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1. A broad solution which is embedded in Complexity science.
2. General Model of Leadership as a Complex Adaptive System (CAS)
3. Understand and Explain how attractors affects CAS of leadership
4. Look at Leaders Brain instead of Behavior
5. An start to Complex Plane (called here also phase space) of the complex function to simulate emerged system of Leadership.

*Keywords* : *complexity theory, phase space, leadership model, motivation, attractors.*

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*Strictly as per the compliance and regulations of :*



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Bahman Nasir Zenouzi <sup>α</sup> & Ali Dehghan <sup>σ</sup>

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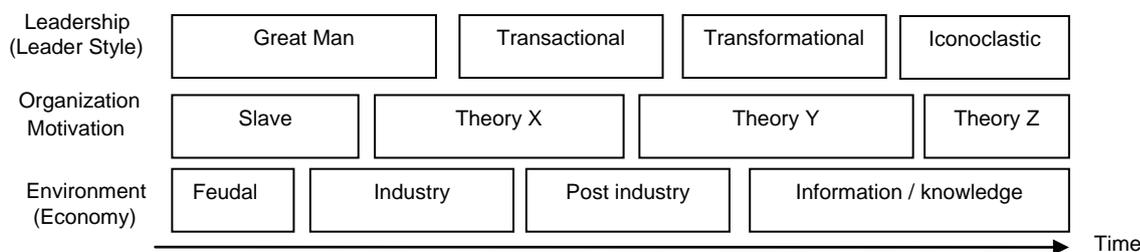
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## I. INTRODUCTION

At summarizing the reviewed literature, history of development of mankind understanding and science in Leadership reveals that, at early age, in the feudal or clan culture, “Great Man” solution was the only possible media for directing the Crowd of people and groups. The people were treated as slaves or slave

kinds having limited rights in society. Years, “Great Man” led the labors assuming Theory X view point toward workforce and gradually gave the leadership a Transactional move but assuming the same Theory of X. Simultaneously early industrialization collected a mass of agricultural un-skilled labors free for basic footwork. Training and education made more productive labor and in parallel, industry shifted to Mass production making economy of scale and dump in price level and goods available for public. The basic security needs was met and Transactional leaders played great role practicing “control management”. In the control management paradigm, making money requires a firm to control processes, and to do that the firm must have standardization and ensure that most effective subordinate did it in the most efficient manner. The production processes got robot systems and “Brain Power” replaced labors with the skilled followers, so the individual development was getting mature to Theory Y workforce and Transactional leadership style was not sufficient to meet new goals for incremental improvement. So, Transformational leadership started to play the significant roles in moving organizations forward with visions share with followers. In this incremental improvement paradigm, making money requires customer satisfaction, which in turn requires a culture and systems for quality and excellence and perfectionism (Transformational Visions).

Figure 1 : History of Leaders - Followers Development over time



## II. PROBLEM DEFINITIONS

Review of literatures and books helped to extract the history of leadership theories, including the distinction between transactional, transformational and

Iconoclastic (Breakthrough) leadership. Then discussion and analysis of above mentioned reviews offered two improvement areas or:

- a. Inductive / Outside-in Approach
- b. Reductionism Methodology

To achieve the first improvement, a comparative case study method was taken to develop a semi-grounded theory of leadership and Complexity theory used to have holistic view and model.

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### III. RESEARCH METHODOLOGY (SEMI-GROUNDED THEORY BUILDING)

SJ Fox and Wolfgramm (1997), introduced Dynamic-Comparative Case Study Method (DCCSM). It is believed that D-CCSM is especially appropriate for researchers who: (1) are interested in studying new topical areas in organizations; (2) want to develop testable, midrange, theory from the processual analysis of case studies; (3) would like to replicate their studies in multiple research settings; and (4) have limited research resources.

### IV. RESEARCH (IN-FIELD APPROACH TO LEADERSHIP)

To exercise In-field research approach, which will also enable us to develop semi-grounded theory, following qualitative research questions are designed.

1. What is going on in Leaders' Brain (Psychological, emotional and life studies)?
2. What is the leader's objective?
3. What tools and environment were available for Leader to lead and reach goals?

After analyzing 5 different case studies, following results are obtained:

1. Leader's brains are not normally wired.
2. "Reductionist Thinking" misleads us on parts and whole of leadership.
3. Leaders use organization, environment, politics and different styles as media to reach their goals.

#### a) Complexity Theory

Complexity Leadership Theory (CLT) is the study of the interactive dynamics of complex systems (CAS) embedded within contexts of larger organizing systems. (Mary Uhl-Bien, Russ Marion, 2009) The significance of CAS dynamics for the study of leadership can only be understood by recognizing the meaning of the term complexity (see Cilliers, 1998, Ch. 1 for a good overview of complexity and CAS; see also Snowden & Boone, 2007).

Most of nature is made up of what complexity scientists call non-linear, complex adaptive systems - systems created by a number of diverse and independent agents that are constantly changing and interacting with each other. In complex dynamic systems that adapt to their context, a study of the parts surely produces an incomplete understanding of the whole. In adaptive systems apparently inexplicable results arise from the interactions between simpler components. But such systems are not random and follow patterns even if they are difficult to predict precisely.

Following General Model of Leadership as a Complex Adaptive System consists of Leader, Organization and environment emerged in one complex

model of leadership. The 'emergence' indicates the whole outcome if different from collection of individual variables. We called the whole "Leadership" system which consists of embedded interacting agents, free to act, not always predictable, changing the context of each other.

General Model of Leadership as a Complex Adaptive System

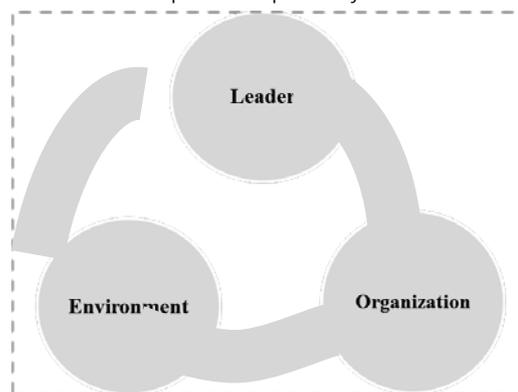


Figure 2 : Leadership Model

We propose this model of Figure 2 as a Simple but with embedded interactions of variables (It is not Reductionist Model). It is a general model since can be modified by adding any new variable depending on case, e.g. if there is a change leader or a multi-organization, then model can be build up adding new variable making it a pyramid shape. The same way the informal dynamic is embedded in context. The variables and the system are fuzzy and have no boundary (not like reductionism). It is complex with double way interacting variables but not complicated as a model of a rocket with components having defined input and output. It is also adaptive since when the states of the model as a whole changes, the non-linear interacting agents will practice changes and if components changes then non-linear interactions between variables will create effective and developed state far from equilibrium. Sometimes a small change in Leader results in no change in organization, other times a huge change in organization, unpredictable. They operate in a delicate dynamic balance between static and chaotic modes in an area called the 'edge of chaos'. Agents in this model of complex adaptive system respond to others by using internalized rules (instincts, procedural rules, or mental models) that drive action.

Modeling leadership with Complexity Theory, reveals uncertainty and inconsistency as inherent within the system and without considering attractors (general patterns), the only way to know exactly what leadership will do is to observe it ultimately. The general patterns or attractors come from leaders (objectives), Environment (social and economical actors) and organization (culture, technology, efficiency and effectiveness). The attractors can be categorized as fixed-point attractors,

periodic attractors and strange attractors. Research on attractors may dominate the leadership research in the future because they determine the patterns and expose past and present while playing key roles in estimating future.

b) *Model Generalize-ability:*

Vladimir Dimitrov (January 2001), in "Thinking And Working In Complexity" explains that Several stunning discoveries of the theories of Chaos and Complexity shattered the logical foundations of science built over the span of many centuries:

1. Prediction and determinism are incompatible: we cannot predict long-term behavior of complex systems, even if know their precise mathematical description.
2. Reducing does not simplify: interaction is important and interaction means inseparability.
3. Simple linear causality does not apply to Chaos and Complexity.
4. Complex dynamics give birth to forces of self-organization:

The self-organizational force seems to arise spontaneously from 'disordered' conditions, not driven by known physical laws. How can entirely new structures emerge from the multitude of interactions within the complex systems? The concept of *vorticity* explains this stunning phenomenon. "When the vortex is swirling you could swear that there is a force somewhere. Where is it coming from? The answer is perhaps the most fundamental acknowledgement in all of Complexity: it comes from within the system. Although there seems to be an external force organizing the vortex, it is the masses in the vortex that is driving it" (O. Am, 1994, cited by Dr. Vladimir Dimitrov).

As Hayek put it in *The Sensory Order* (1952, pp. 188-189, 8.80). Modeling can only allow pattern prediction in complex system not a precise result prediction that may come out of a non-complex phenomena. In a complex system of emerged variables, the system patterns can be predicted by attractors which interact non-linearly and sometimes randomly. To draw a model of complex system, it is necessary to extract variables, relationships, attractors and relation of attractors on system patterns and affecting variables. Therefore Considering the fact that the variables and relations are complex and fuzzy and the model represent an emerged complex system, therefore the traditional method of reductionist approach and input-output test is not applicable. Applicability / validity / trustworthiness / generalize-ability characteristic of this CAS model, shall be assessed in:

1. Static / Snapshot: Finding the attractors of each variable at any moment

2. Dynamic / Longitudinal: Understanding and finding the changes of attractors and changes of function of complex system.

In our model of complex emerged leadership system, we shall be able to find attractor for all of three variables and shall justify longitudinal changes, then the model will not be valid and can be generalized.

In framework of complexity theory and proposed model, (midrange theory and model), we tested the model by proposing the attractors for different variables in above five Cases of leaders. We tested the business, political and educational leadership systems and found the model is valid and the attractors not only exist but also have impact on whole emerged system operation. That is why tests were successful, then the midrange model in framework of semi-grounded theory as well as model developed in complexity framework are confirmed.

Referring to figure 2, it will be interesting to find if this model is able to explain how the attractors changed over time and resulted changing the functions which was interpreted as leadership style. We listed out the attractors it may be necessary to test the Historical development of Attractors of Leadership complex model as listed in table 1.



Table 1 : Historical development of Attractors of Leadership complex model

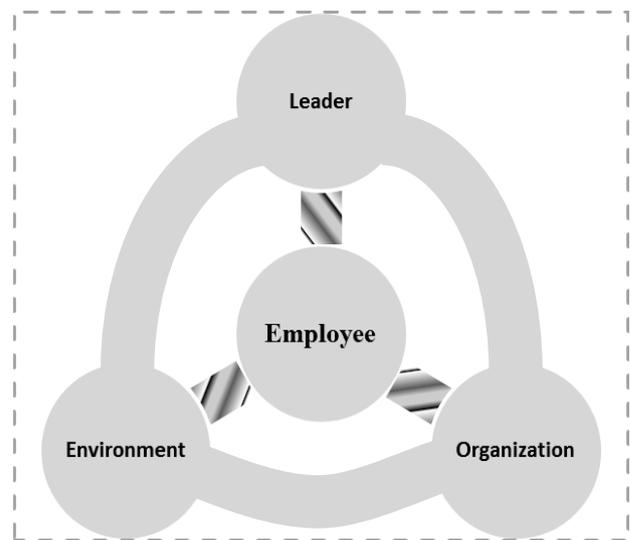
Style	Variables	Attractors
Great Man	Leader	1. Brain: skilled hunters, Blue blood 2. Objective : Perform Great mission and survive
	Organization	Tribes, clans, Failure to follow leads to death
	Environment	1. Brute force accepted, fear-based 2. Long-term power derived from survival skills 3. Feudalistic mindset to human at late development
Transactional	Leader	1. Brain: Controlling, measuring still Feudalistic mindset 2. Objective : Reduce cost, increase production
	Organization	1. Workers were inefficient, unskilled with agricultural mind 2. Organize, control, command, measure and decide for results 3. Lazy and inefficient workers are being developed and getting ready for participation
	Environment	1. Mass Production at minimal costs 2. Stability is a must, do what it takes to get the job done 3. Labor unions start getting power.
Transformational	Leader	1. Brain: Systemizing brain, virtually realizing "promised land" 2. Objective : Insight spiritual Visions
	Organization	Theory Y employees, Flexible and participative organization
	Environment	Post industrialized, "Brain Power" Era, Demanding speed and innovative solutions.

Therefore, this model describes all what we historically know on leadership by understanding it's dynamic nature at any snapshot of time when it is going to be tested. Based on reductionist thinking, a natural tendency is to make model of variables affecting process and define relations and test it in different conditions. It has happened that these models have not been functioning in new conditions. Actually and practically those models have been built by using attractors as variables and since different conditions changes attractors, therefore those models lost the dynamism and so were not generalized any longer. We can see here that due to complex structure of leadership, one model can not only be generalized for different situation of political, educational and business but also is able to cover whole history of leadership.

c) Complexity Model for Motivation

Motivation is to be studied on employee, as separate variable in our Leadership model. Accordingly, Figure 3 is a proposed model for motivation. This Complex model of motivation consists of 4 variables, three of which are already discussed in Leadership Model having the same attractors discussed earlier. The forth variable i.e. employee, respond to intrinsic attractors and external attractors received from other three variables of Leader-Organization-Environment.

Figure 3 : Complexity Model of Motivation



Studying the intrinsic attractor is a pure psychological research and all human dimensions shall be studied such as Identity, emotion,... etc. Vladimir Dimitrov and Kalevi Kopra, 1998 in Dynamics of Human Identity propose two internal attractors and says: "In today's society there are two distinguishable attractors for the dynamics of human identity - one is the attractor of separateness, the other is the attractor of unity.

1. The Attractor of Separateness
2. The Attractor of Unity

The interaction (motivation) of employee to external variables depending on strength of each one and also drive from internal attractors of employee



explains static and dynamic functions which was already categorized in Theory X, Y or Z motivation. In case the environment has priority and strong affection on employee, then the relation with other two get loosen and employee moves close to environment if also attractor of unity of employee supports this move. That is Theory X where the employee looking for his basic need in environment satisfied as Maslow pyramid.

That is true that "Great Man" belong to early age when the people economy and knowledge was at lowest level (Theory X field of application) but all Great men had few followers neglecting the basic needs and devoted to leader. This mean the Leader charisma or attractor towards such followers was strong and therefore, they were practicing some leader tasks (Theory Z). Generally if employee get closer to Environment shows Theory X behavior, if get closer to organization then Theory Y and close to Leader shows theory Z behavior.

Tables 1 shows attractor's driving 3 variables interacting extrinsically with employee and depending on applicable X, Y or Z of motivation theory, different underlined attractors in above tables get stronger and prevailing effect.

This model does explain why even theory Z employees can get employee X behavior during the affection by environment for example while strikes raised through political and economical reasons or in case of need for financial support or need for belongingness (unity) or when employee feels repulsion from the leader or organization (Separateness) .

d) *Sample Phase Space:*

We read in "Complex systems, time and graphical analysis of organizational behavior" written by Linda L. Brown, Daniel J. Svyantek 2001 that "*Complex systems must be studied across time to find patterns of underlying order. A phase space diagram illustrates the way in which systems transform themselves over time (Abraham, Abraham, & Shaw, 1990) The phase space diagram shows whether behavior on this variable varies across time and the amount of variation that occurs. The phase space diagram shows whether behavior on this variable varies across time and the amount of variation that occurs. Phase space diagrams (Svyantek & Brown, 2001; Svyantek & Brown, 2000a, Svyantek & Brown, 2000b; and Svyantek & Snell, 1999) have been used to understand order in complex systems*".

Phase Space Graph, in case the total system is selected to be studied, is called complex plane, showing whole complex system behavior as well as interactions of emerged variables. Each system has almost unique phase space demonstration till an iconoclastic change is not experienced. After an iconoclastic change, the system will be a totally new unique system and will show almost the same phase space if the interaction of variables are not changed. But

anyhow, all variables will be settled in new states and values.

IF our model is valid model in complexity theory, then we shall be able to draw the phase space of an assumed leadership system in state of equilibrium. A phase space diagram is a history of the changing variables of the system. Any state of the system at a moment in time is represented as a point in phase space. All the information about the system is contained within the co-ordinates of that point. Then as the system changes the point will move to another place in phase space. As the system changes with time the point in phase space will trace a trajectory on the phase space diagram.

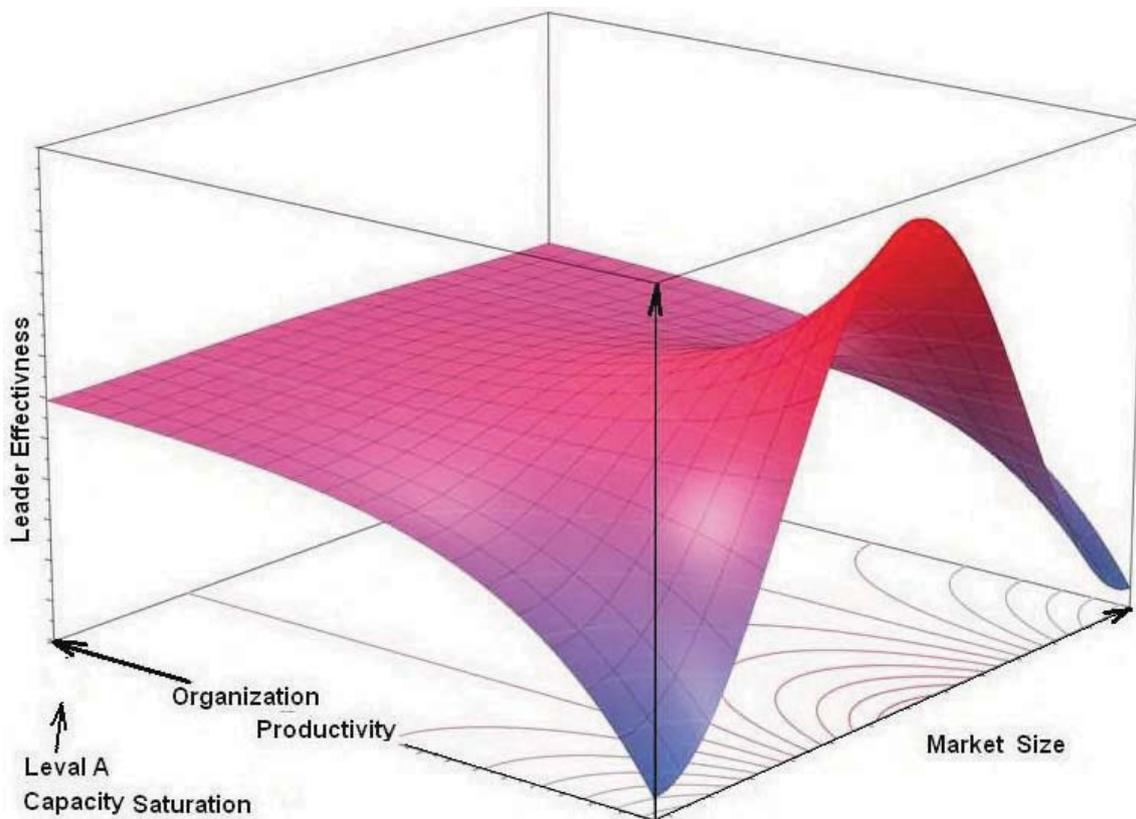
We now try to draw some key assumptions to be able to draw a complex plane (phase space) for leadership where we can distinguish the actions of attractors and changes in variables. We assume a Leadership model, where following functions are assumed to represent patterns of attractors:

1. The response of Organization (change in productivity) for increase on Leader effectiveness (for a change or transformation) can be studied in two dimensional frame where it shows a Non-linear Hyperbolic/exponential behavior and organization productivity matures at level A
2. Leader response (effectiveness) towards changes in Environment (Market size for example) shall almost have linear behavior at first start of increase of market size. We also know and can assume that market share of companies reduces by new competitors and lack of profitability in increase of a product, therefore we can assume that leader effectiveness can be reduced by marker share decline.
3. The effectiveness of Leader is dependent mostly on intrinsic characteristic of Leader/patterns of transformational leadership to enhance productivity of organization till organization reach to stable and final stage of productivity at a level A. This level cannot be changed by leader or environment as the full capacity reached. That is the level which firms get mature and start the slope down and Breakthrough or iconoclastic leader can only enhance the result which we will discuss later.

If we assume X, Y, Z in Cartesian dimensions as following:

- X = Leader efforts and dedication,
- Z = Change in Organization productivity, (Toward Stability)
- Y= Change in Environment (Market size)

Figure 7: Phase space model of an assumed Leadership model



## V. CONCLUSION

It should be noted that somehow the values at x, y and z may have fuzzy values and shall be scaled. We may have still time to reach formulation of human science in mathematics and making scale to measure the characteristics of variables and this representation was only a light in the road to reach to explanation of order in complex system and simulation of novelties to examine future in Labs.

When the representative value of variables are identified and scaled and relation between variables are somehow defined/estimated in mathematical formula, then phase space of model of such specific leadership can be drawn and the attractors influence in equilibrium state can be simulated and well measured. Then it will be possible to estimate change of system based on attractors and will even be possible to test a transient state and find the system new state of equilibrium because we defined leadership system as adaptive and self-organizing system.

If we neglect the error imposed due to lack of availability of scale on values of variables in X, Y and Z in this Cartesian dimensions, practically this phase space diagram can explain any business organization behavior. Each new business imposes new leader efforts and new organization capacity upgrade and

market size enhancement till system and variables all reach new state of equilibrium depending on attractor's values and effectiveness.

Further to presenting "Complexity theory and model of leadership" I cannot assume conclusion for start of my proposed way forward and since we revealed just a part of facts so can judge only on immediate needs of how and where to continue by:

1. Developing a phase space study
2. Defining scale system for measurement of key attractors.
3. Formulating a complex equation for leadership phase space
4. Study if merger of two companies or acquisition of new company can be described by a phase space of the mathematical result of complex equation of two companies?

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## APPENDIX 1

Five cases, 1- A Politician (Obama) 2- An Entrepreneur (Jobs) 3- An IT Leader (Craig) 4-An Education Leader (Druker) 5- A Business Leader (Weiss), are selected to have sample on each field to be able to get more chance for Generalizability. The constructs of transferability (i.e., external validity) and Credibility (i.e. triangulation), is also attained through the use of multiple data collection methods and through the corresponding data collection between cases.

Above question could also be in detail included in interview with leaders and through qualitative analysis could be done on the answered question. Anyhow, recently, interesting books (which books? Name them—following book?) have been published explaining leaders such as *"Inside Steve's Brain"*, *"Inside Drucker's Brain"* and *"Inside Obama's Brain"* have tried to explore some part of realities which we will address here in Cases.

For a Qualitative data mining most accurate data for above question shall be available in above books because they have been prepared with extensive explanatory data on our questions while also other sources in internet were used to cross-check the trustworthiness of collected data.

Referring to above Flowchart 1, data collection and analysis (Action 1 to 13) is performed by researcher and two co-analyst (two member of CCG as MBA graduated colleagues) and action 14 to 17 was jointly continued. The answers of research question was prepared as following for each case independently. Action 18<sup>th</sup> to 21<sup>st</sup> is then performed by summarizing the comparative finding in each case and general conclusion is obtained in three topics. The finding also tested by their Complexity theory applicability in table 5, Then a review is conducted on new Neuroscience, electroencephalography, neuropsychology, psychoanalysis, and artistic practice on Brain and which all confirms the conclusions of each other. Therefore we believe we have been able to conduct here a semi-grounded theory extraction using the framework of complexity theory and have made model and tested it in CCG experiment.

*Case 1 :*

Sasha Abramsky, Author of "Inside Obama's Brain" have stated few points not an academic value but useful. One year ago, Obama (The first black candidate), had received more votes (in raw numbers if not total percentage of votes cast) than any other presidential candidate in history. Then he received the Nobel Prize because, despite the ongoing war in Afghanistan, Obama's achievement:

1. In convincing a majority of Americans to part with the go-it-alone, conflict is good for business policies and ethos of the Bush/Cheney years

2. Long-term ambitions in many human related field made millions of people feel included in the political process for the first time in their lives,
3. Put in place a large scale anti-poverty agenda cumulatively merited a Peace Prize.

Because of his values, at least in part, Obama has not discarded, or given up, his fundamental political values. The forty fourth President, is deeply empathetic and is genuinely committed to a grassroots-empowerment vision with an strange mix of pragmatism and idealism. His soul, his heart, is utopian and passionate about bringing the voices of the voiceless into the halls of power; but his brain is actually rather policy wonkish.

He has never wanted to tear down, or allow to collapse under its own weight, but measurably, the Obama leadership is changing some of the fundamental processes in US society.

Answers for research questions:

1. Obama's Brain  
Empathetic and Genuinely believe of utopian states (Visionary Leader)
2. What is the leader's objective?  
"Soft Power" let say "grassroots-empowerment"
3. What tools and environment were available for Leader to lead and reach goals?  
Change, Organize for America using Majority of Americans, Public attitude worldwide,

*Case 2 :*

"I was worth about over a million dollars when I was twenty-three and over ten million dollars when I was twenty-four and over a hundred million dollars when I was twenty-five, and it wasn't that important because I never did it for the money," Jobs said.

In 1985, Jobs quit before he could be fired from Apple for being unproductive and uncontrollable. With dreams of revenge, he founded NeXT with the purpose of selling advanced computers to schools and putting Apple out of business. NeXT, on the other hand, never took and had to exit the hardware Business.

Now in his early fifties, Jobs lives quietly, privately, with his wife and four kids in a large, unostentatious house in suburban Palo Alto. A Buddhist and a vegetarian who eats fish, he often walks barefoot to the local Whole Foods for fruit or a smoothie. He works a lot, taking the occasional vacation in Hawaii. He draws \$1 in salary from Apple but is getting rich (and ever richer) from share options—the same options that almost got him into trouble with the SEC—and he flies in a personal \$90 million Gulfstream V jet granted to him by Apple's board. Apple has become the perfect vehicle to realize Jobs's long held dreams: developing easy-to-use technology for individuals. He's made—and remade—Apple in his own image. Jobs has taken his

interests and personality traits, obsessive, narcissism, perfectionism and turned them into the hallmarks of his career. He is one of few who turned his personality traits into a business philosophy.

He's a cultural elitist who makes animated movies for kids; an aesthete and anti-materialist who pumps mass-market products out of Asian factories. He promotes them with an unrivaled mastery of the crassest medium, advertising. He's an autocrat who has remade a big, dysfunctional corporation into a tight, disciplined ship that executes on his demanding product schedules.

Inside Steve's Brain Published in April 2008, was a New York Times best-seller and an international hit (translated into 15 languages and a best-seller in Brazil and Italy). There will be a time when Apple will be left without its supreme leader, Leander Kahney says in his book, then "the company will be both royally fucked and totally OK when the inevitable happens". Fucked because this is there inescapable "only one Steve Jobs exists" even if Bill Gates casts a larger shadow but Microsoft copied everything from Apple — and still does, from Windows to the Zune. Ugly, but true. But since Jobs made "routinization of charisma" implanting charismatic personality traits of leader's (obsessive, perfectionist prototyping of Steve's) into business processes, then Apple will be OK even without him.

Steve said : "... the values of our company are extremely well-entrenched. We believe ... we're on the face of the earth to make great products and that's not changing ... believe in the simple, not the complex .... believe in deep collaboration and cross-pollination of our groups ... And frankly, we don't settle for anything less than excellence ...and we have the self honesty to admit when we're wrong and the courage to change."

Answers for research questions :

1. Steve's Brain

Autocrat , an aesthete and anti-materialist, "I never did it for the money", Buddhist, Work alcoholic, obsessive, narcissism, perfectionism

2. What is the leader's objective?

Easy-to-use technology

3. What tools and environment were available for Leader to lead and reach goals?

Apple as the perfect vehicle where he turned his personality traits into a business philosophy.

Case 3 :

CEO suspects that it may be the right way to run the world. Newmark, says there is nothing he would care to do with that much money, should it ever come into his hands. He already has a parking space, a hummingbird feeder, a small home with a view, and a shower with strong water pressure. What else is he supposed to want? What kind of company declares

itself uninterested in maximizing profit? "Companies looking to maximize revenue need to throw as many revenue-generating opportunities at users as they will tolerate," Buckmaster says. "We have absolutely no interest in doing that, which I think has been instrumental to the success of craigslist."

Craig has ever said to CEO, 'This is the way it has to be,' The long-running tech-industry war between engineers and marketers has been ended at craigslist by the simple expedient of having no marketers. Only programmers, customer service reps, and accounting staff work at craigslist. There is no business development, no human resources, no sales. As a result, there are no meetings. The staff communicates by email and IM. This is a nice environment for employees of a certain temperament. "Not that we're a Shangri-La or anything," Buckmaster says, "but no technical people have ever left the company of their own accord."

The claim that craigslist, used by millions of strangers, is somehow a democracy begins to be believable exactly here, in the crotchets, irritations, prejudices, and minor forms of harassment that characterize life in a small town where any proposal you make is subject to the judgment of everybody.

*"My big mission is to help make grassroots democracy as much a part of our government as representative democracy,"*, he says.

Answers for research questions:

1. Craig's Brain

Work alcoholic, absolutely no interest in Money making,

2. What is the leader's objective?

Grassroots democracy

3. What tools and environment were available for Leader to lead and reach goals?

Crowd sourcing in Craigslist with 30 employees and his leadership style.

Case 4 :

Peter Drucker, was "the father of modern management" who revolutionized management theories with over 38 books on business. A part of Drucker's incredible body of knowledge to life, includes his consultancy on General Motors and as a mentor to Jack Welch in his stellar career at General Electric.

1950-1971 Drucker was a professor in Management at New York University and 1971-2005, the Clarke Professor of Social Science and Management with the Claremont Graduate University. But due to his approach, he turned his back on academia in what it views as important ways, academia turned its back on him, as well. Therefore, it is not strange that he is quite neglected in the academic literatures while by exploring his books and thinking, you find he was well ahead of his time, and on the forefront of management thinking.

The publisher of "Inside Drucker's Brain" book written By Jeffrey A. Krames, has issued a review where he says, ninety-four-year-old Peter Drucker invited me to his home for a daylong interview. It took many months for me to get the lessons clear. Yet not one (of my twenty plus published books in management) gave me the education I had gained at Drucker's side in that one remarkable day. The lessons of this ultimate Renaissance man, dig into the areas of education, society, politics, and medicine.

*Drucker lived a life based on embracing tomorrow and abandoning yesterday. Along the way he discovered an important paradox: in order to build one must tear down. Drucker had little problem tearing things down, abandoning what did not work, leaving behind what was no longer important. That was how he was able to accomplish so much.*

Some of the chapters of this book summarized Drucker's thinking: Opportunity Favors the Prepared Mind, Execution First and Always, Broken Washroom Doors (take care of details), Outside In (being customer centered), Abandon All But Tomorrow, The Leader's Most Important Job, and A Short Course on Innovation.

Answers for research questions :

1. Drucker's Brain  
Iconoclastic Knowledge creator, abandon all but tomorrow
2. What is the leader's objective?  
Renaissance in management science
3. What tools and environment were available for Leader to lead and reach goals?  
Academia (But he did not manage to use it), His books and free domain in US (even if he was not so admired by academies)

*Case 5 :*

Weiss credited Ameritech's consistent financial success to its information-intensive marketplace, strong management, state-of-the-art technology and an enlightened state regulatory climate. According to "Simultaneous Transformation and CEO Succession: Key to Global Competitiveness" published in Organizational Dynamics, Spring 1996 pages 45-59, in August 1991, Ameritech's CEO, William Weiss was approaching last years of his retirement but seriously searching for ways of transforming the culture of Ameritech because he believed we've got to transform this company or we'll find our markets rapidly shrinking within five years facing us to a catastrophic situation.

"We're going to creatively disassemble and rebuild Ameritech. This is the most important leadership challenge we have ever undertaken and the toughest challenge of all will be cultural." Weiss said to his 30 senior executive officers in February 1992 and in March

1992, the Breakthrough effort began. Then the company was being put on a war alert and Breakthrough Lead Team was functioning as role models for the values of openness, candor, and constructive conflict. Beside these values citing such elements as teamwork, making contributions, and ethics to drive Ameritech, they also touched employee relationships. They defined new psychological contract confronting the entitlement mentality with: No guaranteed employment, Employment relationship based on performance and opportunity to grow, fairness, and merit-based compensation.

Answers for research questions :

1. Weiss's Brain  
Iconoclastic, abandon all but tomorrow
2. What is the leader's objective?  
Avoid facing with a catastrophic situation
3. What tools and environment were available for Leader to lead and reach goals?  
Breakthrough (disassemble and rebuild Ameritech and set new vision in place) using Strength of his position and Position of Strength

*5 Case and 3 Conclusions :*

When we analyze the above 5 Cases qualitatively, we can easily learn / conclude (from above useful but not deep academic texts) that:

1. Leader's brains are not normally wired.  
Craig and Steve both possibly suffer from a mild Asperger and Obama has a Spiritual but Systemizing Brain, Drucker and Weiss Iconoclastic and we will discuss these aspects later in this article.
2. Outside-in approach or "Reductionist Thinking" misleads us on parts and whole of leadership.  
It has incorrectly assumed organizational result as the objective while real Leaders objectives are quite different. Craig does not aim to beat competition or generate money, he aims Grassroots democracy - Obama's aim was not "Change", his aim is Soft power or grassroots empowerment - Steve aims for easy-to-use technology not for money or maximizing earnings, Drucker was trying to implement Renaissance in management science and not appreciation of Academia - Weiss did not aim for Iconoclastic Leader succession and Institutionalized Breakthrough, his aim was to survive and avoid catastrophic situation of Amitech. These goal s/ visions are intrinsic drive (attractor) which are dominating leaders styles and Leadership system is legitimate /on board by requirement of organization and environment.
3. Leaders use organization, environment, politics and different styles as media to reach their goals.

Craig or Steve never limit their objectives/ dreams at organizational level and presidency is only a vehicle for Obama. Drucker's books were media helping him to institutionalize renaissance in management science and Weiss's breakthrough was his media to avoid tragedy after his retirement. Leader is leader when having impact on on organization and environment.

*As we advance deeper in the knowledge economy, the basic assumptions underlining much of what is taught and practiced in the name of management are hopelessly out of date ... Most of our assumptions about business, technology and organization are at least 50 years old. They have outlived their time.* (Management's new paradigms, Drucker, 1998 :). We shall Drop Our Tools and unlearn what we have repeated as discussed in above Cases and study Leadership a little bit differently. We shall bridge our distance from leaders' world and their interactions to be able to get accurate and generalizable outcome. We need a complex model of leadership explaining the findings on above items 2 and 3 which will be studied later in this article, section "Complexity theory and model of leadership". But, item one is just recently helped by Neuro-scientific techniques through research on brain keeping always away from outside-in methodology. We will review these literature's to get light on our understanding only, and will avoid "Reductionist Thinking" and evade concentrating on one variable.

In a complex system of emerged variables, the system patterns can be predicted by attractors which

interact non-linearly and sometimes randomly. To draw a model of complex system, it is necessary to extract variables, relationships, attractors and relation of attractors on system patterns and affecting variables. Therefore Considering the fact that the variables and relations are complex and fuzzy and the model represent an emerged complex system, therefore the traditional method of reductionist approach and input-output test is not applicable. To test the applicability / validity / trustworthiness / generalize-ability characteristic of this model, test can be done by 1- finding the attractors of each variable in an emerged leadership system and 2- understanding the effects of attractor in variable and complex system. If we do not find any attractor for any of three variables then the model will not be valid for that case and therefore cannot be generalized.

As for item 18, 19, 20 and 21 of flowchart 1, in framework of complexity theory and proposed model, (midrange theory and model), we tested the model by proposing the attractors for different variables in above five Cases of leaders. Incase our test is successful, then the midrange model in framework of semi-grounded theory developed based on 5 cases as well as model developed in complexity framework are confirmed. These systems are business, political and educational leadership systems and therefore, if the model is valid then the attractors shall exist and should have impact on whole emerged system operation. The result is listed in table 5.

Table 5 : Attractors of Leadership complex model of Cases

Case	Variables	Attractors
Obama	Leader	1. Brain: Empathetic and Genuinely believe of utopian states 2. Objective : "Soft Power" let say "grassroots-empowerment"
	Organization	Imperialistic governance, Capitalist parliaments, Allies as followers
	Environment	1. USA: Ethos of the Bush and credit crunch still obtrusive 2. World : Expect changes, stop the go-it-alone and conflict-is-good-for-business policies
Steve Jobs	Leader	1. Brain: Autocrat, an aesthete and anti-materialist, perfectionism 2. Objective : Easy-to-use technology
	Organization	Charisma institutionalized Apple, world leading technology
	Environment	Gate's shadow, Credit crunch, Apple innovation appreciated
Craig	Leader	1. Brain: Iconoclastic, work alcoholic, No drive for Money 2. Objective : Grassroots democracy
	Organization	Happy devoted employees
	Environment	Crowd sourcing, Website policy appreciated by public
Drucker	Leader	1. Brain: Iconoclastic Knowledge creator, abandon all but tomorrow 2. Objective : Renaissance in management science
	Organization	Books and Lectures (presenting his incredible body of knowledge)
	Environment	Dominant educational leadership by Academia turned its back on him,
Weiss	Leader	1. Brain: Iconoclastic, abandon all but tomorrow 2. Objective : Protect Ameritech from catastrophic situation"
	Organization	Ameritech with breakthrough changing culture
	Environment	Competition, Credit crunch

Referring to figure 6, it will be interesting to find if this model is able to explain how the attractors changed over time and resulted changing the functions which was interpreted as leadership style.

## APPENDIX 2

Complexity Theory (How to use?)

Complexity theory recently is used in Leadership study but differently. Therefore, referring to

pioneers in using complexity theory in leadership and management, Mary Uhl-Bien, Russ Marion, Bill McKelvey (2007) who wrote the *"Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era"*, the difference in perception/methodology of using complexity theory is challenged. This will help to learn and strengthen the theatrical and practical aspects of proposed model.

Table 6 : Challenging common perception of Complexity Theory

	Literature perception	Proposed model perception
1	Complexity science suggests a different paradigm for leadership—one that frames leadership as a complex interactive dynamic from which adaptive outcomes (e.g., learning, innovation, and adaptability) emerge.	Most of nature is made up of what complexity scientists call non-linear, complex adaptive systems - systems created by a number of diverse and independent agents emerged and are constantly changing and interacting with each other. To apply this science to leadership, we shall define leadership boundary and identify variables (agents) emerged. That is not outcomes emerge or dynamic emerge ... We shall leave our "Reductionist thinking" first and see the leadership as a whole and emerged (welded together and represent a unit body) variables which attractors of each variable results change in a whole.
2	In Complexity Leadership Theory (CLT), we recognize three broad types of leadership: (1) .... (i.e., administrative leadership), (2) ... (referring to what we will call, enabling leadership); and (2) .... emergent change activities (what we will call, adaptive leadership)	Types of leadership are response technique of leader to the attractors intrinsic or extrinsically initiated. Types of leadership, therefore are mediator between attracters and actions of leader and can be changed based on action needed or attractors gravitating.
3	Complexity Leadership Theory seeks to foster CAS dynamics while at the same time enabling control structures for coordinating formal organizations and producing outcomes appropriate to the vision and mission of the organization. Complexity Leadership Theory is about setting up organizations to enable adaptive responses to challenges through network-based problem solving. It offers tools for knowledge-producing organizations and subsystems dealing with rapidly changing, complex problems. It also is useful for systems dealing with less complex problems but for whom creativity is desired. In organizational systems, administrators in formal positions of authority likewise influence complex adaptive systems by imposing external coordinating constraints and demands. Such constraints are valuable for (among other things) controlling costs, focusing efforts, allocating resources, and planning. Complexity Leadership Theory (CLT), then, is a framework for studying emergent leadership dynamics in relationship to bureaucratic superstructures. CLT identifies three types of leadership, adaptive, enabling, and administrative, and proposes that they differ according to where they occur in the larger organizational hierarchy.	The theory is not going to seek anything but explain and formulate events and actions. Complex systems are characterized by nonlinear dynamics (small changes can have BIG effects) and emergent properties (system attributes cannot be explained by the mere sum of the parts). These systems are called Complex Adaptive Systems (CASs). Diverse individual agents are massively entangled yet adaptable and resilient. CASs are capable of undergoing spontaneous self-organization and leaps in performance. Examples include stock markets, gardens, human beings, weather systems, and human organizations Systems are complex because cause and effect relationships are obscured. Delays, multiple locations, and sheer number of details or moving parts make purely "rational" decision-making ineffective. In complex systems the causes and effects are causes and effects of themselves. Causality is not linear but circular. Causes and effects are not separable and therefore not manageable in isolation. The obvious interventions, focused on fixing the parts or the structure, can make the problem worse. Meso model of Complexity Leadership Theory also is trying to get into interaction of parts (Reductionist thinking) and loose study of leadership as whole. Interaction of parts are valuable source of understanding when we study how interactions occur by initiation specific attractor.
4	Complexity Leadership Theory, recognizes that leadership is too complex to be described as only the act of an individual or individuals;	The word system originates from the Greek verb sunistanai, meaning to cause to stand together or to combine. Modern definitions include: a group of interacting, interrelated, or

<p>rather, it is a complex interplay of many interacting forces.</p> <p>A complexity leadership approach adds to leadership research a consideration of the mechanisms and contexts by which change occurs and systems elaborate rather than a predominant focus on variables.</p> <p>To understand mechanisms requires methodology that is capable of analyzing the interactions of multiple agents over a period of time (see Hazy, 2007-this issue). Developing an understanding of the mechanisms that underlie Complexity Leadership Theory and the conditions in which such mechanisms will emerge is critical as we move our theorizing forward into embedded context approaches in leadership (Osborn et al., 2002). There can be any number of mechanisms underlying the Complexity Leadership Theory function.</p>	<p>interdependent elements forming a complex whole; and, a functionally related group of elements.</p> <p>When we use "too complex" or "mechanism" it may be taken that we have not differentiated "complicated" with "Complex". Mechanism is for used for explaining interaction of complicated systems through cause and effect, but Complex is a whole and cause and effect are not separable and not manageable in isolation.</p> <p>That is true that, CAS science focuses on the patterns (Attractors) of relationships among parts of the system, rather than the parts by themselves or the structure, but it does not mean to keep reductionist focus on relations.</p> <p>By assuming a system as Complex, we assume it is emerged system of agents and interactions. Individuals have the freedom to act in unpredictable ways and their actions are interconnected in ways that change the context for others. Systems move forward and change by examining, responding to and building on local patterns of interaction.</p>
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We read in "Complex systems, time and graphical analysis of organizational behavior" written by Linda L. Brown, Daniel J. Svyantek 2001 that *"The nonlinear views of systems and the research methods used to describe nonlinear system behavior are commonly known as chaos theory or complexity theory. Nonlinear research methods are non-reductionistic (Gallagher & Appenzeller, 1999): It is held that system behaviors cannot be explained by breaking down the system into its component parts. Explaining the behavior of a complex system requires understanding (a) the variables determining system behavior; (b) the patterns of interconnections among these variables; and (c) the fact that the patterns of interconnections and the weights associated with each interconnection may change across time scales in behaviorally significant ways (Koch & Laurent, 1999)."*

They continue that : *"Complex systems must be studied across time to find patterns of underlying order. A phase space diagram illustrates the way in which systems transform themselves over time (Abraham, Abraham, & Shaw, 1990) The phase space diagram shows whether behavior on this variable varies across time and the amount of variation that occurs. The phase space diagram shows whether behavior on this variable varies across time and the amount of variation that occurs. Phase space diagrams (Svyantek & Brown, 2001; Svyantek & Brown, 2000a, Svyantek & Brown, 2000b; and Svyantek & Snell, 1999) have been used to understand order in complex systems".*





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