

ONE OF THE TOOLS OF LEADERSHIP: STATISTICS

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ABSTRACT

This paper deals with leadership concepts, searches its roots, lead, leader, leadership and discusses leadership as a process, noun and action in the form of individuality, team work and authority involved. In the analysis, the role and importance of statistics in leadership action and decision-making as a base of reality and validity will be focused and documented. It is shown that leadership and science of statistics are inseparable twins of globalized economy of the world.

Keywords: Leadership, Authority, Responsibility, Decision-Making, Statistical Tools and Statistics.

LİDERLİK ARAÇLARINDAN BİRİ: İSTATİSTİK

ÖZET

Bu çalışma liderlik kavramını inceleyerek onun kökeni olan ve kurşun anlamına gelen "lead" ile lider sözcüklerini araştırmış; liderlik sürecini bireysel ve takım çalışması olarak yetki yönünden çözümlenmiştir. Çözümleme sürecinde istatistik, liderlik uygulamasında ve karar vermede, önem ve yerini doğruluk ve sağlıkla kurulmuş uyarlilik tabanlı belge olarak görüntülenmektedir. Liderlik ve istatistik biliminin küresel dünya ekonomisinde ayrılmaz ikiz oldukları gösterilmektedir.

Keywords: Liderlik, Yetkinlik, Yükümlülük, Karar Verme, İstatistik ve İstatistik Araçlar.

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1. INTRODUCTION

Statistics is a science of frame for other disciplines. Because it deals with planning, design, analysis and controlling of knowledge based progress, improvements and innovation for mankind and their environments. While statistics is accumulating knowledge, it also verifies the accuracy of sufficiency for collected data. Statistics is a science of quantitative history. Because of this it is frequently used by leadership as a source of dependent valid information. Statistics is a science of dissemination for information via different channels with the help of network systems. Statistically, leadership's sensitivity analysis for their decisions and actions in an information technology environment consists of the system, data, and applications that must be examined individually and in total. All systems and applications require some level of protection for confidentiality, integrity and availability. This level is determined by leadership as an evaluation of the sensitivity and criticality of the information processed, the relationship of the system to the organization's mission, vision, goals and the economic value of the system components. Hence, statistics and leadership may be seen as inseparable twins of globalization.

2. ANALYSIS OF THE WORD LEADERSHIP

2.1. Lead

The word comes from Middle English as *leden* akin to Old High German *Leiten* as a verb it is started to be used before 12th century.

It is one of the elements, bluish colour, easily tarnished, malleable and ductile, easily fusible, forms alloys with other metals, obtained from mineral galena lead sulphide, its chemical characteristics *11,37 specific gravity, 206,4 atomic weight and its symbol is "pb"*. There are other meanings of lead which are listed:

As a noun: A natural metal used in pipes, cable sheaths, batteries, solder, and radioactivity shields.

Precedence; advance position; also, the measure of precedence; as, the white horse had the lead; a lead of a boat's length, or of half a second.

The act or right of playing first in a game or round; the card suit, or piece, so played; as, your partner has the lead.

A role for a leading man or leading woman; also, one who plays such a role. The playing of a card to start a trick in bridge; "the lead was in the dummy" a position of leadership ; "he takes the lead in any group"; "we were just waiting for someone to take the lead"; "he took the lead at the last turn"; Evidence pointing to a possible solution; "the police are following a promising lead"; "the trail led straight to the perpetrator". The introductory section of a story; "it was an amusing lead-in to a very serious matter". Tend to or result in; "this remark lead to further arguments among the guests". Be ahead of others; be the first.

Stretch out over a distance, space, time, or scope; run or extend between two points or beyond a certain point; "his knowledge doesn't go very far"; "my memory extends back to my fourth year of life"; "the facts extend beyond a consideration of her personal assets".

Be in charge of; "who is heading this project?".

A lead can be anything from an e-mail address for a mailing list to a complete survey that needs to be completely filled out and verified in order to get credit requirements to be considered.

A piece of information of possible use in the search for a prospective client. Payment of a financial obligation earlier than is expected or required.

The act of leading or conducting; guidance; direction; as, to take the lead; to be under the lead of another.

A modification of a logical relationship which allows an acceleration of the successor task for example, in a finish-to-start dependency with a 10-day lead, the successor activity can start 10 days before the predecessor has finished.

The first few lines of an article that introduce the story it tells the reader what happened, and what that means to them. Traditional leads use the 5 ws: who, what, where, when, why.

As a verb: To guide or conduct with the hand, or by means of some physical contact or connection; as, a father leads a child; a jockey leads a horse with a halter; a dog leads a blind man.

To guide or conduct in a certain course, or to a certain place or end, by making the way known; to show the way, esp. by going with or going in advance of.

Figuratively: to direct; to counsel; to instruct; as, to lead a traveler; to lead a pupil.

To conduct or direct with authority; to have direction or charge of; as, to lead an army, an exploring party, or a search; to lead a political party.

To go or to be in advance of; to precede; hence, to be foremost or chief among; as, the big sloop led the fleet of yachts; the guards led the attack;

To draw or direct by influence, whether good or bad; to prevail on; to induce; to entice; to allure; as, to lead one to espouse a righteous cause.

To guide or conduct one's self in, through, or along; hence, to proceed in the way of; to follow the path or course of; to pass; to spend.

To cause to proceed or follow in.

To guide or conduct, as by accompanying, going before, showing, influencing, directing with authority, etc.; to have precedence or preeminence; to be first or chief;

To tend or reach in a certain direction, or to a certain place; as, the path leads to the center of fight.

2.2. Leader

Founded in 14th century.

One who, or that which, leads or conducts; a guide; a conductor.

One who goes first.

One having authority to direct; a chief; a commander.

A performer who leads a band or choir in music; also, in an orchestra, the principal violinist; the one who plays at the head of the first violins.

A block of hard wood pierced with suitable holes for leading ropes in their proper places.

The principal wheel in any kind of machinery.

A horse placed in advance of others; one of the forward pair of horses.

A pipe for conducting rain water from a roof to a cistern or to the ground; a conductor.

A net for leading fish into a pound, weir, etc.; also, a line of gut, to which the snell of a fly hook is attached.

A branch or small vein, not important in itself, but indicating the proximity of a better one.

The first, or the principal, editorial article in a newspaper; a leading or main editorial article.

A type having a dot or short row of dots upon its face, a row of dots, periods, or hyphens, used in tables of contents, etc., to lead the eye across a space to the right word or number; a person who rules or guides or inspires others.

A featured article of merchandise sold at a loss in order to draw customers.

Most often, a piece of monofilament or fluorocarbon, of unequal strength than that of the main line used to insure the ability to catch larger game fish on lighter lines.

In caving, the person directing the activities of a caving party, and with responsibility for the safety of the group.

On a tree trunk, the leader is the primary shoot --and usually the tallest.

Generally, the main shoot at the tip of a branch that extends the branch growth in bonsai, this term usually indicates the uppermost continuation of the trunk.

A terminal leader is the uppermost branch or vertical tip of the tree it eventually becomes the tree stem or trunk

A row of dots, periods or dashes used to lead the eye across the page; the length of tree stem from the top of the tree down to the first set of branches, representing one year of growth and reflecting the tree's vigor and the site's growing potential.

Any film or strip of material used for threading a motion picture machine leader may consist of short lengths of blank film attached to the ends of a print to protect the print from damage during the threading of a projector, or it may be a long length of any kind of film which is used to establish the film path in a processing machine before the use of the machine for processing film.

A stock or group of stocks that is the first to move in a market upsurge or downturn. Sets direction expresses values which support the mission, vision, & goals. The values are expressed in a manner that engages our emotional support values, as decision criteria, must be clear and mutually understood has followers mutual trust. Followers accept the vision as their own leader listens seeks new ideas and approaches that promote or strengthen the mission, vision, or goals has the desire to achieve encourages all to find self-fulfillment in the mission's direction helps remove obstacles for successful achievement of mutual goals plans may, but might not, have a well-defined plan knowledge, belief, and commitment. Leader knows both the theory and facts, believes in the mission and vision, and is committed to achieving the best possible outcome.

A horizontal or vertical cylinder, usually made of metal, which carries water from the gutter to the ground.

An extra amount of film which is at the start and end of the roll to protect the exposed film and to enable it to be laced into the projector.

An individual who is recognized by others as a person they will follow. It refers to the two leading horses in a team of four, or a single horse harnessed in front of one or more horses the "near" leader is the left hand horse and the "off" leader is the right hand horse.

The initial fuse of a shell that transfers fire from the delay fuse to the lifting charge of the shell for small calibre shells.

Returns the hero number of the current leader, guide, conductor, pilot, director, pioneer, shepherd person who influences and guides the direction, actions, opinions and attitudes of people leaders are concerned with doing the right thing. A leader is more concerned with being effective than being constrained by procedures in addition to being good planners and decision makers, leaders are good communicators and satisfy the needs of groups and individuals.

Data elements that primarily provide information for processing a record the data elements contain numbers or coded values and are identified by relative character position.

The central stem or trunk that is longer and more vigorous than the side branches or lateral stems.

Control information at the beginning of a message or block of data in particular, in the Arpanet, the control information on an Arpanet message at the host-imp interface.

2.3. Leadership

First used during 1821.

The office of a leader. The activity of leading; "his leadership inspired the team". The ability to lead; "he believed that leadership can be taught". The body of people who lead a group; "the national leadership adopted his plan". The status of a leader; "they challenged his leadership of the union".

The presiding elected officers of each house: the president of the senate and the speaker of the house they are elected by all the members of each chamber when the body organizes for a legislative session following a general election on occasion; "leadership" also refers to the majority and minority leaders, who are elected by their respective caucuses.

An essential part of a quality improvement effort, organization leaders must establish a vision, communicate that vision to those in the organization and provide the tools and knowledge necessary to accomplish the vision.

The process by which a sales manager attempts to influence the activities of salespeople.

The president, majority leader, and minority leader of the senate, and their assistants, and the speaker, majority leader, minority leader of the house, and their assistants.

The ability to set goals in accordance with god's purpose for the future and to communicate those goals to others in such a way that they voluntarily and harmoniously work together to accomplish those goals for the glory of god acts.

The vision, action, and spirit of the owner and his or her business, communicated to, among others, employees, customers, vendors, and investors.

An organization's senior leaders need to set directions and create a customer orientation, clear and visible values, and high expectations the values, directions, and expectations need to address all stakeholders the leaders need to ensure the creation of strategies, systems, and methods for achieving excellence and building knowledge and capabilities; the ability of a manager to train employees, remove institutional roadblocks that hinder employees' natural tendency.

To produce quality, and empower employees to achieve quality goals 'leadership' implies that the manager has fundamental knowledge about critical processes it is contrasted to 'supervision' under which the manager becomes the employees' primary customer.

The gift of leadership is the special ability given to certain members of the group of people to set goals in accordance with purpose for the future and to communicate these goals to others in such a way that they voluntarily and harmoniously work together to accomplish them.

The skills and abilities to help people do a better job through coaching, facilitating, and by creating environments that support the aim of the organization enabling

executives and senior managers to demonstrate their visible commitment, collectively and as individuals: direction, conduction, guidance.

Leadership is the art of creating an environment and influencing people to willingly follow a chosen direction it requires a clear vision and guides followers along a path that realises the vision leadership directly affects the opinions and attitudes of people, leading to changes in individual's behaviour then group behaviour leadership helps individuals and groups accept uncertainty, because they have confidence that the leader will provide solutions to any problems that may arise.

The function taken on with a particular style by an individual, a sub-group or a group placed in a defined situation, aiming to have a significant influence on or even to transform the behaviour of others in order to progress towards assigned objectives or to implement specified tasks.

Did Gazi Mustafa Kemal have charisma and leadership? The answer could be a superficial, shallow, ignorant, degrading estimate of a great man. Atatürk was a man of immense integrity, his honor was devoted to duty. He possessed experience, knowledge and the other faculties requisite to taking the responsibility and authority of directing affairs when his countrymen had the opportunity of pursuing a great historic project since he possessed the requisite qualities in the highest degree, it became his duty to lead he did his duty and his virtue inspired respect and loyalty in other men of honor, who also possessed that spark of nobility men will have the leaders they deserve these were noble men and they produced, required and achieved a noble leader, whom they well understood and to whom they gave their trust and loyalty. The cheap and cynical attempt to pass this off as charisma and leadership is pathetic, detestable and vicious. Atatürk's quality was not leadership it was honor: the act of motivating or commanding a group or organization; showing the way to a destination by preceding or accompanying them; the process by which certain group members motivate and guide the group.

The process of persuading, inspiring, motivating and influencing others.

The art or process of influencing people so that they will strive willingly and enthusiastically towards the achievement of the group's mission.

Begins with self-leadership of a personal sector group leadership embraces more sectors, the skill or expertise of a group's leaders.

A critical requirement for any quality initiative; the individual or group.

The force within an institution, agency, program, or fund-raising campaign that stimulates others to act or give topic areas: fund-raising and financial sustainability. Programs focused on the development of state-defined leadership competencies – analytical thinker, creative resource, customer focus, effective communicator, integrity role model, results orientation, sound judgment, coach, systems thinker and visionary examples are the leadership development institute, organizational development programs and competency based interviewing.

The process of influencing people while operating to meet organizational requirements and improving the organization through change.

As first defined in 1821 by the Canadian forces: "the art of influencing human behaviour in order to accomplish a task in the manner desired by the leader".

3. STATISTICAL PLANNING

Planning is a process to achieve the future goals in a pre-determined manner. Every leader plans his work and then works on his plans. In order to do the changes in the plans leader should verify the reasons of why? Planning is the major task of any leader in any level for any organizations or firms. Planning is the cornerstone of any management longevity. The following questions are important in the usage of leadership concept:

What kinds of products and or services shall be provided for customers? Leadership in production planning.

What kinds of customers are we preparing ourselves for? Leadership in customer planning.

Which parts shall be produced and what parts are going to be bought? Leadership in make and buy decision planning.

What prices will be charged? Price planning and determination leadership.

What production methods or techniques will be utilized? Production planning and scheduling leadership.

Profit determination, profit sharing and profit maximization questions, dividend distributions policies are asked. Some detailed questions are also asked: amount of stock to be carried, inventory levels to hold, raw materials purchased, order level, order quantity, replacement and replenishment policies, cost of capital, quality improvement tools, productivity and efficiency management, marketing whether new or old, marketing filtration policy and procedures, advertisement planning, import and export evaluation, government stability and tax policies, exchange rates etc. All of these questions need to be answered with plans, programs and procedures. Firms or organizations are not static. They have dynamic nature from the establishment or start and they should obey the rules for dynamic nature of environment, changing economic conditions, keen and harsh competitions. So, effective and collaborative statistical planning shall bring some advantages if they are flexible, motivational, coordinative and controllable. Because planning is sum of all procedures, it is the future of the past for the enterprise. Thus, planning is a projection of the future. Statistics as a quantitative methods and tools finds answers or responses to these plans in the form of descriptive statistics, or methods. Leadership should act and find the timely first response to above questions if the firm's life is important. Otherwise competitors span the market collectively. Forecasting the future actions and behaviour of customers, improve the company's

loyalty. On the other hand estimation, part of inferential statistics and decision making for the level of inventories and others shall minimize capital expenditures effectively. In these issues leadership, may use for the purpose of time: short, medium and long term plans; hierarchically: strategic, tactical or operational plans; for the frequency of usage: single or continuous plans; with respect to specificity: specific or general plans.

Leadership for data organization and statistical planning steps may be shown as follows:

- Learning,
- Creating,
- Researching and finding,
- Storing and using,
- Retrieving and disseminating.

There are four functions of management that must be carried over the organization's effective performance. These are planning, organizing, controlling and actuating. Basically leadership is a sub-function of actuation (decision-making, coordination, leading, directing, staffing as seen in dictionary definition above etc.). Leadership is responsible for the survival of the corporation. Products, firms, organizations are just like human being; they got born, grown up, and die. It is the power and decisions of leaders or executives to prevent this unwanted process. Implemented decisions taken by leadership must be effective, measurable, rational and statistically valid criteria utilized.

There are at least two variables in any decisions and most of the time these variables are known to be stochastic. Thus, leadership might not have certainty of the result for action to be carried. These uncertain situations may be improved with the utilization of statistical analysis and hypothesis testing or factor analysis. Assumed risks shall be minimized with Bayesian statistics and probability applications or Markov chains with the procedural samples taken from the population. Operational risks, created values chain risks, miscalculated risks and financial risks are becoming the base of decisions which are determined via the use of statistical techniques or wavelet functions. There are other strategic risks taken on investment activities, reengineering processes, information technology, innovation and R & D. Decision making is not a problem solving. There are six elements or stages in any decision making process, these are:

- The need of leadership (decision maker),
- Scope or goal of leadership,
- Elements controlled by leadership,
- Elements not controlled by leadership,
- Constraints (Altshuler constraints), use of TRIZ,
- Results, benefits, pros and cons.

These stages are not easily followed by leadership. In a country's economic evaluation leadership (politicians) search for additional information or accumulated

knowledge from other resources beyond their primary facts. Press and public information report almost all the facts about economy of a country. Chamber of commerces and other civic organizations might have more and valid data about the country's economy or economic sectors. These data must be brought to evaluate and upgrade the conditions put on decisions. Without statistical analysis how can leadership reach conclusion about the evaluation of cases. Examples verify that statistics is a basic tool of leadership and without its existence in any case solution, implementation of ill approaches will result ill solution.

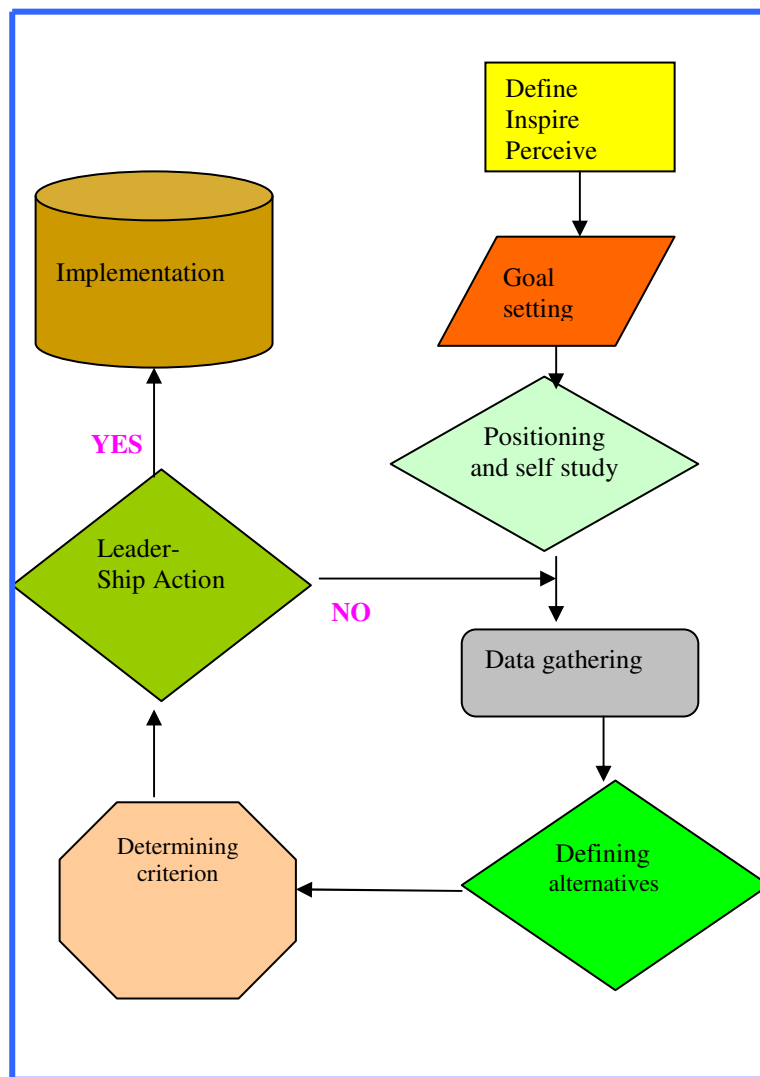


Figure 1. Statistical Decision-Making Procedure

4. CONCLUSION

It is shown that statistics is a science of frame for other disciplines. It deals with planning, design, analysis and controlling of knowledge based progress, improvements and innovation for mankind and their environments. While statistics is accumulating knowledge, it also verifies the accuracy and sufficiency of collected data. Statistics is frequently used by leadership as a source of dependent valid information. It is a science of dissemination for information via different channels with the help of network systems. Statistically, leadership's sensitivity analysis for their decisions and actions in an information technology environment consists of the system, data, and applications that must be examined individually and in total. Systems and applications require some level of protection for confidentiality, integrity and availability. The required level is determined by leadership as an evaluation of the sensitivity and criticality of the information processed, the relationship of the system to the organization's mission, vision, goals and the economic value of the system components. Hence, one sees that statistics and leadership are inseparable twins of globalization.

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