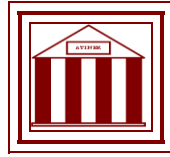


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**Brazil of the Future: Strategizing  
with the Socio-technical  
Management Approach.**

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President  
Athens Institute for Education and Research

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**BRAZIL OF THE FUTURE: STRATEGIZING WITH THE SOCIO-TECHNICAL  
MANAGEMENT APPROACH.**

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Abstract (\*):

In the course of five centuries, Brazil has emerged from a reality of primitive land and has become a multi-ethnic country, considered today one of the world's largest economies. Brazil, with an integrated territory, is aiming to be projected as a relevant player in the complex interplay of world powers. However, the country had its political thinking "caught" by an economic agenda based on increasingly smaller temporal cycles, losing its vision of the desired future. A model of participative management, based on a sociotechnical perspective, represents the opportunity for the emancipation of a political thinking capable of formulating a vision for the long-term future. Within this perspective and, in view of the sociotechnical approach, the present work has as objective of promoting innovation in the thought of the public/private manager, presently consolidated in a short/medium term vision. In this "Participatory Model of Sociotechnical Management", it is proposed as a tool of change, the sharing of information and the implementation of a common vision, of the future, through the incorporation, by all level of Brazilian educational system and its societal decision-making, the key principles-strategies of a sustainable Brazil, to the Brazilian citizens.

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## **Introduction**

Brazil, as India and China, is an emerging player at the complex contemporary world scenario. One of the common characteristics to the world's most important nations is being able to "make" the future. Decades ago, Brazil already provided evidence of possessing such characteristic, promoting investments for the development of sectors considered relevant to the country. This tendency has been gradually weakened over the last decades, due to turbulences of economic order.

**How can Brazil "reconquer" the tradition of conceiving and following a desired future, in order to project other actions that may build a developed and sovereign nation?**

The issue presented has several perspectives of analysis. One of them is the study of the development of the present concept of "future" at the national politics. If we carefully examine it, we shall verify that, throughout times, there is a tendency of attainment of this future to, systematically, decreasing from an infinite horizon, eternal "come to be", as the slogan, "Brazil, a Country of the Future" (heard by almost all Brazilians, from various generations), *to the connection of minimal cycles of time* establishing chronological horizons of up to 12 months. This short horizon is incompatible with great long term national projects and, this has been considered a type of "myopia" here called "unspeakable future".

The progressive loss of perspective of future directly conflicts with several fields of thinking and knowledge exploration. Competencies such as projection, propection, studies of these tendencies and others intensive in intellectual activity are characteristics of the new times, age of emergence of the so called Knowledge Society, where individuals have good judgment and choices. **How to make good choices without the perspective of a future result?**

This way, the accomplishment of an effort is imperative for the redemption of the view of future, putting an end to an age of doubts related to the slogan "Brazil, a Country of the Future" by means of promoting a debate under the perspective of a participative Sociotechnical Management. Therefore, this work offers a proposal on two themes converging to such redemption: the harmonic conjunction from the ascent of the Brazil of the Future and the model of Participatory Sociotechnical Management.

Following we will present: Section 2, "Description of the Proposal: Sociotechnical Management"; Section 3, "Brazil: History, Economy and the loss of future"; Section 4, "Sociotechnical Systems & Participatory Sociotechnical Management"; Section 5 "Perspectives for Brazil, Country of the Future & Future of Civilization"; Section 6, "Nation Ecosystems: The Participatory Approach" followed by section 7, Summary and section 8 the Bibliography.

## **1. Description of the Proposal: Sociotechnical Management**

In according to Toffler (Toffler, 1980), a relevant issue in the scope of this work is the transition of Brazil, from a "traditional" economy to a new form of economic organization, which are based on the paradigms:

- agricultural activity (First Wave, period started at around 10,000 B.C.) and
- industrial activity (Second Wave, period started at around the 18<sup>th</sup> century) for,

- subsequent advance in the direction of a knowledge economy (Third Wave - digital, connected, provided with a vast information repository, perhaps initiated in the 21<sup>st</sup> century?<sup>1</sup>).

The intensification of the circulation of information, characteristic of the Third Wave, suggests that this also allows the intensification and refinement of the construction of a long term view of future, within the approach of the Sociotechnical Management model.

The sharing of such view of future constitutes a guideline for discussion of actions with impacts over the next decades. Nowadays all Brazilian government instruments of State Economic Policy and Management are aimed at short/medium term goals, with targets majoritarily quantified around projections for 12 months (for example: GDP variation, balance of the trade balance, inflation, unemployment, indexes related to social development, etc.); so, this paper proposes means for reestablishing longer horizons of time, which are more adequate for the discussion of future.

One of the possible alternatives of change would be the incorporation, at the political agenda, of an approach we call Sociotechnical Management, which conciliates chronological horizon connected to longer temporary cycles (quinquennial, or greater<sup>2</sup>) and, with aspirations and view of a shared management between government and society (sociotechnical systems). It is possible to construct a future view from discussions and debates enabling the acknowledgement and consolidation of individual views on the same desired future.

## **2. Brazil: History, Economy and the “Loss of Future”**

### *2.1 From the Genesis of the nation to the unspeakable future.*

According to Furtado (Furtado, 2009), Brazil’s economic development, as Portugal’s colony, starts timidly during the first decades after its discovery. The Portuguese and also the Spanish performed sea expeditions which resulted in the discovery of the called “New World”, a territorial domination from where valuable natural resources could be extracted.

The emergence of “Brazil” occurred by the impracticability of the maintenance of the Portuguese territorial dominance in the New World. The maintenance of the Portuguese domains determined the need of making its lands in the American continent profitable. Perhaps due to the lack of options, the Portuguese invested, resolutely, in agricultural production, due to several factors present at the colony, such as: tropical climate, interests of the colonizers and conditions of the new economic order in development (Prado Junior, 2010). The future, at that moment, was an infinite projection of a land at a condition of “coming to be”, having its model of

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<sup>1</sup> The time estimation for the rise of the Third Wave is controversial, not being determined from historical data. Machado Filho (Machado Filho, 2010) defends that although such informational technology is available for some Brazilians, the country didn’t entered in the Third Wave due this internal inequality.

<sup>2</sup> “Long term” is understood as the greater time projection possible. The terms “short term” and “long term” shall not be taken as absolute reference, as their expression may vary: in Economy, there are fields of study with measures of time determined in days, months, years or decades; in Administration, there is similar phenomenon. The concepts of “long” and “short” terms here are connected to terms that have already been utilized in government Brazilian plans, with intrinsic distinctions: annual and inferior targets are associated to “short term”, quinquennial and superior plans are associated to “long term”.

exploration being the result of a planning that, according to Holanda (Holanda, 2010), did not occur in a methodical and rational manner.

So, within this view, Brazil evolved from a primitive stage, analog to the Neolithic to a strategic domain: getting consistent geopolitical structure, internal economic activity and bureaucracy established. Such evolution, from colonized Brazil to present Brazil (approximately 400 years after its discovery), was an abrupt transition of thousands of years when compared with the evolution of the European nations. In the past 20<sup>th</sup> century Brazil became an emerging industrial power (Figure 1), with investments: a) - in a late industrialization (iron and steel industry, oil exploration, construction of roads) and, b) - afterwards investing in more strategic sectors as aerospace research, engineering and other actions aimed at the Nation's development.

This evolution of Brazil occurred by action of the political forces that molded the country. BUT From the second half of the 20<sup>th</sup> century, the political forces governing the country made decisions that resulted in the sacrifice of the future, in a paradoxical manner, in the name of the construction of a "country of the future". In the next section, these events will be described from the political point of view and, the concerned sacrifice.

## 2.2 *Sacrifice & "Brazil, a Country of the Future"*

In the second half of the 20<sup>th</sup> century a historical process takes places in Brazil: its consolidation as a developed nation and, unfortunately also, the emergence of the so called "Brazil, a Country of the Future".

Almeida (Almeida, 2005), identifies nine economic planning experiences executed by the Brazilian government from 1948 until 1985. The most important plan, in relation to this discussion, is the Second National Development Plan (PND II: 1974-1979), which intended to replace imports and eventually promote exportation: a long term modification in the national productive matrix (Gonçalves, 1999). It was planned in a moment of global economic turbulences, such as the two oil crisis and international credit restriction.

PND II was a turning point in the national plans of Brazil: all previous planning experiences, implemented between the 1940's and in the early of 1970's were aimed to "compensate" a late national development (Almeida, 2004). PND II was conceived under a developmental thinking, the first Brazilian government clearly intended to create the strategic basis of an autonomous and developed Brazil.

Anyhow, despite all PND II virtues, the determined emancipatory strategy was not enough to promote the development in face of a recessive global scenario. The succeeding plan, the Third National Development Plan (PND III: 1979-1985) was jeopardized by the aggravation of national macroeconomic<sup>3</sup> issues, and by Brazil's inability to pay its enormous external indebtedness – resulting in currency devaluation, credit shortage, national accounts imbalance and other results negative to the economy. PND III, thus, is also unsuccessful.

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<sup>3</sup> Macroeconomics is the study of the phenomena of the economy as a whole, including, inflation, unemployment and economic growth (UNB, 2011). The Institute of Economic Applied Research (IPEA, 2011), identifies as macroeconomic indicators: balance of payments, exchange, foreign trade indicators, consumption and sales indicators, national accounts, monetary restatement, international economy indicators, public finances, currency and credit indicators, population indicators, practiced prices, national production, salary & revenue and transportation. Thus, the macroeconomic indicators are considerably broad, related to the economic conjuncture as a whole.



Between the years of 1986 and 1995 has been identified at least eight national economic plans (Almeida, 2005 and Leitão, 2011). For all the reasons we have demonstrated and as a result of the persistence of the economic problems, amongst them inflation, the government decreased the importance of future, and started to concentrate efforts into the short term economic stabilization, such as the beginning of another cycle of macroeconomic financial stabilization called Pluriannual Plans (PPAs): the directives, objectives and targets of the federal public administration for the capital expenditures and other expenses resulting there from and for those regarding continuous programmes (article 165, paragraph I – Brazilian Constitution).

From this historical retrospective it is clear that until PND II (1974-1979) and, especially in this one, the Brazilian project of a developed nation had been guided for a long term view perspective. After PND II and III, the quinquennial planning was subdivided by plans that intended to implement instruments of biannual reach, after by annual targets, and in face of the threat of hyperinflation even the monthly period was considered too long, with the creation of instruments such as, for example, the “triggered raise”, conditioned to the variations of inflation independent of the chronological period: automatic salary readjustment, in according to the accumulated inflation in 60 days or 10 days! This gradual reduction of the reach of the government planning is graphically represented at Figure 2.

At such extremely high volatility and instability, the country lost the perspective of projecting its future. The government policy now concentrates only in the present: a model of economic thinking, based in cycles and analysis within short term horizons, has been established and, the long term capability planning has been replaced by the possibility of controlling a series of targets connected to very short term horizons (Lessa & Earp, 1999).

### 2.3 *Brazil as a globalized country – and without future*

This hypertrophy of the short term has had great contribution of an ideology of wild modernization, which gained notability in the beginning of the 1990’s by the promotion of an initiative of reinventing the country in a more harmonized manner with the globalized world and, which has been characterized by the insertion of the organizations in a world context, by the large scale use of electronic processes, by the change in the nature of labor (ascention of the services sector) and the emergence of nations such as China, India and Brazil to distinguished positions in the world picture (Balloni, and Bermejo 2010).

So, at the threshold of the 21<sup>st</sup> century Brazil starts to show up as a potential protagonist in the world however, without, from the political-economic point of view, a long term vision (Mussalém, 2001). This Brazilian emergence has had a serious consequence in the context of construction of the future: despite the PPAs and the improvements regarding the image of “Brazil, a Country of the Future”, we do not have a proper future projection. Yet, according to Resende (Resende, 2011), we arrived at the second decade of the 21<sup>st</sup> century only with targets, determined in a horizon connected to macroeconomic indicators and not to projections of an intended development.

## **3. Sociotechnical Systems & Participatory Sociotechnical Management**

### 3.1 *Sociotechnical Systems*

A sociotechnical system is composed of two sub-systems:

- a) The social system: living organization counts with the commitment of all its members as well as their knowledge, skills, attitudes, values and needs;
- b) The technical system: an information system is composed of mechanisms, tools and techniques necessary to transform inputs into products so as to improve the economic performance of the organization. (Balloni and Bermejo 2010)

A sociotechnical approach assures the compatibility of the social and technical systems. Any organization is able of maximizing its performance only when the interdependencies between these two systems are explicitly recognized and conceived: the social environment must fit to the technical component and, vice versa, aiming the sustainability of both systems. The Participative Model of Sociotechnical Management relies on these concepts: interrelation ship among commitment, knowledge, skills, attitudes, values, needs, mechanisms, tools and techniques.

The components of these sub systems may be seen as “structural blocks” that configures a system and determine its performance (Figure 3). The harmony between these blocks gives rise to an organizational/nation long term prosperity (best operational performance) and perpetuation (associated with the tendency of a future perspective formation).

According to Balloni (Balloni, 2010), the present moment in History is characterized by the development of a sense of unity and perception of a whole and, hopefully, maybe the rise of a sustainable and solidary economy. But, in order for that to occur, we need to learn new means of fomenting trust and social and environmental responsibility, in order to develop a new conscience and new ethic – more inclusive and more participative. Yet, according to Balloni & Targowski (Balloni & Targowski, 2010), in the Information Wave we find the ideal conditions for the ascension of the concept of a society where creation, distribution, diffusion, use, integration and manipulation of information becomes a relevant economic, political and cultural activity. In this context, knowledge becomes the main creative force, a predominant component at the human activity and, the more participative the sharing processes, the better shall be the expectations about the results obtained.

### *3.2 Brazilian proposal of the “Participatory Model of Sociotechnical Management”*

The consolidation of Brazil as a power and developed country must be stimulated and achieved, also, by means of research & development and the creation of a collaborative ecosystem with systemic view and engaged in the integration of interdependent themes such as: ecology, biology, communication, organizations, economy, education, communities, technology, culture and the human condition. This collaborative ecosystem is a gigantic sociotechnical system and, for such, the model of Sociotechnical Management applies (See Section 6: Nation Ecosystems).

After a decade of macroeconomic prudence initiated around mid 1990, the Nation is ready to start a cycle of investments, international growth and to the conception of long term strategies: today’s signs are clear and favorable to Brazil’s development, to the condition of a “present future” (in other words, capable of forging its own desired future). However, this new condition of the country, favorable to the projection of a virtuous future, still lacks the redemption from the political and economic thinking towards to the long range planning.

This lack of a long term planning, when observed from a sociotechnical perspective, brings out a pertinent questioning: is it possible for us to conceive a fair and participative society without choices and decision making for the future planning

being made? One possible answer is: it's necessary to consider expectations from the citizens, which may have significant impacts at decision making and, as a consequence, in this planning. This participation at the decision making process must result in a model of common future view: tonic of the participative model of Sociotechnical Management. The sociotechnical approach guide us to think about future planning as a collective co-responsible construction of the future and, internalizing in all the decision making process commitment, knowledge, skills, attitudes, values, needs of this society.

Therefore, the model of a participative approach of a Sociotechnical Management has different configurations, enabling to the organizations (State, society, country) the maximization of their performance and, consequently, the look for the recapture of the view of the future.

According to Balloni (Balloni, 2006), it is necessary to disseminate the concept of Sociotechnical Management among Brazilian citizens and, the access to information is fundamental and strategic, presenting itself as key resource under the optic of the competitive advantage and of participative strategic planning. With Globalization, all nations are seeking new means of having competitive advantage. Will these advantages be competitive, sustainable?

It is strategic to take Brazilian citizens into consideration, which are represented by their public and private managers, acting as Brazil's business partners: relationship is the tonic of management, the assurance of the extension of a greater period of the competitive advantage.

#### **4. Perspectives for Brazil: the Country of the Future & Future of Civilization.**

##### *4.1 Perspectives for Brazil, the Country of the Future, Now.*

In today's world scenario, Brazil has the opportunity of becoming one of the most important and respected players amongst nations inserted decisively into the globalized environment. This will demand emancipation from the excessive monitoring of short term indicators. It's necessary to make a "systemic innovation" on the political and economic thinking in order to make the political decision planning most participative and most aimed at the conception of an image of the Brazil of the future: decisions making as a Organizational or Nation Ecosystems, a Participatory Sociotechnical approach (section 6).

In this model of Sociotechnical Management, all the players would be capable of participating in the process of convergence of the views of future and, establishing a "strategic roadmap" from its convergence (harmony in diversity). The implementation of this participative model of sociotechnical management is dependent on the change of the public and private management political thinking: according to Balloni & Targowski (Balloni & Targowski, 2010) it a must to have the sharing of information and expectations.

The participative model of Sociotechnical Management serves as a means of making feasible, in a sustainable manner, this transition, once it comprehends the expectations and necessities of society (represented by their public and/or private administrators) and its interrelation as a Nation. So, this model represents an opportunity for political thinking to emancipate itself, becoming capable of formulating a view of future for the nation.

#### 4.2 *Perspectives for Brazil in the Context of the Future of Civilization.*

To certain degree, Brazil is lucky that did not follow the developed nations' paths of economic development following the Industrial Revolution in the 19<sup>th</sup> century. Despite of the fact that these countries have grown tremendously in terms of socio-economic achievements, however, today they pursue the strong strategy of deindustrialization. As already mentioned (Section 3, first paragraph), the developed economies are transforming from industrial to service economy, which is weak and cannot provide sustainable employment. It led to the financial crisis in 2008 and political-economic crisis in the United States in 2011.

Brazil is in a similar position to China after the fall of the Soviet Union (1991). China did not follow Russia's chaotic and crony privatization and capitalism, to certain degree, controlled by the political officials. Contrary, China introduced own solution; strong grip on central policies and some business freedom at the bottom for average citizens. Brazil does not have to follow the Chinese model of course. But by the same token does not have to follow the Atlantic Civilization's self-deindustrialization for the sake of supporting global corporations at the cost of liquidating own middle class.

Furthermore, Brazil, a very rich country in natural resources must be aware that their inventories are shrinking. Instead of developing old traditional economies either capitalistic or socialistic, Brazil should be the world leader in developing ecoism, a system which takes care first the interest of the ecosystem. The successful production of biofuel in Brazil reflects very well this strategy and believes that Brazil can do it.

The current (2011) *global economy*, driven by accelerated growth strategy, is unsustainable since it leads to the population bomb ("more customers" is good for business), ecological bomb, and eventually to the depletion of strategic resources bomb. All these bomb connected together create the *Death Triangle of Civilization Model* (Targowski, 2009). This model has confirmed a research where is presented the five major trends of global concern, such as: 1. Accelerating industrialization; 2. Rapid population growth; 3. Widespread malnutrition; 4. Depletion of nonrenewable resources, and 5. Deteriorating environment. Almost all agreed that the trends (2-rapid population growth) and (5-deteriorating environment) of global concern are truly defined (Ruoff & Targowski, 2010).

Today civilization faces - the *gene* versus *mind* evolutions and *globalization* versus *sustainability*. Hence, the following principles-strategies of the wise civilization should be applied. They are the most crucial for Brazil to steer long and short-term planning and execution of national goals, objectives, and targets:

1. Hyper-eco democracy should generate progressive but wise ideas and governance,
2. Where among equals, the ecosystem is more equal.
3. Cognizing (education) acceleration to make decisions based on practical, theoretical, global, and universal knowledge and wisdom (Targowski, 2011) securing the *mind* evolution.
4. Ecoism – is a new world business system, which would provide the preference to the ecosystem, not to the capital (capitalism) or social prosperity (socialism), which are systems of too much waste of natural and man-made resources (super-consumerism). The ecoism should be based on deep economics, which calculates business effectiveness, taking into account the cost of natural resources in their full cycle of renewability (Targowski, 2011).
5. Wise development of technology which should support but not conquer the society.

6. The nation-state concept should be sustained in order to prevent diversity of the world society and secure cultural heritage of nations and curtail the aggressiveness of business, which otherwise will pursue a never-ending growth strategy, leading to the overpopulation and depletion of the strategic resources.

7. The Knowledge-Wise Society, which should promote the education, cognition, and knowledgeable and wise decision making in all spheres of looking for the sustainability of wise civilization, particularly preventing smaller population.

8. Wise use of e-Global Village, which should support the *mind* evolution and also vice versa is supported by the *mind* evolution to promote the sustainability of civilization.

These set of key principles-strategies of the civilization sustainability should lead to the development of wise civilization (Targowski, 2011) and prevention of the human race in the well-being status. These principles-strategies, which we call as Nation Ecosystem (section 6), should be incorporated into all level of education and societal decision-making in Brazil. This task is enormous but if not implemented, the current Brazilian civilization as we know and enjoy will vanish, even within the 21<sup>st</sup> century.

## 5. Nation Ecosystem: The Participatory Approach.

The concept of organizational or nation ecosystems can be a very effective management instrument for the sharing of information and the implementation of a common vision, of the future in a way that it allows the incorporation, by all level of Brazilian educational system and its societal decision-making, the key principles-strategies of a sustainable Brazil, to the Brazilian citizens. So, to give practical substance to this opinion paper, we present an adaptation of “five the characteristics of the Toyota Nervous System”, also called by Osono (Osomo et al, 2008) as human *www*. So, the new proposal, **new human *www***, is now called as: **“the six characteristics of the participatory national ecosystem for a Sociotechnical Management”** and, are suggested to be adopted as a model for nation ecosystem regarding the central ideas of this opinion paper:

“

### 1. *Open and lateral dissemination of know-how.*

To facilitate teamwork, everyone are encouraged to engage in *yokoten*, short for *yokoni tenkaisuru*, which literally means “unfold or open out sideways”. This approach encourages everyone to share their individual know-how and expertise openly with others.

### 2. *Freedom to voice contrary opinions.*

The organization/nation should also be open to criticism and contradiction for the nerve system (“Participatory Model of a Sociotechnical Management”) to function properly. This means everyone has to feel free to voice contrary opinions, even to top management and headquarters.

### 3. *Frequent face-to-face interaction.*

Any managers to reach senior positions have a must to acquire and embrace the skill of listening thoroughly and intently to what employees have to say and continually questioning and probing to find a better way.

### 4. *Making tacit knowledge explicit: Sociotechnical Management.*

Tacit knowledge is converted to explicit knowledge every time someone verbalizes or writes down their knowledge.

5. *Formal and informal organizational support mechanisms.*

Formal and informal support mechanisms have been established in the organization to contribute effective functioning of the nation ecosystem.

6. The eight key principles-strategies of a sustainable Brazil, section 5.2, should lead to the development of a sustainable and wise nation ecosystem.

”

## 6. In Summary.

The participatory model of a Sociotechnical Management has as objective the search for the state of balance where radical contradictions coexist. For this reason, the existence of that which is denominated “comfort zone” is not allowed in a nation ecosystem. The model of Sociotechnical Management aims at creating healthy tensions and instability. Such tension is catalyst, as generates progress and provokes the attainment of results: a strategic, efficient and effective planning takes place only in such conditions, in other words, participatory model of a Sociotechnical Management, answering to the call from an opinion paper “Brazil of the Future: Strategizing with the Socio-Technical Management Approach”.

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Figure 1: Four centuries of Brazil's development.  
(Source: Authors)

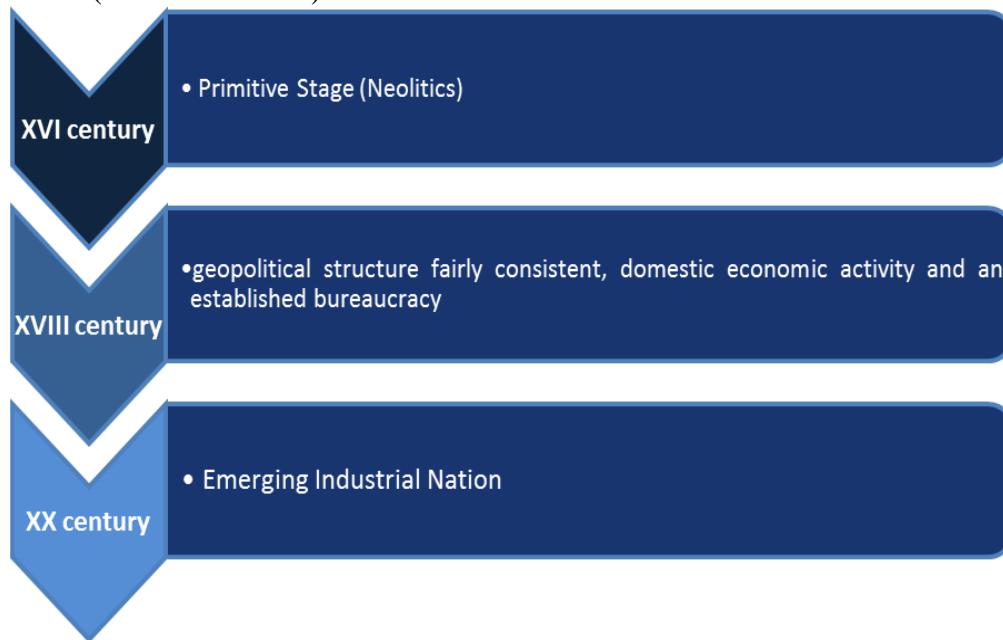
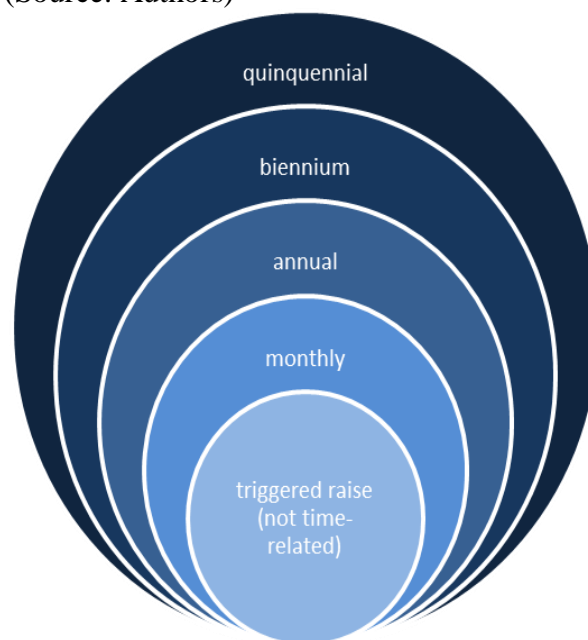
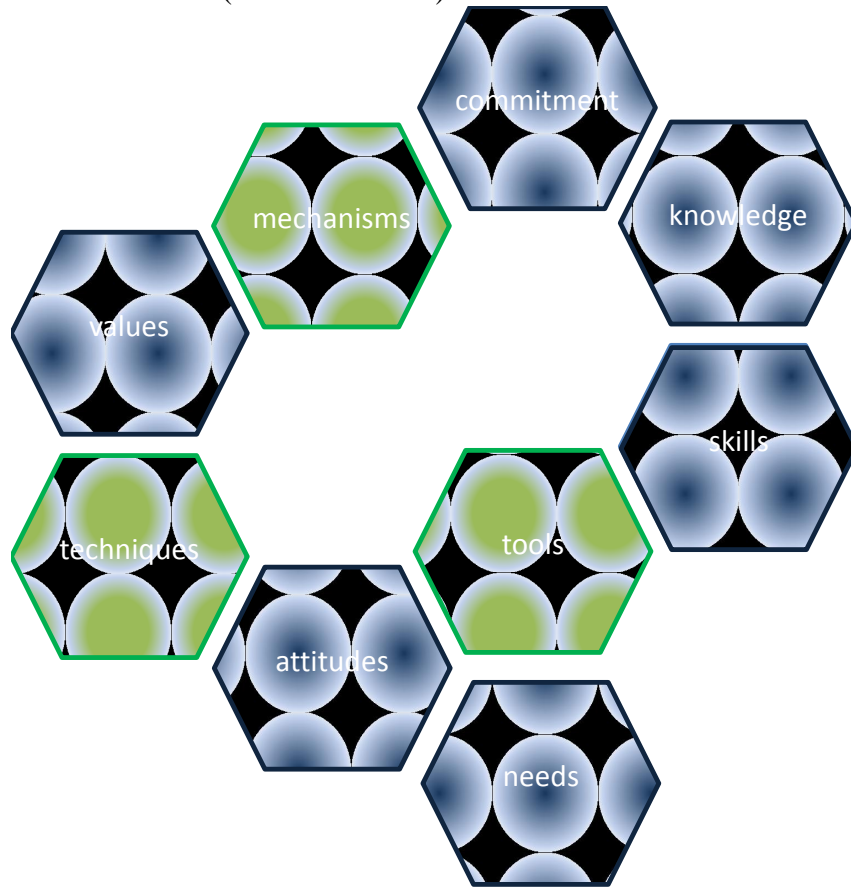


Figure 2: Decrescent time horizons in Brazilian Economy planning (1960 until 1980). (Source: Authors)





**Figure 3:** Aspects of a sociotechnical system. The fitting of the structural blocks (hexagons), explicitly recognizes the interdependency between its components. This is an essential characteristic of a Participative Model of Sociotechnical Management proposed in this work. (source: Authors).



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