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# Exploring the History of Decision-Making

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## Abstract

In the contemporary consumer-oriented world, where desire often outweighs rationality, there is a growing significance attributed to specific-historical decision-making models, among which the Dutch navigational model stands out.

The article explores the primary dimensions of importance and universality inherent in decision-making mechanisms within human life. Specifically, it examines the case of the historical-cultural, semantic, and environmental legacy of the East and West India Company in Amsterdam through the application of visual sociology techniques related to the environment and decision-making culture in the field stage.

The examination of culture and the decision-making process, particularly within historical expansion processes as a scaling of outcomes, is intertwined with crucial dimensions of decision-making. These include aspects related to activity, volition, personal-status (social-power) attributions, and the consequential significance of decisions as agents shaping fate in history.

Political-strategic decisions made collectively at the highest echelons were harmonized through a unified command structure with hierarchical elements, adherence to the ship's charter, the rationality inherent in navigational logic, and a system celebrating the success of the ship's crew upon the venture's completion. The core of the navigational decision system revolved around key inquiries that mirrored crucial stages of decision-making: Where am I (reconnaissance)? Where do I want to go (goal setting)? Which direction to go (orienteering)? How do I get there (tactics and ship navigation)?

Multimedia thinking, characterized by visual clarity and the openness associated with terrestrial geography, necessitated the integration of virtual marine geography. This marine geography not only reflected concealed but quantifiable underwater factors but also aligned with the invisible environment, reconstructed on maps. Additionally, it harmonized with subjective-architectural construction cartography, collectively fostering flexibility in decision-making.

## Keywords

decision-making, Netherlands, heuristic techniques, East India and West India Companies

## Introduction

The majority of an individual's time is often allocated to tending to desires, incorrectly assuming that desires dictate future decisions. In reality, desires frequently serve as the catalyst for external influences on decisions or even individual behavior. In contemporary society, the manipulation and impact of desires are intrinsic to the consumerist culture, functioning as tools of marketing, advertising, psychology, blogging, and other forms of mass behavior management. It is crucial to recognize that desires and decisions are not synonymous. Within today's cultural context, decision-making is imbued with characteristics akin to the «magic of superhuman» or the icons of mass culture.

Hence, it becomes imperative to shift the focus from analyzing the process of decision-making solely through the lens of mass culture to delving into concrete historical models that have demonstrably proven their effectiveness. Desire, as a substitute for decision, translates into mere «I want,» while true decision-making entails a confluence of «I know,» «I have the skill ,» and «I will implement.» In the earliest iterations of worldviews, this contrast is explained to children through fairy tales, myths, and legends, which illustrate the distinction between a foolish king or capricious princess who merely «wants,» and a hero who exercises responsible «has a skill,» «gets to know,» and «will implement.» Decision-making necessitates the evaluative-volitional act of selecting an alternative within the framework of goal-setting, accompanied by resolute efforts to attain the desired objective through purposeful activity. Successfully reaching a goal in an activity may seem magical and miraculous to those who merely «want» to accomplish it, as they often disregard the required effort, willpower, and concentration. However, effective activity mandates not only setting a goal, particularly a long-term one, but also maintaining consistency in enhancing knowledge, honing skills, and cultivating capabilities. A subject of personal interest for me since 1998 has been the undergraduate course in Decision Theory, which boasts a toolkit of approaches, methods, and practices. Thus, it is pertinent to outline the contemporary landscape of decision theory.

## Methodology

As we navigate an increasingly complex world, the relevance of decision-making research becomes ever more pronounced, offering a compass to navigate the intricate terrain of choice. It unravels the intricacies of human choices, influencing public policy, health outcomes, business strategies, and ethical discourse (Boffelli et al., 2020; Killen et al., 2020; Stanton & Roelich, 2021; Turner, 2020; Vergerio et al., 2018). Its relevance in contemporary research and society at large is profound, as it unravels the intricacies of choices that shape our lives.

In modern decision theory, the prevailing paradigms encompass various approaches to decision-making, including the «rational decision-making» approach supported by mathematical frameworks, as well as the «intuitive decision» approach which relies on non-mathematical or heuristic techniques. Additionally, the psychological theory of decision-making, along with methods like expert and collective decision-making, holds significant importance.

Recent scholarly attention has been directed towards pivotal works such as Herbert Simon's exploration of artificial intelligence and decision-making, Daniel Kahneman's investigation into the dynamics of rational and intuitive decision-making, Gerd Gigerenzer's theory on intuitive and heuristic processes in decision-making, and Dan Ariely's examination of decision-making within behavioral economics (Simon, 1959;Kahneman et al., 1982, 2011; Gigerenzer, 2014; Ariely, 2008). As has been the case historically, decision-making often revolves around heuristic methods, which gained prominence in the 1970s. A well-structured theory in this realm is G. Altshuller's Theory of Inventive Problem Solving (TRIZ), which boasts its own community of scholars and devoted followers who firmly believe in its efficacy (Altshuller, 1984/1996).

Artificial intelligence has ushered in a new era of research into the decision-making process, encompassing the gathering, curation, and analysis of information, alternative selection, and the formulation of algorithms for computer programs (Cao et al., 2021; Ding et al., 2020; Krupiy, 2020; Vincent, 2021; Wang, 2021). Especially when dealing with large amounts of data, its advantages are obvious (Allam & Dhunny, 2019; Awan et al., 2021; Chang, 2016; Duan et al., 2019; Foresti et al., 2020).While artificial intelligence significantly outpaces human capabilities in information processing speed, the act of decision-making, especially in terms of creative solutions, remains a realm where human cognition holds the upper hand over artificial intelligence. However, it is important to note that this advantage lies in those humans who are trained and adept at making informed decisions. Experts from various fields conduct interdisciplinary research on this topic (Kittel et al., 2021; Murray et al., 2018; Reynaldo et al., 2021; Webb et al., 2020; Yoon et al., 2021).

The field of decision theory in business literature can be divided into two primary approaches for studying this subject: prescriptive, which provides normative guidelines, and descriptive, which offers real-world portrayals of situations and decisions through illustrative examples (Bagozzi et al., 2018; Balbontin & Hensher, 2021; Couck et al., 2019; Yang & Gabrielsson, 2017; Wieder & Ossimitz, 2015).

Modern decision-making processes require a significant amount of time to fully grasp. The field's challenges include underdeveloped systems for integrating various decision-making methods, a lack of clear and logical frameworks for effective training that fosters the skill of making unbiased decisions. Consequently, delving into the intricacies of complexifying decision-making—combining and creating comprehensive approaches—through the lens of historical actors who have demonstrated effectiveness over extended periods of time is particularly intriguing. Among these notable historical entities is the Dutch East India Company, founded in 1602, along with its subsidiary, the West India Company.

The research methodology employed in our paper involves several stages of analysis:

1. Identification of the primary axes of significance and universality of decision-making mechanisms in human life.
2. The field stage of the research involves employing methods from visual sociology of the environment and culture of decision-making, which consciously or unconsciously portray this process. The focus of our study is the historical-cultural, semantic, and environmental legacy of the East and West India Company in the city of Amsterdam.
3. Analyzing the primary expressions of the decision-making model and culture derived from the field phase of the study, with a focus on expansion as scaling decision-making in the case study. Key methods include desk research to understand the meaning and outcomes associated with the East and West India Company within Amsterdam's social context, and the utilization of visual sociology to capture and analyze historical and social elements that reveal the decision-making process, and to preserve meaningful aspects for practices.

The goal of this article is to explore the central manifestations of the model, mechanisms, and culture of decision-making during the expansion of the Dutch East and West India Company, utilizing the urban sociology and visual sociology of Amsterdam's environment.

## Results

The sociocultural significance of decision-making unfolds within the tradition and inheritance of organizational processes, adapting to changes and innovations shaped by evolving concrete-historical conditions. Cultural heritage, representing the past in the present, and social innovations, embodying the modern in the future, constitute integral components of sociocultural significance in both the outcomes and ongoing processes of societal life ac-

tivity. The universality inherent in decision-making allows us to explore both the national organizational ethos and what a nation preserves as timeless elements in its life activities. Decision-making, as a fundamental organizational process of management, holds paramount importance in researching the national specificity of performance in global history.

The quest for universality, as timeless in the history of the Netherlands, is manifested in expeditionary activity that incorporates observations of historical and cultural significance, concurrently holding value for contemporary Dutch society. The involved observations yielded characteristics and meanings unique to Dutch decision-making, recurrent in cultural heritage. These manifestations are evident in the portrayal of Dutch navigational culture in architecture, historical sources, museology, and the thematic popularity of maritime decision-making models in shipbuilding museums, including the historical state museum Rijksmuseum and science museums.

Crucial institutions embodying the Dutch decision-making model were the Admiralty and the East and West Indies Companies, acting as multipliers and the fractal body for replicating the model in society. The management and calculation of uncertainty and risk, coupled with the organization of reserves, created a balance and a resource field within the shareholder character of the East and West India Company. While acknowledging the positive nature of the Dutch navigational system of decision-making, it is essential to note its involvement in piracy, warfare, and the slave trade as a «capitalist predator of expansion.» Simultaneously, an effective system and culture of decision-making stood out as one of the most crucial mechanisms that propelled the Netherlands to become a prototype of future nation-states, often federated or united during the stage of the United Provinces. This development involved the creation of mechanisms for balancing democratic and organizational-hierarchical models, blending collective intelligence with personal responsibility for decisions. However, these aspects will be subjects for subsequent scientific research.

## Discussion

### *1. Significance of the decision and its subject matter*

To delve into the historical case study, let us first consider the timeless and «eternal significance» of decision-making for individuals. Firstly, decision-making stands as a paramount process within human activity, encompassing key attributes such as goal-setting, creativity, and efficiency. Activity, in this context, serves as a profound reflection of a person's essential forces, representing the manifestation of their free will, in contrast to mere labor that could be akin to slave labor. This notion was underscored by psychologist S. Rubinstein, who substantiated the theory of activity (Rubinstein, 1940/2000, 2002). Within this framework, activity gains significance through its core element of goal-setting, involving independent and reasoned goal selection, the alignment of efforts, the concentration of actions toward results, and the cultivation of novel creativity. Goal-setting, in essence, acts as a metric that defines individual subjectivity. The subject here pertains to the one who comprehends and engages in practical, transformative activity. Notably, the attributes characterizing the subject include decision-making, rationality, consciousness, a volitional foundation, and capability.

Secondly, decision-making, coupled with productive activity, serves as a direct testament to human free will. For many, including those who might be deemed incapable, decision-making represents a manifestation of divine or sacral essence, with figures and heroes embodying the concept of «divine providence» in human activity. Scientifically, productive activity still necessitates technological preparation. The participants must possess skills, a high level of training, a cultivated intuition often referred to as a «God's spark,» and intellectual acumen for the purpose of modeling and articulating outcomes. Concurrently, willpower functions as a potent attribute of activity.

In his final lecture, as conveyed by his grandson Dmitry Leontiev, Alexei Leontiev provided a comprehensive definition of will: «Volitional action is an action carried out by choice. Choice is a hallmark of volitional action. Where choice is absent, volitional action is also absent. When we discuss choice, it is natural to introduce another concept - decision-making. A volitional act takes place within the realm of choice and is grounded in making a decision.» This description delves into the nuanced nature of volitional action: conscious choice doesn't necessarily equate to the actualization of a decision, as it demands the essence of volitional action – the capacity to overcome difficulties, underscoring the intricate facets of willpower. In such instances, volitional action inherently embodies two opposing motives (e.g., «to act» and «not to act») in dialectical opposition (Leontiev, 1999).

Thirdly, the socio-role foundation of decision-making plays a pivotal role in bestowing a «sacral halo,» a magnetic allure, upon capable individuals – particularly among the younger generation aspiring for accomplishments and achievements. This sacral halo forms around capable individuals, those adept at making decisions, carrying out significant undertakings, and ultimately, achieving noteworthy feats. A person, imbued with the esteemed capacity for deeds, holds a much higher status than those who lack such volitional prowess. The capable, resolute, and effective individuals are often regarded as strong and spirited, while those who lack the same volitional fortitude are deemed weak. This characterization extends to larger entities as well, including groups, organizations, states, and international alliances.

Fourthly, the term «decision» carries profound implications, as evident in expressions like «irreversible decision,» «erroneous decision,» «fatal decision,» «turning decision,» and «brilliant decision.» The intrinsic link between decisions and destiny, progress, and characterization of individuals, groups, and societies underscores their pivotal role in history and their continued significance in the future. This underscores the fateful nature of decisions, marking pivotal shifts, qualitative changes in situations, and events that alter social dynamics and human existence as a whole.

***2. Investigation into the Dutch Navigational Decision-Making Framework***

Let us emphasize the active, volitional, personal, and social status (social power) character, as well as the consequential weight (decision as a carrier vehicle of fate) of decision-making. To illustrate, we will turn our attention to the Amsterdam Raid (06.08.21 - 13.08.21) conducted by Professor Maxim Lepskiy and Dr. Nataliia Lepska in their research. One key focus of the raid was the exploration of the expansionist mechanisms employed by the Dutch East India Company, established in 1602, along with its subsidiary, the West India Company. For the scope of this article, we will concentrate solely on the outcomes related to decision-making.

Foremost, the united East India Company achieved remarkable strides in geographical exploration, contributing to significant discoveries around the world. Notable examples include the Cape Colony, various Southeast Asian nations, China, Japan (with sustained contact even during Japan's period of isolation), Australia (discovered in 1606 by Willem Janszoon and named New Holland), Brazil, and more. Interestingly, New York was originally named New Amsterdam and was founded under this societal framework (Sigmond & Zuiderbaan, 1979).

Certainly, the education of Peter the Great in Holland, particularly in the Netherlands, holds significance for understanding the foundational technologies that contributed to the formation of the Russian Empire. The Dutch maintained trade relations with the Moscow Kingdom, dating back to the early days of the Romanov dynasty. Starting from Tsar Mikhail in 1612, Dutch trade involved weaponry, technical innovations, and even, as noted by Ruslan Skrynnikov, the dispatch of two organ-making masters - Jagan and Melhart Lunev - from Holland. These craftsmen brought an organ to Moscow, which was completed on-site (Skrynnikov, 2005).

During the reign of Alexei Mikhailovichi, a charter for the training and formation of regular troops was imported and translated from Holland. This was a free translation from German of the renowned work by Johann Jacobi von Wallhausen, titled «Kriegskunst zu

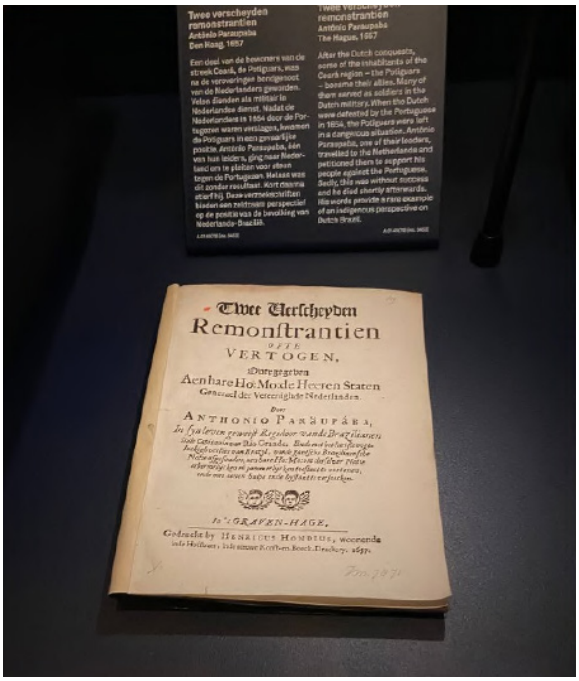
Fuss,» or «The Art of War on Foot.» In Russian translation, it was known as «The Doctrine and Tricks of Military Formation» (Von Wallhausen, 1615/1647). It is worth noting that Johann Jacobi von Wallhausen (1580-1627) was a military writer and advisor to Maurice of Orange, renowned for organizing the Dutch tactical school. He was a reformer and the founder of the world's first military academy.

In the context of this work and its history, researchers Svetlana Mangutova and Tatiana Nikolaeva (2008) note that in a copy of «Teachings and Tricks of Military Formation» from the library of the Russian Geographical Society, there is an ownership inscription attributed to Prince Alexander Yakovlevich Lobanov-Rostovsky (1788-1866). He was the owner of the renowned «House with Lions» located near St. Isaac's Cathedral. This house held a treasure trove of valuable maps and books on military art. Notably, Lobanov-Rostovsky provided Thaddeus Bellingshausen with a map and atlas of the French navigator Nicolas Budin before Bellingshausen's departure to the southern polar seas (Mangutova & Nikolaeva, 2008).

As Alekseev points out, numerous researchers have recognized the establishment of ironworks by both foreign and domestic entrepreneurs as a pivotal stage in the development of Russia's domestic armory. V. Alexandrov, following the insights of I.H. Gamel, highlighted the high cost of imported weapons for Russia, underscoring the shortfall of domestically produced weapons for the army. This shortage became a significant driving force for entrepreneurs from Holland and Denmark, such as A. Vinius and P. Marselis, to initiate factory construction (Alekseev, 2019).

Alexeev's research highlights that the water-operating gun factory established by Dutch gunsmith F. Akin in Moscow along the Yauza River in 1648 had a relatively short existence, lasting only until Akin's death in 1650. According to I. Afremov, the factory's owners brought in as many as 600 foreign craftsmen, with a key condition from the government that they should teach Tula self-steelers (Alekseev, 2019).

The history of empires often highlights their own achievements and greatness, yet it is noteworthy that many advancements, models, and technologies were frequently borrowed or adopted. Holland, for instance, contributed numerous technologies that had a global influence. This realm of exploration is incredibly intriguing, though for now, let us emphasize the key characteristics of decision-making that facilitated the Dutch capacity and goal-setting, leading to their substantial effectiveness on a large scale.




*For instance, consider the case of Antonio Paraupaba's "Twee Verscheyden Remonstrantien" from 1657. After the Dutch conquest of the Ceara region, the Potigars, a local indigenous group, became allies of the Dutch. Many Potigars even served in the Dutch army. However, following the Portuguese victory in 1654, the Potigars found themselves in a vulnerable position. Antonio Paraupaba, a prominent leader, journeyed to the Netherlands to rally support against the Portuguese. Regrettably, his efforts were in vain, and he passed away shortly after. Nevertheless, his words offered a rare indigenous perspective, as evident in his work "Twee Verscheyden Remonstrantien."*

**Figure 1.** «Twee Verscheyden Remonstrantien,» by Antonio Paraupaba. The Hague, 1657. (Photo by M. Lepskiy)

1. The initial fundamental requirement for effective decision-making was the presence of tolerance and artistic freedom. The influence of tolerance is evident in the narrative of the Brazilian ruler's complaint against the Portuguese colonizers. He justifies seeking assistance from the Netherlands by highlighting it as a benevolent and tolerant nation. Ultimately, he relocated to the Netherlands. His book from 1657, depicted in the author's photo below, is currently exhibited at the Shipping Museum. Rulers of states that were unable to withstand European expansion, often due to their democratic and open nature, were more inclined to favor the Dutch over the Portuguese or Spanish.

Historical analysis often asserts that this approach is a result of the initial bourgeois revolution, but the reality is quite the opposite. Tolerance and openness served as a competitive advantage during expansion and emerged as the primary differentiating factor in the decision-making culture. This phenomenon can be attributed to the unity of the United Provinces, often referred to as the «golden age of the Netherlands,» and the collaborative, collective nature of the Dutch East India Company

This openness and collective approach in decision-making primarily influenced the highest levels of decision-making: political-military and political-economic realms. In strategic theory, this corresponds to the level of political-strategic decisions.These principles were not solely influenced by the peripheral status of Holland within Charles V's Spanish Empire. The emperor himself was raised in these territories, and the Order of the Golden Fleece, into which he integrated the Orange dynasty, held significant importance for Holland. The education of rulers was strongly connected to Holland's central role in this regard. For instance, Charles V personally oversaw the upbringing of William I of Orange, the future leader of the Dutch Revolution. William was raised at the court of the emperor's sister, Maria of Austria, who also served as the Stadtholder of the Netherlands and was a protegee of Charles V. Additionally, Charles V played a decisive role in arranging William of Orange's marriage.

In fact, Erasmus of Rotterdam composed his pedagogical works for Charles V. These works included «On the Initial Education of Children,» along with other educational treatises such as «On the Education of Children,» «Conversations,» «Method of Teaching,» and «The Way of Writing Letters» (Erasmus, 2019). These works were all aimed at the upbringing and education of Charles V's heir, Philip II. Hence, the Netherlandish approach to governance combined collective decisions with the principle of one-man rule, emphasizing the education and preparedness of the ruler to govern. This approach sought to establish a harmonious balance between collective decision-making and the singular authority vested in the ruler.

2. Decision-making, as a means of reconciling the contradiction between collective and individual interests, necessitated the presence of a well-developed humanistic philosophy (a worldview centered on human development) and a sophisticated ontology. Consequently, this requirement underscored the broader advancement of philosophy, logic, rhetoric, and the ability to substantiate, persuade, and provide evidence for goal-setting within practical endeavors. This progression, in turn, relied on a heightened capacity to work with information, including skills in communication, negotiation, analysis, synthesis, and intellectual innovation. Moreover, it called for knowledge acquisition and, consequently, the cultivation of philosophical and scientific worldviews. Here, we highlight the significant impact of the works of Baruch (Benedict) Spinoza , which exerted a comprehensive influence on European philosophy (De Spinoza, 1676/1996).

The coexistence of religious tolerance under Charles V, which encompassed his support for Protestantism and the humanism of figures like Erasmus of Rotterdam, contributed to an environment where Catholicism, Protestantism, and Judaism coexisted within the same

**Figure 2.** Ferdinand Bol (1616-1680). Consul Titus Manlius Torquatus ordered his son beheaded. Dated to the 17th century. (Photo by M. Lepskiy)

**Figure 3.** Ferdinand Bol (1616-1680). Aeneas at the court of Latina. Dated 17th century. (Photo by M. Lepskiy)

territory. This unique religious landscape nurtured a sophisticated ontological (conceptions of being) and epistemological (theories of knowledge) complexity that marked the development of a highly intellectual solution. This dynamic complexity greatly influenced the progress of various scientific domains, with many Dutch scholars influencing science across other nations, including England (notably the contributions of figures like Huygens) and France. This high level of intellectual analysis facilitated a fertile ground for creative decision-making, characterized by a well-developed ontology, epistemology, and practical application.

3. On the level of organization and logistics, the maritime context played a crucial role in shaping decision-making processes. This emphasis is exemplified by two paintings commissioned by the Admiralty and displayed at the State Museum (Rijksmuseum) in Amsterdam, both created by Ferdinand Bol. One of these paintings portrays a scene from Roman history, depicting the life of the consul Titus Manlius Torquatus, who ordered the execution of his own son for violating military discipline. This narrative serves as a justification for hierarchy, obedience, and performance. The second painting depicts the triumph of Aeneas at the court of Latina. This narrative is associated with successful diplomacy, negotiations, and the victory of the Trojans in their new land. Aeneas's skillful negotiations not only led to the settlement of the Trojans in Latium, an ancient region of Italy, but also enabled Aeneas to marry Latinus's daughter and become his heir. The nineteenth-century author Jakob Abbott eloquently summarized and described the legend of Aeneas at the court of Latina (Abbott, 1852).

The maritime decision-making process incorporated elements from both of these paintings. On one hand, there was a focus on hierarchy, ship's regulations, and unity of command within the internal organization of the maritime activities. This was symbolized by the first painting, representing the principles of order, discipline, and coordinated decision-making within the naval structure. On the other hand, the second painting depicted themes of triumph, politics, diplomacy, negotiation, and even military conflict—all reflecting the desire for successful outcomes in external relations. The latter motives shaped the decision-making system concerning interactions outside the organization, as showcased in the second Admiralty painting.

Later, the principles of centralized command and the introduction of a General Staff (often referred to as the collective «brain of the army,» a term coined by General Boris Shaposhnikov) were integrated into the management of all military forces, influenced by Prussian military thought. Similarly, the pattern of «tolerant» diplomacy and negotiation seen in the depiction

of Aeneas at the court of Latina became a prominent model for the actions of the Dutch East India Company.

4. The concept of decision-making can be likened to a navigation scheme. Navigation poses fundamental questions that align with the essence of decision-making: «Where am I?» (reconnaissance); «Where do I want to go?» (goal setting); «Which direction should I take?» (orienteering); and «How do I reach my destination?» (tactics and ship navigation, encompassing factors like mapping routes, managing speed, assessing seasonal risks, potential adversaries, supplies, and more). Consequently, the field of scientific research and decision-making support includes mapping and geography, ascertaining coordinates using a sextant, orientation with a compass, speed determination, ship control (navigation), ship sustainability, organizational charters, hierarchy, and replacements in case of losses or repairs underway. Furthermore, research into wind patterns, currents, locations, depths, and underwater terrain is imperative.


**Figure 4-5.** Reconnaissance, bottom depth measurement, speed measurement, and orienteering instruments at The National Maritime. The National Maritime Museum. (Photo by M. Lepskiy)

5. The organization of daily life serves as a practice for training behavioral decisions «on the go.» Several aspects specific to Amsterdam highlight this approach. The constant movement through three distinct environments—natural-landscape, artificial-urban, and aquatic—defines the city's character. The term «aquatic environment» encompasses the city's canals, river, and proximity to the sea. This perpetual transition across environments fosters diverse skill sets and the efficiency of cross-medium transportation. Architectural design, with houses facing the canal (and consequently being relatively narrow, as taxes were based on facade area), results in interior spaces that are larger than they appear from the outside. This architectural strategy can be traced back to the techniques of the Venetian Republic, which is why Amsterdam has often been referred to as the «Venice of the North.»

6. The navigational and trade decision-making process's unique nature necessitated a foundation in science and technology to establish a professional division of labor. This notion is evident not only in the organizational structure of settlements and the professionalization of daily life but also in the significance of professionalism as a category for education and the social role of individuals in society.

7. The maps of various countries and territories, often accompanied by separate books detailing ethnography, essentially provided a profiling—an insight into the character of other peoples, their rituals, and their systems of governance. In essence, these maps facilitated a


**Figure 6-7.** Reconnaissance, bottom depth measurement, speed measurement, and orienteering instruments at The National Maritime. (Photo by M. Lepskiy)

social profiling of the state structure, offering a glimpse into the forces and power dynamics of other nations. This information was invaluable for negotiating diplomatic, trade, and military relations—akin to Aeneas's approach. Concurrently, these interactions also served to enrich (in multiple senses) the East India and West India Companies.

8. On the flip side of decision-making, we encounter risks that must be addressed. In the maritime context, two distinct approaches have emerged to study risks. The first approach was championed by mathematician Daniel Bernoulli (1738/1954), who developed statistical methods to calculate risk based on evaluating the returns and losses of ships, as well as profits and losses incurred at specific ports. This laid the foundation for the development of probability theory. Interestingly, the ideas formulated by Daniel Bernoulli in the 18th century formed the basis for the initial experiments conducted by Kahneman and Tversky (Kahneman et al., 1982). Bernoulli's theory of statistical risk was presented in 1738 in his work «Exposition of a New Theory on the Measurement of Risk,» which utilized the St. Petersburg paradox to demonstrate the limitations of the theory of expected value in decision-making (Bernoulli, 1738/1954). The paradox revolves around a Dutch merchant's decision to insure cargo for a journey from Amsterdam to St. Petersburg in winter, taking into account the probability of ship and cargo loss. This decision, as Bernoulli argued, is rooted in expected utility rather than pure value.

The second approach is associated with Christopher Columbus and is commonly referred to as risk management. Rather than solely calculating probabilities of gains and losses, Columbus focused on implementing efficient ship control systems, using large sails, and training his crew to swiftly manage them. Notably, the Bernoulli family had close ties to the Dutch Republic's seven United Provinces. Nevertheless, the ultimate image and outcome of this era were marked by the Dutch Golden Age, which served as a prototype not only for the establishment of New Amsterdam (modern-day New York) but also for the foundation of the United States of America (USA). The legacies of figures like Daniel Bernoulli and Christopher Columbus resonate through history, shaping the course of nations and influencing decision-making. The Great Assembly of the States General in 1651 depicted by Bartholomeus van Bassen and Anthonie Palamedes, held at the Great Hall of the Binnenhof in The Hague, captures the essence of these historic moments.


**Figure 8.** Cartography and description of ethnicities. (Photo by M. Lepskiy)



**Figure 9-10.** Daniel Bernoulli and Christopher Columbus

***The depicted painting captures*** the Ridderzaal (Knights' Hall) within the Binnenhof in The Hague. Suspended from the ceiling are captured flags from the southern Netherlands and Spain, symbolizing the end of the war. In the hall, representatives from the seven provinces of the Dutch Republic convened. Following the death of Stadtholder William II, son of Frederick Henry, at the end of 1650, most provinces, after thorough deliberation, decided not to appoint a new Stadtholder on August 21, 1651. The war had ended, and they believed that the country was ready to face the future without the House of Orange-Nassau. The central bottom of the painting features a quote from the ancient Roman historian Gaius Sallustius Crispus' work «The Jugurthine War»: «Concordia parvae res crescunt, discordia maximae dilabuntur,» which translates as «By concord, the smallest states are strengthened, from discord, the greatest dissolve» (Sallust, 40 B.C.E./1964). These ideas would significantly impact Europe in the years to come. In the 1920s and 1930s, the notion of a United States of Europe gained serious consideration, echoing the democratic ideals of the Seven United Provinces of the Dutch Republic. This vision took into account the ideological legacy of the centralized Holy Roman Empire of the Habsburgs.

**Figure 11.** Bartholomeus van Bassen (ca. 1590 -1652), Antoni Palamedes (1601-1673). The Great Assembly in 1651 the Great Hall at Parliament Buildings, The Hague, during the great meeting of the States General in 1651. (Photo by M. Lepskiy)

9. Within the navigational culture of decision-making, the calculation of reserves assumes a vital role. Reserves, which must be sufficient for the voyage, served as a mechanism for the equitable distribution of in-kind profits among the shareholders of the East India Company. These reserves were stored in warehouses, acting as repositories for booty and «prizes» (the state's or the community's share of booty seized by Dutch ships). These warehouses were constructed like military fortresses, safeguarded from the land by a canal and a drawbridge, and from the open water by intricate barriers that restricted access. Chains and logs were employed to fortify these sectors. Today, this building houses a shipping museum.

**Figure 11-12.** East India Company warehouses. Now The National Maritime Museum. (Photo by M. Lepskiy)

To the shareholders of the East India Company, profits often came in the form of goods and spices, which created incentives for the Dutch to develop effective «selling techniques.»

These goods were characterized by low volume and weight but high value, aligning with the cargo capacity of ships and the desire for substantial profits.

The concept of reserves extended beyond the context of profits. It also encompassed the management of resources and economic stability. Reserves were accumulated to prepare for contingencies such as crop failure or war, serving as a form of insurance – a practice akin to Bernoulli's statistical risk management. These models of preparedness had been recognized since the Roman Empire, and even the Bible advocated readiness for «seven lean years» that might follow «fat years» (*New American Bible*, 2002, Genesis, 41:29).

**Figure 13.** Doll's house. Rijksmuseum. (Photo by M. Lepskiy)

The maritime culture of decision-making encouraged the production of energy-rich foods with extended shelf lives, essential for long sea voyages. Items like cheeses, cured meats, fish, and grains were essential provisions. The system was designed to yield surpluses when «lean years» were averted, necessitating the replenishment of reserves. This cycle of managing reserves, statistical risk management, and resource utilization efficiency played a critical role in shaping the specifics of decision-making and ensuring the necessary resource support for various endeavors.

10. Another significant aspect of Dutch navigational decision-making culture is the culture of modeling. At the Rijksmuseum (State Museum), you can find models not only of ships but also of Dutch houses, depicting every element of everyday life and household management in miniature. These models served as «simulators» for children, offering a hands-on learning experience, and as visual aids for understanding the structure and organization of homes for girls and ships for boys. The Amsterdam Shipping Museum showcases detailed and accurate models of various types of ships from different eras. These models could be assembled and disassembled, and they were utilized for teaching naval tactics, ship construction knowledge, and repair techniques.

A noteworthy example is the life-size ship of the East India Company, which was reconstructed by modern volunteers based on a ship model. This full-scale replica stands in the museum, impressing visitors with its authenticity and power. The practice of modeling objects and decision-making techniques has its roots in the maritime culture, reflecting the emphasis on hands-on learning and practical understanding.

Certainly, our exploration does not encompass every aspect, but we believe that we have

covered the key elements and parameters of the Dutch navigational decision-making culture as demonstrated through the study of the East and West India Companies. The findings from this study can serve as a catalyst for further research and exploration.

**Figure 14.** Models of ships. The National Maritime Museum. (Photo by M. Lepskiy)
**Figure 15.** An East India Company ship reconstructed by volunteers. (Photo by M. Lepskiy)

## Conclusions and Prospects for Further Research

The exploration of culture and the decision-making process, especially within historical expansion processes that lead to the scaling of outcomes, is inherently intertwined with critical dimensions of decision-making. These dimensions encompass activity, volition, personal-status (social-power) attributions, and the profound significance of decisions as conduits of destiny within the tapestry of history. The manifestation of free will, distinct from mere willfulness, stands as an embodiment of essential human characteristics. It finds its nexus in the nexus of objective necessity, collective decision-making, and the unity of command, underscored by personal accountability. This amalgamation is further enriched by intercultural tolerance, empirical substantiation, efficiency, and effectiveness at the highest echelons of political-strategic decision-making.

This amalgamation has given rise to intellectual intricacy characterized by diversity and innovative advantages within the realm of decision-making. Moreover, it has provided Dutch expansion with a competitive edge in contrast to the expansion of the Spanish and Portuguese empires, particularly in the context of military and diplomatic interactions between metropolis and colony, which more closely mirrored a center of gravity-periphery model.

A well-established principle posits that in encounters between disparate systems, the system that boasts heightened complexity, semantic diversity, and creativity emerges victorious. The complexity and diversity inherent in Dutch decision-making stemmed from the nurturing of humanistic philosophy and religious inclusivity, fostered through the development of advanced ontology and gnoseology. This intellectual foundation found its corroboration through the universality inherent in practical philosophy and the scientific methodology. The interplay of diversity and multifunctionality within the overarching navigational culture of decision-making curtailed gratuitous complexity, aiming to manage risk through expediency, thus mitigating unwarranted temporal losses. Additionally, statistical risk management facilitated the creation of a structured resource and reserve system within the corporatized East India Company, further refining the decision-making landscape.

The cultivation of diversity and multifunctionality was deeply ingrained within the fabric of urban everyday life. Multifunctionality was intrinsically linked to the universal nature of decision-making that occurred at the intersection of three distinct environments: the natural-landscape, the artificial-urban, and the aquatic realm. Simultaneously, diversity was interwoven with the bedrock of philosophical and religious tolerance, humanism, and variety of scientific inquiry. This practical orientation and universality inherent in the navigational model of decision-making found its counterpart in differentiation and specialization – the plethora of professions indispensable for the maritime expansionist culture of the Netherlands.

Within the framework of status, the diversity of labor division and activities engendered the formulation of the professionalism principle, which, in turn, shaped the urban organization. Political-strategic decisions at the zenith were harmonized through the unity of command, characterized by hierarchy and adherence to the ship's charter. This rational navigational logic, coupled with the structure of triumph that awaited the ship's crew upon the successful culmination of an enterprise, underscored the navigational decision-making system. The core of this decision-making system was marked by inquiries that mirrored the pivotal stages of decision-making: «Where am I?» (reconnaissance), «Where do I want to go?» (goal setting), «Which direction should I take?» (orientation), and «How do I get there?» (tactics and crafting).

Fostering a thinking with multiple mediums, which encompassed visual clarity and a deep comprehension of «land» geography, necessitated the unification of virtual maritime geography – revealing submerged yet measurable underwater dynamics – with the unseen and thus reconstructed realm on maps. Furthermore, this synthesis extended to subjective-architectural construction cartography. This amalgamation endowed decision-making with flexibility.

These distinctive attributes of decision-making played a significant role in shaping Dutch diplomacy and negotiation, warranting further exploration. The prevalence of freedom, mental agility, and openness proved more conducive to prosperous trade than being swayed by the fear imposed by empires. Merchants acted as bearers of knowledge and unique goods, displaying maritime responsibility and determination. The profound affinity for cartography also underscored the inception of early ethnographic studies, manifesting as a means to profile state structures and the disposition of other peoples when addressing practical expansion-oriented challenges.

The management and assessment of uncertainty and risk, coupled with the establishment of reserves, engendered a harmonious equilibrium and a realm of resources within the shareholder framework of the East and West India Company. Naturally, while acknowledging the positive aspects of the Dutch navigational decision-making system, it is crucial to acknowledge that this «capitalist expansionist» ethos was also entwined with activities such as piracy, warfare, and involvement in the slave trade. Simultaneously, the effective system and culture of decision-making stood as one of the paramount mechanisms that facilitated the transformation of the Netherlands – during its United Provinces phase – into a prototype for subsequent nation-states, often united under federated frameworks. These nation-states exhibited a well-developed equilibrium between democratic and organizational-hierarchical models, seamlessly combining collective intelligence with one-man rule, resulting in personal accountability for decisions. However, we shall defer these inquiries for subsequent scientific exploration.

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