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Management System

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ABSTRACT: A management system is a set of policies, processes and procedures used by an organization to ensure that it can fulfill the tasks required to achieve its objectives.[1] These objectives cover many aspects of the organization's operations (including financial success, safe operation, product quality, client relationships, legislative and regulatory conformance and worker management). For instance, an environmental management system enables organizations to improve their environmental performance, and an occupational safety and health management system enables an organization to control its occupational health and safety risks.

The international standard ISO 9000:2015 (Title: Quality management systems - fundamentals and vocabulary) defines the term in chapter 3.5.3 as a "set of interrelated or interacting elements of an organization to establish policies and objectives, and processes to achieve those objectives".[2]

A simplification of the main aspects of a management system is the 4-element "plan, do, check, act" approach. A complete management system covers every aspect of management and focuses on supporting the performance management to achieve the objectives. The management system should be subject to continuous improvement as the organization learns.

KEYWORDS: management system, organization, occupational safety, policies, objectives, performance

I.INTRODUCTION

Policy is a deliberate system of guidelines to guide decisions and achieve rational outcomes. A policy is a statement of intent and is implemented as a procedure or protocol. Policies are generally adopted by a governance body within an organization. Policies can assist in both subjective and objective decision making. Policies used in subjective decision-making usually assist senior management with decisions that must be based on the relative merits of a number of factors, and as a result, are often hard to test objectively, e.g. work–life balance policy... Moreover, Governments and other institutions have policies in the form of laws, regulations, procedures, administrative actions, incentives and voluntary practices. Frequently, resource allocations mirror policy decisions.[1]

Policy is a blueprint of the organizational activities which are repetitive/routine in nature.[2]

In contrast, policies to assist in objective decision-making are usually operational in nature and can be objectively tested, e.g. password policy.[1]

The term may apply to government, public sector organizations and groups, as well as individuals, Presidential executive orders, corporate privacy policies, and parliamentary rules of order are all examples of policy.[3] Policy differs from rules or law. While the law can compel or prohibit behaviors (e.g. a law requiring the payment of taxes on income), policy merely guides actions toward those that are most likely to achieve the desired outcome.[2]

Policy or policy study may also refer to the process of making important organizational decisions, including the identification of different alternatives such as programs or spending priorities, and choosing among them on the basis of the impact they will have. Policies can be understood as political, managerial, financial, and administrative mechanisms arranged to reach explicit goals. In public corporate finance, a critical accounting policy is a policy for a firm/company or an industry that is considered to have a notably high subjective element, and that has a material impact on the financial statements[4]

The intended effects of a policy vary widely according to the organization and the context in which they are made. Broadly, policies are typically instituted to avoid some negative effect that has been noticed in the organization, or to seek some positive benefit.[5]

A meta-analysis of policy studies concluded that international treaties that aim to foster global cooperation have mostly failed to produce their intended effects in addressing global challenges, and sometimes may have led to unintended

harmful or net negative effects. The study suggests enforcement mechanisms are the "only modifiable treaty design choice" with the potential to improve the effectiveness.[3][4]

Corporate purchasing policies provide an example of how organizations attempt to avoid negative effects. Many large companies have policies that all purchases above a certain value must be performed through a purchasing process. By requiring this standard purchasing process through policy, the organization can limit waste and standardize the way purchasing is done.

The State of California provides an example of benefit-seeking policy. In recent years, the numbers of hybrid cars in California has increased dramatically, in part because of policy changes in Federal law that provided USD $1,500 in tax credits (since phased out) as well as the use of high-occupancy vehicle lanes to hybrid owners (no loew hybrid vehicles). In this case, the organization (state and/or federal government) created an effect (increased ownership and use of hybrid vehicles) through policy (tax breaks, highway lanes).[6]

There are a variety of legal types of organizations, including corporations, governments, non-governmental organizations, political organizations, international organizations, armed forces, charities, not-for-profit corporations, partnerships, cooperatives, and educational institutions, etc.

A hybrid organization is a body that operates in both the public sector and the private sector simultaneously, fulfilling public duties and developing commercial market activities.[7]

A voluntary association is an organization consisting of volunteers. Such organizations may be able to operate without legal formalities, depending on jurisdiction, including informal clubs or coordinating bodies with a goal in mind which they may express in the form of an manifesto, mission statement, or in an informal manner reflected in what they do because remember every action done by an organization both legal and illegal reflects a goal in mind.[1][2]

Organizations may also operate secretly or illegally in the case of secret societies, criminal organizations, and resistance movements. And in some cases may have obstacles from other organizations (ex: MLK's organization).[3]

What makes an organization recognized by the government is either filling out Incorporation (business) or recognition in the form of either societal pressure (ex: Advocacy group), causing concerns (ex: Resistance movement) or being considered the spokesperson of a group of people subject to negotiation (ex: the Polisario Front being recognized as the sole representative of the Sahrawi people and forming a partially recognized state.)[8]

Compare the concept of social groups, which may include non-organizations.[4]

Organizations and institutions can be synonymous, but Jack Knight writes that organizations are a narrow version of institutions or represent a cluster of institutions; the two are distinct in the sense that organizations contain internal institutions (that govern interactions between the members of the organizations).[5]

These consist of a group of peers who decide as a group, perhaps by voting. The difference between a jury and a committee is that the members of the committee are usually assigned to perform or lead further actions after the group comes to a decision, whereas members of a jury come to a decision. In common law countries, legal juries render decisions of guilt, liability, and quantify damages; juries are also used in athletic contests, book awards, and similar activities. Sometimes a selection committee functions like a jury. In the Middle Ages, juries in continental Europe were used to determine the law according to consensus among local notables.[9]

Committees are often the most reliable way to make decisions. Condorcet's jury theorem proved that if the average member votes better than a roll of dice, then adding more members increases the number of majorities that can come to a correct vote (however correctness is defined). The problem is that if the average member is subsequently worse than a roll of dice, the committee's decisions grow worse, not better; therefore, staffing is crucial.[10]

Parliamentary procedure, such as Robert's Rules of Order, helps prevent committees from engaging in lengthy discussions without reaching decisions.

This organizational structure promotes internal competition. Inefficient components of the organization starve, while effective ones get more work. Everybody is paid for what they actually do, and so runs a tiny business that has to show a profit, or they are fired.[11]

Companies that utilize this organization type reflect a rather one-sided view of what goes on in ecology. It is also the case that a natural ecosystem has a natural border – ecoregions do not, in general, compete with one another in any way, but are very autonomous.

The pharmaceutical company GlaxoSmithKline talks about functioning as this type of organization in this external article from The Guardian. By:Bastian Batac De Leon.

This organizational type assigns each worker two bosses in two different hierarchies. One hierarchy is "functional" and assures that each type of expert in the organization is well-trained, and measured by a boss who is a super-expert in the same field. The other direction is "executive" and tries to get projects completed using the experts. Projects might be organized by products, regions, customer types, or some other schemes.[12]

As an example, a company might have an individual with overall responsibility for products X and Y, and another individual with overall responsibility for engineering, quality control, etc. Therefore, subordinates responsible for quality control of project X will have two reporting lines. The United States aerospace industries were the first to officially use this organizational structure after it emerged in the early 1960s.

A hierarchy exemplifies an arrangement with a leader who leads other individual members of the organization. This arrangement is often associated with the basis that there are enough to imagine a real pyramid, if there are not enough stone blocks to hold up the higher ones, gravity would irrevocably bring down the monumental structure. So one can imagine that if the leader does not have the support of his subordinates, the entire structure will collapse. Hierarchies were satirized in The Peter Principle (1969), a book that introduced hierarchiology and the saying that "in a hierarchy, every employee tends to rise to his level of incompetence."[13]

II.DISCUSSION

Quality management ensures that an organization, product or service consistently functions well. It has four main components: quality planning, quality assurance, quality control and quality improvement.[1] Quality management is focused not only on product and service quality, but also on the means to achieve it. Quality management, therefore, uses quality assurance and control of processes as well as products to achieve more consistent quality. Quality control is also part of quality management. What a customer wants and is willing to pay for it, determines quality. It is a written or unwritten commitment to a known or unknown consumer in the market. Quality can be defined as how well the product performs its intended function. Quality management is a recent phenomenon but important for an organization[14]. Civilizations that supported the arts and crafts allowed clients to choose goods meeting higher quality standards than normal goods. In societies where arts and crafts were the responsibility of master craftsmen or artists, these masters would lead studios and train and supervise others. However, the importance of craftsmen diminished as mass production and repetitive work practices were instituted. This approach's aim was to produce large numbers of the same goods[15]. The first proponent in the US for this approach was Eli Whitney, who proposed (interchangeable) parts manufacture for muskets, hence producing the identical components and creating a musket assembly line. The next step forward was promoted by several people including Frederick Winslow Taylor, a mechanical engineer who sought to improve industrial efficiency. He is sometimes called "the father of scientific management." He was one of the intellectual leaders of the Efficiency Movement and part of his approach laid a further foundation for quality management, including aspects like standardization and adopting improved practices. Henry Ford was also important in bringing process and quality management practices into operation in his assembly lines. In Germany, Karl Benz, often called the inventor of the motor car, was pursuing similar assembly and production practices, although real mass production was only properly initiated in Volkswagen after World War II. From this period onwards, North American companies focused predominantly upon production against lower cost with increased efficiency.[16]

Walter A. Shewhart made a major step in the evolution towards quality management by creating a method for quality control for production, using statistical methods, first proposed in 1924. This became the foundation for his ongoing work on statistical quality control. W. Edwards Deming later applied statistical process control methods in the United States during World War II, thereby successfully improving quality in the manufacture of munitions and other strategically important products.

Quality leadership from a national perspective has changed over the past decades. After the second world war, Japan decided to make quality improvement a national imperative as part of rebuilding their economy, and sought the help of Shewhart, Deming and Juran, amongst others. W. Edwards Deming championed Shewhart's ideas in Japan from 1950 onwards. He is probably best known for his management philosophy establishing quality, productivity, and competitive position. He has formulated 14 points of attention for managers, which are a high level abstraction of many of his deep insights. They should be interpreted by learning and understanding the deeper insights. These 14 points include key concepts such as:

- Break down barriers between departments
- Management should learn their responsibilities, and take on leadership

- Supervision should be to help people and machines and gadgets to do a better job
- Improve constantly and forever the system of production and service
- Institute a vigorous program of education and self-improvement
- Drive out fear, so that everyone may work effectively for the company[2]

In the 1950s and 1960s, Japanese goods were synonymous with cheapness and low quality, but over time their quality initiatives began to be successful, with Japan achieving high levels of quality in products from the 1970s onward. For example, Japanese cars regularly top the J.D. Power customer satisfaction ratings. In the 1980s Deming was asked by Ford Motor Company to start a quality initiative after they realized that they were falling behind Japanese manufacturers. A number of highly successful quality initiatives have been invented by the Japanese (see for example on this pages: Genichi Taguchi, QFD, Toyota Production System). Many of the methods not only provide techniques but also have associated quality culture (i.e. people factors). These methods are now adopted by the same western countries that decades earlier derided Japanese methods.[17]

Customers recognize that quality is an important attribute in products and services. Suppliers recognize that quality can be an important differentiator between their own offerings and those of competitors (quality differentiation is also called the quality gap). In the past two decades this quality gap has been greatly reduced between competitive products and services. This is partly due to the contracting (also called outsourcing) of manufacture to countries like China and India, as well internationalization of trade and competition. These countries, among many others, have raised their own standards of quality in order to meet international standards and customer demands.[3][4] The ISO 9000 series of standards are probably the best known International standards for quality management.[18]

Some themes have become more significant including quality culture, the importance of knowledge management, and the role of leadership in promoting and achieving high quality. Disciplines like systems thinking are bringing more holistic approaches to quality so that people, process and products are considered together rather than independent factors in quality management.[19]

Government agencies[5][6] and industrial organizations[7][8] that regulate products have recognized that quality culture may assist companies that produce those products. A survey of more than 60 multinational companies found that those companies whose employees rated as having a low quality culture had increased costs of $67 million/year for every 5000 employees compared to those rated as having a strong quality culture.[9]

The influence of quality thinking has spread to non-traditional applications outside of walls of manufacturing, extending into service sectors and into areas such as sales, marketing and customer service.[10] Statistical evidence collected in the banking sector shows a strong correlation between quality culture and competitive advantage.[11]

Customer satisfaction has been the backbone of quality management and still is important. However, there is an expansion of the research focus from a sole customer focus towards a stakeholder focus.[12] This is following the development of stakeholder theory. A further development of quality management is the exploration of synergies between quality management and sustainable development.[13]

III.RESULTS

Information security management (ISM) defines and manages controls that an organization needs to implement to ensure that it is sensibly protecting the confidentiality, availability, and integrity of assets from threats and vulnerabilities. The core of ISM includes information risk management, a process that involves the assessment of the risks an organization must deal with in the management and protection of assets, as well as the dissemination of the risks to all appropriate stakeholders.[1] This requires proper asset identification and valuation steps, including evaluating the value of confidentiality, integrity, availability, and replacement of assets.[2] As part of information security management, an organization may implement an information security management system and other best practices found in the ISO/IEC 27001, ISO/IEC 27002, and ISO/IEC 27035 standards on information security.[3][4] Managing information security in essence means managing and mitigating the various threats and vulnerabilities to assets, while at the same time balancing the management effort expended on potential threats and vulnerabilities by gauging the probability of them actually occurring.[1][5][6] A meteorite crashing into a server room is certainly a threat, for example, but an information security officer will likely put little effort into preparing for such a threat.[20]

After appropriate asset identification and valuation have occurred,[2] risk management and mitigation of risks to those assets involves the analysis of the following issues:[5][6][7]

- Threats: Unwanted events that could cause the deliberate or accidental loss, damage, or misuse of information assets
- Vulnerabilities: How susceptible information assets and associated controls are to exploitation by one or more threats
- Impact and likelihood: The magnitude of potential damage to information assets from threats and vulnerabilities and how serious of a risk they pose to the assets; cost–benefit analysis may also be part of the impact assessment or separate from it
- Mitigation: The proposed method(s) for minimizing the impact and likelihood of potential threats and vulnerabilities[21]

Once a threat and/or vulnerability has been identified and assessed as having sufficient impact/likelihood on information assets, a mitigation plan can be enacted. The mitigation method is chosen largely depends on which of the seven information technology (IT) domains the threat and/or vulnerability resides in. The threat of user apathy toward security policies (the user domain) will require a much different mitigation plan than the one used to limit the threat of unauthorized probing and scanning of a network (the LAN-to-WAN domain).[7]

An information security management system (ISMS) represents the collation of all the interrelated/interacting information security elements of an organization so as to ensure policies, procedures, and objectives can be created, implemented, communicated, and evaluated to better guarantee the organization's overall information security.[22] This system is typically influenced by an organization's needs, objectives, security requirements, size, and processes.[8] An ISMS includes and lends to risk management and mitigation strategies. Additionally, an organization's adoption of an ISMS indicates that it is systematically identifying, assessing, and managing information security risks and "will be capable of successfully addressing information confidentiality, integrity, and availability requirements."[9] However, the human factors associated with ISMS development, implementation, and practice (the user domain[7]) must also be considered to best ensure the ISMS' ultimate success.[10]

Implementing an effective information security management (including risk management and mitigation) requires a management strategy that takes note of the following:[11]

- Upper-level management must strongly support information security initiatives, allowing information security officers the opportunity "to obtain the resources necessary to have a fully functional and effective education program" and, by extension, information security management system.
- Information security strategy and training must be integrated into and communicated through departmental strategies to ensure all personnel is positively affected by the organization's information security plan.[23]
- A privacy training and awareness "risk assessment" can help an organization identify critical gaps in stakeholder knowledge and attitude towards security.
- Proper evaluation methods for "measuring the overall effectiveness of the training and awareness program" ensure policies, procedures, and training materials remain relevant.
- Policies and procedures that are appropriately developed, implemented, communicated, and enforced "mitigate risk and ensure not only risk reduction, but also ongoing compliance with applicable laws, regulations, standards, and policies."
- Milestones and timelines for all aspects of information security management help ensure future success.[24]

Without sufficient budgetary considerations for all the above—in addition to the money allotted to standard regulatory, IT, privacy, and security issues—an information security management plan/system cannot fully succeed.

IV.CONCLUSIONS

An environmental management system (EMS) is "a system which integrates policy, procedures and processes for training of personnel, monitoring, summarizing, and reporting of specialized environmental performance information to internal and external stakeholders of a firm".[1]

The most widely used standard on which an EMS is based is International Organization for Standardization (ISO) 14001.[2] Alternatives include the EMAS. The goals of EMS are to increase compliance and reduce waste:[3]

- Compliance is the act of reaching and maintaining minimal legal standards. By not being compliant, companies may face fines, government intervention or may not be able to operate.

- Waste reduction goes beyond compliance to reduce environmental impact. The EMS helps to develop, implement, manage, coordinate and monitor environmental policies. Waste reduction begins at the design phase through pollution prevention and waste minimization. At the end of the life cycle, waste is reduced by recycling.[1]
- Reduce resource usage[25]
- Reduce pollution

To meet these goals, the selection of environmental management systems is typically subject to a certain set of criteria: a proven capability to handle high frequency data, high performance indicators, transparent handling and processing of data, powerful calculation engine, customized factor handling, multiple integration capabilities, automation of workflows and QA processes and in-depth, flexible reporting.[4]

An environmental management system (EMS):[2]

- Serves as a tool, or process, to improve environmental performance and information mainly "design, pollution control and waste minimization, training, reporting to top management, and the setting of goals"
- Provides a systematic way of managing an organization's environmental affairs
- Is the aspect of the organization's overall management structure that addresses immediate and long-term impacts of its products, services and processes on the environment. EMS assists with planning, controlling and monitoring policies in an organization.[5]
- Gives order and consistency for organizations to address environmental concerns through the allocation of resources, assignment of responsibility and ongoing evaluation of practices, procedures and processes[26]
- Creates environmental buy-in from management and employees and assigns accountability and responsibility.
- Sets framework for training to achieve objectives and desired performance.
- Helps understand legislative requirements to better determine a product or service's impact, significance, priorities and objectives.
- Focuses on continual improvement of the system and a way to implement policies and objectives to meet a desired result. This also helps with reviewing and auditing the EMS to find future opportunities.[27]
- Encourages contractors and suppliers to establish their own EMS.
- Facilitates e-reporting to federal, state and provincial government environmental agencies through direct upload.[6]

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