrates the structure an organization must have to remain vital, but it does not highlight the economic and financial processes that all BVCOs – when viewed as autopoietic and teleonomic organizations – must carry out through their structures to remain vital.

These vital operational processes and their relative functions are illustrated by Piero Mella (2005, 2007), who proposes a Model of the Firm as an Efficient System of Transformation (MEST), shown in fig. 2, which identifies five functions which are strictly necessary for any capitalistic profit organization to survive for a long period of time.

The MEST interprets capitalistic firms as operating systems of transformation that carry out five parallel transformations:

1. a productive transformation of factors into production; this is a transformation of utility, governed by productivity and by quality;
2. an economic transformation of costs and revenues into operating income; this is a transformation of value, governed by prices and therefore by the market;
3. a financial transformation of risks, which transforms capital into returns and guarantees the maintenance of the firm's financial integrity;
4. a managerial (organizational) transformation of strategies into actions of management control;
5. an entrepreneurial transformation of information into strategies, which leads to a continual readjustment of the firm's strategic position.

The model in fig. 2 allows us to observe that the capitalistic firm is:

1. a *productive organization*[1] that transforms utility, since it carries out a *productive* transformation of factors (QF) into production (QP);
2. a *businessmarketing* organization, since it is preordained to develop an economic transformation [2] of values, by selling its production, QP, in markets at prices, pP, at least equal to the unit average cost of production, cP=CP/QP if it is preordained to supply its production without a price, or if it recovers only a share of the production cost, it is a *non-business* organization;
3. a *profit organization*: if the operating logic of the business organization is to achieve the maximum *economic efficiency* by seeking {[min] (pP-cP)>0} then it becomes a *profit organization*; if, instead, the operating logic of its processes is to achieve, then it becomes a non-profit (not-for-profit) organization;
4. a *capitalistic enterprise*, if the profit organization carries out a *financial* transformation [3], in the sense that the firm finances its economic processes with external capital in the form of *Equity* [E] and *Debt* [D], which constitute the *Invested Capital* (IC=D+E); (IC = D+E);
5. an *economic social actor*, in the sense that it interfaces and interacts with a set of *external*, or *institutional* interlocutors, or stakeholders – in an ethical, social and political (ethical) environment – that influence the organization's structure and processes through a system of *corporate governance*.

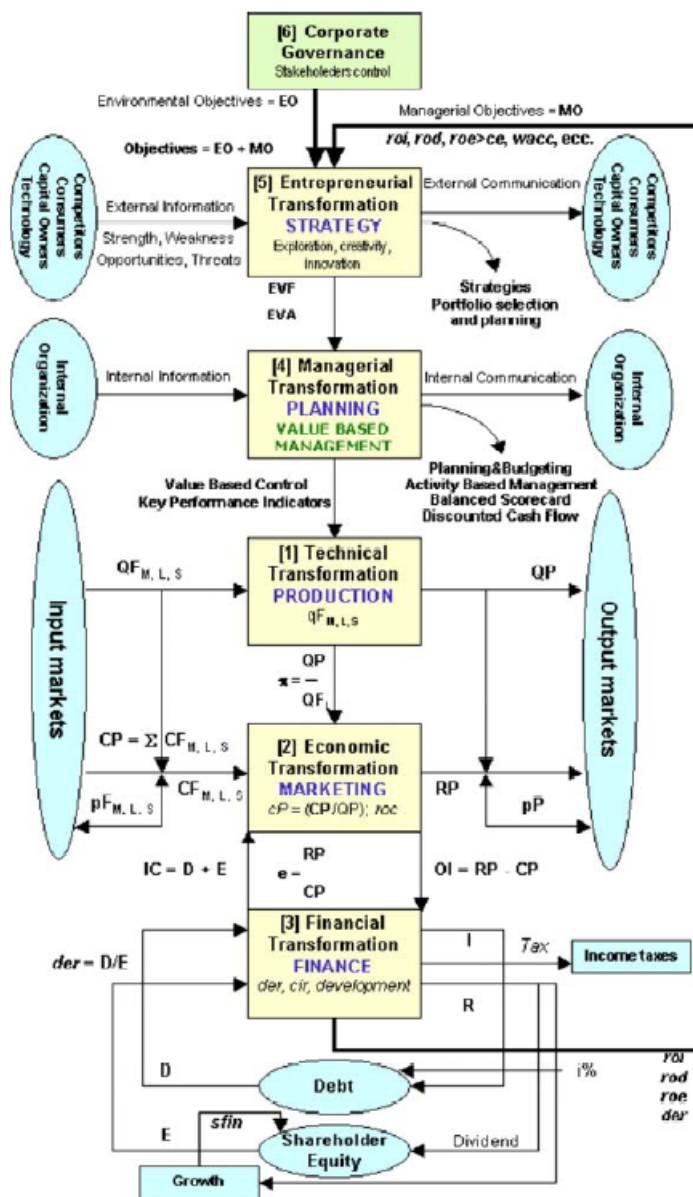


Figure 2: Model of a Firm as an Efficient System of Transformation

### Autopoiesis and Fitness in Capitalistic Firms

With the aid of Model in fig. 2, I propose a set of hypotheses concerning the autopoiesis of capitalistic firms.



The *productive organization's autopoiesis* is based on its *technical fitness*, that is the ability to:

1. satisfy needs and aspirations and search for new needs and aspirations;
2. continually enlarge the variety of products in order to reach new consumers;
3. improve the quality of production (Maddison, 1982; contra: Sen&Farzin, 2000);
4. increase the productivity of the processes in order to reduce the unitary factor requirements and the purchased volumes (Blank&Shapiro, 2001; Wilcox et al.);
5. in particular, increase the productivity of labour through an increase in the quality of the human factor of the organization (skill, motivation, incentives) and its work efficacy (fertility, equipment, software).

The *business organization's autopoiesis* is based on *economic fitness*; that is, on the ability to recursively cover costs,  $CP = cP QP$ , with revenues,  $RP = pP QP$ , or contain costs within the limits of its revenue, so that in any event:  $RP \geq CP$  for every business and for every investment cycle, if possible, or for the entire business portfolio over a long period of time.

Distinguishing between unit variable (vc) and total fixed costs (FC), we can more accurately specify *economic fitness* as the capability, over time, to attain:  $\{[\max] OR = [QP (pP - vc) - FC] > 0\}$ , subject to a system of production capability and marketing constraints.

In this form the condition of autopoiesis can be viewed as the need to obtain a production volume  $QP^*$  such that  $QP^* \geq \frac{FC + OR^*}{pP - vc}$ , where  $OR^*$  is the minimum volume of operating revenue necessary to attain a  $roi^*$  (return on invested capital) sufficient to guarantee a  $roe^*$  (return on equity) that shareholders consider fair (section 4.2).

The *profit organization's autopoiesis* depends on the ability to:

1. create a dynamic portfolio of businesses along a virtuous path from “question mark” to “cash cow” businesses by means of an effective entrepreneurial function;
2. achieve the maximum exploitation of the present market and expand toward new markets in order to increase its production volume,  $QP$ , and increase as much as possible the selling price,  $pP$ , through an efficient marketing function;
3. contract the unit factor requirements while expanding the quality of products by means of an efficient production function, thereby increasing productivity;
4. reduce the average factor prices through an efficient supply function which searches for supply markets where the factors have a higher quality and lower purchase prices.

The *autopoiesis of the capitalistic enterprise* is based on *financial fitness*, its capacity to regenerate its financial and economic circuits, or loops. The financial circuit is renewed if the capitalist firm succeeds in acquiring and preserving its invested capital (IC) – which is necessary for structural investments – by means of an adequate *financial leverage* (Debt/Equity ratio, or *der*); but this requires that the suppliers of both Debt and Equity financial capital – D and E – receive a fair remuneration, defined as a remuneration at least equal to their opportunity cost.

From the above discussion it follows that the capitalist firm bases its *autopoiesis* on its ability to finance its long-term invested capital through a portfolio of steadily-available fin-

ancial capital that matches the length, return and risk of the uses and the sources of financial capital. We shall introduce the following basic hypotheses:

1. a condition for the creation and survival of a capitalistic firm is that the entrepreneur succeed in developing a portfolio of businesses with sufficient return to acquire and maintain invested the capital necessary to activate and continually renew the productive and economic processes and the investment cycles; it becomes natural and inevitable to introduce Value Based Management as a normal management approach (Arnold, Davies, 2000; Mella, Pellicelli, 2008);
2. the overall fitness of the firm, which guarantees its autopoiesis, is revealed by financial measures of performance that denote the efficiency and effectiveness in the production of shareholder value in terms of return and capital gains;
3. the overall fitness includes the productive and economic fitness, indicated by a system of performance measures that denote the economic and productive efficiency revealed in the production of economic values.

The *autopoiesis* of the firm, when viewed as an *economic social actor*, depends on its capacity to earn the appreciation of the stakeholders who are not components of the organization but who gain external advantages, individual or social, from its existence (Toffler, 1985).

According to the concept of sustainability – originally introduced in the 1987 Brundtland report, *Our Common Future*, which was commissioned for the United Nations – whose central principle is “*development which meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987), I propose the following hypothesis: the capitalist firm, as a social unit, must produce social shared “value” (Harrison et. al., 1998), understood in the broader sense that its economic existence as a producer of economic and financial values must be appreciated, in terms of the *sustainability* of the development path of the firm, and evaluated by a wide range of social performance measures of *outcome* or *benefit*: the efficiency of materials, technical innovation, energy efficiency, community relations, eco design, product recyclability, and employee relations.

The attainment of perceived levels of *social performance* produces *reputation, brand and confidence*, so that the environment itself sets the conditions for the firm’s legitimation and consent, which favours autopoiesis and thus a lasting existence for the enterprise as a social unit as well as an organizational type.

This implies, on the one hand, the organizational ability to recognize the set of relevant stakeholders as well as to identify their expectations and, on the other, the capability to communicate the global “value” produced in terms of social benefits and prevented damage to the physical environment.

The next section provides an analysis of the hypotheses introduced in this section.

## **Analysis and Discussion**

### ***Capitalistic Firms as Systems that Produce Values. Financial Performance***

There are quite a number of *financial performance indicators* (Mella, 2005; Edwards, 1986); however, I feel that only a limited number are sufficient to express the fitness of the capital-

istic firm as a system for producing values, according to the last basic hypothesis at the end of the preceding section.

The system of economic and financial values that represent the dynamics of the organization at any particular time can be summed up by the following balance sheet relation:

$$\left\{ \begin{array}{ll} L + IC = D + E & \text{[financial position]} \\ (CM + CL + CS) + (I + T + R) = RP & \text{[economic position]} \\ (CM + CL + CS) = CP = cP \times QP & \text{[production cost]} \\ OR = RP - CP & \text{[revenue production]} \\ OR - I - T = R = div + sf & \text{[revenue production]} \end{array} \right.$$

where L indicates Liquidity (cash + receivables - trade payables), IC is the Invested Capital, D and E represent the financial capital in terms of Debts and Equity, (CM + CL + CI) indicates the Cost of factors (Materials, Labour and Structure costs), I = (D i%) represents the Interest paid on D, T denotes Taxes, R the net income, and *div* and *sf* indicate the dividends and the self-financing provisions.

The most relevant financial performance indicator is the return on equity, *roe*, defined as the ratio between the net income R and the equity E during a period T:

$$roe = \frac{R}{E}.$$

This indicator is particularly significant in that it expresses, in an extremely concise form, the capacity of the firm to satisfactorily remunerate shareholders who have invested equity in it, guaranteeing a return that is sufficient to maintain the capital's integrity, both in monetary terms (preserving its purchasing power), financial terms (financial return, interest, dividend and capital gains at least equal to that obtainable from investments with similar risk conditions), and real terms (capacity to renew investments at the end of their cycle) (Ruefli et al., 1999).

If *roe* is a relevant measure of performance for stockholders, the most important performance indicator for the *financial transformation* is the return on investment, *roi*, which is the ratio between the operating result, OR, and the invested capital, IC, over a year:  $roi = \frac{OR}{IC}$ .

It is important to observe that *roe* depends directly on *roi* by means of the well-known general law of returns (Modigliani-Miller (M-M), 1958):

$$roe = roi + (spread \times der) \text{ where } spread = roi - rod, rod = \frac{I}{D} \text{ and } der = \frac{D}{E}$$

From *roe* we can derive other concise indicators of fitness that refer to the firm's ability to meet the expectations of investors: the *economic value added* (EVA), the *dividend on equity* (*doe*), and the *economic value of the firm* (EVF); we shall consider these in the next section.

**High Level Financial Performance Measures: EVA, Doe and EVF**

The initial hypothesis that the capitalist firm bases its autopoiesis on its capacity to regenerate its financial and economic loops implies that the suppliers of both Debt and Equity financial capital receive a fair return, defined as a return at least equal to their opportunity cost, so that it is advantageous for them to keep their capital invested in the firm, since the firm can preserve the financial integrity of the capital (Rappaport, 1998).

In its most concise form, if we let  $roe^*$  stand for the *fair* (adequate, satisfactory) *return* on equity capital expected by the stockholders and which they require to invest their risk capital in the enterprise – that is, their financial opportunity cost, understood as the return that satisfies their expectations, taking account of the risk and return from alternative investments – then we can derive the minimum net operating results necessary to provide a satisfactory return on the equity capital E as:  $R^* = \bar{E} \times roe^*$ .

If at the same time we let  $rod^* = i^*$  be the interest rate deemed fair by the investor in order to induce him to invest his finance capital D (for a unitary period) then we can calculate  $IP^* = D \times i^*$  which represents the minimum net financial return necessary to satisfactorily compensate the finance capital D.

As indicated in the basic assumption, the firm that requires a stable productive investment  $CI = D + E$  must then be able to achieve an operating income (OI) sufficient to provide a fair return on D, with an interest rate equal to  $I^*$ , and on E, taking into account the income tax  $T^*$ .

Thus:

$$OI \geq I^* + T^* + R^* .$$

In the case of an inequality the investment produces a value greater than the sum of the fair financial returns.

This additional amount is the Economic Value Added (Bennett Stewart, 1991), which represents a performance indicator (Stern, Shiely, 2001) that includes *roe* and expresses a concise overall fitness indicator of the agent-firm.

$$EVA = OI - I^* - T^* - R^* .$$

As we have assumed, *economic fitness* is an important component of *financial fitness*, and the economic and financial performances are strictly related, as we can prove by redefining EVA with the more meaningful expression:

$$EVA = IC (roi - coi)$$

in which *cost of invested capital* or *capital cost rate*:  $ccr = coi$  or also the *weighted average capital cost* (*wacc*) – represents the *cost of investment* and is determined by the following expression:

$$coi = \frac{rod \ D + roe^* \ E}{IC} = rod \frac{D}{IC} + roe^* \frac{E}{IC} = wacc = ccr$$

Thus, while *roi* is the *return on investment*, *wacc* represents the part of this return that is needed to pay the interest on the Debt, at an average cost equal to *rod*, as well as to guarantee the shareholders a proper return equal to their opportunity cost, *roe\**.

The spread (*roi - coi*) thus takes on the meaning of *overall financial performance* (which is independent of the scale of the investment), whose absolute value is instead represented by the EVA, taking into account the amount of IC (Stern, Hutchinson, 2004).

An equivalent definition is:  $EVA = NOPAT - (IC\ coi)$  where NOPAT is the net operating profit after tax (Steward, 1999).

We can also define  $coi = wacc$  as the *roi\** – that is, the minimum return for IC that guarantees a *fair* interest and dividend return that would allow the firm to pay back its debts at a cost equal to the *rod*, as well as guarantee a satisfactory return for the *equity holders* in the amount of *roe\**.

EVA thus represents a performance indicator of both efficiency and outcome for the *capitalistic enterprise* (Ehrbar, 1998), since it expresses the efficiency of the firm in achieving a  $roi > roi^* = coi = wacc$ .

It then follows that a *second condition* for the existence of the *capitalistic firm*, as defined above, is that it succeed in producing a *roi* such that  $roi > coi$ , which, as we can also see from the equation of *coi*, also implies that  $roe > roe^*$  (Porter & McGahan, 1997).

Since the *profit organization* is preordained so that  $\{[\max] (pP - cP) > 0\}$ , it also follows that  $EVA = [\max]$ .

In general stockholders, being holders of pure investment equity, compare their satisfaction

not so much on the basis of the indications from *roe* as on  $doe = \frac{R}{E}d = \frac{DIV}{E}$ , where *d* is the average dividend payout that would guarantee a self-financing adequate for the firm's growth.

A satisfactory return for the shareholders would require that  $doe > roe^*$ .

However, since the self-financing obtained from retained profits reduces the periodic returns for the shareholders while also increasing equity, there is progress in the firm's fitness, since self-financing strengthens the financial structure of the firm and reduces the financial leverage, with a potential increase in future earnings.

Precisely to take account of the inverse relationship between *doe* and *corporate growth* from net self-financing, it is useful to determine the EVF, which is a concise indicator that reveals the firm's ability to maintain its equity financially integral and produce a value in terms of goodwill that, in the case of listed public companies, can translate into an increase in stock value.

EVF assumes the meaning of the level of capital capable of producing a net result equal to that effectively achieved by the firm as a financial transformer, *R*, under the assumption that this capital was invested with a satisfactory return equal to  $roe^\circ$ , which is considered acceptable to shareholders:

$$EVF = \frac{R}{roe^\circ}$$

Since by definition  $EVF \times roe^o = R$ , and,  $R = E \times roe$ , with  $roe$  equal to the effective financial return, through substitution we obtain:

$$EVF = \frac{roe}{roe^o} E.$$

From the preceding relation we see that if  $roe > roe^o$ , then  $EVF > E$ , and vice-versa.

If  $EVF = E$ , then the agent-firm maintains its risk capital financially integral at the end of the investment. If  $EVF > E$ , the agent-firm revalues  $E$  and the difference represents *goodwill*. If  $EVF < E$ , then  $E$  is devalued and badwill is produced (financial loss or negative goodwill).

$EVF$  quantifies the value of the firm, which is considered as an asset for the shareholders, and in its simplest form corresponds to the financial value of the capital that derives from the capitalization of the average standard profit,  $R$ , at a rate equal to the opportunity cost to the shareholders ( $roe^o$ ).

From the preceding definition we can assume that a necessary condition for a *capitalistic firm* to be created and continue to exist for period  $T$  is that  $EVF \geq E(t_0)$ , where  $R$  is the total flow of  $R$  and  $roe^o$  is the minimum acceptable return for *equity holders* to maintain their capital invested in the firm.

In general, though not necessarily, we set  $roe^o = roe^*$ , in the sense that the satisfactory return should correspond to that considered appropriate by the investor.

We can easily prove that if  $EVA > 0$ , then  $EVF > E$ , with the difference representing the value of knowledge (human capital) as well as the value of goodwill (Mella, 2005).

## Growth and Self-financing Objectives

The entrepreneurial transformation sets objectives not only of profitability but also for the firm's growth.

By growth, or organizational expansion, we mean the growth of sales revenue and invested capital; thus an economic process, even if one of organizational growth, must accompany economic growth.

The growth of the firm must follow rules (1) to (6) of section 5 and requires that:

1. it is possible to increase sales with a consequent absorption by the markets;
2. along with the growth in sales there is an adequate growth in the productive processes, and thus the capital invested in the firm;
3. the increase in the size of the productive processes is adequately financed;
4. the growth in sales and invested capital leads to a proportionate growth in operating income as well.

Organizational growth requires the availability of financial resources, which can be obtained from *outside sources* – loans or increases in capital stock – or internal ones, typically the *operating cash flow* (or *gross self-financing*) and *net self-financing*.

The generation of *net self-financing flows* over time is possible only if the firm's revenue is sufficiently high to allow for a fair amount of dividend distributions,  $R^*$ , while at the same time keeping part of the profits as a reserve, and thus as self-financing.

Once again the performance of the managerial transformation can be further refined. It is not enough for  $roe > roe^*$ ; it is also necessary for  $(roe - roe^*) E(t_0) \geq sfin^*$ , where  $sfin^*$  is the net self-financing needed to achieve the desired levels of growth.

If

$s_o = [E(t_1) - E(t_0)] / E(t_0)$  indicates the growth rate of equity from  $t_0$  to  $t_1$ ,

And

$a^* = sfin^* / E(t_0)$  indicates the rate of self-financing,

we immediately see that  $s_o = a^* = roe - roe^*$

Setting  $d^* = roe^* / roe$  to indicate the dividend payout, then we can write:

$$s^o = a^* = [roi + (spread \times der)](1 - d^*)(1 - t)$$

Again we see how important it is that, in order for *teleonomy* to indicate *growth*, it is necessary to achieve a *roi* sufficient to produce  $roe > roe^*$ , taking account of the financial balance account represented by *der*.

### **Productive and Economic Performance**

Even if *roi* and *roe* are the most concise performance indicators, nevertheless the main expression of economic fitness is the capacity of the firm to generate operating income, OR.

Since  $R = OR - I - T$ , it is clear that the financial performance involves not only the need to negotiate financing at fair and stable rates – at a level that permits a *financial leverage* – to determine the best place to minimize the tax burden, and to produce a stable flow of self-financing for the growth of the firm, but also, and in particular, the capacity to produce a flow of OI that is sufficient to allow for an adequate R.

If we assume we want to establish a fair  $pP^*$  and a fair  $cP^*$  – that is, production and sales values compatible with normal supply and sales conditions – then we can determine the fair Operating Income (OI\*) produced by the organization:  $OI^* = QP \times (pP^* - cP^*)$ , which physiologically is zero in non-profit organizations and positive in profit ones.

The difference:  $TEVA = [OI - OI^*]$  represents the *Total Economic Value Added* by the organization compared to the fair return that the environment could have (fairly) expected from the organization.

If the business organization has a productive efficiency higher than the fair one – so that  $cP < cP^*$  – then  $OI > OI^*$ , and the difference  $[OI - OI^*]$  represents the *Total Economic Value Added by Production*,  $TEVAP = QP \times [cP^* - cP]$ , with product qualities being equal.

If  $cP = cP^*$  but market efficiency is higher than the fair one, so that  $pP > pP^*$ , then  $TEVAM = QP \times [pP - pP^*]$  represents the *Total Economic Value Added by the Market*, which is obtained from the price side, with sales volumes being equal.

If  $cP < cP^*$  and  $pP > pP^*$ , then  $OI = OI^* + TEVAP + TEVAM = OI^* + TEVA$

In the *non-profit organization*, OI must tend toward zero by definition; thus, the *TEVAM* must tend toward zero (no increase in prices), with the *TEVAP* obtained from the production side and tending toward zero by a reduction in  $pP^*$ ; the entire *TEVAP* benefits the user of the products and services; thus in the non-profit organization the exogenous teleonomy depends on the capacity to produce values from increases in productive efficiency, since with

each reduction in  $cP$  with respect to  $cP^*$  there is a corresponding reduction in  $pP$  with respect to  $pP^*$ . Since the non-profit organization cannot produce value by increasing  $pP$  but only by trying to reduce  $cP$ , we can see immediately that its operating logic must be based on the standardization of production over time and the constancy in its quality and process.

In the *profit organization TEVA* is obtained by increasing both productive as well as business efficiency. Its exogenous teleonomy is linked to the capacity to produce the maximum *TEVA*, whose use for the *capitalist firm* will be examined in detail in the subsequent definition.

Another meaningful indicator of economic efficiency is the *cpc* (cost per cent or cost/revenue ratio). If the unit cost of Materials, Labour and Structure inputs is indicated by  $cM$ ,  $cL$  and  $cS$ , respectively, then the *cpc* can be written as:

$$cpc = \frac{QP(cM+cL+cS)}{QP pP} = \frac{CP}{RP}$$

From *cpc*, it follows that the *economic fitness* (the economic efficiency) depends mainly on the ability of the entrepreneur and management to find conditions whereby they can:

1. sell increasingly greater volumes of production, by reaching new markets or increasing shares in existing markets and broadening the business portfolio;
2. and/or negotiate selling prices,  $pP$ , which are greater than the average unit costs of production,  $cP$ ; and/or produce at average unit costs that are below prices; for example, by looking for new supply markets that reduce the factor costs and modifying the production combinations, or restructuring the product in order to reduce factor requirements, thereby increasing productivity (Arnold & Dennis, 1999; Baumol, Batey Blackman, Wolff, 1989); in so far as, activity based costing and activity based management are the best processes to identify organization's significant activities (Kee, 1999), improve the quality of their products and, at the same time, reduce costs (Turney, 1991; Plowman, 2001);
3. and/or search for conditions that increase the rotation of the invested capital, for example by controlling production and stocks, or by searching for greater fertility in the sales

outlets, as demonstrated by the well-known relation:  $roi \times cir \text{ } roc$ , where  $cir = \frac{CP}{IC}$  is

the *Cost Investment Ratio* and  $roc = \frac{IR}{CP}$  the *return on cost*.

This shows the relevance of human capital and intangible assets in capitalist production (Griliches, 1996) and the need for:

1. *creativity*, by which products and processes are continually innovated (Christensen, 1997; Deephouse, 1999), thereby favouring applied scientific research and technological innovation;
2. *intelligence* in understanding internal and external processes, in order to rationalize the technical processes of production;



3. *organizational learning* and the formation of learning organizations to meet the competitive challenges through new work rules (Schmitz Jr, 2005)
4. *management control* (from the Decision Support System to Just-In-Time production, from Performance Management to Competence Management);
5. *a good reputation* for the firm in its environment (Carter & Manaster, 1990).

## Conclusion and Final Remarks

I propose the following *first conclusion*: the fundamental problem the *entrepreneurial transformation* must face today in *capitalist firms* operating in wealthy economies is to guarantee investors a financial return (interest or dividends) at least equal to the opportunity cost of the best alternative investment, while maintaining an acceptable degree of risk (actuarial integrity) and, in any event, preserving the purchasing power of their capital (monetary integrity) (Boulton, 2000).

I propose a *second conclusion*: the autopoiesis in BVCO depends on the organization's capacity to develop economic processes capable of achieving an OI above the fair cost of capital ( $I^* + R^*$ ); but this implies that economic efficiency must be sufficient to permit an *roi* greater than the fair *rod*\*, so that, by taking advantage of the financial leverage,  $roe > \text{fair } roe^*$ .

Thus, the capitalist firm:

1. sets the objective *roe*\* in order that  $EVF \geq E(t_0)$ , but tries to achieve  $\max roe \geq roe^*$  by also exploiting its financial leverage, thereby controlling the *spread* and the *der*;
2. manages the *business portfolio* in order to produce an OI(T) sufficient to guarantee a  $\min roi^*$  that in turn is sufficient to achieve *roe*\*;
3. manages its *financial portfolio*, with an overall financial cost I(T), so that, if possible,  $\max rod \leq \min roi^*$ .

Hence, the financial transformation is driven by the following rules:

1. choose those investments having a  $roi \geq \min roi^*$  for the entire firm; if there is more than one, choose the one having the  $\max roi$ ;
2. choose the investments that, in any event, have  $roi > 0$ , as long as at least  $roi > rod$ , where *rod* is the cost of the correlated financing and, in any case, is sufficient to guarantee  $\min roe$ ;
3. choose financing with  $\min rod$  (with length of investment and other conditions held constant);
4. if  $roi < rod$  increase D and reduce E; turn to rule (1);
5. substitute, when possible, investment I with J if  $roi(J) > roi(I)$ ;
6. in this way the average *roi* for the entire firm will increase;
7. substitute, when possible, financing F with G if  $rod(G) < rod(F)$  in order to reduce the average *rod* for the entire firm;

Since  $OI = QP (pP - cP)$ , autopoiesis is achieved if the *economic circuit* is continually renewed: that is, if there are sufficient sales volumes and at adequate prices to cover the factor costs

under fair conditions, so as to continually reintegrate the factors necessary for a new production cycle.

We thus observe that, in order for *teleonomy* to exist, the search for *TEVA* and *EVA* by the organization must be perceived as positive by the environment. The needs of all stakeholders must be satisfied in order for capitalistic firms to exist.

Thus BVCOs should not be considered merely as systems for the production of value for stockholders but also as economic social actors which operate in a social environment to which they belong and with which they interact, not only through a system of monetary and financial exchanges but also through physical, human and communication flows that produce knowledge, trust and reputation, with regard to the optimal use and safeguarding of human, natural and social resources, allowing us to judge the social responsibility of the firm (Keeley, 1988), and promote an image of the corporate management that gains the consensus of the collectivity and enhances the reputation of the firm, which in turn is fundamental for ensuring greater trust by the public (Zadek, 2001).

From this perspective the firm, viewed as an economic and social agent, not only produces economic values but represents a value for all the stakeholders. In this manner the social responsibility of every BVCO is revealed (Clarkson, 1995).

*Economic prosperity, environmental quality and social justice* are the pillars on which the creation of corporate value is based, according to the “triple bottom line” (Warren, 1999).

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Born in Pavia, graduated in March 1969 with a first class degree in Industrial administration, in 1985 I won a chair as a full professor and lectured in Business Economics and Administration at the Faculty of Economics of Pavia. In 1986 I was elected Head of the Department of Business Research at the University of Pavia. From 1987-88 to 1992-93 I was Dean of the Economics Faculty at the University of Pavia. Since it was founded in 1990 I have been the scientific Director of the Masters in Accounting, Budget and Financial Control in profit organizations, set up by the University of Pavia. In 1997 I became Co-ordinator of the Doctorate in Business Research at the University of Pavia. In 2000 I created the scientific web site [www.ea2000.it](http://www.ea2000.it). My interests also deal in the fields of Complex and Holonic Systems and of Networks. In 1997 I have proposed the Combinatory System Theory, described at the web site: [www.ea2000.it/cst](http://www.ea2000.it/cst).

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