# *Change of Monetary System or Third World War?*

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***Abstract***

Crises now span from the individual level to the social and financial level and are growing in intensity and severity. The reason can be easily traced back to a monetary system and a cultural paradigm which has become dysfunctional and which needs to be changed. The entropy/syntropy theory suggests that a viable monetary systems must converge towards an increase in syntropy and a reduction in entropy. This implies the ban of paper money and the shift towards bio-electronic money. The change of the Western monetary system, in this direction, would avoid the deterioration of the present crisis situation into a Third World War and is here advocated.

## *1. The dawn of the monetary system*

With the formation of States, coins were created as their unit of value and as a means for the sale of goods and services, as well as for the payment of taxes. The first coins were usually metal and were minted in large quantities. States guaranteed their value and their legal tender within their territories. In modern economies coins have been accompanied by paper money, which is easier and cheaper to produce and use.

Paper money, or banknotes, were introduced for the first time in 806 AD by Emperor Hien Tsung of China. People who had precious metals deposited them with specialized operators for their preservation and protection from thieves. Paper money was provided as a document that could be transferred to another person to collect these precious metals, even from another specialized operator. In Europe, Napoleon imposed the use of paper money. Throughout the nineteenth century, paper money was perceived as a substitute for precious coins and its conversion into gold. This initial phase was based on the guarantee that the State gave in terms of deposits of gold for the exchange of paper money. The gold standard was first introduced in England in the nineteenth century; anyone, private or public, could go to the Central Bank and convert paper money into gold. At the same time, gold could be imported or exported freely. Thanks to their military strength and empire, England succeeded in setting the gold standard as an ideal model of international monetary organization. Its advantages were undeniable. First of all the inherent ability to stabilize exchange rates between different currencies, and the balance of trade of the countries participating in the system. If a country recorded a deficit the currency depreciated and returned to equilibrium. If there was a surplus the currency appreciated and the surplus decreased.

The gold standard was a very effective system, however in the nineteenth century, different nations began to issue paper money in quantities greater than the precious metal, gold and silver,

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stored in their central banks. The convertibility of their currencies in the equivalent in precious metals was not, therefore, more certain. The decision to abandon the gold standard was taken, in general, in order to support the costs of wars that forced nations to print more paper money than the gold they had in their reserves. In many European countries the gold standard came to an end with the First World War, which forced the governments to cover the exceptional costs of the war by printing money. Paper money was issued in excess, compared to the reserves of precious metal held by the central banks, but was not devaluated. This implied that only the money printed by the national central bank was considered the legal means for payments and for financial and commercial transactions within the territory of the State. Barter became illegal and also payments in foreign currencies was made illegal and were punishable by imprisonment. This system continued to function until the Second World War.

### *2. The Bretton Woods conference*

During the first three weeks of July 1944 delegates from the 44 countries that were winning the war gathered at the Mount Washington Hotel in Bretton Woods (New Hampshire, USA). The reason for this conference was to be found in the new scenarios that opened at the end of World War II, the strong presence of States in the economy, the negative experiences during the Great Depression, and the presence of a dominant nation prepared to play a guiding and coordinating role worldwide.

The delegates of the Bretton Woods conference immediately discarded the possibility of reintroducing the gold standard and during the conference several hypotheses were evaluated. The famous British economist John Maynard Keynes proposed the establishment of an international currency that would be emitted by an international organization with the power to print money, and used by all member States as the reserve currency. However the idea was strongly opposed by the U.S. delegation, and in particular by the leading economist, Harry Dexter White, who made clear reference to the military position of his country. Keynes' proposal, supported by the British government, did not prevail over the interests of the United States and the outcome of the Bretton Woods conference was to give the U.S. dollar (USD) the role of the international currency. The USD turned into an international reserve currency with a fixed value relative to gold. In these three weeks the Bretton Woods delegates came up with a result that effectively sanctioned the complete triumph of the American position.

At Bretton Woods a system of fixed exchange rates was established based on the USD convertibility into gold at a price of 35 USD per ounce, the gold exchange standard. Oscillations would be accepted within a range of 10 percent between currencies. The legal tender status of national currencies was based on fixed exchange rates between currencies and the USD which in turn was attached to gold. The dollar became the only international reserve currency and this fact provided the United States monetary authorities with enormous freedom of action. The only constraint was due to the fact that any country could always ask the Federal Reserve Bank to exchange USD for gold. The U.S. dollar gained a role of growing hegemony in the international economy as it was used as the reference currency for all businesses that mattered, from raw materials, metals, food, and for the sale of oil, which even then was proving to be the most important and strategic market for industrialized countries.

The Bretton Woods conference is the first example in history of a world monetary system which was totally agreed and intended to govern monetary relations among independent nations. This

conference gave birth to the World Bank for Reconstruction and Development, now known simply as the World Bank, the International Monetary Fund (IMF) and GATT (General Agreement on Tariffs and Trade).

The “Marshall Plan” contributed to the success of the USD. The "Marshall Plan" was a large scale program to aid Europe after the end of World War II, where the United States gave monetary support to help rebuilt European economies and combat the spread of Soviet communism. This program was proposed by George C. Marshall, secretary of state of the United States, and launched in 1947. During the four years that the plan was operational, USD 13 billion in economic and technical assistance was given to help the recovery of the European countries that had joined the Organization for European Economic Cooperation. The Marshall Plans was replaced by the Mutual Security Plan at the end of 1951. All funds were paid in USD, which contributed substantially to tie European countries to the United States for a long time. In addition, nearly 10 percent of the allocated USD 13 billion were used to purchase crude oil from U.S. oil companies that actually possessed the monopoly of the European energy market. American oil companies forbade Europeans to use the money of the Marshall Plan to build local infrastructure for the refining of crude oil, thus further increasing the dependence of European countries on the United States and on the USD. The benefits of the Marshall Plan for the economy of the United States were immense and were not limited to oil companies. The centrality and the monopoly of the USD was reinforced by the U.S. military power, economic strength, cultural influence and by the international role played by the English language. This monopoly provided the United States with seigniorage revenues, the profit resulting from printing money in a monopoly. Gold was no longer the world currency since the USD replaced it. In this way the United States was able to force other countries to finance its debt, thereby supporting the strong growth of its economy.

In the 1950s the European manufacturing industry resumed exports and production grew annually by an average of 5 percent. On 18 April 1951 France, Germany, Italy and the Benelux countries signed in Paris the Treaty instituting the European Coal and Steel Community (ECSC) whose goal was to introduce the free commerce of coal and steel, thereby ensuring the access to the sources of industrial production. On 25 March 1957 the Treaty that established the European Economic Community (EEC) was signed in Rome. The European nations that were part of the EEC accounted for about one fifth of the exports worldwide, a figure that grew to 26 percent in 1960, for a total of about USD 30 billion of exports, more than the U.S. whose economy was not growing as fast as the European economies and needed substantial support. Many governments, first of all the French one, tried to persuade the American administration to recognize their difficulties and accept a devaluation of the USD. The United States responded in 1961 with a protocol, signed by European allies and Japan, which limited the amount of USD that they could request to convert into gold. This protocol had become necessary since many holders of USD had started to demand gold in exchange, and the gold reserves were dangerously diminishing. In 1959 the United States deficit with foreign countries and the gold reserve amounted both to around USD 20 billion. In 1967 the deficit had reached 36 billion and gold reserves had dropped to 12 billion due to the increasing demands of conversion of dollars into gold by central banks.

The American administration was well aware of this difficult situation, and John Fitzgerald Kennedy wanted to adjust the monetary policy of the United States. In July 1963 Kennedy proposed the introduction of an Interest Equalization Tax, a tax that would have made it more expensive for Americans to invest in other countries, curbing in this way the outflow of gold and reducing the debt of the balance of trade. Unfortunately a few months later Kennedy was assassinated in Dallas and his law was passed with amendments, added at the last minute, which

excluded Canada (member of the British Commonwealth) from the effects of the new tax. The flow of gold to foreign countries could then continue without any difficulty to Great Britain via Toronto and Montreal, which further consolidated the financial partnership between Washington and London. Securities and loans issued by foreign branches of U.S. banks were excluded from this tax and this caused many US banks to open branches in London and in other financial centers. The financial situation of the U.S. deteriorated and in 1964 the escalation of the war in Vietnam created, for the first time, a huge deficit.

The English pound was the second most important currency, and while America could take advantage of the international monopoly of the USD, the pound fell into a deep crisis. In 1967 De Gaulle proposed a revaluation of gold, an operation that was equivalent to the devaluation of the USD and the pound. The US president Lyndon B. Johnson refused De Gaulle's suggestion and France decided to leave the Group of Ten, followed by other countries. The Group of Ten or G-10 refers to the group of countries that had agreed to make resources available to the IMF. The U.S. refusal to reevaluate gold did not prevent, however, the British government from devaluating the pound, a move that led international investors to ask for mass conversion of USD dollars into gold, increasing the pressure on Washington which was not able to accommodate all requests. Gold reserves in the United States were drastically diminishing and on 15 March 1968 the British Chancellor of the Exchequer, Roy Jenkins, announced that upon "the request of the United States," the London gold market would be temporarily shut down. Johnson had asked London to suspend for two days the gold market, and ordered the military to lock up gold reserves at Fort Knox. In 1960 the United States had 15,822 tons of gold which had fallen to 9,839 in 1968. In 1971, during the first presidency of Richard Nixon, U.S. gold reserves amounted to one third of American foreign debts, whereas the requests of conversion of USD to gold had become a loud and uncontrollable chorus. Consequently, in August of that same year, Nixon took an unilateral decision and put an end to the Bretton Woods agreements. On 15 August 1971 he announced the unilateral cancellation of the convertibility of the USD to gold. The Vietnam War and increased domestic spending accelerated the U.S. balance-of-payments deficit and the trade deficit, the first in the 20th century. Governmental gold coverage of the USD had declined to 22% and according to economists this represented the point where holders of the USD lost faith in the government of the United States and in its ability to cut its budget and trade deficits. Nixon's move was a shock for the international community, a unilateral move which represented a clear violation of the Bretton Woods agreements and stated the defeat of the gold dollar standard. In December 1971 the Group of Ten signed the Smithsonian Agreement, replacing the world's fixed exchange rate regime with a floating exchange rate regime and devaluing the USD. Institutions created at Bretton Woods, such as the International Monetary Fund and the World Bank survived the fall of the international monetary system, whereas GATT was replaced in 1995 by the WTO (World Trade Organization).

### *3. The petrodollar*

The USD was no longer guaranteed by gold, but by petrol. The gold exchange standard was changed to a petrol exchange standard and the USD was now based on the fact that oil sales, throughout the world, were denominated in USD. The term *petrodollar* was coined in 1973 by Ibrahim Oweiss, a professor of economics at Georgetown University. Since oil is a vital resource for all nations, the USD became the vital currency. Coupling the USD with petrol guaranteed the supremacy of the US currency in financial markets and provided the U.S. with income from seigniorage, otherwise difficult to obtain. Since oil had become the key factor for the supremacy

of the USD, Nixon started an international policy which required all countries to use only USD for the purchase and sale of crude oil. This was formalized in an agreement between the administration of the United States and the Saudi regime in 1974, which stipulated the equivalence US dollar to oil. Under this agreement, Saudi Arabia agreed to sell its oil exclusively in USD and buy Treasury bonds (T-bonds) with the surplus funds of its oil, about 70 percent. The agreement with the Saudis was soon extended to all the other countries which exported oil. Oil-importing countries were therefore obliged to keep large reserves of USD. The second oil crisis, that of 1979, strengthened this system and the hegemony of the USD. Crude oil prices skyrocketed by 250 percent and the U.S. monetary authorities reacted with a significant increase in interest rates, causing a huge influx of capital in the United States. The domestic consumption of the United States and the ability to grow, increasingly, dependent on this flow of investments from abroad and generated major structural imbalances. The petrodollars represented the tie that held the international community inextricably linked to the U.S. currency.

Consequently, political enemies of the United States have some interest in seeing oil denominated in euro or other currencies. In 2000, Iraq converted all its oil transactions under the *Oil for Food program* from USD to euro. Other countries, including Indonesia, Venezuela, Russia and Iran began to consider the possibility of selling their oil in euro or other currencies but not in USD. The response of the United States was immediate, and took the form of the invasion of Iraq in 2003 (with the pretext of weapons of mass destruction which, in fact, were never found). Since 2003, Iraqi oil sales are sold only in USD. With 115 billion barrels, Iraq is the third country in the world for oil reserves, representing about 10 percent of the world reserves. If all that oil were sold using euro, the consequences on the USD would be relevant. Saddam's move was a declaration of war against the USD and the message of the United States was clear and unequivocal: in the future anyone who will try to sell oil in currencies other than the USD will suffer the same fate. In 2005, Iranian President Ahmadinejad announced that the small island of Kirsh would soon host an oil stock exchange trading in euro or other currencies but not in USD. In August 2006 Henry Kissinger stated that: "*If Tehran insists (...) a collision with America is unavoidable*." On 8 December 2007, the Central Bank of Iran officially announced the decision to convert all its oil products transactions to currencies different from the USD. On 17 February 2008, soon after the meeting in Davos, the Stock Exchange of Kish was officially presented and on 18 July 2011 it became operational. On 31 December 2011 Obama signed a law that requires the U.S. Congress to punish any organization that has financial transactions with the Central Bank of Iran, reaffirming the ban on buying oil in currencies other than USD.

The oil-dollar alliance is at the base of the U.S. economy. However, in 1956, the American geophysicist Marion King Hubbert discovered that the production of oil fields follows a typical bell-shaped trend. This curve predicts somewhere in the beginning of the twenty-first century, the peak of oil production, i.e. the moment when the rate of production of oil wells will begin to decrease. A prediction that has so far proved accurate for wells in America that peaked in the early seventies, and since then have reduced their production. Many Russian oil fields have peaked around the year 2000. The situation is less severe in the Middle Eastern reserves, where the peak has not yet been reached. When the global peak will be reached, extracting oil will become increasingly more expensive and, given the law of supply and demand, prices will rise by encouraging the use of other energy sources and thereby undermining the oil-dollar alliance and the international hegemony of the USD.

### *4. A Third World War?*

In the late '90s the Glass-Steagall Act, the banking laws approved in 1933 in order to separate commercial and investment banks, was repealed. Stock exchanges were flooded with money from deposit accounts, resulting in the brilliant performance of shares and, especially, of the technological market. This performances lasted for a short period and the same happened to subprime mortgages and loans granted at very low interests with no guarantees. Thanks to the repeal of the Glass-Steagall Act, these toxic loans and stocks were transformed into bonds; junk bonds which were sold around the world as seemingly safe bonds and reached the stratospheric figure of USD 707 trillion (June 2011), compared to a world GDP of 62 trillion. In 2008 Lehman Brothers went bankrupt and, in order to avoid the collapse of the financial system, the U.S. administration and the EU decided to nationalize the debt of the banks, transforming a private debt into a public debt. This led to the default of Iceland and to the "*selective*" default of Greece and Cyprus.

On 23 January 2012 George Soros, in a noteworthy Newsweek article, stated that "*The situation is about as serious and difficult as I've experienced in my career.*" As he sees it, the world faces one of the most dangerous periods of modern history, a period of "*evil.*" Europe is confronting a descent into chaos and conflict. In America he predicts riots on the streets that will lead to a brutal clampdown that will dramatically curtail civil liberties. The global economic system could even collapse altogether. The international financial crisis and the risk of default of public debts are unprecedented and according to Soros bankers are responsible for this disaster. In Iceland and Greece there were street riots. Domestic and international tension is increasing and economists, such as Elido Fazi started talking about an imminent *Third World War.* On 28 January 2012, in Davos, in a riveting address, Hong Kong's leader Donald Tsang recalled his place at the epicenter of the Asian financial crisis in the late 1990s, and the experience of the 2008 global credit pullback, asserting that the current situation is worse: "*I've never been as scared as now about the World and what is happening in Europe*", he said.

Faced with this scenario, economists and politicians seem to have no real answers and are trying to postpone the deflagration of the financial system and the fall into another global War.

In May 2013 I was invited to participate to meetings on the possible scenarios of the financial crisis. Participants were using Power Point presentations in order to describe their hypotheses such as hyperinflation and selective default. An Italian economist underlined that: "*the Third World War is now only financial, but it could soon be a real war, the most destructive of all, a war that would dwarf the conflicts of the twentieth century, which also were the most violent since the beginning of history.*"

On August 21, 2013, rebels in Syrian accused the Syrian government of carrying out an attack using chemical weapons. They said army rockets dropped toxic agents onto civilian areas. Photos sent by the rebels were immediately published by the BBC and the English Prime Minister, David Cameron, asked for an immediate and robust military action against Syria. The US government and other Western countries followed suit. The US, UK, France and Italy brought their war ships in front of Syria. Russia and China answered placing their war ships just out of the Syrian cost line. Well documented information started spreading on the web, contradicting the BBC. The journalist Marco Di Lauro showed that he had already published the alleged photos of the chemical attack. The photos and videos had been shot in Al Musayyib a town 40kms south of Bagdad (March 27, 2003). The journalist Domenico Quirico, released by the rebels at the

beginning of September 2013 together with Pierre Piccinin, declared that they heard the rebels talking on Skype, in English, about the organization of chemical attacks in order to offer the West a way to get into the Syrian conflict. Other reports arriving from Damascus were showing that the population did not know of any chemical attack. On September 11 Putin released an interview to The New York Time and showed evidences that the alleged chemical attack had been organized by the rebels. UN inspectors came to the conclusion that chemical attacks had been carried out, but there was no evidence linking them to the Syrian government. The Syrian government with the mediation of the Russian president offered its chemical weapons for destruction and in this way the deterioration of the conflict into a Third World War was avoided.

On July the 16th 2014 the leaders of the BRICS countries (Brazil, Russia, India, China and South Africa) in a meeting held in Brasilia, established a development bank with an initial authorized capital of 100 billion U.S. dollars aimed at providing financial support for infrastructure and sustainable development projects in the five BRICS member states and in emerging economies worldwide, in a long-awaited alternative to the Western-dominated institutes in global finance. This alternative was received as a blessing for cash-strapped developing countries, whose funding applications to boost their poor roads and railways have been repeatedly rejected by international lenders which attach strict loan conditions. These institutes, notably the U.S-led World Bank and International Monetary Fund, are now known for their politicized way of choosing borrowers without due regard for each countries' individual circumstances. Their prescriptive recommendations, including liberalization, deregulation and privatization, have proved not a panacea. While prospering some countries, they are failing others, especially in Africa. The new BRICS bank provides a brand new possibility, since it has been established by emerging economies for emerging economies and it is expected to contribute an alternative perspective on how developing countries should be financially helped to achieve sustainable development and reflects developing countries' understanding of how the world financial system should be remolded.

Experts immediately understood the establishment of the BRICS development bank as a declaration of war against the Western monetary system, namely the US dollar and the Euro and predicted another "casus belli". Less than 24 hours later a Malaysian plane (MH17) flying over East Ukraine, in the hands of filo-Russian rebels, was shot down killing all the 298 passengers. The US and Western Europe countries immediately accused the rebels and Russia. But Russia provided satellite evidence showing a military fighter jet (Su-25) attacking the Malaysian plane. Speaking at a National Security Council meeting, Putin warned on the 22nd of July 2014 that although there was no direct military threat to the Russian sovereignty, there were international attempts to destabilize the country. "*The language of sanction has currently been used more often, and the very definition of the state sovereignty has been diluted*." Putin added that there were attempts to destabilize the independently thinking governments using various means, including state coups: "*I think that we should think of additional steps to decrease the dependency of national economy and financial system on unfavorable external factors, not only the instability of global markets but also possible political risks*."

### *5. The Icelandic case*

With the advent of the Internet, Iceland became a paradise for online investment banks that offered high interest rates. This formula attracted a considerable amount of foreign capital, which in 2007 exceeded by nine times the Icelandic gross domestic product. With the meltdown of the financial markets in 2008, investment banks entered in a crisis, and the conservative Prime Minister Geir Haarde did not hesitate to nationalize their debt, thus transforming a private debt, nine times greater than the GDP of the country, into a public debt. The Icelandic króna was immediately devalued by 85%, thereby increasing the foreign debt of the online investment banks to more than 90 times the Icelandic GDP. To repay this debt Iceland obtained a loan of over USD 2 billion from the International Monetary Fund and other USD 2 billion from countries of northern Europe. In return it had to enforce austerity measures and to impose a tax of more than 18,000 euro for each Icelandic citizen, including children. This tax would have been paid in 15 years at an interest rate of 5.5% per year. The international financial authorities urged to adopt more drastic measures which would have reduced civil rights and the welfare of Icelanders. The measures approved by the conservative government did not permit to spread the entire foreign debt of the on-line banks on the population. At this point citizens started a popular uprising. The Icelanders did not understand why they should pay the debt contracted by financial speculators who became rich beyond belief with their unscrupulous investments. Why should the debt contracted by these unscrupulous bankers and brokers fall on the citizens? Why did the Icelandic government not ask the bankers to return the money they had stolen from the on-line investment banks? The Icelanders rejected the idea that the debt of these private banks could become a sovereign debt which would have sacrificed the lives and future of all the citizens and of the nation. Based on these considerations and because of the mounting public pressure, the head of state Ólafur Ragnar Grímsson refused to ratify the nationalization law wanted by the conservative Prime Minister Geir Haarde and called for a referendum. The international community increased the pressure on Iceland. Great Britain and Holland threatened dire reprisals that would isolate the country. As Icelanders went to vote, foreign bankers threatened to block any aid from the IMF. The British government threatened to freeze Icelander savings and deposit accounts. As Grímsson said: "*We were told that if we refused the international community's conditions, we would become the Cuba of the North. But if we had accepted, we would have become the Haiti of the North.*"

In the March 2010 referendum, 93% voted against repayment of the debt. The IMF immediately froze its loan. But the revolution (though not televised in the United States and in European countries), would not be intimidated. With the support of a furious citizenry, the government launched civil and penal investigations into those responsible for the financial crisis. Interpol put out an international arrest warrant for the ex-president of Kaupthing, Sigurdur Einarsson, as the other bankers implicated in the crash fled the country. A total of about 5 thousand people left the island.

But Icelanders didn't stop there: they decided to draft a new constitution that would free the country from the exaggerated power of international finance and virtual money. To write the new constitution, the people of Iceland elected twenty-five citizens from among 522 adults not belonging to any political party but recommended by at least thirty citizens. This document was not the work of a handful of politicians, but was written on the internet. The constituent's meetings were streamed on-line, and citizens could send their comments and suggestions, witnessing the document as it took shape. The way in which the new constitution was drafted was the real innovation, which overturned the notion that the foundations of a nation are dictated by few wise men.

Results speak for themselves. Only 4 years after the crisis, Iceland is growing at almost 3% and unemployment is below 6%. Iceland ranks at the 14th place in the "*Human Development Index*" of the United Nations and at the fourth place as the largest per capita productivity. Iceland is recovering from this terrible economic crisis and is performing in a way opposite to what is usually said to be inevitable in these situations. No bailouts by the IMF, ECB or EU, no sale of popular sovereignty to foreign nations and financial institutions, but rather a process of appropriation of the rights of participation. In contrast, the European countries which are facing the specter of default are forced by IMF, ECB and UE to impose measures which are depressing productivity and increasing unemployment. In Greece, unemployment is now 18%, 23% in Spain, 14% in Ireland and Portugal and is expected to increase sharply as a consequence of the contraction of the economy.

The figures are staggering, and Iceland shows that the nation that strongly opposed the blackmail of financial institutions, which has reaffirmed the principle of popular sovereignty by refusing to pay the debt which was contracted by private bankers and unscrupulous and unethical brokers, is also the county which is performing better after the terrible financial crisis that started in 2008. The financial elite of the world said that Iceland was going to be the Cuba of the North and condemned the country to a fate of extreme poverty, if its citizens did not follow what IMF, ECB and EU dictated. But Icelanders with two referendums and with a plebiscitary result argued that private debts cannot be nationalized. The facts proved that Icelanders were right and that IMF, ECB and EU were not looking after the interests of the citizens. The people of Iceland have shown that representative democracy can be changed into participatory democracy and have started what they call a "*silent revolution*". They now have a new constitution, drafted by an assembly democratically elected with the help of internet and the continuous involvement of citizens. Some towns, including the capital Reykjavik, now have online platforms for direct democracy, seeking to increasingly involve citizens in the decision making process of the government, in a virtuous cycle of social participation.

Iceland reaffirmed the basic principle that it is the will of the sovereign people which determines the welfare and the destiny of a nation. Iceland has shown how a nation can reaffirm the principle of the sovereign of the will of the people, which must prevail over any international agreement or claim.

The subprime mortgage crisis which started in the United States in August 2007, brought major banks to the brink of bankruptcy. During the annual World Economic Forum in Davos, 2008, internationally renowned bankers demanded that their banks be nationalized. The United States and other governments, first of all Britain, instead of nationalizing the banks, nationalized their debts. Debts became public, but gains remained private. Almost all banks were saved unconditionally. It is interesting to note that when the topic is the welfare of the citizens, the United States consistently refuses to spend public money, whereas for the welfare of the banks there are no limits in allocating public money and spreading the debt on the community. On 5 December 2008, the Federal Reserve has provided the U.S. banking system USD 1.2 trillion, with the Financial Stability Board, whose rules were dictated not by governments but by the bankers and brokers who caused the crisis. Bankers imposed their rules. In mid-2011 the financial bubble of financial derivatives has reached USD 700,000 billion, with an increase of over 100,000 from the end of 2010. A mountain of money that is being converted into public debt. Soon after, the question if governments were capable to honor the debt was asked. While the U.S. can take advantage of its seigniorage position, provided by the hegemony of the USD in international

transactions, and print money, Europe is forced to face the size of the public debt, and has discovered that European countries are headed towards default.

### *6. A new global currency?*

In order to reform the international monetary system and solve the financial crisis, on 16 March 2009, during a meeting of the G20, the Kremlin requested the establishment of a supranational currency. A few days later, on 24 March 2009, Zhou Xiaochuan, Chinese central bank president, urged for the creation of a single supranational currency and on 30 March 2009, during the conference of the South American and Arab League, Venezuelan President Hugo Chavez proposed the creation of a supranational currency, called Petro, guaranteed by the oil reserves of the oil producing countries. In July 2009, during the G8 meeting, Russia once again expressed the need for a supranational currency and suggested to name it "*Unity in diversity*." Starting from this proposal Sandro Sassoli (www.futureworldcurrency.com) developed the project of a single supranational currency named "*Unity in diversity*." Requests and proposals for the creation of a supranational currency are formulated continuously, since it would solve the imbalances and tensions caused by the USD, a national currency which now serves also as a supranational currency.

But, all the proposals for the creation of a new supranational currency have been rejected by the United States and by President Obama, since the dominant position of the USD provides benefits to which the United States is not willing to renounce.

We are in a stalemate. On the one hand the United States, with a strong military role which benefits from the supremacy of the USD, rejects the idea of a supranational currency, on the other hand the other great nations of the planet, China, Russia and the Gulf countries, ask for the establishment of a single supranational currency. Europe keeps on the sidelines, in the illusion that in the future the euro may become the alternative currency to the USD.

The monetary policy of hegemony of the United States has allowed U.S. citizens to live beyond their means, but one wonders if this really helps the United States and its citizens. This question arises when considering the data produced by the indicators of wellbeing and happiness such as the "*Human Development Index*" of the United Nations. Indicators of wellbeing are reliable and inexpensive and estimate well the quality of life of a nation using a broad spectrum of information, such as suicide rates, the rate of alcoholism, the incidence of mental illness, consumption of psychotropic drugs, etc. These indicators are available for almost all countries and often for long periods of time starting from World War II. The data produced by these indicators show a strong decrease in the quality of life in the U.S., a reduction which has been constant since the end of World War II, over the last sixty years.

After the Bretton Woods agreements the United States economy has been involved in a vigorous growth but at the same time, American citizens feel increasingly unhappy and unsatisfied. A dramatic increase in mental illness, especially depression and existential anxiety, can be observed. The increase in material wealth is accompanied by the decrease in the quality of life and happiness of citizens. Why? Data from the *Human Development Index* show a strong increase in loneliness and in difficulties of communication, in the fear and sense of isolation, mistrust and instability of families, generational conflicts, lack of solidarity and honesty, and civic and social participation which have gradually worsened the social climate. Why Americans feel worse than sixty years

ago? Why has the economic prosperity that they have received from the dominant position of the USD not increased their happiness? Is the dominant role of the dollar a source of happiness or a cause of unhappiness? Could the role of the dollar explain the low scores of the U.S. in the indexes of happiness and quality of life? Data show a nation which is increasingly falling into a profound crisis. A social, relational, psychological and institutional crisis which generates unhappiness, mental illnesses, suicides, alcoholism and drug abuse.

Probably the solution of the international financial crisis and the solution of the unhappiness of the U.S. population are correlated and will be addressed through the creation of a single world currency, a supranational currency. A currency with new features which have never been witnessed before, of which there is no trace yet.

### *7. The Indian case*

India has started a project to fight poverty, which embodies some elements of the new supranational currency which the entropy/syntropy model suggests. One of these characteristics is electronic bio-identification. In the West we usually associate the idea of identification with the reduction of freedom, but according to the Indian project just the opposite happens. A person with no identity is, in fact, a person deprived of rights who cannot vote, cannot receive welfare benefits, cannot work regularly and cannot be protected by the law. Identification opens the door to the rights and security of citizenship and allows citizens to become part of a modern economy. People living in villages, where the same name and the same surname identifies dozens of individuals, cannot prove their identity and are thus deprived of their rights. The lack of unique identity excludes people from the welfare system and from the way modern economy and society works. People without a clear identity cannot open a bank account or receive money or loans and fail to collect the economic aid that the government provides.

Consequently Indians are collaborating with great enthusiasm in the birth of a database system based on the electronic bio-identification of citizen which allows to replace registry offices and censuses. This system provides identification in real time and allows access to data such as name, age, health records, instruction and other information necessary in order to provide welfare services and rights of voting, employment, health and education. India is a country where a large size of the population still lives in poverty and which is not yet able to address some of the key needs of the population. In similar situations the challenge for the survival of citizens usually overshadows the need for identification. However, Indian experts expect that bio-identification will favor business, health, education and welfare policies. Moreover, the absence of identification limits the possibility of a direct dialogue between citizens and government, hindering the provision of aid, such as food aid, which instead of getting to the needy citizens is blocked by the intermediary organizations, enriching few wealthy people. A system which efficiently provides identification enables to evolve from a society in which people have no rights to a new society where people enjoy full rights, and in which welfare measures are efficient and effective, and where it becomes possible to aim at total wellbeing.

The core of the Indian system is provided by electronic bio-identification which will replace documents and most bureaucracy. Based on biometric parameters it will allow instant and reliable identification of people. Grounded on these considerations, on 29 September 2010 India has launched the UIDAI (Unique Identification Authority of India), an agency of the Government of India which is responsible for the centralized database which provides bio-identification of the

population. To each Indian citizen the system provides an identification number of 12 characters, associated with biometric information (photograph, fingerprint and iris), demographic information and an electronic deposit account. This system does not include information that may lead to discrimination of the citizen such as caste, religion and political beliefs. The initial goal of the project is to develop a system which permits to distribute aid directly to the people without intermediaries, providing money in the electronic deposit accounts, and solving the problems encountered during elections, where a few people were able to manipulate results by playing on the uncertainty of identity. Finally, registry offices and censuses are not any more necessary, and the government always has available real-time data on population, labor, education and the health situation. On the one hand, electronic bio-identification provides citizen with rights, on the other hand the government receives information which can be used to plan policies better such as those relating to food, water and energy distribution, construction of infrastructures, housing, urban mobility, hospitals and schools.

In India, where most children are malnourished, where there is a high rate of infant mortality, where drinking water is scarce and the causes of diseases and poverty are many, the government is expecting that these problems will be solved thanks to the electronic bio-identification of citizens, which will guarantee the right of people to the aid they are entitled to. False identities and the lack of an identification system has limited the distribution of aid.

India spends exorbitant amounts of money on welfare programs aimed to combat poverty, but because of the difficulties with identification money stays in the pockets of public and private intermediaries. The Indian system of electronic identification will replace paper documents, does not require intermediaries and establishes a direct link between the government and the people. Bureaucracy and the power of bureaucrats will be reduced or eliminated. In order to distribute subsidies intermediaries will no longer be needed and people will interact directly with the public administration receiving subsidies directly in their electronic accounts, with which they can buy food and welfare services. Identity is certified by an iris scan and fingerprints and this can be simply done by using a smartphone or a computer terminal. Direct interaction between citizens and public administration eliminates bribery and reduces the offering of items of value in order to influence officials in charge of public or legal duties.

The assumption behind the UIDAI (Unique Identification Authority of India) project is that identity is the prerequisite for a society based on rights. The Indian population is enthusiastic about this project, and long queues have formed outside the offices in the villages that collect biometric and personal data in exchange for the electronic account and identification number.

Intermediaries, who should facilitate the dialogue between state and citizens, are often the main cause of inefficiency, delays and lack of distribution of rights, thus becoming responsible for poverty and misery. The electronic identification system allows to overcome this problem thanks to direct transfer of money in the electronic accounts in exchange for data that allows the government to plan efficient policies. The goal is to bring millions of Indians out of poverty and turn them into active individuals in a modern economy which is rapidly evolving and growing. Identification is the prerequisite of this new modern society based on distributed wellbeing and rights which will be at the basis of the infrastructure of India in the twenty first century. Identification allows banks to lend money more safely and commercial organizations to communicate directly with customers, decreasing costs of production and distribution. Medical records and documents will be available wherever the person is travelling, without the need for any paper document.

The UIDAI project shows the true nature of identification, which is that of guaranteeing the rights of citizens.

With the introduction of this system, many bureaucrats and intermediaries have lost their power, and their lobbies are trying to boycott the project of electronic bio-identification on the grounds of the risks to privacy. The fact that poverty and misery can be efficiently fought turning invisible people into visible citizens and allowing them to enjoy the rights to which they are entitled, provides identification with a role of enormous and undeniable social and economic importance.

### *8. The end of anonymous transactions*

Paper money is anonymous, its path is difficult to trace, and this makes it ideal for illegal transactions. It is therefore used in tax evasion, corruption, bribery, smuggling of drugs, trafficking in human beings, activities related to terrorism or contrary to the common good. Being anonymous, paper money becomes the essential tool for all those acts contrary to the common good. Eliminating paper money and anonymous transactions it becomes impossible to evade taxes, to bribe and to organize activities against people and society.

The Indian system of electronic identification will soon evolve into a system of bio-electronic money in order to reduce corruption, economic, social and financial crises. The elimination of anonymous transactions and paper money will bring many advantages, for example:

- It will allow to build better interaction between citizen and government, based on trust and collaboration. Citizens will no longer be asked to produce tax return forms, because taxes will be directly calculated, proceeding automatically to taxation and eliminating any risk of litigation.
- Law-abiding citizens are now paying taxes for those who engage in tax evasion. Bio-electronic money will inhibit tax evasion, allowing a significant reduction of taxation.
- Legislators often consider citizens potential tax evaders. On this premise many countries have developed laws and systems aimed to estimate the income of citizens. Systems which are based not on what the citizen declares, but on what the government believes that the citizens should have earned. Because of these systems, honest people are often asked to pay taxes for incomes they never received, creating paradoxical situations in which law-abiding citizens, who are already over-taxed, are forced into a position of having to pay more taxes than what they have earned. This produces litigations which destroy the trust and collaboration between citizens and State institutions.
- In many countries young people often choose not to engage in economic activities, but to remain in underground economy and the black market, in order to avoid litigation and over-taxation. Starting a business involves costs and risks that now often exceed revenues. For this reason, many believe that it is better to operate outside the formal economical system, limiting in this way risks and costs. This attitude has led to inflate irregular economy, increasing the transactions which are invisible to taxation. Reducing taxes and eliminating the reasons for litigation makes it possible for many young people to risk starting formal new economic activities, with considerable benefit for themselves and for the wealth of the community and the State.
- The elimination of paper money and anonymous financial transactions will reduce illegality and restore confidence among citizens. For example, it will be impossible for a seller to cheat

when giving the change, it will be impossible for a public official to ask for money in order to speed up paperwork, it will be impossible for robbers to steal money and it will be impossible to act against the common good. Without paper money, immigrants would no longer be illegal, since hiding, anonymity, will impede to receive money.

– With bio-electronic money, bribes and corruption become impossible since bio-electronic money always leaves a trace and it is never anonymous. Suppliers can check if the client has been paid and in turn require the payment for their work. It would be impossible to steal money, since physical money does not exist any longer and theft, robbery and common crime would become impossible.

Bio-electronic money would allow citizens to control the spending of public money and the identities associated with these transactions thus preventing administrators from diverting public resources from institutional mandates. An example, which can be easily found on the web, was provided by Gary Webb in his book "*Dark Alliance*", published in 1999. Investigating the sharp increase in cocaine and crack addicts in the slums of American big towns, Webb discovered that drug dealers were protected by the CIA, with the complicity of the DEA, DIA and FBI. Local authorities were forbidden to arrest drug dealers and the CIA protected international smugglers, allowing the entry of large quantities of cocaine into the United States. In return, the CIA demanded a share of revenues in paper money (anonymous money) which was then used to finance activities prohibited by law and by the U.S. Congress. In the case described by Webb, the money collected with these transactions was used to support the Contra war in Nicaragua. Paper money played a key role, making crack and cocaine readily available in the slums and destroying the lives of millions of Americans who became addicted, went to prison, died or became disabled. The CIA used this system to circumvent the prohibitions of the U.S. Congress, and Webb showed that the epidemic of cocaine and crack in the slums was a direct consequence of this mechanism. In 2004, Webb was found dead with two bullets in his head. His work had caused great controversy, but eventually the governmental investigation initiated within the CIA, conducted by Inspector General Frederick Hitz, recognized the validity of the Webb report and discovered that the situation was more severe than that which Webb himself had reported. Paper money was at the basis of this system, and allowed thousands of innocents to be killed, millions to be destroyed by drugs and produced enormous human, financial and social costs that the community is now facing. In the absence of paper money transactions of this kind are impossible. Criminal and lawless activities are possible only thanks to anonymous transactions. Bio-electronic money inhibits all this.

The increase in the use of electronic payment systems demonstrates that citizens do not feel the need to hide their transactions. Those who feel the need for hiding their transactions are often involved in illegal activities and do not want their transactions to be traced.

In order to evolve from the present system in which illegality is widespread to a new system based on rights, collaboration and trust it is therefore necessary to eliminate paper money, make it illegal, make illegal any type of transaction which is based on anonymity and develop bio-electronic money that allows to know with certainty the identity of the people involved in the transactions.

### *9. The balancing role of entropy and syntropy*

The entropy / syntropy theory posits that the aim of any viable system must be to reduce entropy and to increase syntropy. This postulate originates from the complementarity between entropy and syntropy. Since the total amount of energy is the sum of energy in the syntropic state (concentrated) and energy in the entropic state (dispersed):

$$Total\ Energy = Syntropic\ Energy + Entropic\ Energy$$

and the first law of thermodynamics, the law of conservation of energy, states that energy is a fixed quantity which cannot be created or destroyed, but only transformed, *Energy* can be replaced in the equation with the number 1, which changes into:

$$1 = Syntropy + Entropy$$

This equation shows that entropy and syntropy are complementary polarities of the same unity:

$$Syntropy = 1 - Entropy$$

$$Entropy = 1 - Syntropy$$

In "*Syntropy: definition and use*" Mario Ludovico[2] writes:

> "*I deem it impossible to grasp the concept of syntropy without having assimilated the concept of entropy, since not only are the two concepts in a strict mutual connection but entropy and syntropy are also complementary concepts. In other words, where it is possible to measure a level of entropy there is a complementary level of syntropy*."

Moreover, syntropic phenomena are invisible, since they are based on backward-in-time causality, whereas entropic phenomena are visible. Therefore the previous equation can be rewritten as follows:

$$Visible = 1 - Invisible$$

The entropy/syntropy theory states that a viable economic system should include in its assessments the invisible side of reality. We continuously experience forces and entities that we cannot observe directly but which exist objectively, independently of any human perception. One such force is for example gravity. Suppose we hold a small object like a pencil between our thumb and forefinger and then release it. We observe that it falls to the floor and we say that the force of gravity causes it to fall. But, do we actually see any downward force acting upon the pencil, something pulling or pushing it? Clearly not. We do not observe the force of gravity at all. Rather we deduce the existence of some unseen force (called gravity) acting upon unsupported objects in order to explain their otherwise inexplicable downward movement. According to the entropy/syntropy theory half of the forces acting in the universe are entropic (visible) and half are syntropic (invisible). Nothing takes place without the interplay of both these forces. We constantly experience observable effects that have unobservable causes, behaviors that cannot be explained observably and phenomena in the visible reality that arise from the invisible reality.

[2]Ludovico M. (2008), *Syntropy: Definition and Use*, Syntropy Journal, 1: 139-201.

The description of two complementary forces, one diverging and one converging, one visible and one invisible, one destructive and one constructive, can be found in many philosophies and religions.

In the *Taoist philosophy* all aspects of the universe are described as the interplay of two complementary and fundamental forces: the *yang* principle which is diverging, and the *yin* principle which is converging. These two forces are part of a unity. In the visible side of reality, when one increases the other decreases, but as a whole their balance remains unchanged. This law is masterfully represented in the Taijitu symbol, that is the union of these opposite forces, the yin and the yang, the diverging and converging forces whose combined action moves the universe in all its aspects: the sexes, seasons, day and night, life and death, full and empty, movement and repose, push and pull, dry and wet. Water takes on yang steaming form and yin icy form. Within the yin there is yang, and within the yang there is yin. All of duality is yin and yang even as in life and death.

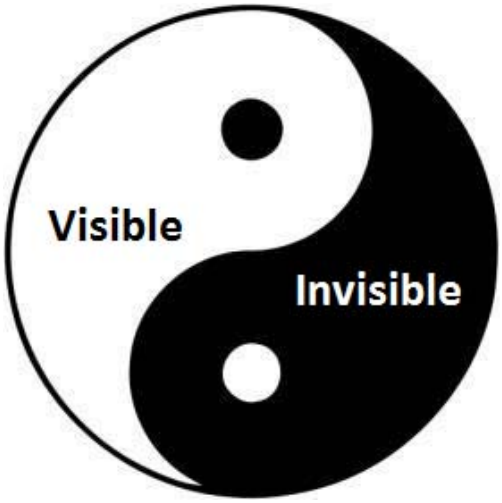


**Figure 1 – Taijitu symbol**

In the Taijitu the yang principle is represented by the white color and has entropic properties, whereas the yin principle is represented by the black color and has syntropic properties. The tangible and the intangible. The Taijitu is a wheel that rotates constantly, changing the proportion of yin and yang (syntropy and entropy) in the visible and the invisible sides of reality. The Taijitu shows that a property of the law of complementarity is that *opposites attract each other*. This law is well known in physics, but it is also true at the human level where people on opposite polarities are attracted to each other, as in males and females. Since the balance of these opposite forces remains unchanged the Taoist philosophy suggests that *the aim is to harmonize the opposites*, thus creating unity.

In *Hinduism* the law of complementarity is described by the dance of Shiva and Shakti, where Shakti is the personification of the female principle and Shiva of the male principle. They represent the primordial cosmic energy and the dynamic forces that are thought to move through the entire universe. Shiva has the properties of the law of syntropy, whereas Shakti has the properties of the law of entropy and they are constantly combined together in an endless cosmic dance.

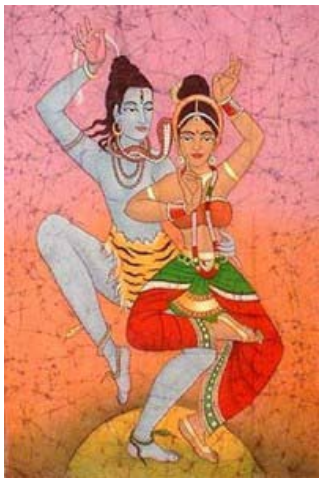

**Figure 2 - Endless cosmic dance between Shiva and Shakti**

Shakti can never exist apart from Shiva or act independently of him, just as Shiva remains a mere corpse without Shakti. All the matter and energy of the universe results from the dance of the two opposite forces of Shiva and Shakti. Shiva absorbs Shakti (energy) turning it into a body and absolute pure consciousness, the light of knowledge. According to Hinduism knowledge, intelligence and consciousness would come from the future (Shiva), whereas fearsome, ferocity and aggressiveness would come from the past (Shakti). Shakti is the energy of the physical and visible world whereas Shiva is the consciousness which transcends the visible world. However, each aspect of Shiva has a Shakti component, linked to the physical world. The evolution of this endless dance between Shakti and Shiva has the function to bring life towards Unity.

In the psychological literature of the 20th century *Carl Gustav Jung* used to add synchronicities (i.e. syntropy) to causality (i.e. entropy). According to Jung, *synchronicities* are the experience of two or more events that are apparently causally unrelated or unlikely to occur together by chance, yet they are experienced as occurring together in a meaningful manner. The concept of synchronicity was first described in this terminology by Carl Gustav Jung in the 1920s. The concept does not question, or compete with, the notion of causality. Instead, it maintains that just as events may be grouped by causes, they may also be grouped by finalities, a meaningful principle. Jung coined the word synchronicities to describe what he called "*temporally coincident occurrences of acausal events*." He variously described synchronicity as an "*acausal connecting principle,*" "*meaningful coincidence*" and "*acausal parallelism.*" Jung gave a full statement of this concept in 1951 when he published the paper *Synchronicity - An Acausal Connecting Principle*,[3] jointly with a related study by the physicist Wolfgang Pauli. In Jung's and Pauli's description causality acts from the past, whereas synchronicity from the future. Synchronicities would be meaningful since they lead towards a finality, providing in this way a direction to events correlated in an apparently acausal ways. Jung and Pauli believed that causality and synchronicity both act on the same indestructible energy. They are united by this energy, but at the same time they are complementary.

[3]Jung C.G. (1951), *Synchronicity - An Acausal Connecting Principle*, Princeton University Press, www.amazon.com/Synchronicity-Connecting-Principle-Collected-Bollingen/dp/0691150508

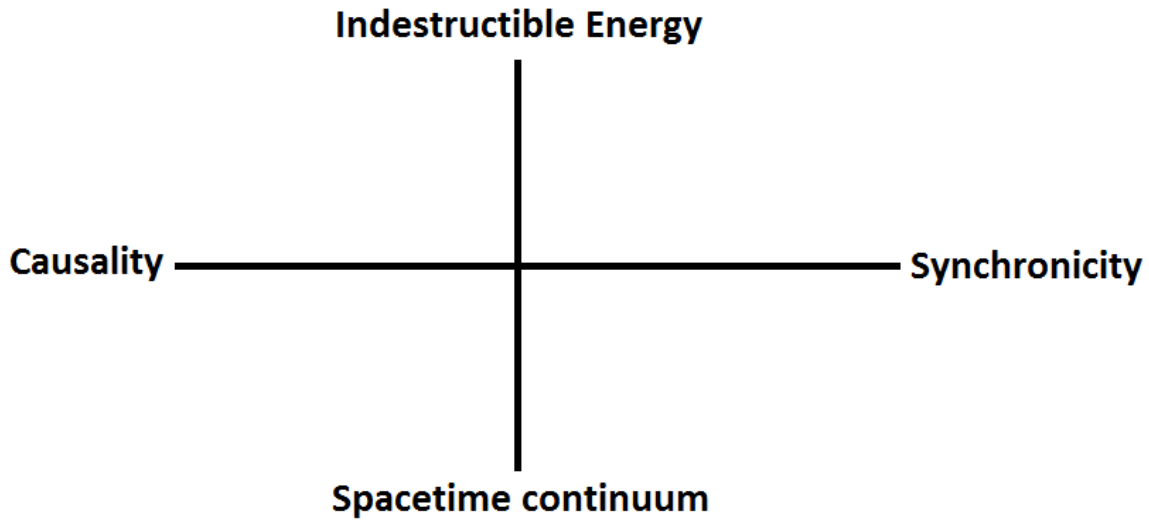


**Figure 3 - Jung and Pauli representation of causality and synchronicity**

In the field of ecosystems, Ulanowicz[4] suggests the division among ascendancy and overhead. Ascendancy describes the tendency towards organized phenomena, whereas overhead the flow of disorganized free energy. In the absence of major perturbations, ecosystems exhibit a propensity towards configurations of ever-greater network ascendancy. Overhead was obtained by Ulanowicz as a measure which is complementary to ascendancy. Ulanowicz is not mathematically specific about the mechanism that leads to greater ascendancy, though he sketches some explanations. Autocatalytic cycles within the network reinforce their own positive perturbations and mutations, drawing in resources from external sources. These cycles exert what Ulanowicz suggests is Aristotelian final causal power. In this way, freely floating energy is drawn into structures of increasing magnificence and complexity. According to Ulanowicz, "*real systems are the result of an ongoing transaction between the opposing tendencies of both ascendancy and overhead to increase.*"

In the entropy/syntropy theory the principle of complementarity can be described using a see-saw with entropy and syntropy playing at the opposite sides.

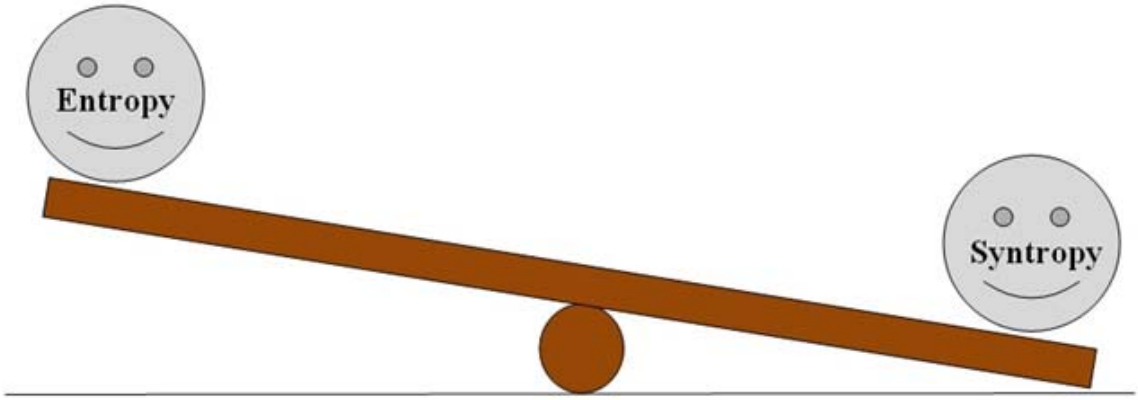


**Figure 4 - Entropy and Syntropy constantly playing, transforming energy**

[4]Ulanowicz R.E., *A third Window*, Templeton Foundation Press, 2009.

This representation shows that when entropy goes down syntropy rises and when entropy rises syntropy goes down.

The see-saw mechanism is well represented in metabolism, where *Entropy* corresponds to *Catabolic* processes, which transform higher level structures into lower level structures with the release of energy in the form of chemical energy (ATP) and thermal energy, and *Syntropy* corresponds to *Anabolic* processes, which transform simple structures into complex structures, for example nutritive elements into bio-molecules, with the absorption of energy.

Syntropy concentrates energy in ever smaller spaces increasing order and organization, but since the concentration of energy cannot increase indefinitely, at some point, the system releases energy and matter, thus activating the opposite process of entropy and an exchange of energy and matter with the environment. Exchange is a fundamental property of life and can be found in all its levels of organization, from the organic/biological level to economics.

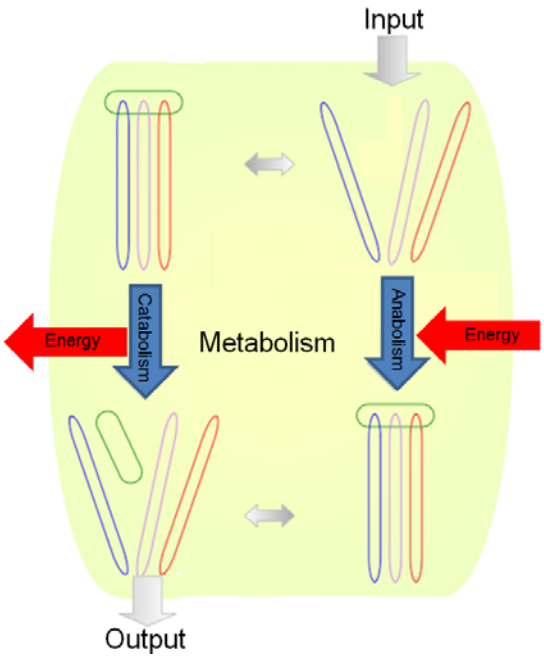


**Figure 5 – Schematic representation of Metabolism.**

Life naturally tends to increase syntropy, but the macroscopic level is governed by the law of entropy and tends to increase entropy. Exchange between life and the environment results in a continuous process of construction and destruction which allows life to evolve.

### *10. The Vital Needs Theory and value*

According to the entropy / syntropy theory, life stems from the quantum world, however when it enters the macroscopic level, which follows forward-in-time causality, it starts conflicting with the law of entropy, which tends to destroy any form of order and organization. The biologist Jacques Monod (1910-1976) describes the law of entropy with the following words:

> *"Man must at last finally awake from his millenary dream; and in doing so, awake to his total solitude, to his fundamental isolation. Now does he at last realize that, like a gypsy, he lives on the boundary of an alien world deaf to his music, indifferent to his hopes, his sufferings, his crimes."*[5]

The discovery of the law of entropy has turned life into a highly unlikely episode, which does not stem from the laws of the universe. Syntropy, instead, reintroduces life in the laws of the universe, the manifestation of the backward-in-time solution of the fundamental equations of the universe.

Entropy destroys life, syntropy constructs life.

This consideration leads to the formulation of one of the fundamental laws of life: *In order to survive, life must always reduce entropy and increase syntropy*.

From this law stems the theory of vital needs which can be grouped in three main categories of needs: material needs, needs for cohesion and love and needs for meaning.

- *Combating the dissipative effects of entropy: material needs*

In order to combat the dissipative effects of entropy, living systems must acquire energy from the outside world, protect themselves from the dissipative effects of entropy and eliminate the remnants of the destruction of structures by entropy. These conditions are generally referred to as *material needs*, or basic needs, and include:

Combating the dissipative effects of entropy, for example, acquiring energy from the outside world through food and reducing the dissipation of energy with a shelter (a house), and clothing.
Disposing of the production of wastes caused by the law of entropy, i.e. hygiene and sanitation.

The total satisfaction of these needs leads to a state characterized by the absence of suffering. The partial satisfaction is experienced as hunger, thirst and diseases. The total dissatisfaction leads to death.

[5]Monod J. (1971), *Chance and Necessity: An Essay on the Natural Philosophy of Modern Biology*, New York, Alfred A. Knopf, 1971, ISBN 0-394-46615-2.

- *Acquiring syntropy: the need for love and cohesion*

The satisfaction of material needs does not stop entropy from destroying the structures of living systems. For example, cells die and must be replaced. To repair the damages caused by entropy, living systems must draw on the regenerative properties of syntropy that allow to create order, regenerate structures and increase the level of organization. They must, therefore, acquire syntropy. In human beings this function is performed by the autonomic nervous system that supports vital functions, such as the heart beat and digestion.

Since syntropy acts as an absorber and concentrator of energy:

- the acquisition of syntropy is felt as feelings of warmth, in the area where the autonomic nervous system is located (heart/lungs/thorax), associated with wellbeing. These feelings coincide with the experiences usually named *love*;
- the lack of syntropy is felt as a feelings of void (entropy) and emptiness in the thorax area associated to pain and suffering. These feelings coincide with the experience usually named *anxiety and anguish* and come with symptoms of the autonomic nervous system such as nausea, dizziness and sensations of suffocation.

The total satisfaction of the need to acquire syntropy is experienced as love. The partial satisfaction is experienced as anxiety and anguish. The total dissatisfaction leads to death, since living systems are not capable of sustaining the regenerative processes and entropy takes over.

- *Solving the conflict between entropy and syntropy: the need for meaning*

In order to meet material needs, living systems have developed cortical structures that show the highest development in humans. These cortical systems produce representations of the world that allow to deal with the environment, but give rise to the paradox of the opposition between entropy and syntropy. Entropy has expanded the universe towards the infinite (diverging forces), whereas syntropy concentrates the feeling of life, the Self, in extremely limited spaces. Consequently, when we compare ourselves with the infinity of the universe, we discover to be equal to zero. On one side we feel we exist, on the other side we are aware to be equal to zero. These two opposite considerations generate the identity conflict which was described by Shakespeare with the words: "*to be, or not to be: that is the question*." The identity conflict can be represented using the following equation.

$$\frac{I}{Universe} = 0$$

**Figure 6 - When I confront myself with the universe I am equal to zero**

The universe corresponds to entropy whereas I corresponds to syntropy. To be equal to zero is equivalent to death, which is incompatible with our feelings of existence. We must therefore solve the conflict between "*to be or not to be*" which is felt as the need to give a meaning to our life. The strategies implemented to meet this need may differ. For example, we might try to increase our value through wealth, power, achievement, judgment of others or we might try to find a

meaning in life, a purpose, through ideologies and religions. The identity conflict is characterized by feelings of nothingness and of being meaninglessness, by lack of energy, existential crises and depression. These feelings are generally perceived in the form of tension in the head and generally come together with anxiety and anguish.

The total satisfaction of this need is experienced as purpose. The partial satisfaction is experienced as depression and existential crises. The total dissatisfaction leads to death, since it is incompatible with the feeling of existence.

- *The theorem of love*

The identity conflict can be written also in the form:

$$\frac{Syntropy}{Entropy} = 0$$

Where Syntropy is our identity, our consciousness and Self which is small and cohesive in space, whereas Entropy is the outside Universe which has inflated towards infinite on the effect of the diverging properties of Entropy.

The aim is to solve the identity conflict and this can be done only if we find a way to state our identity:

$$Syntropy = Syntropy$$

From a mathematical point of view this is possible only when we multiply the numerator of the identity conflict by Entropy:

$$\frac{Syntropy\ x\ \cancel{Entropy}}{\cancel{Entropy}} = Syntropy$$

This solution tells that only when we unite ourselves with the Universe we overcome the identity conflict and experience the meaning of life. For this reason, this equation is named the *theorem of love*. The *theorem of love* can be written also in the following way:

$$\frac{I\ x\ \cancel{Universe}}{\cancel{Universe}} = I$$

**Figure 7 – Theorem of love**

The *theorem of love*:

- requires the multiplication "*x*" between *I* and the *Universe* (i.e. between Syntropy and Entropy). Since the multiplication has the converging and cohesive properties of love we can state that only through love we can experience the meaning of life;
- shows that only when I am united with the Universe, compared to the Universe, I am I, solving Shakespeare's dilemma: "*to be, or not to be.*"
- posits that the union of entropy and syntropy, which are the opposite polarities of reality, is achieved through love and that love accomplishes the transition from duality (I=0) to non-duality (I=I);
- explains why anxiety (the lack of love) and depression (the lack of meaning) are perfectly correlated, although they have different etiologies;
- suggests that love is the aim, the attractor of life.

### *11. Value as a consequence of suffering*

The entropy/syntropy theory states that anything that responds to one or more vital needs acquires value. An example is easily provided by food or energy for the material needs. But, it is also easily provided by drugs for the invisible need for syntropy. The use of substances that respond to the vital need for syntropy, producing feelings of warmth in the solar plexus, such as alcohol, tobacco, heroin and other drugs, becomes vital. Consequently we develop addiction, but are also willing to pay money in order to acquire them.

The entropy/syntropy theory posits a direct correspondence between value and vital needs. Value is given to anything that responds (directly or indirectly) to one or more vital needs.

The strategies implemented in order to respond to our needs can be the most different and they are all at the basis of how value is created. In order to build a viable economic and monetary system our needs (both visible and invisible) must be addressed in a clear and effective way.

In this moment of history the vital need for meaning and syntropy are addressed in indirect and inefficient ways. This is the cause of wide-spread suffering of people, and of the fragility of our financial and economic systems.

Some of the most common strategies used to respond to the vital need for meaning and syntropy range from expanding our Ego to the abuse of drugs and the addiction to ideologies and religions.

Expanding our Ego, through the judgment of other people, wealth, popularity and power, momentarily satisfies the vital need for meaning, since it changes the ratio of the identity conflict equation.

$$\frac{I + judgment + wealth + popularity + power + meaning \ldots}{Universe}$$

A famous experiment, devised by Stanley Milgram[6], shows how vital and strong can be this strategy. The aim of Milgram's experiment was to study the extent to which people are willing to obey orders which are clearly wrong. Milgram used an experimental design in which volunteers were divided in pairs, the first volunteer was asked to play the role of a teacher, while the second the role of a student. The student was taken to a nearby room and seated on a sort of electric chair, then he was entrusted with the task of memorizing a series of words. The teacher was given the task of listening to the recitation and send electric shocks to the student when he was wrong. The teacher used a power switch. At the first mistake he was asked to send an electric shock of 15 volts, 30 volts for the second mistake, 45 volts for the third and so on, with regular successions up to 450 volts. Every six clicks of the switch the current intensity was notified by a recorded voice that warned: *weak shock*, *medium shock*, *strong shock*, *dangerous shock*. Milgram explained to the teacher that shock intensity had to be increased at each mistake. When the list was long and difficult, the answers were often wrong and the teacher was required to send stronger and stronger shocks. At 75 volts the student began to complain, at 150 he asked to stop the experiment, but Milgram ordered to continue. At 180 volts the student began to scream because he could no longer bear the pain. If the teacher showed he was doubtful, Milgram ordered to continue, even when the student, at a shock of 300 volts, shouted desperately to be freed. The aim of the experiment was to study up to what point the teacher was willing to follow the orders. He did not know that the student was actually a collaborator of Milgram and that he did not receive any electric shocks. The student was in another room, his prayers and screams were not real but were recorded. A group of psychiatrists calculated in advance that most teachers would have stopped at 150 volts, when the student began to yell for help. The results of the experiment, however, were strikingly different: more than 80% of the teachers continued the experiment even after 150 volts, and 62% of these continued up to 450 volts. However, Milgram pointed out that for teachers it was not easy to obey. Many started sweating, but they were ordered to continue increasing the intensity of the shocks. Disobedience was easier, however, when Milgram was not present and when the orders were given by phone, from a room nearby. Many teachers said they executed the order, but the students received weaker shocks than they should have. On the other hand teachers obeyed more readily if victims were far away. Only 30% agreed to compel students with force to keep their hands on a metal plate that was supposed to transmit very strong shocks, but if the victim was in another room, and the protest was limited to kicking the wall, the percentage of obedience exceeded 60%.

The experiment shows that teachers obeyed orders that are commonly rejected by ethics and moral, and that they were unable to disobey! These strategies are felt to be so vital and important that people turn into robots with no sensibility for life and the suffering of other humans, and develop destructive behaviors. Ayten Aydin in a keynote speech, for the IIAS 2007 forum, notes that:

> "*The most important underlying factor of this anti-survival behavior of human beings is a combination of (among other things) greed, hatred and ideologies. All these vices, separately or combined, fuel ever-spreading acts of societal disintegration and the creation of two major camps in terms of controllers and the controlled. These vices are speedily gaining increased power fuelled by increasing hatred, which kills the ability to reason as well as inherent human wisdom, and thus strengthens and deepens further their belief systems.*"[7]

[6]Milgram S. (1974), *Obedience to Authority: An Experimental View,* Harpercollins, New York, 1974.
[7]Aydin A. (2007), *A culture of optimization and reconciliation: a concept of equitable, ethical and creative living*, Keynote speech: IIAS forum 2007 on "*Survival in an Orwellian world.*"

When we expand our Ego we isolate from people, since we use masks, and our behavior is not spontaneous. Others interact with our masks and not with our true self. This separation from the outside world is accompanied by strong feelings of loneliness which increase the identity conflict.

Furthermore, without other people, it would be impossible to receive a judgment of our Ego. Others become the source of our meaning (i.e. value), and this generates a deep need to be accepted and a fear of being rejected. This fear leads to conform to all the conditions that the group or the community imposes. Without other people it would be impossible to be judged and receive a value. Being marginalized means losing our source of value and identity, and the fear of being marginalized, of being rejected, leads to the power of social pressure, which can be so strong that at times it leads people to forget key ethical values.

Strictly related is the strategy based on the equivalence: "*I am since I have*." Typical examples are wealth, popularity and power. Having more money, popularity and power gives the illusion to value more. But, whichever value we put at the numerator, when compared with the infinity of the universe, the result is always equal to zero. We can become emperors of the planet and feel depressed, lonely and meaningless. We can reach the highest forms of power, where we decide the life or death of people, but we still feel to be equal to zero. Nevertheless, we substitute the need for meaning with the need for money, for popularity, for power turning them into vital needs. These secondary needs create a distance between ourselves and others and trigger the fear of being deprived of what we possess. Many psychologists and sociologists have suggested specific needs of power, for example, the model nPow, Need of Power, developed by McClelland in 1975. However the theory of vital needs suggests that the need for power is nothing else than a secondary need, a strategy that we use in order to give a meaning to our life expanding our Ego. There is no "biological" need for power, for popularity or money, but there is only a need for meaning.

Expanding our Ego doesn't solve our need for meaning, and we continue to feel meaningless and our loneliness increases. Consequently, we start searching in other directions and at this stage most people encounter religion. We substitute our vital need for meaning with a vital need for religion, providing in this way power, wealth and money to religions. But our unconscious mind soon becomes aware of the fact that also religion is unable to provide a meaning to life. This deep awareness explains the fear and hate that religious people can manifest towards those who belong to different religions. We don't want to become aware of the contradictions of our religion, since religion has become vital to us. The strength and power of religion can be found throughout all the history of humankind and in all the cultures and nations. History is filled with wars which have been conducted in the name of God. This fact provides an indication of how strong the need for meaning is.

Also ideologies, cultural systems and sets of values provide meanings and similarly to religion they can become vital to us. We feel the need to defend our sources of identity and this is probably one of the chief obstacle to change and evolution. People stay entrapped in their ideologies. Also the culture in which we grow communicates values, such as the concepts of good and bad, social roles and duties. When we come into close contact with different cultures we naturally lose these references, with a consequent sense of loss and depression. Unprepared visitor can experience a cultural shock when immersed in an alien culture. Immigrants frequently suffer of cultural shocks, depression and identity crises. Cultural shock is what happens when a traveler finds himself suddenly in a place where *yes* means *no*, where fixed prices are replaced by bargaining, in which

being made to wait is not an offense, where laughter may signify anger and when the familiar psychological cues that provide us with meaning are at once removed and replaced with new cues, unknown and incomprehensible.[8]

Another strategy commonly used in order to try to resolve the identity conflict is to decrease the value of the denominator of the identity conflict, for example:

$$\frac{I \; x \; Community}{Community}$$

In this strategy, people seek to resolve their identity conflict limiting the outside world to a community, without contacts with the outside world, and by being a total part of this community. Rather than comparing ourselves with the universe, we reduce the comparison by limiting our universe. This strategy changes the need for meaning, into the need to belong to a group, to a community. It becomes vital to be part of a community and we tend to give our wealth, properties and money to the community.

The community may be the family, a religious community, an ideological group, an association, a scientific community, or any other type of group with a limited number of people who belong to it. In order to secure this sense of belonging, from which we receive a meaning, we are willing to do whatever the influential members of the community say and want. Group violence in which ordinary people become momentarily blind, in a state of altered consciousness, and commit acts of violence and hooliganism, which would otherwise be unthinkable, show how powerful the need to belonging to a group can become. In order to respond to the need for belonging, people can become actors of the most atrocious sufferings, intentionally inflicting pain.

Another strategy is to cancel the external world. In this case the formula is transformed into:

$$\frac{I \; x \; I}{I}$$

This strategy explains 3 main type of psychiatric disorders:

- when the (I x I) multiplication is prevalent people can develop a narcissistic personality disorder.
- When the (I / I) fraction is prevalent there may be a paranoid personality disorder.
- When the (I / I) fraction and the (I x I) multiplication have similar weights, the person may be faced with a spectrum of psychotic disorders.

A trait common to these disorders is the closure in oneself, and the perception of the outside world as threatening or inappropriate in relation to ones expectations.

In the *narcissistic personality disorder* the (I x I) multiplication dominates. That is when love for ourselves dominates. Individuals who develop a narcissistic personality disorder are convinced that they are special and unique people. They expect to receive approval and praise for their

[8]Toffler A., Future Shock, http://www.amazon.com/Future-Shock-Alvin-Toffler/dp/0553277375

superior qualities and are likely to have proud and arrogant attitudes. By virtue of the personal values that they believe to have, they only want to be with prestigious people of high social or intellectual level. Finally, they are often occupied with fantasies of unlimited success, power, brilliance, beauty or ideal love. Since the denominator of the equation has been replaced with their ego, these individuals show a lack of awareness of the needs and feelings of others, they lack empathy and can easily abuse others without any regard for the consequences. In addition, others are idealized as long as they meet the need for admiration and gratification. Relationships tend to be emotionally cold and detached, without regard for the pain that they generate in others. They are in effect the joy-killers of the society, they tend to break rather than strengthen the bonds which make a healthy and harmonious living when existing.

In the *Paranoid personality disorder* the (I / I) fraction dominates and the "universe" is replaced with ourselves. But, since we are in an identity conflict we feel the "universe" to be threatening and dangerous. In this case it is difficult to distinguish between objective reality and the inner world of depression and destructive ideas. The pervasive sense of threat is never regarded as a subjective experience, a fantasy or a hypothesis, but as an objective matter of fact, absolutely certain. Sometimes our inner feelings are of derision, and other times they are derogatory or provocative and we start believing to be, unjustly, victims of a hostile and humiliating world. We start experiencing anger, resentment and irritation, and the tendency is to react to this aggression by attacking. When, instead, the feelings that prevail are those of being excluded, not wanted or ostracized by the group, the prevailing experiences are those of anxiety, sadness, loneliness and fatigue, with the consequent tendency to become even more isolated and to withdraw from the world. Individuals with this disorder may also be insanely jealous and may suspect, without any real reason, that their spouse or partner is unfaithful. These individuals have also the inability to put themselves in the perspective of others and to distinguish their views from those of other people.

In the *Psychotic spectrum disorders* the fraction (I / I) and the multiplication (I x I) are both emphasized. People replace external reality with their inner world which becomes the reality to which they compare themselves. Consequently, they project their own suffering outside themselves in the form of hallucinations, associated with the typical considerations that characterize the identity conflict: being a nullity, being unworthy, incapable and unfit, being destined to death and destruction. These considerations may take the form of actual hallucinations, delirium, illogical thinking supported by convictions and absurdities which seem obvious to the person concerned, but which cannot be shared or accepted by other people. Reality takes the form of false perceptions in the absence of real external stimuli, such as threatening and persecutory voices that are a constant reminder of the utter lack of meaning of their existence. Hallucinations are often characterized by paranoid beliefs according to which the whole world is part of a conspiration. These paranoid beliefs, combined with hallucinations typical of schizophrenia and psychosis, may result in unbearable levels of suffering, so high as to lead the person towards suicide, which is felt as the only way out. Since at the numerator of the identity conflict we find I x I, people who suffer from hallucinations and delirium are also characterized by extreme social withdrawal, in contact only with themselves and with their own imaginary world. Social withdrawal, in turn, leads to become more introvert and these people start worrying only about the symptoms of their illness. It follows that an additional trait that characterizes psychosis and schizophrenia is selfishness, insensitivity and lack of concern for the feelings of others.

- Anxiety

When our need for love and cohesion is not met we experience in the area of the Autonomic Nervous System (thorax area) feelings of void and emptiness associated to pain and suffering. These feelings coincide with the experience usually named *anxiety* and come with symptoms such as nausea, dizziness and sensations of suffocation.

The autonomic nervous system (ANS) regulates and controls the vital functions of the body automatically and unconsciously, without the need for any voluntary control. Nearly all visceral functions are under the control of the autonomic nervous system which is divided into the sympathetic and parasympathetic systems. The nerve fibers of these systems do not reach directly the organs which they govern, but stop before and form synapses with other neurons in structures called ganglia, from which other nerve fibers form systems, called plexus, which reach the organs. The sympathetic part of the system is close to the spinal ganglia, and forms synapses together with longitudinal fibers, in a tree called the paravertebral chain. The parasympathetic system forms synapses far away from the spinal column and closer to the organs it controls. The ganglia of the sympathetic system are distributed as follows: 3 pairs of intracranial ganglia, placed along the path of the trigeminal, 3 pairs of cervical ganglia connected to the heart; 12 pairs of dorsal ganglia connected to the lungs and solar plexus, 4 pairs of lumbar ganglia that are connected through the solar plexus to the stomach, small intestine, liver, pancreas and kidneys, 4 pairs of sacral ganglia in connection with the rectum, bladder and genital organs. For a long time it was believed that there was no relationship between the brain and the sympathetic system, but today we know that this relationship exists, it is strong and the brain can act directly on organs through the mediation of the solar plexus. There is thus a link between mental and physical states. For example, sadness acts on the solar plexus through the sympathetic system, generating vasoconstriction due to the contraction of the arterial system. This contraction caused by sadness hinders blood circulation, thereby influencing also the digestion and breathing. People commonly refer to the heart and not to the solar plexus. However, from a physiological point of view, the organ that allows us to perceive emotions is the solar plexus. When we experience feelings, anxiety or love, they are not a product of the brain or of the heart, but of the solar plexus. The brain is not separate from the solar plexus and the solar plexus is itself a brain, but with a reversed anatomy. While the brain is made of gray matter on the outside and white matter in the inside, in the solar plexus just the opposite is observed. The gray matter consists of nerve cells which allow us to think, the white matter is made up of nerve fibers, extensions of the cells, which allow us to experience sensations. The solar plexus and the brain are one the opposite of the other and represent two polarities: the emission pole and the receptive pole. The same duality found in the polarities entropy and syntropy and that is found throughout all of nature. The solar plexus and the brain are closely linked and from a phylogenetic point of view the brain develops from the solar plexus. Between brain and solar plexus there is a specialization of powers and functions which are totally different, and which may manifest completely only when these two polarities are integrated and work in harmony, producing results which are quite extraordinary.

Experiments show that syntropy is acquired mainly thanks to the autonomic nervous system and is felt as feelings of warmth associated to wellbeing. On the contrary the lack of syntropy is felt as void associated to suffering. When there is abundant intake of syntropy, feelings of warmth and wellbeing (love) are felt in the autonomic nervous system; on the contrary, when there is insufficient acquisition of syntropy, feelings of chill and pain (anguish) are felt.

We live in a time that disregards the body language of the autonomic nervous system, which causes anxiety and anguish to be widespread. People search anything that can free from these painful experiences. However, these feelings are important indicators that tell that we are in a shortage of syntropy.

One strategy used in order to escape the feelings of anguish and anxiety is to bind to others. Others become instrumental, but we end feelings as if an abyss separates us, as if our voices and feelings are lost in the void of loneliness. We get involved in activities in order to avoid any moment of silence, and we take refuge in conformism. We fill our lives with activities and commitments, we overwork, over-volunteer, get addicted to sports, politics, religions, ideologies. We drink alcohol, turn on the TV, eat compulsively, listen to loud music, and feel attracted by violence.

These strategies do not satisfy the need for syntropy and the levels of syntropy continue to be insufficient and anguish persists, leading to a number of side effects, such as:

- Any substance that produces feelings of warmth similar to love reduces anguish, but produces also addiction. A typical example is provided by heroin. Heroin is described as “the cold lover” and consumers speak about their “honeymoon with heroin.” Heroin replaces the need for syntropy and in this way leads to a strong addiction. Even alcohol causes feelings of warmth, similar to love, and can replace the need for syntropy, causing addiction.
- The need for syntropy remains unsatisfied and the body enters in a state of chronic malnutrition of syntropy, which favors illnesses.
- The use of substances, severely impairs our decision-making abilities and leads away from advantageous strategies.
- Insensitivity and loneliness increase, hindering relationships and increasing all those conditions which trigger a low quality of life.

### *12. Value as a consequence of wellbeing*

Since syntropy acts as an absorber and energy concentrator, ideas and intuitions which increase syntropy are associated to feelings of warmth located in the heart area. In contrast, ideas which are dysfunctional to syntropy are associated to feelings of void (entropy) and pain usually named anguish, accompanied by symptoms of the autonomic nervous system, such as nausea, dizziness and feelings of suffocation.

This simple mechanism is at the basis of intuitions of the future, inspirations, which are inaccessible to the ordinary states of the mind. It leads to higher levels of syntropy and illuminates the direction, offers aims and the mission of our life[9]. Our heart (i.e. solar plexus) provides the contact with solutions which increase syntropy and guide towards wellbeing and wealth.

To better understand the role of this mechanism it is worth quoting how Henri Poincaré used to describe intuitions (1854-1912).

> *"The genesis of mathematical creation is a problem which should intensely interest the psychologist. To invent is to choose; but the word is perhaps not wholly exact. In mathematics the samples would be so numerous that a whole lifetime would not suffice to examine them."*

Poincaré noticed that when faced with a new mathematical problem he began using the rational approach of the mind that allows to become aware of the characteristics and elements of the problem. But, since the options tend to be infinite and it would take much time to evaluate them all, some other type of process starts operating leading to select the correct answer. Poincaré named this process *intuition* and considered it a process which is fundamental in the production of qualitatively new information. Poincaré came to the conclusion that the process of discovery can be divided into four phases.

1. A *conscious phase* which requires a period of work during which we become aware of the elements that constitute the problem.
2. An *unconscious phase* in which intuitive processes take place and lead to the correct solution which is highlighted by a feeling of warmth and wellbeing in the heart area, an emotion of *truth* that draws the attention of the mind.
3. A *phase of formalization*. What the unconscious presents to the conscious mind in the form of an intuition is not a final or complete argumentation, but rather a starting point from which we can work out the details.
4. *A phase of validation* in which the formalized concepts are translated into hypotheses and verified.

[9] Aydin A., *Human Drama – Struggle for Finding the Lost Spirit*, 7th Symposium on Personal and Spiritual Development in the World of Cultural Diversity, 2010. The International Institute for Advanced Studies (IIAS).

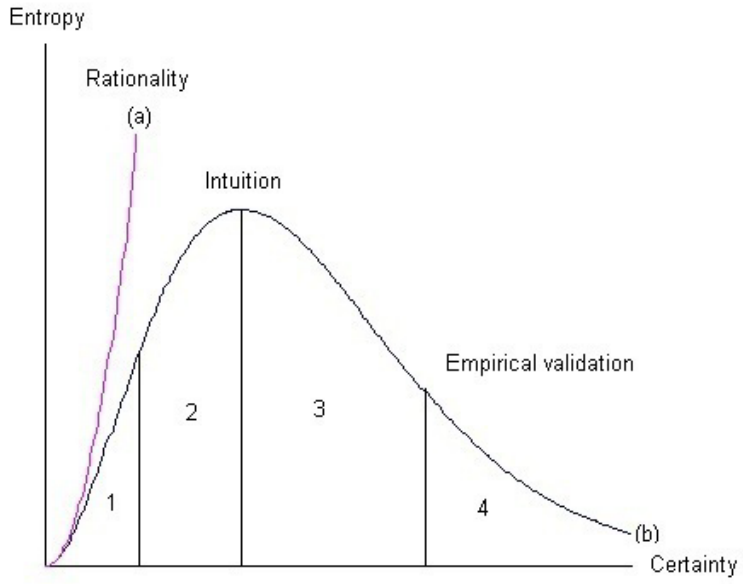


**Figure 8 - Phases of the process of discovery**

According to Poincaré, intuitions guide towards the right solutions and options reducing in this way entropy (line b). On the contrary when we only use rational thinking neglecting the heart and intuitions, entropy increases, as it is illustrated by line a.

The superconscious mind constantly uses these bodily sensations as a compass that points towards advantageous options.

A famous example has been provided by Steve Jobs, the founder of Apple Computer. Jobs grew up in a foster home, had a difficult childhood and had dropped out of college during the first semester of the first year. He ventured in India and came back with a vision of reality where intuitions play the fundamental role:

> "*The people in the Indian countryside don't use their intellect like we do, they use their intuition instead, and the intuition is far more developed than in the rest of the world… Intuition is a very powerful thing, more powerful than intellect, in my opinion.*"

On April 1, 1976 he founded Apple Computer, with his friend and electronics engineer Steve Wozniak. Job had the intuitions, and Wozniak was translating them into products. But in 1985, after a power struggle with the new manager John Sculley, who followed a rationalist view incompatible with the intuitive approach, Jobs left Apple Computer. In the mid-nineties, the company was in crisis, had no ideas and new products. On 21 December 1996, the Board of Directors asked Jobs to become the personal adviser to the president and on 16 September 1997 Jobs again became CEO (Chief Executive Officer), ad interim, with a nominal salary of one dollar per year. Jobs quickly resurrect Apple Computer. How did he manage?

> "*Don't let the noise of other's opinions drown out your own inner voice. And most important, have the courage to follow your heart and intuition. They somehow already know what you truly want to become. Everything else is secondary.*"

Jobs had learned in India that intuitive thinking is at the basis of creativity and genius. Also Einstein regarded intuition as the most powerful form of knowledge:

> "*The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift.*" (Einstein)

There is a profound difference between intelligence and genius. Genius is intuitive, imaginative, unexpected and sometimes magical and it is cultivated through silence and meditation. Jobs practiced Zen meditation and the ability to intuit made him able to smell the future, as an explorer who sniffs the wind. Jobs ability to venture on new roads and ideas was based on an experiential approach where the focus had shifted from the head to the heart. When his heart was illuminated by an intuition he became stubborn and many collaborators thought that Jobs lacked emotional maturity. But it was just the opposite, his attention to the heart was at the basis of his genius. The heart guided Jobs in the design of new products.

> "*Almost everything...all external expectations...all pride...all fear of embarrassment or failure...these things just fall away in the face of death....leaving only what is truly important. Remembering that you are going to die is the best way I know to avoid the trap of thinking that you have something to lose. You are already naked...there is no reason not to follow your heart.*"

Jobs believed that companies should be guided by intuitive people who can perceive the future and translate it into projects and objectives. Similarly to Michelangelo he believed that the ability of a genius is to make visible what is already there:

> "*In every block of marble I see a statue as plain as though it stood before me, shaped and perfect in attitude and action. I have only to hew away the rough walls that imprison the lovely apparition to reveal it to the other eyes as mine see it.*" (Michelangelo)

Jobs believed that he had to make visible to others what his heart had already seen through intuitions and that this was the road to wealth and wellbeing.

The difference between the entropic approach on which the Western monetary system is based and the syntropic approach which is starting to take shape in the BRICS countries, is that the entropic approach is based on suffering, and the need to fight suffering, illnesses, wars and deprivation, whereas the syntropic approach is based on wellbeing, creativity, intuitions, harmony and generalized wealth.

The see-saw representation of entropy and syntropy can be divided in blocks according to the vital needs theory:

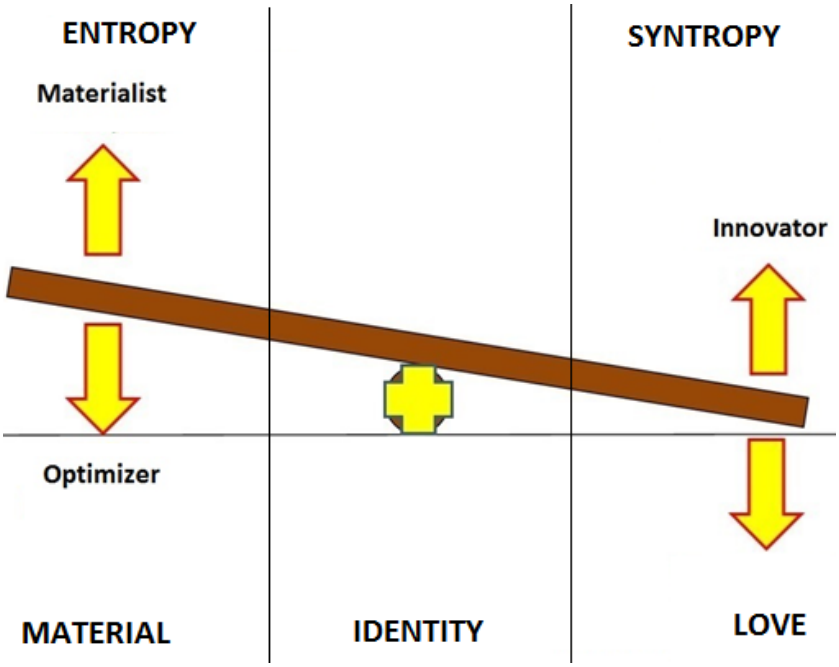


**Figure 9 – The see-saw representation can be divided into 3 blocks**

1. the left block is governed by the visible side of reality;
2. the right block is governed by the invisible side of reality;
3. the central block is related to our need for meaning and mediates the visible and invisible sides of reality.

In order to increase wealth and wellbeing the aim is to reduce entropy and to increase syntropy. The reduction of entropy is achieved through a continuous tension towards optimization, whereas on the right side the increase in syntropy is obtained thanks to the process of intuition. A correct use of this mechanism can mean robust-health versus crises and bankruptcy. Nonetheless, people are afraid of change since it often conflicts with the strategies which they use in order to answer the need for meaning.

The following real case provides insights, and shows how the balancing role of entropy and syntropy can be intentionally used to overcome bankruptcy and generate wealth.

> "*I am a 50 years old medical doctor, I live in Rome. I'm single, I own an apartment in the old historical center, but in the last months my expenses have regularly exceeded my income by more than 500 Euros per month! My parents cannot help me and I don't want to borrow money. In order to avoid spending I have emptied my wallet: no money and no credit cards. Also the credit in my mobile phone is always empty. But last month my savings ended and I am now going to get into troubles.*"

The first aim is to reduce the levels of entropy. This is done in ways which are always tailored to the situation.

> "*How much do you spend for your mobile phone each month?*"

"*I spend around 40 Euros, but I always find myself with no credit.*"
"*Why don't you change provider? There are now some special offers. With just 10 Euros per month you have 500 minutes and 500 messages and unlimited web connection.*"

I changed the provider and with this small change I can now use my mobile without limits, use Skype and internet and save annually over 350 Euros.

"*I understand that you take your shirts to the laundry!*"
"*I wash them, but don't know how to iron them.*"
"*How much does it cost?*"
"*Between 50 and 70 Euros per month.*"
"*Why don't you give an extra 8 Euros to the maid and ask her to iron your shirts?*"

I asked the maid and she was happy to accept. Another small optimization that saves me over 600 Euros per year and improves the use of my time, I now don't have to take my shirts to the laundry and pick them up!

These two first optimizations have reduced entropy by approximately one thousand Euros a year. The aim is to reach six thousand Euros in order to balance entropy and syntropy and activate the invisible side of synchronicities.

"*You go to work by car.*"
"*I also use the scooter, to save money, but the traffic and the roads in Rome are really dangerous!*"
"*Why don't you use the bicycle?*"
"*On these roads?!*"
"*No, in the old streets of Rome.*"
"*My studio is up hill, I would arrive tired and sweaty.*"

My house is close to Piazza Navona, the studio near Villa Borghese. I have always considered riding the bicycle impractical since I would have to climb more than 30 meters between home and the studio.

"*If you need to climb a hill it is better to choose a steep but short road, get off and push, rather than pedaling.*"

I tried. From the beauty of the narrow streets of Rome, I went through the parks of Pincio and Villa Borghese. In less than 25 minutes I arrived at my studio. I was rested. By car or scooter I needed more time.

"*Another small optimization!*"

I was astonished! The day after I sold my scooter, canceled the insurance, I canceled the rent of the garage. All together another 3 thousand Euros per year. With this simple optimization I receive other benefits: I exercise daily and I no longer need the gym, more money and time saved! In addition, I save on fuel costs and this will certainly have a positive impact on my finances. Entropy has now diminished by more than four thousand Euros per year.

"*Your electricity bill exceeds 200 Euros! As a singles you should not pay more than 50 Euros.*"
"*What must I do?*"
"*Try to change the light bulbs, use low consumption bulbs and put the timer to your water heater.*"

Other small changes that lead me to save another 900 Euros per year. On top of this I feel happy since I have always considered myself an ecologist and saving energy makes me feel consistent with my ideals. The annual savings now exceed 5 thousand Euros and the quality of my life has increased.

"*How much do you pay for electricity at your studio?*"
"*About 300 Euros every two months.*"
"*Do you use halogen bulbs!?*"
"*Yes.*"

I soon found out that I could save another thousand Euros a year, simply by replacing the halogen bulbs with energy saving light bulbs.

With these five small optimizations my expenses no longer exceed my income. I decided to put back my credit cards and money in the wallet, I can use the mobile phone with no limits, and I can now add money in my saving account!

It is important to note that in order to raise syntropy, it is necessary to reduce entropy improving at the same time the quality of life. When entropy is reduced at the cost of the quality of life, syntropy does not increase.

First synchronicity:

"*How much do you pay for the rent of your studio?*"
"*Nothing. It is the property of my aunts, they gave it to me for free.*"
"*They could rent it and make a profit, but you are using it for free?!*"
"*Exactly.*"
"*And your aunts on what do they live?*"
"*They both have a minimum pension and they have some savings, but their financial situation is not good and they complain all the time.*"
"*Have you ever thought to rent a room in a medical studio and let your aunts rent their apartment?*"
"*I have no money, I cannot afford to pay a rent!*"
"*How is your activity going?*"
"*Lately I had a reduction in the number of patients, perhaps because of the economic crisis, but probably also because of the location of the studio.*"
"*A less prestigious studio, but in a strategic place, well-connected could help you get more customers?!*"

When syntropy and entropy are balanced, syntropy manifests in the form of synchronicities. When syntropy is activated, coincidences that offer opportunities and solutions start popping up. Syntropy seems magic, since it operates at the invisible level, but nevertheless it works.

The day after this conversation, as if by magic, I received the offer of a room in a very central area of the town, Termini Station, at the affordable price of 250 Euros per month, including all the utilities! My aunts' apartment is located in a very prestigious and beautiful place, but it is difficult to reach by public transportation and there is no parking place: beautiful, prestigious, but uncomfortable and very expensive. Nevertheless I hesitated, I did not dare make such a radical change! I hesitated. But the following day something amazing happened, something that had never happened in all the 17 years I have spent in this studio! The doorkeeper called me. "*An airline company is willing to rent the apartment of your aunts and pay 2,800 Euros per month.*" I needed a kick to get out of the studio and as soon as I informed my aunts about this offer they asked me to find another place. Luckily the day before I received the offer near Termini station.

That same afternoon I was walking in the area of Rome which I like most. I am a medical doctor and I had an appointment in a pharmacy. Just before the pharmacy there is a shoe repairer shop and attached to the window there was a notice for a room to rent in an apartment with other medical doctors. The apartment was in the next building. I immediately called and went to see it and I decided right away to rent the room. In a town like Rome it can be difficult to find rooms with other doctors and especially in such a nice place of town.

When Syntropy is activated, opportunities start arising in a sequence which guides towards advantageous solutions which we would have never dared imagine.

> "*I started feeling warmth and wellbeing in the area of my heart. My patients liked the new studio. There is parking place, the place is nice, silent and it is located near an underground station. My activity flourished, my savings increased and my private and sentimental life improved.*"

When syntropy is activated it goes on providing synchronicities.

> "*Few months later a clinic in Switzerland asked me to start working for them. I now live in Switzerland. I enjoy a high income and a highly satisfactory professional and personal/emotional life. Less than a year ago I was bankrupt and thanks to the Syntropy Activation protocol my life is now totally different.*"

By applying this protocol, we have noticed that it is effective when people have developed the awareness that life is an interaction of visible and invisible aspects.

### *13. Assessments*

In general, any analysis that regardless of the technique adopted is based on the idea that it is useful to undertake an activity only if the benefits outweigh the costs is a cost-benefit analysis. Cost-benefit analyses comprise techniques which translate every element of cost and benefit in elementary, i.e. monetary units. For each element of cost or benefit an objective monetary value is given, added up and finally compared. The total cost is the sum of the individual elementary units of cost, whereas the total benefit is the sum of the individual elementary units of benefit. The limit of cost-benefit analyses can be traced back to the fact that they consider only the visible side of reality, since they require quantitative and additive data, and in this way they reject all that is invisible, subjective or qualitative or that cannot be translated into a quantitative form. This means that all what has to do with syntropy is excluded, whereas all what has to do with entropy is included; consequently assessments based on cost-benefit analyses lead to increase entropy and reduce syntropy.

A syntropic monetary system would aim to reduce entropy and increase syntropy and should be based on techniques which allow to handle qualitative and subjective information.

Here are some examples.

- *Energy options*

Many cost-benefit analyses support the validity of the nuclear energy option on the basis of the fact that the cost of the nuclear fuel, compared to the cost of traditional fuels, is more convenient. In these analyses a kW of electricity produced by nuclear power plants costs less than a kW produced by traditional fuels (gas, oil, coal) or renewable sources (biogas, hydroelectric power plants, wind, solar panels, etc ...). The assessment becomes less favorable for nuclear energy if in the cost-benefit analysis the cost of construction of the power plant is introduced. If the costs associated to the disposal of radioactive waste, decommissioning of a radioactive power plant and storage of radioactive wastes in a safe place for over 250,000 years, are introduced in the analysis, the assessment turns to be negative for nuclear power plants and the cost of each kW produced by nuclear reactors becomes impressive, difficult to calculate, but probably in the order of several thousand if not millions of times higher than the costs calculated considering only the fuel. In cost-benefit analyses all the costs should be included, also future costs that someone will have to pay for. Consequently, when assessing the cost of nuclear power we should also include the costs associated to the environmental and social impact of nuclear power plants, the concentration of power and the vulnerability to terrorist attacks and natural disasters, but usually these costs are omitted since they cannot be translated in quantitative units.

Costs which are omitted are usually attributed to governments, which pay them increasing taxes. For this reason, storage and disposal of radioactive wastes are usually not included in cost-benefit analyses, but the scale of these costs is now simply overwhelming and governments are not able to afford them. For example, in the United States over 70 thousand tons of radioactive wastes, produced by civilian nuclear power plants are looked after using taxpayers money, and the cost has now exceeded that for public and private education. It is worth noting that each year the cost of the storage of radioactive wastes increases considerably and in countries with high public debts, disposal of nuclear wastes is simply unaffordable and it therefore becomes a lucrative business for criminal organizations which put at risk national security and the health of citizens. Moreover

plutonium, which is needed in nuclear weapons, is obtained from radioactive wastes. Consequently there is a big military interest and the risk that these wastes can be used for purposes other than those in the interest of the nation are high. These risks should be included in the cost-benefit analyses but, unfortunately, they cannot be expressed in quantitative and objective units and are therefore omitted. Also the risks associated with natural events (earthquakes, tsunami, etc.) and the radioactive contamination of the environment are not included in cost-benefit analyses, since it is difficult to quantify them. It is though important to note that there is no corner of the planet which in the next 250thousand years will not be subject to natural disasters which could destroy a nuclear power plant or waste facility. The possibility of a natural disaster and of environmental damages should be included in cost benefit analyses, since in such a long span of time they become a "certainty". Probably there are other risks of which today we are not yet aware. For example, according to the theory of syntropy life originates from the quantum level in which time would be unitary. Nuclear fission, however, divides the atom and the unitary time, destroying in this way the link between life and syntropy. This may recall the famous warning found in the New Testament "*What God has united, man must not divide*" (Matthew, 19,6-3) which might not refer to marriages but probably to the unitary time of the quantum world. Breaking this delicate and crucial balance could undermine the possibility of life to draw syntropy from the quantum level of matter.

When the cost-benefit analyses are extended to qualitative variables, the cost of nuclear power is unbelievably high and therefore it is necessary to avoid this option. Contrary to what is asserted by neoclassical economists, the nuclear energy option results to be the most disadvantageous choice, a choice that produces benefits for a short period of time (usually 40 years), but which must then be repaid for generations to come. We are leaving a "nuclear" debt to future generations that will lead to costs that by far outweigh the benefits that these plants have produced during their short period of operation.

- *Specialist or integrated services?*

The fast evolution of medical science has led to the development of specialized health care services. In order to improve the way how these services are provided and the organization of health care organizations, cost-benefit analyses based on the information retrieved from the databases of hospitals and clinics are used. These cost-benefit analyses result in "objective" information which allow to select best practices, which maximize the benefits and reduce the costs, and generalize them to all the health care system. The intention of the cost-benefit analyses is to provide better services, reducing costs, and this is done focusing on performance and optimization. Although health care services are progressively improving their quality and are becoming easy to access, it happens always more frequently that the problems of the patients remain unsolved. Many patients continue to be ill and refer to other services searching for a solution to their problem; many are unable to find an effective cure and start wandering from one health service to another, from one physician to another, from public to private services and from private to public.

Why?

The theory of vital needs states that we are constantly compelled to respond to three vital needs: material needs, needs for meaning and cohesion. Illness and diseases usually originate from the dissatisfaction of one of these three needs. However, since the cost-benefit approach requires

objective and quantitative information it focuses solely on material needs and does not consider the needs for meaning and cohesion which are excluded from the analyses.

Decisions about health models and how services are provided are based on cost-benefit analyses and this has led to focus only on the objective aspects of the healing process. Furthermore, healing requires time and usually takes place when the patient is at home. Consequently, no or little information about healing is present in the databases of health care structures and for this reason cost-benefit analyses are limited to the assessment of services and do not consider the most simple and fundamental of all questions: *Was the patient's problem solved*? *Did the patient heal*?

In some rare cases hospitals are organized according to a radically different model, in which databases use patients as a units, instead of services. These databases do not allow cost-benefit analyses since they focus on qualitative information.

Models centered on patients are here referred to as "integrated" systems, whereas models centered on the service are referred as "classical" systems.

In order to understand the difference between classical and integrated systems a brief example about the health needs of migrants may be useful. In recent years, European countries have witnessed a rapid growth of the migrant population and these citizens often complain of severe pains in the chest, although specialized medical investigations generally do not identify the cause. Migrants ask frequent medical tests for heart problems or diseases linked to the digestive system or to the lungs, but these tests continue to show no organic dysfunction. Migrants then start searching for better medical structures, go to private clinics and begin a pilgrimage that brings them wandering endlessly from one medical facility to another, from one physician to another, without getting any satisfactory diagnosis of their illness. Within a few months, one single migrant may have undergone dozens of analyses and produced considerable costs for the public health care system and the welfare system. Despite these high costs the system fails to address the request and the migrant continues suffering and searching for an answer.

The situation changes radically when migrants access integrated medical services where they are welcomed by a social assistant who interviews them, asks about their story, how the problem started:

> "*Some time ago a woman from Ukraine came and told me that, since she did not have a regular permit, she could not return to her country. She complained about headaches and severe pains in the chest. She was afraid of having heart problems and had already been to several hospitals and private structures and had a bag full of medical analyses. So far nothing was found and no answer was given to her. The problem had been going on for several months. She spoke about her husband who had become an alcoholics and she told me about her family in Ukraine that had disintegrated. The son went to live with his grandparents and is now under psychiatric treatment because of a severe depression. As an illegal migrant she could not return to her country since at the border she would be arrested and then kept in prison for 20 months. She continued to speak at length about her loneliness and her desperation. She came asking for a visit with the cardiologist, but when I wanted to direct her to the specialist she told me that she no longer needed it. She felt better, her pain had disappeared.*"

In clinics and hospitals that follow the integrated approach, social assistants welcome patients and ask their story. Often only a little attention to the story of the patient can solve the problem and heal the patient. The theory of vital needs shows that anxiety, which takes the form of strong pains in the chest, is a consequence of loneliness, emptiness and despair. Simply listening to the patient's account can, in general, solve the problem and allows to redefine the request that shifts towards the needs for cohesion and meaning. The migrant feels suddenly relieved from the strong feelings of pain in the chest and the problem is redefined as a social and emotional problem.

Using cost-benefit analyses the integrated approach results to be more expensive and it is therefore rejected, despite the fact that it allows to heal the patients and it is clearly more effective than the classical approach. Because of cost-benefit analyses policy makers choose the classical approach, although it is scarcely effective, leads to higher costs for the health system and increases the suffering of people. The needs for meaning and cohesion remain in the shadows and dissatisfaction spreads in the form of unbearable feelings of depression and anxiety. Cost-benefit analyses focus the attention only on the material aspects of life, such as job, work conditions, home, hygiene, nutrition and lead to the belief that welfare is achieved only providing the right material conditions. These analyses do not consider the intangible aspects of life, such as loneliness, lack of purpose, lack of meaning which, according to the vital needs theory, are as essential and important as material needs.

Leaving their country, migrants have left their social network which provided them with a meaning and with cohesion. The need for a job is an objective and tangible need, but jobs do not always respond to the intangible and vital needs for meaning and cohesion. When these intangible needs are dissatisfied people start experiencing feelings of depression and anxiety. Jobs and housing are not sufficient to overcome these feelings. Migrants, experience terribly forms of suffering, which are profoundly different from what they had ever experienced before, they do not understand the cause of this suffering and search for an organic explanation, such as heart problems, lungs problems or brain tumor. But physicians do not find any organic problem and the migrant starts a pilgrimage through different health services without obtaining any satisfactory answer. Migrants came to Europe dreaming a future made of happiness and material wealth, but their reality is now made of suffering, loneliness and desperation. It is difficult to communicate these feelings, especially when using a foreign language. When they phone home they tell their families that everything is well, that they feel good. For them it is difficult to talk about these feelings, since they do not understand what is happening, what is going on.

The local population is also experiencing a similar situations. For many people it is hard to talk about these widespread feelings of depression and anxiety, especially when they see that most other people seem to be satisfied. The classical approach does not distinguish whether the cause is organic or can be traced back to depression and anxiety. On the contrary, the integrated approach focuses on the person and not on the efficiency of the service and this approach allows to assess the role of immaterial causes. Often, just telling our story to someone can solve the problem and help to discover the origin of our suffering and the non-organic origin of our pain. When the patient is sent to the specialist he is welcomed by a team made of physicians, psychologists, social assistants and anthropologists who together try to decipher the meaning and message of the illness. For example anxiety and depression might use symptoms which are associated with the cultural background of the patient or with specific moments of the history of the patient. Although, classical medicine recognizes the role of emotions in the etiology of diseases and symptoms, physicians do not receive any training on these aspects and have little time and cannot focus on the history of the patient and on the emotional and psychological aspects which can be linked to

diseases. In the classical approach, the role which is given to the needs for meaning and cohesion depends on the sensibility of each single physician. In contrast, in the integrated approach the importance of these intangible aspects is recognized. The focus is on the emotional, psychological and cultural factors that have led patients to develop specific symptoms rather than others. Even when symptoms have organic origins the hypothesis is that they have been favored by anxiety and depression. It is now well known that strong feelings of anxiety and depression lower the defenses of the immune system and can therefore be the cause of organic diseases. For example, when depression is the cause of a pneumonia, treatments based only on antibiotics do not solve the cause, consequently when the pneumonia is cured depression continues to work and can soon take the form of another illness, for example a severe depression; but treating severe depression only with psychiatric drugs, without giving adequate attention to the immaterial needs, can transform depression into another illness, for example a tumor. Curing a symptom, without removing the cause, keeps the patient in a state of suffering and desperation. The patient is treated but not healed and constantly develops symptoms and illnesses. In contrast, the integrated approach always looks for the cause, the message which hides behind the symptoms and which needs to be deciphered. When this message is deciphered it helps the patient change his life and the healing process takes place. Healing always requires a transformation, a change a transmutation. Healing is not achieved in a passive way, such as taking a drug. Consumption of psychiatric drugs is growing quickly, and this means that more and more people are discovering that the origin of their suffering is not organic, but emotional. However, psychiatric drugs do not solve the problem, because they do not change the patient and the cause of the inner suffering continues to be there. Inner suffering can evolve from mild symptoms to progressively more serious illnesses and finally express in the form of cancer, which is today one of the most widespread illnesses.

The classical logic of cause and effect has led to develop a mechanistic view of health and cure. We are treated like a broken machine that is brought to a mechanic. However, when taking a car to the mechanic we would consider foolish to ask to remove the oil indicator, the symptom, instead of adding oil to the engine. Removing the indicator, the symptom, that informs us of a problem does not solve the cause which continues to act and develops in an even more serious and dangerous form. In the classical medical approach treatments are often limited to the removal of symptoms, the indicator used by our inner suffering, and do not solve the problem, the cause, leaving unchanged what generated the symptom. The cause continues to act and expresses, after some time, in more severe forms. It is obvious that the goal is not to remove the symptom, but to remove the cause, but this is not the case with the classical medical approach. The classical approach is limited to symptoms and thus transforms the patient into a chronic patient who generates fixed costs for the health and welfare system.

In the integrated approach the goal is to heal the patient, whereas in the classical approach the goal seems to be limited to treatment. Healing means to solve the cause, whereas treatment is usually limited to removing the symptoms. The difference is crucial. The integrated approach is offered by a team of specialists, not only the physician, but an integrated team which puts together physicians, psychologists, anthropologists, social assistants and other professions which might be relevant in the healing process. As already mentioned, the initial aim is to assess the story of the patient and whether the disease is organic or not. The integrated approach always tries to understand the message, the teaching, which hides behind the symptom and when the meaning is found it requires a profound change of the patient. Suffering continues until the patient does not change. In the integrated approach the use of drugs and pharmaceutical products is usually limited. On the contrary the classical medical approach extensively uses drugs and surgery and the attention is usually limited to symptoms. In the integrated approach diseases become an

opportunity for change, growth and evolution and at the end of the healing process the patient usually feels grateful for the opportunities that the illness has provided. While the classical medical approach transforms the patient into a chronic consumer of drugs, the integrated approach helps the patient to evolve towards a more satisfactory life. The classical approach steadily increases the costs of the health care system transforming patients into chronic patients and leaving unchanged the levels of inner suffering of the population. On the contrary, the integrated approach decreases the costs of health care and reduces the levels of suffering of the population.

In order to reduce health care costs, hospitals and health structures that follow the classical approach, focus on the optimizing and performance of services thanks to their accounting systems and databases which are designed for cost-benefit analyses. However, the same person can ask for the same health service over and over again, without that the cost-benefit analyses note the paradox. Cost-benefit analyses are limited to the assessment of services and do not make an overall assessment of the healing process of the patient. These analysis does not take into account the person as a unity, but take into account the service as a unit. The interest is not to assess whether the patient healed, but it is to assess the costs of the services and their efficiency. The fact that the patient continues to wander among health care services, asking the same thing in countless different controls, is of no interest for cost-benefit analyses.

In the integrated system the logic is reversed. Attention is focused on the patient and on the healing of the patient. Integrated systems treat the patient as a unit and this requires accounting systems and databases which use the patient as a unit. The goal of the integrated approach is to aim to the healing of the patient and, ultimately, the services offered by the integrated approach are more expensive compared to the same services provided by the classic approach. But the classical approach is less effective in solving the problem and transforms patients into chronic patients who develop progressively more serious types of illness. In conclusion, the integrated approach, although seemingly more expensive, results on the whole in a drastic reduction in costs, is more effective since it succeeds in the healing of patients and increases the well-being and overall satisfaction of the population. Nevertheless it is rejected when assessments are based on cost-benefit analyses.

- *Direct or indirect spending?*

It is possible to choose whether to provide funding for health care directly or indirectly. In indirect spending the Government provides money to the local authorities which in turn fund local health care systems, which pay hospitals, clinics, associations and health facilities that provide services to end users. This process is controlled and optimized thanks to cost-benefit analyses which focus on the costs of services, waiting lists and other quantitative indicators. Cost-benefit analyses usually lead to prefer indirect spending, as it allows more control and greater rationalization.

In systems based on direct spending the end user choices replace cost-benefit analyses. The end user evaluates and decides how to spend the money for his assistance. The end user can choose the most expensive services that would have been rejected by cost-benefit analyses, but which meet his needs and are therefore more effective. The direct model shifts the evaluation processes from the central to the peripheral level of end users and rejects the practice of cost-benefit analyses which is, instead, at the basis of the indirect welfare system. In this way the direct system allows for the integration of quantitative and qualitative information, i.e. objective and subjective information

In the previous section limitations of cost-benefit analyses have been discussed and explained as a consequence of the fact that these analyses do not take into account the qualitative and subjective variables and do not respond to the vital needs of meaning and cohesion. Indirect spending is common in the classical approach to health and is usually associated with poor standards and poorly professionalized services. In contrast, systems based on direct spending tend to guarantee higher standards, greater satisfaction and their focus is on healing and not on symptoms.

Classical logic suggests that the direct system would be more expensive and less effective and efficient, thereby increasing the costs of the welfare system and the dissatisfaction of the population. However, in countries that have implemented the direct spending mechanism (specifically Denmark) the opposite is observed, and this happens for the following reasons:

end users chooses high quality services that meet the material and health needs and also their immaterial needs. This is due to the fact that end users mediate quantitative and objective considerations with subjective and qualitative aspects. In other words, end users are capable of performing that type of assessment that cost-benefit analyses cannot perform.

The interest of the end user is to receive high quality services. Since he/she is buying these services on the free market, competition is created between different providers of services. Competition leads to rapidly evolve towards higher quality standards which integrate qualitative and quantitative aspects and focus on the person, rather than on the service.

The competition between different providers of services creates a market for training schools, research and high professionalism, aimed at developing solutions which meet the requests of end user in terms of quality, efficiency and effectiveness.

Taxing all the steps of this market the Government can recover almost all of the money which was invested. So, at no cost it creates a virtuous cycle that generates distributed wealth, well-being and high quality services. Direct spending does not only replace cost-benefit analyses, but it becomes a way to guarantee high quality standards, increase job opportunities, training and reduce the costs of the health and welfare system.

In direct systems all the steps from the central to the local level are missing. These steps usually dissipate resources without increasing wellbeing.

Probably the most important element is that in direct spending systems the attention focuses on immaterial needs, contributing in this way to a sharp reduction of inner states of suffering, such as depression and anxiety.

The following example, relative to patients affected by muscular dystrophy and, more specifically, those affected by the Duchenne syndrome, may result useful.

Approximately 1% of the population is affected by neuromuscular diseases and the most common forms are Duchenne and Becker muscular dystrophy. Duchen muscular dystrophy (DMD) is usually diagnosed in the third year of life and half of patients show signs of this disease before starting to walk. The first signs are the delay to walk and how easily these children fall. Muscles are usually hypotonic and flaccid and during the progression of the disease contractions due to the reduced muscle mass are observed. Gradually all the muscle mass disappears and the death occurs

between 20 and 30 years of age because of respiratory or heart failure. Since this is a genetic disease, that has its origins in a defect of the X chromosome, the disease primarily affects males.

In countries that follow the indirect spending approach resources are spent primarily for genetic research, believing that the solution to the problem is in high medical science. The paradox is that in these countries DMD patients continue to die between 20 and 30 years of age, their quality of life is generally poor and their levels of autonomy are close to zero. In contrast, in countries where the direct spending approach is followed DMD patients die between 40 and 50 years of age after a high quality life, with a good autonomy level and good health and social services.

Why?

When comparing the direct and indirect system of spending, taking a per capita monthly expenditure for each DMD patient of 10 thousand Euros, we observe that in countries that follow the direct spending approach this amount of money DMD patients employ usually 6 operators at full time, which allow him to lead a "normal" life, work, get married and often have children. On the contrary in countries that follow the indirect spending approach, these funds are lost in medical research and in the various steps through which money flows from the central to the peripheral level. The DMD patient receives, at the end, minimal assistance, such as an operator for a few hours a day, poorly motivated and often not well trained, or working as a volunteer. In countries which follow the indirect spending approach DM patients depend on their families, do not receive the support necessary to start a job, cannot live alone and have and emotional life, a partner.

Direct spending allows DMD patients to lead a normal life, receive high quality services, whereas in indirect spending systems DMD patients are held in a situation of disability, despair and dependence. Without the support of the family, without the help of voluntary organizations, DMD patients would not meet the minimum requirements of subsistence and health.

The paradox is this: in indirect spending systems, despite the amount of money spent on genetic research that cost-benefit analyses privilege since it is highly scientific and objective, life conditions for DMD patients are simply dreadful, their life expectancy remains low, between 20 and 30 years of age. In contrast, in direct spending systems, which focus primarily on qualitative and social aspects DMD patients live a good quality of life, receive high-quality services and the life expectancy is about 20 years longer. Indirect spending leads to ineffective and costly policies, based on cost-benefit analyses which cannot handle qualitative information and reject immaterial needs. Direct spending, instead, is based on the assessments made using subjective and qualitative information and results in effective and efficient policies that generate wellbeing and distributed wealth.

Although cost-benefit analyses are considered to be a-ideological since they are objective, they imply a vision of life which is centered solely on material needs, on a partial view of life which is highly ideological and increases entropy, costs and debts. In contrast, subjective assessments made by end users allow to include also the needs of cohesion and meaning and to formulate choices that drastically reduce entropy and increase syntropy.

The direct spending approach can be so effective that DMD patients life expectancy increases up to 20 years. Furthermore the quality of life of a DMD patient, who can count on 6 full-time workers, increases and the DMD patient acquires also a meaning thanks to his role as an employer, as a productive person. DMD patients feel to be necessary to society providing an

important opportunity for the social and economic growth of the collectivity. In this context DMD patients respond effectively to the immaterial needs of meaning and cohesion and experience states of wellbeing and happiness which have a direct effect on the physical condition and life expectancy.

In systems that use the indirect spending approach little emphasis is given to the qualitative and intangible aspects of life, such as the needs for meaning and cohesion. In these systems the approach is primarily objective and quantitative and focuses mainly on the physical aspects of health, giving little consideration to social and psychological factors since they are subjective and qualitative. Patients are not provided with tools which can influence the decisions of the policy makers and the system does not create virtuous mechanisms of training and distributed wealth.

In systems that use the direct spending approach assessments are based on qualitative and subjective information, decisions allow to respond to the needs of cohesion and meaning and these intangible needs become a central part of the social and health policies. The shift from indirect to direct spending system delimits the relevance of the material aspects of life and focuses on people as a whole, considering also what is immaterial and qualitative. This shift entails the change from a materialist vision to a broader and complex vision of life, a change of paradigm in social and health policies which will lead to reduce costs of welfare and increase wellbeing. The growing debt of governments is ultimately due to the fact that in indirect systems decision making considers only objective and quantitative variables and the focuses only on material needs. This approach leads to the dissipation of financial resources.

The above remarks show how important it is to shift from cost-benefit analyses to direct assessment techniques which involve the end user. This transition implies the important cultural shift from assistance and welfarism to inalienable rights which are endowed to the patient and citizen, such as the rights to life, liberty and the pursuit of happiness. In the indirect system these rights are not considered and the power is in the hands of a limited group of policy makers which often are driven by interests which are far away from those which would increase the wellbeing of the patients. When thanks to the direct system of spending patients are endowed with their inalienable rights, the quality and quantity of services is maximized; operators and service providers constantly compete and this improves the standards and quality of the assistance. Patients are endowed with rights that no one can take away from them, whereas in indirect systems the patient has no right and usually has to thank for the little assistance he receives and is constantly threatened to lose what he is receiving.

Indirect spending generates high costs, not only for the welfare system, but for the entire community and especially for families. In these systems, families which are unable to cope with the problem ask for help to voluntary organizations. The direct spending system, instead, creates virtuous mechanisms that reduce costs, not only for the State and the welfare system, but also for families who no longer have to rely on voluntary or charitable organizations. The indirect systems consists in a model of welfare focused on charity and piety, whereas the direct system represents a model based on unalienable rights.

While in indirect systems the user of the health care systems is constantly humiliated by the lack of rights and the fact that the inefficiency of the system weighs on the family and the community, in direct systems health and social care providers must be grateful to the patient who allows them to work. In the direct systems the end user has the power and learns to respond adequately and

effectively to his needs. Moreover, this role provides the end user with a meaning, a key role in society, which responds to the need for a meaning and cohesion.

- *Considerations*

Considering only the Western countries, public spending rose from 12% of GDP (Gross Domestic Product) in 1913 to 24% in 1937, 40% in 1980 and it now exceeds 50% of GDP. Expenditure on health (public + private) increased from 5% of GDP in 1960 to 16% in 2008, with an average annual increase of 4.9% compared to an average GDP growth of 2.1%.

The steep rise in public and health expenditure are indicators of the crisis in which Western societies are moving towards. A crisis which is characterized by the steady increase in public debt and individual and social suffering. According to the theory of vital needs, the use of decision models based on objective and quantitative variables leads to increase entropy and it is therefore one of the fundamental causes of the crisis of the Western monetary system.

The change in the Monetary system will therefore require to abandon quantitative models of assessment and move towards those models that can handle also qualitative and subjective information. When this happens, policy making and strategic decisions can become counter-intuitive, but they nearly always lead to effective results.

### *14. Western Monetary System, Malthus and Social Darwinism*

Thomas Robert Malthus (1766-1834) in *An Essay on the Principle of Population*,[10] published in 1798, stated that every twenty-five years the population grows according to a geometrical ratio (1, 2, 4, 8, 16, 32, 64, 128, 256 ... ), while the amount of food available grows according to an arithmetical ratio (1, 2, 3, 4, 5, 6, 7, 8, 9 ...); therefore, while the population doubles, food resources show a much more modest increase. Consequently, Malthus predicted that in 300 years, the proportion between population and food resources would be 4,096 to 13 and food resources would not be sufficient for the needs of the population.

Malthus believed that, in order to stop this rapid growth of population, famine and disease were needed and were the two main instruments of population control. Hunger, epidemics, wars, but also the extermination of babies would contribute to control the population, thus balancing the population and the food. Malthus proposed measures to be adopted in regard to the less affluent people to avoid their reproduction. These measures were adopted in England and translated into laws, such as “homes for the poor” where it was forbidden for married couples to conceive, in order to reduce the growth of the poorer inhabitants.

After the French Revolution, the English aristocracy feared losing their privileges and having to give up their status and power to the working classes. Malthus's ideas became popular and spread the belief that future societies could consist of a conspicuous presence of rich. This vision required that the poor and needy had to be eliminated and oppressed.

[10] Malthus T.R. (1798), An Essay on the principle of population as it affects the future improvement of society, Reprint, London: Reeves and Turner, 1878.

> *"Instead of recommending cleanliness to the poor, we should encourage contrary habits. In our towns we should make the streets narrower, crowd more people into the houses, and court the return of the plague. In the country, we should build our villages near stagnant pools, and particularly encourage settlements in all marshy and unwholesome situations. But above all, we should reprobate (strongly condemn) specific remedies for ravaging diseases; and those benevolent, but much mistaken men, who have thought they were doing a service to mankind by projecting schemes for the total extirpation of particular disorders."*

Aristocrats believed it was necessary to oppress and exploit the lower class and Malthus provided a "scientific" theory which justified this policy:

> *"We are bound in justice and honor formally to disclaim the right of the poor to support. To this end, I should propose a regulation to be made, declaring, that no child born... should ever be entitled to parish assistance... The (illegitimate) infant is, comparatively speaking, of little value to the society, as others will immediately supply its place... All the children born, beyond what would be required to keep up the population to this (desired) level, must necessarily perish, unless room be made for them by the deaths of grown persons."*

Malthus's theories were translated into oppressive laws, which worsened the already critical conditions of the poor. In 1851, Herbert Spencer (1820-1903) a British sociologist and philosopher, inspired by the thesis of Malthus, proposed in the book *Social Statistic*[11] the idea of the "*struggle for survival*". Spencer argued that history is not made by the free choices of men, but by the laws of biology, which allocates each individual to a specific occupation and position in society. Positions are assigned to each of us by nature, at birth, with inevitable inequalities and antagonisms. One of the socio-political implications of Spencer's view is that reality cannot be changed by individuals and it is useless and wrong to waste time trying to change it. Individuals must accept what they have. Spencer formulated also the concept of "*survival of the fittest*" and declared that the "*unfit*" should be eliminated:

> *"If they are sufficiently complete to live, they do live, and it is well they should live. If they are not sufficiently complete to live, they die, and it is best they should die."* (Spencer)

In Spencer's opinion, the poor, the uneducated, sick, crippled and unsuccessful had to die and in this view he opposed the British laws which gave protection to the poor, provided education, aid, health and housing.

In his autobiography Charles Darwin wrote:

> *"In October 1838, that is fifteen months after I had begun my systematic enquiry, I happened to read for amusement Malthus on Population, and being well prepared to appreciate the struggle for existence that everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances, favorable variations would tend to be preserved and unfavorable ones*

[11] Spencer H (1851), *Social Statics*, Chapman, London, 1851.

> *to be destroyed. The result of this would be the formation of new species. Here, then, I had at last got a theory by which to work."*[12]

The concepts of evolution by natural selection and struggle for survival took shape in Darwin's mind after reading the works of Malthus and Spencer. In *The Origin of Species* Darwin admitted that he had fully accepted the ideas of Malthus:

> *"There is no exception to the rule that every organic being naturally increases at so high a rate, that, if not destroyed, the Earth would soon be covered by the progeny of a single pair. Even slow-breeding man has doubled in twenty-five years, and at this rate, in less than a thousand years, there would literally not be standing-room for his progeny."*[13]

Darwin described Malthus's theory of natural selection in the following way:

> *"As more individuals are produced than can possibly survive, there must in every case be a struggle for existence, either one individual with another of the same species, or with the individuals of distinct species, or with the physical conditions of life. It is the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdoms."*

Darwin gave to Malthus and Spencer's thesis the scientific validation which allowed to translate them in a social doctrine. This doctrine is named *Social Darwinism*, a doctrine which considers wars of conquest an application, to the human species, of the law of natural selection. According to Social Darwinism there is a biological reason for disparities: less fit individuals and nations must remain relegated to the primitive stage. This ideology supported colonialism, eugenics, fascism, and savage capitalism:

- *Colonialism*. The doctrine of Social Darwinism was used to justify the exploitation of native populations. It was legitimate, a law of nature, that the superior races could oppress inferior races. Wars became unavoidable ways to ensure human progress, similarly to the elimination of innocents and poor, the destruction of their homes, businesses, and livestock, the forcing of millions away from their homes and land, the murder of infants and children.
- *Eugenics*. Formulated by Darwin's cousin, Francis Galton, eugenics was based on the assumption that it is necessary to select higher-quality individuals through a process of elimination of poor genes. On this idea was based the extermination of Jews, Gypsies and Eastern Europeans, which were regarded as inferior races. Mentally ill, the disabled and elderly were murdered. Galton believed that human development could be accelerated and maintained that human selection was the way. Thus compulsory sterilization or extermination of those considered "unnecessary" or less than human was inflicted.
- *Nazism*. The most cruel application of eugenics occurred during the Nazi rule of Germany. The crippled, mentally ill and people with hereditary diseases were initially sterilized and then disposed off; people were sentenced to death just for being old or mutilated. Social Darwinism became the rule in Nazi Germany. The clash between the young German nation, full of vitality, and the old nations, such as France, was considered an inevitable example of the law

[12] de Beer G (1963), *Charles Darwin*, London: Thomas Nelson & Sons, 1963.
[13] Darwin C (1859), *On the Origin of Species by Means of Natural Selection*, London, 1859, 2nd edition 1964, Cambridge: Harvard University Press.

of natural selection and a sufficient justification for war. The vitality of Germany was deduced almost exclusively from its growing population. Russia and the Slavic countries also had a fast growing population and were considered dangerous, since this rise in population would inevitably lead to a violent conflict. The Nazis justified the oppression of the weak, the poor and the "inferior" races, the elimination of the disabled, the subjugation of small businesses, as a natural law, the only way to advance humanity. They tried to justify all these injustices on the basis of "science". The lack of compassion was depicted as a law of nature and necessary for evolution.

Andrew Carnegie (1835-1919) in a speech in 1889 said:

> *"The price society pays for the law of competition, as well as the price it pays for cheap comforts and luxury goods, is high, but the benefits of this law are greater than its cost - and it is to this law that we owe our wonderful material development, which brings improved conditions. While this law for individuals may be hard, for the race it insures the survival of the fittest in every department. We accept and welcome, therefore, great inequalities, the concentration of business, industrial and commercial, in the hands of a few, and the law of competition between these, is not only beneficial, but essential for the future progress of the race."*

According to Social Darwinism the sole objective is physical and economic growth and evolution of the race. Happiness, well-being, peace and security appear to have no importance. No compassion is felt towards those who suffer and cry for help, for those who cannot provide for their children, for elderly parents and families without shelter, food and medicine, for the poor and powerless. According to this vision a poor but honest citizen has no value and his death will actually benefit the race. But, someone rich but morally corrupt is regarded important for the "progress of the race". This logic has led to the collapse of moral and ethical values. When a society undergoes moral degeneration, the liberal economy turns into *savage capitalism* in which the poor and oppressed and the marginalized do not receive any aid, assistance or social justice. Injustice is not seen as a problem but as part of a natural law. Savage capitalism does not protect weaker firms (and weaker individuals) against the risk of being subdued, exploited and eliminated. This philosophy is summed up in the saying "*the big fish eats the smaller one*" where small businesses are acquired by larger ones. Social Darwinism provided a scientific basis for savage capitalism, and savage capitalism still governs the global economy.

The United States of America was the first country to apply social Darwinian in business practices and economy. This system, camouflaged under the name "capitalism", was based on social Darwinism and on the idea of the "survival of the fittest". The result was the beginning of a fierce competition in business which even culminated in murder, which was considered a legitimate act guided by the laws of nature. Recent financial and corporate scandals recall the period of the late nineteenth century which was marked by social and economic dictatorship, now named the "*robber barons*". This name was given to the unscrupulous and despotic nobility of the medieval period in Europe and in the modern US is used to describe unscrupulous industrialists. During the late nineteenth century the ideology of social Darwinism controlled the President, Congress, the Supreme Court and the two major parties, and was used to brutally quell social unrest. The only goal was to get more money and increase power. The robber barons had no interest in social welfare, even that of their own workers. Millions of lives were ruined by extremely low wages, by the upheaval of working conditions and long working hours. The lack of security precautions meant that workers fell ill, were wounded and often killed.

Industrialists did not pay importance to the value of human life (especially that of their workers) ignoring any form of safety precaution and causing the multiplication of incidents in the workplace. Many workers died and in the early twentieth century, only in the United States, over one million workers each year were victim of accidents. For workers who spent their lives in the factory, the loss of a limb was almost inevitable. During the working life, more than half of workers were badly mutilated or lost their sight or hearing. Although the industrialists were aware of these working conditions and incidents, they did not take any measures since they did not give any value to human life.

Carnegie thought that competition was an inevitable biological law and on this conviction he based his philosophy. He stated that "*despite the law of competition complicates the situation for some, it is good for the race because it ensures the survival of the fittest in every department.*" Carnegie discovered social Darwinism in the house of a professor at New York University where he met Herbert Spencer:

> *"Competition makes business a service to society by eliminating the weaker elements. Those who survive in business are suitable and therefore deserve the position and the rewards they have."*

Social Darwinism became the dominant economic ideology. As John Rockefeller said:

> *"the growth of a large company is simply the survival of the fittest (...) the result of a law of nature."*[14]

Considering that only the rich and powerful had the right to live and the poor, the weak and the sick were useless burdens, the robber barons created ruthless competition using oppressive systems which justified exploitation, intimidation, harassment and even death. These systems were not condemned or considered immoral or illegal since they were a direct consequence of the laws of nature.

In a letter to Charles Kingsley, Darwin described the natives of Tierra del Fuego:

> *"I declare the thought, when I first saw in Tierra del Fuego a naked, painted, shivering, hideous savage, that my ancestors must have been somewhat similar beings, was at that time as revolting to me, nay more revolting, than my present belief that an incomparably more remote ancestor was a hairy beast. Monkeys have downright good hearts."*

In *The Descent of Man*, Darwin claimed that some races (blacks and aboriginals), were inferior and that, in due course, would be eliminated and would disappear in the struggle for survival:

> *"At some future period not very distant as measured by centuries, the civilized races of man will almost certainly exterminate, and replace the savage races throughout the world. At the same time the anthropomorphous apes… will no doubt be exterminated. The break between man and his nearest allies will then be wider, for it will intervene between man in a more civilized state, as we may hope, even than the Caucasian, and*

[14] Ghent W (1902) , *Our Benevolent Feudalism*, New York: Macmillan, 1902.

> *some ape as low as the baboon, instead of as now between the negro or Australian and the gorilla."*

Darwin predicted that "*civilized races of man*" would eliminate "*savage races*" from the face of the Earth. In *The Origin of Species*, Darwin's theory of evolution provided "scientific" basis for ethnic cleansing that was carried out within a few years. Based on Darwin's theories, Europeans massacred more than 40 million people during World War II, justified apartheid, racism against Turks and other foreigners in Europe, against blacks in America, in Australia against Aborigines, and gave the start to neo-Nazi movements in various countries.

In Darwin's doctrine which considers life a product of chance without any purpose and value, love is alien. The British Eugenics Society, founded by Darwin's cousin, Francis Galton, his son George, and Aldous and Julian, sons of his great friend Thomas Huxley, based their vision on assumptions which disregarded any reference to love, cooperation and unity. In *The Descent of Man* Darwin states that:

> *"We civilized men ... do our utmost to check the process of elimination. We build asylums for the imbecile, the maimed and the sick; we institute poor-laws; and our medical men exert their utmost skill to save the life of every one to the last moment. There is reason to believe that vaccination has preserved thousands, who from a weak constitution would formerly have succumbed to small-pox. Thus the weak members of civilized societies propagate their kind. No one who has attended to the breeding of domestic animals will doubt that this must be highly injurious to the race of man. It is surprising how soon a want of care, or care wrongly directed, leads to the degeneration of a domestic race; but excepting in the case of man himself, hardly anyone is so ignorant as to allow his worst animals to breed."*

### *15. A converging monetary system*

Fantappiè, in his formulation of the theory of syntropy, noticed that life converges towards goals which are always higher:

> "*The law of life is not the law of mechanical causes; this is the law of non-life, the law of death, the law of entropy. The law which dominates life is the law of cooperation towards goals which are always higher, and this is true also for the lowest forms of life.*"

The theory of syntropy shows incredible similarities with the converging evolution theory of Pierre Teilhard de Chardin, even though the starting point is different. Teilhard was a well-known evolutionary scientist and became famous after his death with the publication of his books, among which "*The Phenomenon of Man*" and "*Towards Convergence*". Both Fantappiè and Teilhard were subject to strong censorship due to the fact that their theories broaden science to a new type of causality which retro-acts from the future. According to Fantappiè life is subject to a dual causality, efficient causality and final causality, and for Teilhard life is guided by final aims which converge in the Omega point. Both authors identify final causality and the Omega point with the source of life, prosperity and well-being.

Teilhard considered reality organized on three main concentric spheres. The innermost sphere is the final aim of the evolution, in which all of matter will be transformed into organic and

conscious matter, and it is also the closest to the Omega point. The outer sphere is the most distant from the Omega point, the realm of inanimate matter. The middle sphere is the realm of life which does not yet reflect on itself, the biosphere.

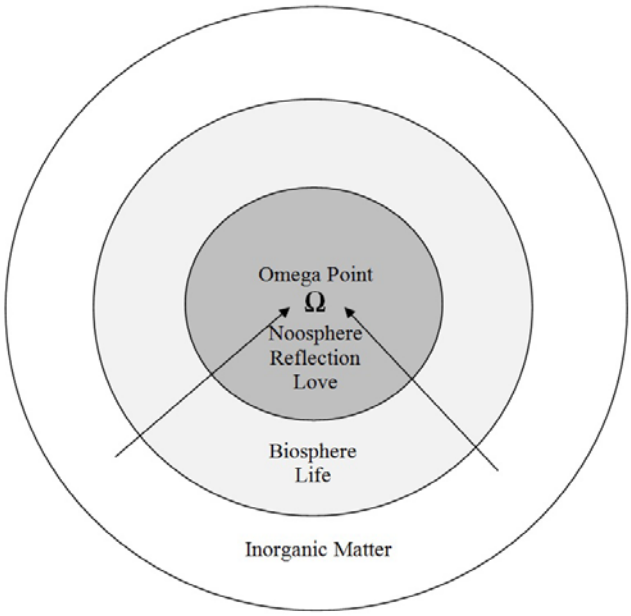


**Figure 10 – Teilhard representation of reality organized on three main concentric spheres.**

Teilhard adds that:

> "*Evolution cannot be measured along the line that goes from the infinitely small to the infinitely big, but according to the axis that goes from the infinitely simple to the infinitely complex. We can represent evolution as distributed on concentric spheres, each of which has a radius that diminishes as complexity grows*."

In his childhood Teilhard's idol was represented by solid matter: the "God of Iron". He soon reached the conviction that the consistency of solid matter was not given by the substance itself, but by convergence. The theme of convergence will become later one of the fundamental concepts of Teilhard's vision.

Working as a paleontologist Teilhard showed that life evolves converging towards attractors. Similarly Fantappiè's syntropy theory suggests that life converges towards attractors. Teilhard and Fantappiè both noticed that during this converging process unity, complexity and diversity increase.

Teilhard relates the Omega point to consciousness and Fantappiè considers syntropy the source of the Self, the feeling of life. Consciousness and the Self are attributed by Fantappiè and Teilhard to the final attractor. The closer we evolve towards the final attractor and the more conscious we become.

In addition, Fantappiè associates the final attractor with Love, and states that:

> "*Today we see printed in the great book of nature - that Galileo said, is written in mathematical characters - the same law of love that is found in the sacred texts of major religions*."

Similarly Teilhard describes the law of love in the following way:

> "*The universe, taken as a whole, concentrates under the influence of the attraction which arises from the Omega point, which takes the form of love. People can evolve and become more human since they share at the core level the same attractor of love. According to this view we are all immersed in a converging flow of conscious energy, whose quality and quantity is growing at the same rhythm of our complexification.*"

Teilhard considered the Omega point symmetrical to the law of entropy:

> "*Reduced to its essence, the problem of life can be expressed as follows: once we admit the two major Laws of Energy Conservation and of Entropy (to which physics is limited), how can we add, without contradictions, a third universal law (which is expressed by biology) ... The situation is clarified when we consider at the basis of cosmology the existence of a second kind of entropy (or anti-entropy).*"

Anti-entropy, or syntropy, would provide movement to the concentric spheres:

> "*The arrangement of reality according to three concentric spheres is static and does not reveal a movement. Similarly to the classification of stars which does not reveal the existence of the expansion of the universe. But, when we order reality according to the increase of complexity we see that the universe as a whole will evolve towards concentration. Converging forces increase complexification and lead to the Omega point.*"

Concentration and convergence are the key concepts in Teilhard's vision of evolution:

> "*Viewed at the more essential level we see that the universe is a system of center-complexification. Evolution does not match, as Spencer would say, a transition from the homogeneous to the heterogeneous, but a transition from the heterogeneously dispersed to the unified and complex, even more clearly, the transition from a minimum to a maximum of center-complexification.*"

Teilhard sees consciousness as a universal property, a cosmological property of the universe which arises while converging towards unity and increasing complexity.

> "*Consciousness increases in proportion to the complexity of life. Consciousness is absolutely inaccessible to our means of observation at the small level of viruses, but it clearly appears at the maximum level of complexity of the human brain.*" (Teilhard, 2004)

Finally, Teilhard notes that:

> "*In order to solve the contradiction between inorganic matter and life it is naive to believe that we must sacrifice the one or the other. We just need to establish a*

> *structural relationship between these two opposite terms, which is likely to explain how to move from the one to the other.*"

Both Fantappiè and Teilhard's suggest the shift from the mechanistic paradigm to the new supercausal paradigm, in which the future already exists at least in the form of attractors. This new paradigm explains macroevolution as a consequence of intelligent in-formation provided by attractors which would suddenly allow the development of new organs, without any intermediate evolutionary steps that would constitute a disadvantage.

These same concepts can be applied in economics and in the development and regulation of a syntropic monetary system.

China's President Xi Jinping, recently summarized this view in a meeting held in Beijing on the 17th of Feb 2014:

> "*The mission is to find a stable and effective system for development the wellbeing of the people and society's long-term stability. An effective governing system will only happen if officials' integrity, capability and skills are improved and the efficiency of government departments, public institutions, enterprises and civil organizations are raised ... ruling in a scientific, democratic and legalistic manner.*"

According to Xi Jinping core values include prosperity, democracy, civility, harmony, freedom, equality and justice: "*As long as the Chinese nation aspires after fine and noble ethics, generation after generation, our country will always be replete with hopes*."

One of the key requirements of the new Syntropic Monetary System will be the shift from representative democracy to direct democracy and meritocracy?

Direct democracy (also known as pure democracy) is a form of democracy in which people decide policy initiatives directly, as opposed to a representative democracy in which people vote for representatives who then decide policy initiatives. Beside the example of ancient Athens, direct democracy only exists in the Swiss cantons of Appenzell Innerrhoden and Glarus. The Swiss confederation is a semi-direct democracy (representative democracy with instruments of direct democracy). In a direct democracy there is no political party and the government is made of executives who get into their position following a meritocratic path. Meritocracy is a political philosophy that holds that the government should be handled by individuals according to merit. The concept of a government based on standardized examinations originates from the works of Confucius. The first meritocracy was implemented in the second century BC, by the Han Dynasty, which introduced the world's first civil service exams evaluating the "merit" of officials. Advancement in such a system is based on intellectual talent measured through examination and/or demonstrated achievement in the field where it is implemented. In a direct democracy the political power remains in the hands of the people, whereas officials, selected according to meritocracy, are entitled with executive power. Citizens participate through public hearings and open meetings, publication of draft laws, rules and policies for public comment and other means for gathering the information and expertise on which rational regulation is based and for gaining public acceptance of and compliance with new laws and regulatory decisions.

China has recently witnessed unprecedented growth, with its economy increasing by 9.5% a year since 1978, surpassing that of Japan in 2010 and becoming the second largest economy after the

United States, with the projection to become soon the world's first economy. China is now experimenting a blend of meritocracy and direct democracy on the basis of recent laws which establish "the people's rights to know about, participate in, express their views on and supervise government administration, and the need to exercise government power in the sunshine and responsibly." China is exploring ways to make governance more transparent and participatory, and to permit the general public to have greater input into the government decisions, laws and regulations. Public participation (公众参与) refer now to a variety of participatory mechanisms, ranging from innovative deliberative and direct democracy experiments at the local level[15], to lawsuits against or complaints and petitions to the state, to requesting information from government agencies pursuant to China's recently promulgated government information disclosure regulations, to online activism by China's "netizens". What most Chinese agree upon is that representative democracy and traditional Chinese culture are incompatible and that China has to find a combination of direct democracy and executive meritocracy which blends China's traditional values with modern China.

Western nations, based on representative democracy, show an increase in entropy and the tendency towards conflicts, wars and destruction. Representative democracy seems to be strongly correlated to the increase in entropy and suffering.

### *16. Concluding Highlight: a shift in paradigm*

The implications of the new syntropic monetary system recall the shift of paradigm which was described by Fantappiè in the following letter to a friend, after his discovery of syntropy:

> *"In the days just before Christmas 1941, as a consequence of conversations with two colleagues, a physicist and a biologist, I was suddenly projected into a new panorama, which radically changed the vision of science and of the Universe which I had inherited from my teachers, and which I had always considered the strong and certain ground on which to base my scientific investigations. Suddenly I saw the possibility of interpreting a wide range of solutions (the anticipated potentials) of the wave equation which can be considered the fundamental law of the Universe. These solutions had been always rejected as impossible, but suddenly they appeared possible, and they explained a new category of phenomena which I later named syntropic, totally different from the entropic ones, of the mechanical, physical and chemical laws, which obey only the principle of classical causation and the law of entropy. Syntropic phenomena, which are instead represented by those strange solutions of the anticipated potentials, should obey the two opposite principles of finality (moved by a final cause placed in the future, and not by a cause which is placed in the past) and differentiation, and also be non-causable in a laboratory. This last characteristic explains why this type of phenomena has never been reproduced in a laboratory, and its finalistic properties justified the refusal among scientists, who accepted without any doubt the assumption that finalism is a "metaphysical" principle, outside Science and Nature. This assumption obstructed the way to a calm investigation of the real existence of this second type of phenomena; an investigation which I accepted to carry out, even though I felt as if I were falling into*

[15] Leib E. I. and Baogang H., *The Search for Deliberative Democracy in China*. New York, 2006, Palgrave Macmillan.

> *an abyss, with incredible consequences and conclusions. It suddenly seemed as if the sky were falling apart, or at least the certainties on which mechanical science had based its assumptions. It appeared to me clear that these syntropic, finalistic phenomena which lead to differentiation and could not be reproduced in a laboratory, were real, and existed in nature, as I could recognize them in the living systems. The properties of this new law, opened consequences which were just incredible and which could deeply change the biological, medical, psychological, and social sciences."*

Milestones of social and cultural changes are marked by counterintuitive discoveries. For example: it was intuitive to imagine the Earth flat and it was counterintuitive to imagine it round; it was intuitive to imagine that the Sun revolves around the Earth, but counterintuitive to imagine that the Earth revolves around the Sun.

The change that is emerging on the horizon involves the paradigmatic shift from the mechanistic vision to the new supercausal and syntropic vision which requires counterintuitive ideas, such as the fact that time flows differently from how we perceive it in our conscious every day experience.

While dealing with mechanistic and simple systems, the quantitative approach is essential and needed. When dealing with complex living systems the reverse order that is retrocausal forces take a prominence, as quantum forces enters into the equation of life. In human life, living and self-organizing systems, both cause and retrocausal forces are involved and they continuously interact. Therefore, in scientific arena non-duality gains a prominence.

Humanity, admittedly being at the threshold of *to be or not to be,* should give a deep thought into all aspects of living and of organizing their lives singularly and communally and beyond.

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