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Decision making, some individual decision-making styles and software for decision making and strategic planning

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Abstract

Objectives: This article presents the eternal relevance of the decision-making process and its inseparable connection with the personality of the decision-maker. Broadly speaking, the subject of consideration is the decision-making process. The main goal of the authors is to review the decision-making process, some styles of decision making and offer information about some types of software for decision making and strategic planning.

Methods: The scientific methodology used is a combination of a theoretical review of the issue, a critical scientific review and the presentation of new scientific advances in the world of practice in terms of decision-making through technical means and methods.

Results: The conditions that the decisions must meet in order to be useful and accepted, some styles of decision-making processes and also the use of decision-making software are analysed in the article.

Conclusions: The authors are aware that this is a repeatedly researched topic and it is in the last part that a novelty of an applied-practical nature is definitely found. Several software for decision making and strategic planning software, which is a category of software critical for organizational leaders who want to ensure more strategic decision-making and implement simpler and more effective reporting are presented in the last part of the article. This software provides a place to manage all strategic elements, in order to achieve high-level organizational structure and long-term goals.

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Introduction

The concept of decision making is too broad and in its most general form it is a choice between alternatives. The managerial decision is a form of influence of the subject of management on the object of management to achieve certain goals, or the choice of one or more alternatives.

The decision making represents a process or a sequence of activities carried out individually or in groups meant to establish or implement a solution for a defined (described) or formalized problem. It can be assessed based on the relationship between the cause that generated the decision and the effect of the action, directly influenced by knowledge of the issue, available resources, volume and quality of information, decision making organization, as well as the training and attitude of decision-makers.

This article makes an attempt to present the eternal relevance of the decision-making process and its inseparable connection with the personality of the decision-maker. Broadly speaking, the subject of consideration is the decision-making process. The main goal of the authors is to review the decision-making process, some styles of decision making and offer information about some types of software for decision making and strategic planning. The scientific methodology used is a combination of a theoretical review of the issue, a critical scientific review and the presentation of new scientific advances in the world of practice in terms of decision-making through technical means and methods. Several software for decision making, which is a category of software critical for organizational leaders who want to ensure more strategic decision-making and implement simpler and more effective reporting are presented in the last part of the article.

The relationship between the cause that generated the decision (the issue that needs to be solved) and the effect (the outcome) of the action that implements the decision must be analysed in assessing a decision. The efficiency of the decision-making process is directly influenced by the knowledge of the problem, its evolution, the necessary resources, as well as the real (not only perceived) results of the action. The volume and quality of information influence the decision for better or worse, but these do not fully decide on its efficiency or implementation possibilities.

Modelling the general structure of a decision-making process leads to mentioning the following elements:

- the decision-maker
- the objectives proposed
- the problem
- the multitude of possible variants/alternatives
- the multitude of decision criteria
- the multitude of anticipated consequences for each variant
- analysing the alternatives and make a list of the advantages and disadvantages of each alternative
- choosing the best alternative
- implementing the decision
- evaluating the effect of the decision, which allows to identify the mistakes from the implementation of the respective decision
- natural states, independent factors.

1. Decision-making process and relationship between the personal characteristics of the decision maker and the information assurance

As a result of the need to compare different decisional variants characterized by several consequences, the concept of utility is used, which is the common unit of measurement of the consequences of the various decisional variants.

Decision-making problems are usually based on multi-criteria cases and solving them through the prism of a single decision-making criterion involves simplifying events, which can sometimes lead to reality distortions. The multicriteria aspect of the problems to be solved requires the existence of a unit of measurement of the consequences of the decisions, which is called utility. In carrying out complex economic actions, which are successions of decision-making and non-decision-making economic processes, it is often necessary to decide not only on the immediate consequences of the variants, but also on the more distant consequences of a series of future decision-making processes.

The assessment and, even more so, the evaluation of the decision-makers' involvement represents a complex process determined by:

- the study of the decision-makers' behaviour, which is aimed not only at observations, but also at the ways of employment, the value of results, the attitude on the whole decision implementation cycle, the discernment and professionalism of the analysis, the opportunity of corrective measures; framing decision-makers in static types of behaviour facilitates; the assessment of the predictive capacity of decision-makers;

- analysis of the psychology of decision-makers, which aims to determine them in relation to the decision process;
- the evolution of the decision-making process and the current status of the decision-maker in the organizations;
- the quality and evolution of the environment in which the action resulting from the decision.

The variability of the information belonging to the process is determined both by the internal requirements of the process (representations, flows, content, static characteristics, contexts) and by the links with the environment (disturbances, aggregations, influences, transmission rules). The influence of the perceptual, understanding and evaluative characteristics of the decision-maker is added to these factors of variability in a natural manner.

The making of a decision is influenced by several factors, but the relationship between the personal characteristics of the decision maker and the information assurance is particularly important and can have two extreme aspects. The first extreme aspect is the decision of the decision maker to choose a solution based on his or her attitude towards the analysed problem, being sure of success, using a minimum volume of information and a short decision time. In this case, the expertise and behaviour of the decision-maker prevails. The second extreme aspect is represented by the substantiation of the choice based on information, so-called complete, which implies a certain result. In this case, the volume and the way of processing the information, the formalization of the variant, and the belief that it is definitely the winner prevail.

Between the two extremes, any manifestation of the decision-maker is considered flexible, because, depending on the situation, either the attitude of the decision-maker or the substantiation of the chosen decision may be a priority. Regardless of the level of priority, the second factor plays at least an advisory role, being considered as a support for the decision-making, complementing, to a large extent, the decisive factor. The analysis of the correlation between the two factors also highlights the hierarchical or complex aspect, according to which the two factors are evaluated, their quantitative or qualitative contribution to the decision is determined, the hierarchy of the two is established and the decision is chosen according to the relevance of the factor that is at the top of the hierarchy.

Making a decision is influenced by personal characteristics of the decision maker and the volume and relevance of the information involved in substantiating the decisions is particularly important. The personality of the decision maker is essential in determining the quality of the

decision, which is also dependent on the quality of the decision processing and on the relevance of the information that is available and that is being processed.

Decision-making policy can be considered a consensual opinion of the group of experts who substantiate the decision and of those who adopt it (by choice), motivated, as a rule, more by pragmatic objectives, than by perception and manifestation of power. In other words, decision-making policy is a symbiosis between the values of the cultural field and the expression of interests in achieving the objectives, with certain resources planned and within a certain amount of time.

Although decision-making policy is a direct expression of power, in order not to become discretionary or strictly personal (based on the dictatorship of goodwill), cultural preparation and a motivation of the decision based on expertise, risk analysis (chance or danger), as well as the advantages or disadvantages of government through decisions are necessary.

In this context, acceptance of the decision and adherence to its implementation must be ensured by good communication, expertise, defined interests, objectives and actions, responsibilities and satisfactions. The reasonableness of the decision is one of the active factors of its acceptance and depends on the relevant factors of the cultural field to which it belongs, its representativeness in the game of power, the veracity of the rationale and the efficiency of communication, the objectives set, resources employed and timeframes adopted.

2. Some decision-making styles

Much of the decision-making involves an analysis of a finite number of alternatives described in relation to certain evaluation criteria. When someone makes a decision, it would be good to have all the necessary information. However, this is an idealistic approach that does not correspond to reality. Because most decision-makers have to work with incomplete or uncertain information, and because there is an element of risk in making any decision, most of them work in an environment of limited rationality, i.e. make decisions recognizing the constraints imposed by those around them that they consider "good enough" or "satisfactory." In addition, the decision-makers tend to focus on alternatives that are more visible, considering and comparing uncertainty, risk-taking, satisfaction with a possible solution, and assessing the likelihood of an event happening.

According to the above-mentioned personality of the decision-maker, which is extremely important, various styles can be distinguished when making decisions.

Maximizers versus satisfiers. Herbert Simon created so-called "limited rationality" to express the idea that human decision-making is limited by the information available, the time

available, and the ability of the mind to process information and suggested two individual cognitive styles: "maximizers" who try to make an optimal decision and "satisfiers" who try to find a solution that is good enough. (Sparks, Erin, 2007).

Intuitive versus rational. Daniel Kahneman theorized that human decision-making is the result of the interaction between two types of cognitive processes: an automatic intuitive system and an enhanced rational system. In the first case, the decision-making is a bottom-up made, fast and implicit, while in the second case the decision-making is top-down, slow, and explicit. (Kahneman, D., 2011)

Combinatorial versus positional. In his analysis of styles and methods, Aron Katsenelinboigen referred to the game of chess, saying that chess reveals different methods of work, in particular the creation of predisposing methods that can be applied to other, more complex systems. He stated that in addition to methods (reactive and selective) and sub-methods (randomization, predisposition, programming), there are two decision-making styles: positional and combinational. The combination style is characterized by a very narrow, clearly defined, above all material purpose and a program that links the initial position to the result. It is characterized by a clearly defined limited goal, which is realized through a well-defined and in some cases unique sequence of moves aimed at achieving the set goal. The positional style is distinguished by positional purpose and forming semi-complete relationships between the initial step and the result. Unlike the combination player, the positional player is busy, above all, developing a position that will allow him to develop in the unknown future. The combination is not the goal of the positional player, it just helps him achieve what he wants, given the predisposition to future development. (Katsenelinboigen, Aron, 1997).

In the General Decision-Making Style Test, developed by Susanne Scott and Reginald Bruce, there are five decision styles: rational, intuitive, dependent, avoidant and spontaneous. These five different decision-making styles vary depending on the context and situation, and one style is not necessarily better than any other. (Scott, Susanne, Bruce, Reginald, 1995)

- The rational style is a more in-depth search and strong attention to other possibilities and / or information before making a decision.
- The intuitive style is confidence in individuals' initial feelings and intestinal reactions.
- The addictive style requires an introduction and instructions on what to do to other people's decisions. In this style, the individual may ask friends, family, colleagues, etc.
- In avoidant style is to avoid the responsibility of deciding. In this style, the individual would not decide and is stucked to his current situation.

- The spontaneous style needs to be decided as soon as possible, not waiting to make a decision.

3. Decision-making software in the decision-making process

Decision-making software is a computer application that helps people and organizations make choices and decisions, usually by ranking, prioritizing, or choosing from several options. Decision-making software can assist decision-makers at various stages of the decision-making process, including exploring and formulating problems, identifying alternatives to decisions and limitations of decisions, structuring preferences, and making adequate judgments.

An early example of decision software was described in 1973. but now many software products are available. Most decision-making software focuses on ranking, prioritizing, or choosing from alternatives characterized by multiple criteria or attributes. (Dyer, J., 1973)

Decision-making software products often include a variety of functions and tools, such as comparison, analysis, group assessment, and teamwork. Although many types of software offerings can guide decision-maker in making important decisions, decision-making tools are specialized products that provide many opportunities to assist in the decision-making process. Typical features of decision-making software include scenario analysis, cost-benefit analysis, consensus tracking, and tracking of previous decisions.

The software products for decision making are presented:

- AHP Software is the affordable way to enable collaborative decision-making. AHP structures decisions, enables collaboration and can be used to make various decisions. AHP allows to structure decision into a step-by-step process. AHP lets decision-makers to collaborate with geographically dispersed colleagues and assign tasks to people with specific expertise and helps leaders make better decisions by quickly and effectively engaging the collective wisdom of stakeholders. It is cloud technology and combines 50 years of cognitive, behavioral, and decision-making science to focus stakeholders and minimize the biases, barriers, and dysfunctions typical of most organizations that hinder quality decision-making.
- Airfocus provides an easy-to-use software solution for prioritization and roadmaps that helps teams collaborate on strategies, make informed decisions, and build exceptional products. The solution allows teams to track and evaluate the progress of a platform. (Airfocus, 2012).
- Cloverpop is the go-to enterprise system of record for business decision-making. Cloverpop's robust Decision Analytics provide breakthrough visibility into your organization's pace of innovation and decision effectiveness over time. For the first time,

track key decision metrics and alignment with organizational goals. Optimize the decision process and improve future decision-making based on past results. Cloverpop is proven to speed up team decision-making and drive better results. Interactive Decision Summaries give full context so teams can execute quickly and confidently. (Cloverpop, 2021)

- FlowForma is revolutionizing the traditional business process management with an innovative approach to developing award-winning process and workflow automation products. (FlowForma, 2012).
- Loomio offers a workspace for discussion and decision making, bringing together conversations, information, opinions, proposals and outcomes in one place. Loomio is the heartbeat and living record of your organization. (Loomio Cooperative Limited, 2021)
- Prenario helps teams tackle complex risky decisions using intuitive visual planning and data insight tools. Decision making teams can easily identify insights and uncover scientifically smart decisions in all sorts of complex risky situations with Prenario. (Prenario, 2021)
- The 1000Minds decision-making software helps to rank or choose alternatives according to multiple criteria or objectives and, depending on your application, to perform prioritization – prioritize alternatives and people in a consistent way that’s easily communicated; value for money – compare alternatives’ value for money (e.g. projects, investments) and allocate resources and group decision-making – include as many participants as you like, potentially 1000s. (The 1000Minds, 2021).
- ThinkTank is a cloud-based, intelligent stakeholder engagement platform used to guide teams through structured execution, with improved alignment, decision-making, and higher quality outcomes. (Accenture, 2021).
- UpTrader is the best Forex CRM, cryptocurrency and Forex solutions. UpTrader is a trusted Forex CRM provider with over 10 years of experience in a forex solution development. Over 30 products and cloud solutions by UpTrader can meet all demands of a Forex company: from starting a forex brokerage firm from scratch to getting more clients and optimizing the business processes in your company. UpTrader offers comprehensive solutions: Forex liquidity, white label social/copy trading platform, crypto liquidity, FX back office, forex trader's room and etc. for conquering the financial markets. (UpTrader LLP, 2021).
- Valid Eval is an online evaluation system for organizations that make and defend tough decisions. It's a secure SaaS platform that works efficiently at virtually any scale so you can involve as many applicants, subjects, domain experts, and judges as it takes to do the job right. Combining best practices from the learning sciences and systems engineering, Valid

Eval delivers defensible, data driven results and provides robust reporting tools that help measuring and monitoring performance. (Valid Eval Inc., 2020)

- Visyond get insights with interactive dashboards and save time on forecasting, budgeting and planning. It compares scenarios, create forecasts and update budget vs actual in real time during meetings or presentations, turning it into a truly collaborative experience and analyses important decision metrics, and empower teams to self-serve and collaborate on analyses. It makes collaboration easier and safer by protecting spreadsheets and dashboards from unwanted changes and unauthorized access by assigning roles to collaborators and sharing only specific worksheets and dashboards with them. Visyond reduces the risk of errors and generates always up-to-date, forward-looking financial statements from your spreadsheet. (Visyond, 2011 - 2021)

Good strategy management software is critical for organizational leaders who want to ensure more strategic decision-making and implement simpler, more effective reporting. Strategic planning software combines historical business performance data and helps create predictive models for future results based on specific business goals and resource allocation. In the approach behind strategic planning software, the vision was to create a computer application to support the strategic planning process.

- AgileCraft is strategy management and strategic prioritization software that structures, calculates, and simplifies executive and business decisions. It delivers the most comprehensive software solution available for scaling agile to the enterprise. AgileCraft transforms the way organizations enable and manage agile productivity across their enterprise, portfolios, programs, and teams by aligning business strategy with technical execution. (Atlassian, 2021).
- Align frees executives to focus on growth, strategy and leadership. Spend less time chasing updates and more time identifying opportunities and roadblocks to success; boosts employee autonomy with regular dialogue on goal performance between managers and reports. People are connected to the bigger picture are more engaged with their work. It measures employee satisfaction and collect feedback to improve company performance. (Align, 2019–2020)
- ClearPoint is strategy management software that tracks both projects and subprojects, makes easy to create strategic maps in any visual format you choose, easily collects data from a variety of sources (including Excel, CSV, and SQL databases) and automatically uploads it to ClearPoint. You can use the ClearPoint. It allows linking projects to the rest

of company strategy (such as goals and measures), shows the status and timeline of projects in a Gantt chart, and track and evaluate your projects based on cost, completion rate. It is possible to build scorecards and dashboards that update themselves with ClearPoint. ClearPoint's performance management software integrates data from multiple sources to manage objectives, measures, initiatives, and action items in one place. (Ascendant Strategy Management Group LLC, 2021).

- KPI Fire is cloud-based enterprise software for managing the 3 key elements of Strategy Execution - strategy, execution and people. KPI Fire displays strategic plans clearly with visuals that are easy for everyone to understand. Because each company's strategy is unique, KPI Fire provides a customizable platform for communicating these 3 elements of strategy deployment. (KPI Fire, 2020)
- Perdoo is the OKR platform, which is very often used by market leaders to turn strategy into results. It's free and aligns the efforts as you scale, takes strategy as the starting point. It is visually connected with the goals that'll realize and helps everyone see their contributions to the big picture. (Perdoo, 2021)
- Scientrix offers an innovative approach and digital platform that enables leaders to manage strategy and execution in a volatile, complex, and fast-paced world. Medium to large enterprises have trusted Scientrix to bring clarity to their worlds and to get things done more effectively and efficiently. Scientrix offers a bird's eye view of the strategic landscape, draws insights from trends and patterns, makes choices on where to play and how to win, engages and focuses teams on objectives and key results, connects agile teams to strategy and outcomes, establishes flows with Kanban boards, determines priority through business relevance, manage portfolio health effectively, etc. (Scientrix, 2021)

Conclusion

The decision-making process is a complex process in which setting the objectives to be achieved through the decision, the risk taken and the attitude towards it, the evaluation of the results and the resources are essential conditions that must be taken into account. Quality decision-making is critical when it comes to strategic planning, as it affects the organization as a whole and targets distant time horizons. The formalization of the issue for the decision remains decisive, because the first condition in the success of the decision is to be very well aware of the situation in which it is decided.

Strategic planning software solutions give users tools to create and share company values and goals, as well as track performance indicators necessary to accomplish those goals. These

tools are useful for the company management for shaping the overall strategy as well as to help company to achieve its fundamental goals.

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