

The Business History of Additional 10 Greek-Owned Shipping Companies Evaluated by Nonlinear Management

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Abstract

We analyzed the business lives of 10 additional Greek-owned shipping companies *by* revealing their strategies since their foundation in about 1850s till recently. Moreover, Greek shipowners were unable to *forecast* the freight markets. They were also unable to understand fully, and manage properly, company's Cash Flow. In addition, Greek shipowners—with the exception of Onassis—were afraid to grow by ordering newbuildings, using bank credit, and not 100% cash. Further, they had their wives unprepared for their unexpected death, and they were unable to stop¹ the split ups in their companies. We also showed that Greek shipowners were unable to survive from the frequent depressions and to protect their company from the change in the parity², say between Yen and \$. Finally, Greeks—with the exception of max. 3% of the companies—were afraid to be listed in the world Stock Exchanges due to the probability to be bought-over. Our main preoccupation was also with the “human resource management” in the shore office, and on board, given the “compulsory delegation” of the ship management to company's Captains.

Keywords

The Business History of 10 Additional Greek-Owned Shipping Companies, The Number of Shipping Companies in the World, The Brief History of

¹The split up, however, has created plethora of new shipping companies, however of a few number of ships (<5) per company.

²Assume a Greek shipowner who ordered a vessel in Japan at a price of Yen 14,000 m, a sum to be paid in future installments (meaning a debt of \$100 m at an *existing* parity of 140Y to 1 \$). In the meantime the parity between Yen and \$ turned-out to be 1\$ = 93.33 Yen, meaning for the shipping company to have to pay \$150m thereafter and not \$100 m...

1. Introduction

Ten additional Greek-owned shipping companies are presented and their common business strategies revealed. We underlined the fact that Shipping is an industry where company's "factory", (the ship), nowadays, produces transport services *far away* from company's Management (the shore office). This meant for us to have to give a particular emphasis to companies' function known as "sea human resource management"—SHRM.

In the shipping industry, Managers work in company's head office, the shore one, while company's ships are in an almost constant move having to cross the oceans carrying cargoes from Port to Port. As a result, "*Management by walking around*"³, there is only applicable in company's head office.

Before the 2nd WW, the Owner of the ship was also her Captain. He was her absolute manager, having also all legal authorities. This was true when only Post office services were available, and letters needed months to reach either the vessel or the office. Shipping was, therefore, one of the *prime industries* to be benefited from the developments in *telecommunications till this day*.

The ill-fated passenger ocean ship "Titanic" was e.g. the first vessel to provide to her passengers "long distance cable facilities" on board upon payment, in the 1910's (the so called "markonigram"). Thus, the first essential need, which has arisen from ships, was to be provided with "distance communications", characterized by the Greek word *tele*—(*meaning from far away*). This, of course, was not without an extra cost and additional risk.

In addition, Greek philosophers believed that in the world there are *fixed things, which* change only from time to time (a "comparative-statics" view). Heraclitus (5th c. BC), however, challenged this theory by arguing that there is impossible to step in a running river twice, and meet the same waves (implying the existence of a "dynamic environment").

The above means that in life, "everything is constantly changing". Heraclitus thus became the father of the "Complexity" Theory, while the Greek Poet Hesiod (8th c. BC), became the father of "Chaos" Theory. In addition, Goulielmos (2002) applied complexity to Shipping industry, for the first time, and he showed that freight rate markets are chaotic (Goulielmos, 2025f).

It is our duty, so to say, to help Greek shipowners to adopt the proper strategies so that to overcome their eight serious drawbacks mentioned in abstract. We believe that the growth of the Greek-owned shipping companies could be faster if

³This is a form of the so called *concurrent control*, or *direct supervision*, where the Shipowner is out in the work area interacting directly with employees. Problems thus can be solved during this occasion. The Shipowner may also talk to ship's personnel visiting office.

especially the above six at least drawbacks could have been overcome.

2. Methodology

Our aim is to present, as *briefly as possible*, the business history of additional 10 Greek-owned shipping companies by ignoring their activities during the Sail and Steam periods, whenever possible. The companies presented are those that they told their history in interviews, and thus no particular selection was possible, given also that the business's strategies of them are confidential and are rarely disclosed.

We have, however, to remind the reader of the *Modern Economy Journal*, that our 8 papers published already here, presented 153 Greek-owned shipping companies (13% of the total). This may be considered as an adequate sample for one to draw his/her main conclusions given also that all companies followed the same pattern. All companies presented have followed the same steps, one after the other, and committed the same mistakes... (the eight fears).

Moreover, we considered it beneficial to introduce the reader into the “Nonlinear Management”: a term associated with “Managing chaotic businesses” like Shipping. Scientists seemed that they were in a hurry to underline the “differentia” between the new science (Complexity) and the (linear) one, with which we have all been brought-up exclusively in Universities. So, they named the new science “Nonlinear Management”.

The above focuses on the fact that it deals with relationships, which allow for a disproportionate response to changes in the independent variable. It explained further that a small change in the independent variable can result in a very large response in the dependent one (Priesmeyer, 1992, p. 15).

However, we cannot connect the business history of the 10 Greek-owned shipping companies with “Nonlinear Management”, because this was not taught in the Universities' bachelor degrees and not even in their postgraduate courses. The author introduced it in his courses at the Department of Maritime Studies of the University of Piraeus (1992-2008) and at BCA thereafter. Moreover, popular books in management ignore even totally chaos and complexity management by making no reference at all (Robbins & Coulter, 2018), with the exception of Priesmeyer (1992), Professor of Management at the Texas University of the San Antonio.

3. Work's Structure

This work is cast in 8 parts, after a Literature Review, as follows: Part I, dealt with the number of shipping companies in the world in 2004 and in Greece in 2016; Part II, dealt with the business history of 10 Greek-owned Shipping Companies; Part III, dealt with what the history of Management and Economics can tell us; Part IV, dealt with Complexity Theory; Part V, dealt with the importance of the human resource management—HRS; part VI, dealt with the compulsory shipping delegation; Part VII, dealt with the “Strategic Nonlinear Portfolio Matrix of Ships” and Part VIII, dealt with the Cash-Flow Analysis. Finally, we concluded.

4. Literature Review

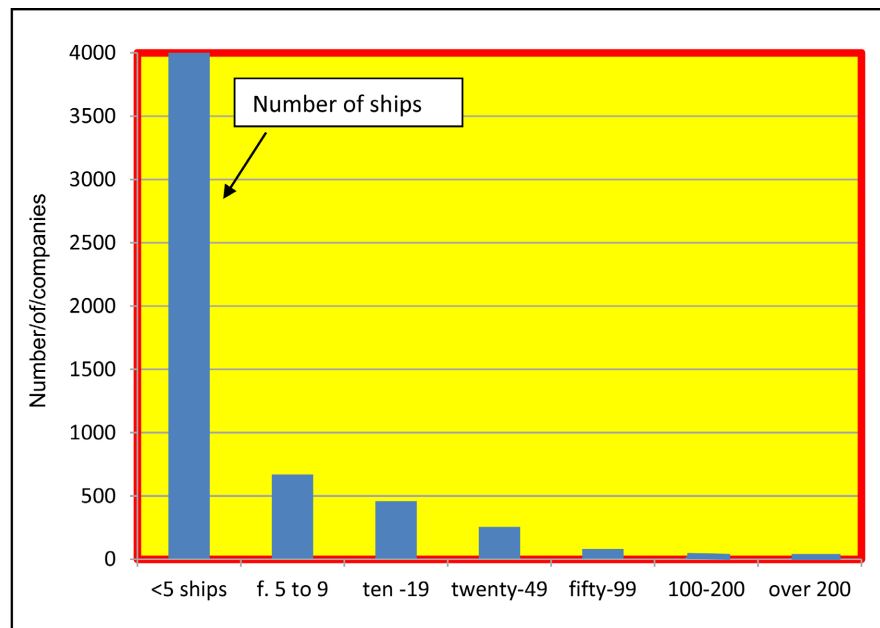
This work was made possible by studying a number of books, which dealt with the history of certain of the Greek-owned shipping companies such as: Stokes (1997), Couper (1999), Harlaftis & Theotokas (2007) (in Greek), Stopford (2009), and Lorange (2009)⁴.

By adding the 10 companies of this work, we have totally presented, so far, 153 shipping firms (Goulielmos, 2025a, 2025b, 2025c, 2025d, 2025e, 2025f, 2025g). This means a sample of about ~13%, out of perhaps 1200 estimated companies. Worth noting is also, that in the world, the shipping companies were 5518 in 2004, as we will show next.

5. Part I: The Number of Shipping Companies in the World

In 2004, in the world, there were 5518 shipping companies (Figure 1) managing 36,903 ships, i.e. 7 ships on average. The companies having from 100 ships to over 200 were 32. Thus, the maritime business world is made-up by a plethora of small companies, the majority of which manage maximum 9 ships (4690 companies managed 29% of the total number of ships).

Worth noting is the fact that the biggest companies are the *National* ones followed by the *large corporate trading houses*. Next are the *very large independent companies* followed by the *privately-owned*.



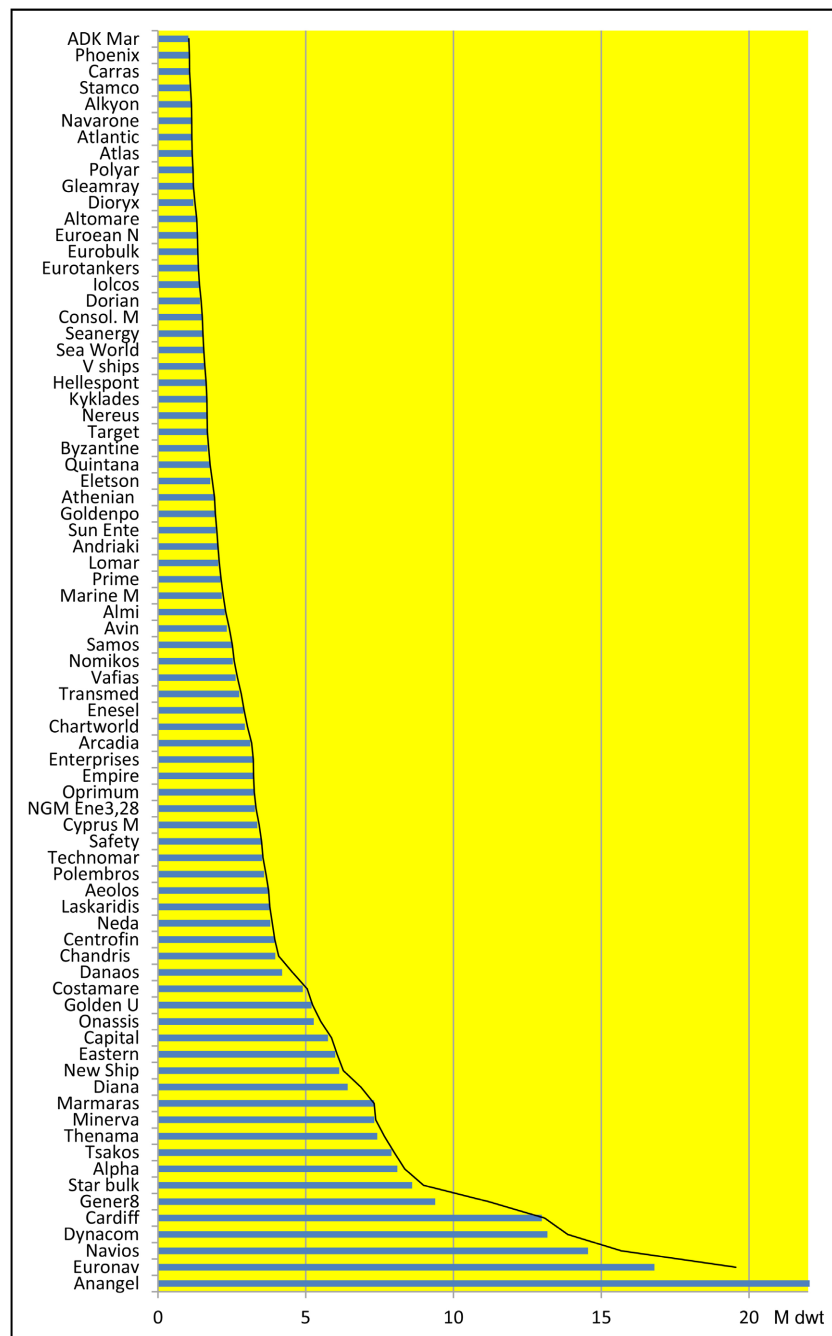
Source: author; data from Stopford (2009).

Figure 1. The number of global shipping companies and the ships they managed each, in 2004.

⁴Lorange is a rare case of a Professor, who used to be a shipowner... He, and his co-authors, greatly enriched—since 1974—the maritime literature, and if their English were better, their scientific impact would be deeper.

As shown, the majority of the global shipping companies owned less than 5 ships, i.e. from 1 to 4. It is our feeling that the actual number of shipping companies worldwide must be 2.5 times more than the ones indicated above by Stopford. We believe that there should be about 96,000 vessels belonging to 32,000 companies.

The Greek-owned shipping companies on the other hand, which owned about 302 m dwt and each one managed more than 1m dwt or equal to 1m dwt, were in 2016, 77 (Figure 2).



Source: author's archives.

Figure 2. The 77 Greek-owned shipping companies owning 1 m dwt and over in 2016.

As shown, a number of 18 companies owned more than 5 m dwt each.

We proceed now from the number of companies to the business history of 10 of them.

6. Part II: The Business History of 10 Greek-Owned Shipping Companies

This island, traditional, shipping company established in 1939. The founder was Th. S. (b. in 1888), who has been brought-up and educated in Constantinople. He arrived at Piraeus in 1930. His 2 sons F (b. in 1945) and M (b. in 1949), joined in the 1970s. Their company, by 1986, managed 240,000 dwt (10 units of dry cargoes & bulk carriers). By 1995, the company managed 300,000 dwt, and *listed in NYSE*, building also ships in S. Korea and Croatia. By 2000, the company managed 770,000 dwt (15 units of handy max, Panamax, & product carriers). The company also opened offices in NY and Singapore. This company achieved a medium growth strategy.

This island, traditional, shipping company founded by Captain CNS (b. 1930). In 1965, he bought a small dry cargo vessel. He founded a shipping company with his brother S, till 1970, when they split up. From this split up 4 companies have been created till 2000 (one with a partner). C.S., founded in 1990 and in 2000, 3 more companies managing dry cargoes, working *exclusively in the spot market* and managing on average more than 15 ships. In 1970, he ordered 12 handy-sized bulk carriers in Japan, while he delivered only 6 of them as *he failed to be covered from the adverse change of the parity of \$/Yen*. He also did not *play with company's assets*. In 1999, when he died, he used to manage 8 ships of advanced age and an excessive bank debt. His wife, and his son D, decided to sell the ships and pay- their banks-out.

This island, traditional, company, started with Captain NAS (b. 1886), managing Sail ships, together with his brother G. His three sons: A, a Captain, (b. 1919), S, a mechanical Engineer, (b. 1923) and D, an economist, (b. 1932), joined, by buying, in 1950, one vessel and thereafter additional 7 (1950-1967). They opened a London office in 1963 (-1984). The company then ceased due *to the 1981-1987 depression*, owning then 10 2nd hand units. The company used to own ships managing them for 4 years on average and it did not play with company's assets. It can be characterized as a "single-ship" company (except in 1970 when it owned 4 units).

This island, traditional, company founded by Captain NGT (b. 1896), who in 1958, opened a shipping office in Piraeus, together with his son G (b. in 1936)—a mechanic-Naval Architect-, who studied in UK. His 2nd son A (b. 1940), served on company's ships as a 2nd Mate. In 1970, A, and two more shipping families, bought 5 ships. After 1978, they split up. They created two shipping companies, one founded by GNT, in partnership, owning today 6 units. ANT co-operated with Soviets, owning 14 units (Panamax bulk carriers) till 1986. The company owned 3 - 5 units thereafter. The 2nd generation joined made-up by the son of GNT, N (b.1970) and his daughter K (b. in 1972).

This island, non-traditional, company, established by Captain G-ET (b. 1930). He bought a vessel in end-1970. He owned ships suitable for trading in Mediterranean⁵, carrying general cargoes. In 1976, he ordered 2 ships in Japan of 10,000 dwt each. He added to his fleet refrigerator ships, and by 1981, he owned 98,000 dwt (10 units). In end 1980s, he also managed passenger ships and bulk carriers. His son D joined, who studied Business Administration in London, and also his daughter L, with postgraduate studies in the University of London. The Captain DPZ in 1978 took over company's office management. By 2000, the company managed 5 units of bulk carriers Panamax and handy.

This island, traditional, company, established by the Captain and shipowner VM, who owned Sail ships in 1870s. His two sons N, and G, also Captains, in 1890-1900 owned a large sail ship. His daughter F married in 1913 the Chief Engineer EMT (b. in 1883). In 1938, he managed 2 dry cargo steamships of 4,500 dwt average size each. His 3 sons NET (in London office), MET (finished the Athens Graduate School of Economics and Commercial Sciences) and VET (a Captain), continued the shipping activities together with his daughter MKA, who married KA from a shipowning family. In 1950-1960, a Piraeus office opened, managing 3 dry cargo ships. In 1963, they founded another company, after the death of EMT, managing by 1965 six liberties. A split up took place in 1975, when MET, with his sister, founded a new company, and the other 2 brothers N and V, with the son T of N (b. in 1946), continued the previous one. Each managed 3 units by 1982. These 2 shipping companies ceased, by end-1980s their activities, *due to the 1981-1987 depression*.

This, non-island, traditional, company, established by AT (b. in 1914). In 1947-48, he bought 5 costers of about 1,000 dwt each. In 1950, he obtained a number of USA and Canadian Liberties by the traditional Greek method of paying cash. In 1950s, he managed 5 - 7 dry cargoes. In 1956, he left UK to come to Piraeus due to changes in taxation policy of foreign shipping companies in UK. The Great leap forward made by this company in serving Cuba's trade (mainly of Sugar) at the time (1962-3) when USA had placed an embargo. Company's ships were black listed... The company used Liberties under the UK flag. By 1965 managed 165,000 dwt (17 dry cargo ships). In 1970, he turned into tugs/tows. In 1970, he ordered 2 SD-14 in Greece. When he died, in 1973, his sons took-over: N (b. in 1946), G. (b. in 1948) and A (b. in 1950), all with postgraduate studies. They received in 1978-9 two newbuildings from Brazil. In 1980-90, two offices opened in Piraeus and London, managing 85,000 dwt (4 units) adding 2 dry cargoes newbuildings of bulk carriers. By 1985, the fleet arrived at 200,000 dwt (6 units). The 1981-1987 depression made them to focus away from the ocean going ships.

This island, traditional, company, established by GMT (1880). His son, MGT (b. in 1883), a Captain took over (who died in 1949). His sons G, (b. in 1913), a Captain, and N (b. in 1925), also a Captain, continued the family's tradition. In

⁵A quite number of Greek shipping companies have started shipowning by serving first Mediterranean ports, before passing on to Ocean going ships.

1958-1966, NMT bought a cargo ship. In 1977, the 4th generation joined, made-up by M (b. 1950) and N (b. 1950), who opened their office in NY and then in Piraeus. By 1990, the company managed 190,000 dwt (3 bulk carriers). The 5th generation joined also in 1990s, made-up by M (b. in 1972) and G (b. in 1975). By 2000 the company managed 260,000 dwt (7 bulk carriers). A low growth has been achieved.

This, non-island, company, founded by Greek Merchants originally located in Egypt and Soudan, and then in London (in 1960, due to nationalization). The brothers DT and JT, in 1963, started shipping business by owning by 1965 2 liberties. They opened a London office in end-1970, managing 85,000 dwt (10 dry cargo ships, most Liberties). By 1976, the company transferred to Piraeus, managing about 100,000 dwt, having the *policy to own fewer ships of a larger tonnage and of a smaller age*. The 2nd generation joined, made-up by the sons G and C. By 1985, they managed 225,000 dwt (6 bulk carriers) and by 1990, 360,000 dwt (11 bulk carriers). By 2000, the family members split up into one company managing 255,000 dwt (1 OBO; 1 bulk carrier) and one company managing 165,000 dwt (3 bulk carriers). A low growth strategy achieved.

The Captain PT, (b. in 1936), founded this island, traditional, family company by obtaining in 1970 a dry cargo ship of 2,200 dwt. He obtained a tanker in 1972, having a *fast growth* thereafter with general cargo ships, bulk carriers and tankers. This company is an example of diversification into a shipyard, trade, property, tourism, telecommunications and others. Up to 1990, the company was a family one, and then split up into 3 companies. Company's growth has been based on 2nd ships, till end 1990s, when company turned into the *newbuildings* with emphasis on a well-trained and suitable sea labor. His son N, more capable than his father in ship finance, founded the company GOC in 1988—managing dry cargo ships and containers and listed in NYSE (high risk bonds). In 1993, he further founded the company MIF—managing tankers-listed in OSLO SE, and in 2002 in NYSE. The company TEN has by now based its growth on newbuildings. In 2018, the group owned 9.12m dwt, with offices in Piraeus, London, NY, Montevideo and Philippines owning 93 vessels from 81 in 2016 (7.9 m dwt). This, diversified company, is the best example for Greek young shipowners to follow, having in charge a dominant Father and Captain from a traditional, maritime, island, family, company. He, we believe, directed his son N to study and implement the financial mechanics of the international stock exchanges, by selling the services of a large number of over 70 newly-built tankers, with certain ships built in company's shipyard in Uruguay. The company is recognized to care for the proper education and training of company's sea labor. PT many times has “published”-out his agony for not having efficient and effective crews... for the expanding national shipping. This company achieved a very fast growth.

Concluding this part, we may recognize the “moving power” by tradition in almost all Greek-owned family shipping companies presented: the island Captain and Father of a family of as many as possible sons, sometimes starting as a Merchant. The split up syndrome—so common among Greeks—has created a pleth-

ora of companies. The growth of the companies was, however, different among the companies, where some recognized a “fatal business risk” to build ships and others recognized that management is at risk if one is listed. Given that Greeks consider ship management a way to live and not a way to do a job, this fear is understandable.

If, however, we were asked to suggest a company as a Greek prototype, we would choose “Tsakos-TEN”. Our choice was based on the fact that the island—Captain and Father, asked his son N, to study shipping finance. We believe nowadays that in modern shipping business 50% is to know about shipping bossiness, and especially chartering, and 50% is to know finance.

7. Part III: What the History of Management and Economics Can Tell Us?

Management is a living science, because new concepts appear, and disappear, from time to time, like the “shooting stars”... According to our experience, shipping companies adopt management’s innovations by copying the “multinational” companies located in their country. This means that they are followers also with a certain delay.

Worth noting is the fact that during the last 114 years, i.e. since 1911, at least 14 new management concepts/theories have appeared (**Table 1**).

Table 1. The new concepts/theories created by management since 1911.

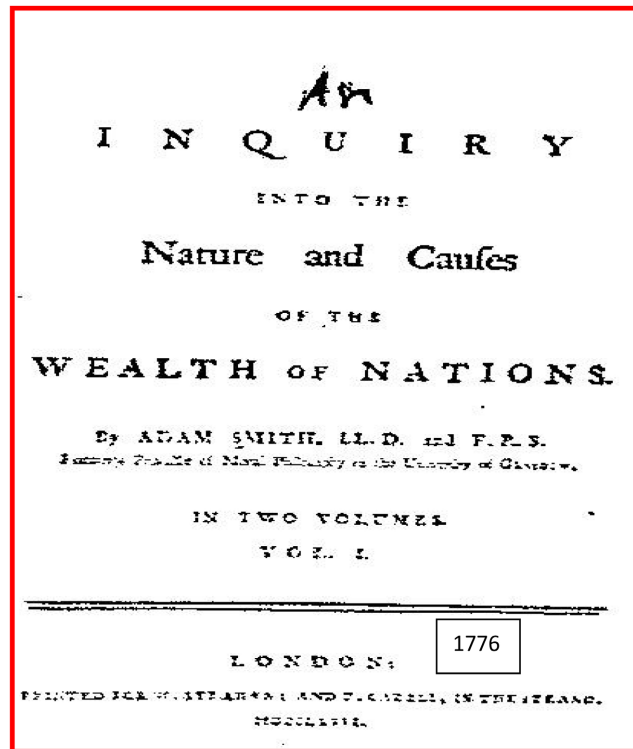
1911 →	Scientific Management- <i>Taylor</i>	1916 →	Principles of management- <i>Fayol</i>
1947 →	Bureaucratic Management- <i>Weber</i>	1959 →	Firm’s growth- <i>Penrose</i>
1960 →	Systems theory	1965 →	Management by objectives- <i>Drucker</i>
1985 →	Entrepreneurship	1985 →	Competitive advantage- <i>Porter</i>
1986 →	Images of organization- <i>Morgan</i>	1987 →	Strategy creating- <i>Mintzberg</i>
1990 →	Empowerment	1991 →	Total quality management
1992-1996 →	Complexity	2001 →	Total Safety Management

Sources: author; Priesmeyer (1992); Drucker (1954); Morgan (1986); Penrose (1959); Penrose (1985).

Thus, applied management, we can say, appeared by *necessity*, at the time when humans decided to accomplish say their two great works: i.e. that of the “Egyptian Pyramids” and that of the Chinese “Great Wall”, while elements of Management mentioned also in the Bible (e.g. delegation). Thus, the great ideas appeared first, and then humans had to find the “management” ways to implement them. Humans—as we all know—are fond of the challenges, and the seeming-impossible tasks, wishing to show their superiority vis-à-vis all other living creatures. Humans are blessed by construction along with their fascinating living environment.

But important was also the book of Adam Smith (1776) (**Graph 1**), who claimed

—among other things—the benefits⁶ of the “division of labor” or “job specialization” in his Chapter 1.



Graph 1. The cover of the work of Adam Smith (1776).

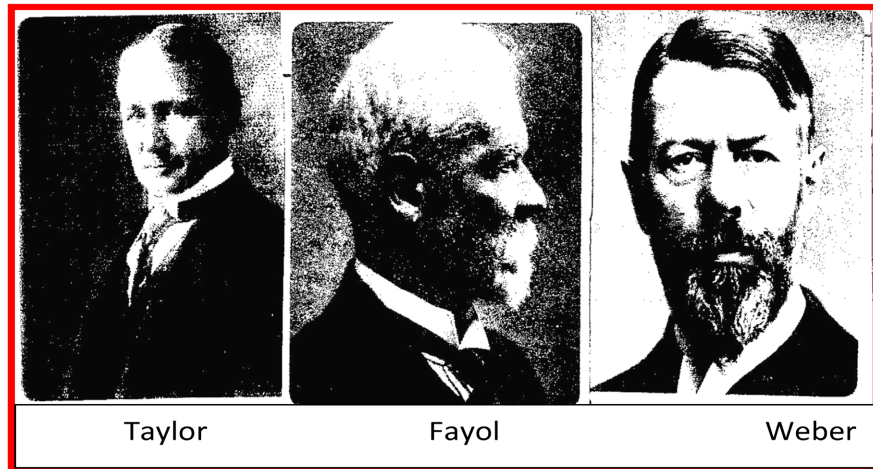
Moreover, Management in book form appeared first in 1911, while Economics appeared in 1776—i.e. 135 years earlier. Smith was in particular keen to answer the question: “why certain nations were richer”? This apparently would also justify Great Britain-GB. Another important development, at that time, in Europe and UK, was the so called “Industrial Revolution”, between 1750 and 1900—starting in 1760—and associated again with the economic development of GB.

At the early times of the world economy, production carried-out at homes, while “Industrial revolution” *introduced the importance that the “size of businesses” has*. Of course, technology responded to industry’s needs, and this was the medium to establish large factories, and gain the important economies of scale. When humans understood that a business becomes more competitive by using economies of scale, all variables became larger, and became larger since then and till nowadays.

We, however, have argued that “economies of scale” for shipping industry at least are not an option of Supply, but an option of Demand. This means that economies of scale are possible because *demand has obtained such a scale...* if and when obtained it.

⁶Modern management refined this concept by saying that the division of labor has to be extended up to a point, i.e. where the benefit from it, is greater than its cost.

During the rather modern times, the scientific contributions of 3 pioneering authors have built-up “Management as a science” (**Graph 2**), i.e. between 1911 and 1947.



Source: author; modified from those in Robbins & Coulter (2018).

Graph 2. The 3 authors who built-up Management as a science, 1911-1947.

Worth noting is the fact that the 2 first ones were also managers of large factories at their time in their countries: USA and France. In other words, they wrote about what we would identify as “Applied Management”.

Taylor (1911) e.g. saw the labor force as an essential component of production, which had to fit perfectly with the “proper” tools, in one *only, (sought-after), perfect* combination. He assumed that human productivity can be increased, provided the proper motives, tools, and time, etc. are available.

Fayol (1916), in France, discovered the proper 14 theoretical principles for a manager to apply to his/her labor force, but he failed to recognize the gap which exists nowadays between theory and practice, in modern terminology known as “Motivation”.

Weber (1947), a German sociologist, believed that companies had to be properly organized in many bureaus (offices)—a structure suitable for the Armies and for a more effective control.

Thus “departmentalization” (Robbins & Coulter, 2018, pp. 385-387), perhaps out of Weber’s influence, meaning the basis by which jobs in a company, and on board, are grouped together, was the system adopted by the majority of companies, even nowadays, including the shipping ones. In shipping, the Shipowner has to control a number of about say 15 - 20 departmental managers, with the most important departments being Chartering (Sales) and Operations (Production).

Shipping adopted what is known a “functional” departmentalization. There are also additional four types of it: geographical, product/service, process and customer. Management gradually realized the importance that *company’s customer has*, (the Charterer in the case of shipping), and adopted policies, as well per-

formed organizing, *towards delivering quality*—meaning to achieve a satisfied customer. In shipping this means “quality delivered in safety”.

Worth noting is the development in *teams*, which became a popular trend, in the large shipping companies, known as “a cross-functional” form—i.e. a work team is composed of individuals from various specialties (2007?). In shipping the teams were composed taking into account the number of ships per operator (a middle manager) and the type of ships (tankers or dry cargoes etc.) that *he (the operator) could managed effectively and efficiently*.

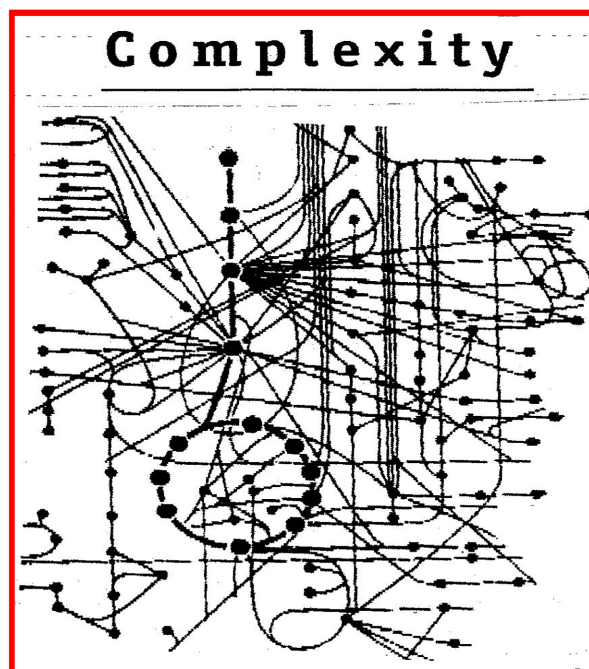
Shipping Management realized that the “principle of the three Musketeers”: “one for all and all for one” was wrong. As a result company’s ships grouped in teams and one operator held responsible for them from each department. Thus, a relationship established concerning not only the issue of how many subordinates a supervisor can manage effectively and efficiently, *but also how many ships an operator can manage them efficiently and effectively* by delivering quality in safety.

This work also wishes to deal with “Complexity theory”: but what really is this? We come next to answer this question.

8. Part IV: Complexity Theory

Humans are characterized by their strong preference to seek for *certainties...* The original approach of Management was one of certainties *provided by the principle: “I command, & thus I control”* (Battram, 1998, pp. 11-27).

But if the image of *business world* is complex, like in **Graph 3**, what our managers could be hoped for by “command and control”?



Source: author; modified from that in Battram (1998).

Graph 3. Complexity’s image as developed in 1992-1996.

The science of complexity in fact is not a single science, but a set of 16 other ones, as shown in **Table 2**. This number increases as time goes-by.

Table 2. Complexity: a composite science.

Artificial intelligence	Artificial Life	Computer Science	Ecology
Evolution	Cognitive science	Game theory	Linguistics
Social sciences	Economics	Genetics	Immunology
Philosophy	War philosophy	Maritime Economics	Marine accidents

Source: author; data also from **Battram (1998)**.

Complexity is a term derived from the Greek word “περιπεπλεγμένος”, meaning “entwined together”, i.e. “complicated”, indicating a system with many parts and especially with many interconnections (**Graph 3**). Unpredictability is also a characteristic of the complex systems. **Waldrop (1994)** asked not to rely on the Newtonian metaphor of “clockwork predictability”, because complexity seems to be based on metaphors more akin to the growth... of a plant.

Complexity has dealt with seven “dynamic” concepts (**Table 3**).

Table 3. Concepts with which complexity deals with.

Turbulence	Disequilibrium	Self-organization	Adaptation
System learning	Increasing returns	Persistence	

Source: author; data from **Battram (1998)**.

The Science, moreover, developed as follows since the 18th century (**Table 4**).

Table 4. The development of science.

18 th century	Newton’s revolution	Science has to provide <i>simplicity (organized)</i>
19 th century	Statistical Mechanics	Science has to focus on <i>complexity (disorganized)</i>
20 th century	Rebirth of Biology	Science has to confront <i>complexity (organized)</i>
21 st century	Artificial intelligence	Science has to exploit other, more powerful, brains...for the benefit of the mankind

Source: author; **Battram (1998)**, p. 16.

The interest of the scientists nowadays, and for some time, is no doubt, towards Artificial Intelligence. Here is the field where the Master (AI) can overrule the Servant (humans), if the servant is not careful. Thus, a worldwide office had to be established to provide the relevant licenses, we believe. AI has to be treated like the “development of the nuclear weapons”, having to be inspected by UN inspec-

tors.

The machines, based on the logic of mathematics and of the algorithms, and having no sentiments or human feelings, will apply a cruel world... Love, friendship, family and kinship ties, honesty etc., from 10 times stronger will become 10 times weaker under AI...

We will still answer another question: “how much Management cares about labor force?”

9. Part V: The importance of the Human Resource Management—HRM

Linear thinking has led to the establishment of company’s two essential postulates: the “*goals*” and the “*objectives*”. But is human behavior linear? Managers have to deal with the attitudes, the opinions and the motivations of their employees. The human resources have to be the concern of the manager who has to hire, train, evaluate, promote, compensate them, and negotiate with them. HRM is a practical activity, which affects the personal lives of the employees. Policies concerning the personnel had to be uniform, accommodating, consistent and adaptive. Personal opinions, needs, and attitudes are rather dynamic variables including company’s Captains.

Once, “Management by objectives”—a genuine linear theory—appeared as an *ideal model to plan and control* the activities inside a company, due to P Drucker in 1950s. This theory worked for its first 40 years, but people’s attitude changed in between. The following decade, the “systems theory” emerged, introducing the fact that companies consist of “interactive subsystems interfacing with their *external environment*”⁷.

Moreover, *intrapreneurship*—i.e. to have an entrepreneurial spirit within a firm, (mainly a large one), emerged in 1970s, where also new technologies became available. *Empowerment* was the continuation of the previous theme. This meant the *vesting of substantial decision-making authority over to employees*. This continued with the “*total quality management*”—a philosophy and a management system—which called for the personnel participation with a focus on the continued improvements in quality (and safety for shipping companies).

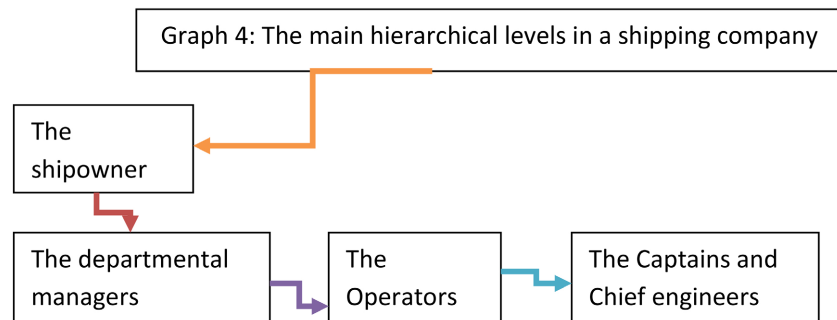
Captains are “the factory managers” who co-operate with customer’s staff and thus they are those who apply “total quality management” along with “total safety management”. Changes in vessel’s management have also occurred, the most important being the “safe management code” in 1996/2002, where the Captain “liberated” from the responsibility to keep the ship safe, if he applied the *ISM* code... *within* the “resource limits” provided by the company.

Clearly from the above analysis, management confronted with “what degree of *centralization had to have*”. This meant “*to what number of persons the authority*

⁷In the distant past companies believed that it was only sufficient to establish a proper *production* process by ignoring company’s external environment. In a case we know a company ignored how to be supplied with its main raw material... where its production was not possible.

of the significant decision-making will be granted". Important, however, was how to control all those authorized persons. Many companies created "work teams" to respond to this development, as mentioned.

As a result, two important criteria have also been established: 1) the "span of management" and 2) the "span of control". The first corresponded to the "number of (direct) subordinates, which each supervisor *has*". A smaller span means more centralized authority, and more hierarchical levels. In shipping companies the levels of hierarchies are few (**Graph 4**).



Source: author.

Graph 4. The main hierarchical levels in a shipping company.

The shipowner has to manage about say 15 - 17 departmental managers, as mentioned. This may be considered difficult, but we saw in practice that shipowners supervised closely, and more frequently, the *more important departments*: chartering and operations. The departmental managers have to supervise a number of 5-10 operators, brokers, Sup. Engineers, Port captains etc., depending on the number of ships a company has and whether those are tankers or dry cargoes.

On board, the span is rather easier as the Captain has to supervise a number of about 20 persons, on average, helped mainly by the 2nd Mate. The Chief Engineer is the unquestionable manager of the Engine room with about 6 - 8 persons there. Important personalities on board are also the Cook, and the Ship's supplies manager. The ship's Cook is a very important personality for the welfare of the crew given its working conditions.

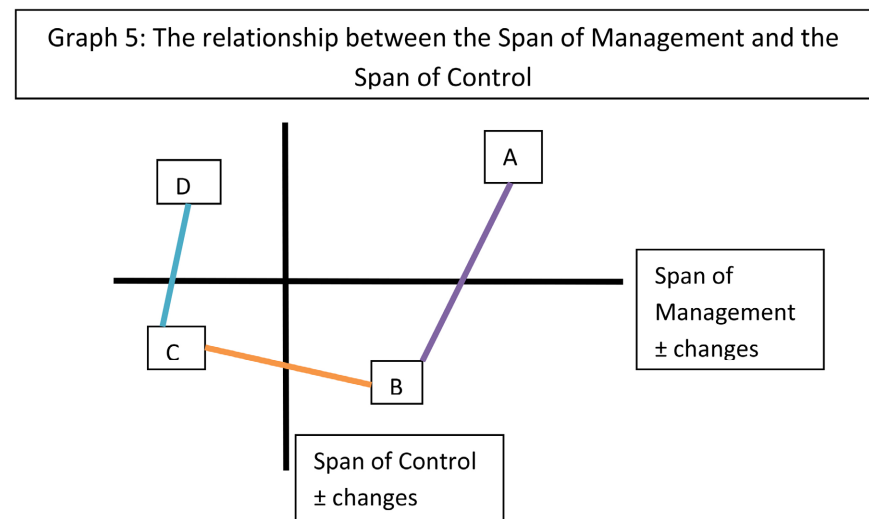
The "*span of control*", now, is a more interesting concept as it corresponds to the "number of subordinates a supervisor *can effectively and efficiently manage*". From this definition one understands the difficult job of the shipowner to know this relationship/span for every supervisor. The more effective supervisors are, most of the times, revealed by the allocation of company's bonuses and by the wage increases.

Important now is the relationship of the "span of management" and the "span of control" (**Graph 5**).

As shown, there are 4 positions: at A, both company's spans increased in proportion. This means a more flat organizing (SM), and an improved effectiveness in controlling company's subordinates (SC). At B, the number of subordinates per

supervisor increased, while the ability of a supervisor to control his/her subordinates *declined*, resulting to *inefficiency*. The corrective measures here are training and a different SC. At D, supervision improved (SC), but the number of supervised persons reduced, resulting in an over supervision and again in *inefficiency*. At C both spans declined. *Thus, the A position is only acceptable.*

We come now to discuss management's important function of the "compulsory delegation" of part of its duties to its Captains.



Source: author; inspired from that in Priesmeyer (1992).

Graph 5. The relationship between the span of management and the span of control.

10. Part VI: The Compulsory Delegation in Shipping Companies

Writers of management books are rather laconic on the issue of delegation, perhaps because they want to give emphasis on the so called "empowerment" (Robbins & Coulter, 2018, p. 364). Let us define delegation. *Delegation is the process of assigning certain decisions, or specific job duties, to employees.* This for the shipowner means to turn-over the responsibility, by carrying—a number of decisions and duties—out; these decisions are also written-out in company's circulars (authority to "sign" and "approve" etc.).

Delegation is a change with which the shipowner has to be *comfortable* with it, by *relying on his/her senior employees' creativity, imagination, knowledge and skills...* Delegation requires a prior proper training, which, however, is absent in shipping companies. Shipping companies carry-out a simple few hours familiarization program with company's rules per department mainly with the Captains visiting the company before going to the vessel.

More serious are the seminars that large companies carry-out in their premises mainly on technical issues on a couple of days at the time when Captains and Chief Engineers etc. are on their annual leave. On ships, ISM Code obliged the companies to establish a familiarization program of the crew vis-à-vis the ship they are

about to enroll-on.

Delegation can clearly be a “dangerous” way to motivate employees especially in shipping. Certain managers avoid delegation due to the fear about the mistakes that might be committed by their delegated persons (say their assistants). These managers are insecure personalities, under stress, believing that if one wants to allow for an error, then one can delegate his/her duties to others... These others commit the mistakes...

The insecure managers take all decisions by themselves from about the most trivial to the most important matters and from the most inexpensive to the most important financially. This is against management’s principle saying that the hierarchy also determines the importance of the decision-making, given the limited time available to managers. But in shipping delegation is obligatory as mentioned... “God then saves the shipowner”.

Finally, we may suggest to shipowners to apply delegation in doses, or say by “trial and error”, where possible, meaning to allow delegation “gradually”, allowing first decisions of small importance and proceeding to more important ones, *given the degree of success* in every previous assignment. *Delegation, therefore, entails a close supervision, or control, so that to see that the delegated duties are performed equally well, or even better, by the delegated person vis-à-vis the person having the original authority.*

The company may establish “delegation by stages”, therefore, and employees may pass each stage in a way of an informal examination, i.e. to pass from stage one to stage two, and so on, where every succeeding stage provides higher authority to successful employees. At the last stage, the delegated person becomes the full “alter ego” of the original authority holder for the rest of the time.

As mentioned, the shipping companies which were obliged to delegate authority to their Captains resorted to “formalization” (Robbins & Coulter, 2018, p. 392 in another context). There are explicit job descriptions on board, numerous organizational rules and clearly defined procedures covering the work processes. *The crew has little discretion over what is done, when, and how, is done.* Moreover, Operators are in constant phone contact with their Captains providing warnings to them and guidelines before every important stage in ship’s activity... Albeit, they are not yet in a position *to see whether their guidelines have been implemented.*

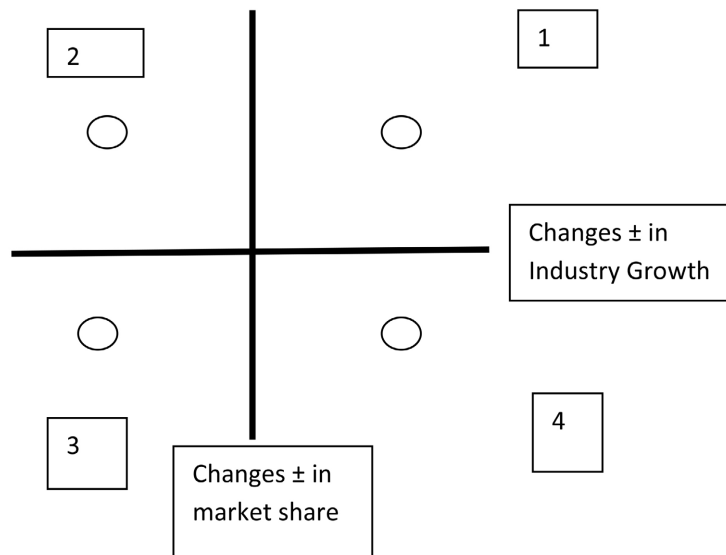
11. Part VII: A Strategic Nonlinear Portfolio Matrix of Ships

We have mentioned that Greek shipowners were afraid of growing their fleet by credit, and not by 100% cash, and that they avoided the newbuildings for the case when market turned low due to an over-ordering, which many times has occurred.

We thought as a solution to provide a graphical nonlinear tool applicable to any company’s vessels. This analysis is based on the fact that in a shipping company not all its ships bring-in profits.

First, we have to classify company’s ships in four classes: 1) The WMW—“the

well-managed winner”—meaning the ship having an increasing market share and growth in her industry. 2) The WML—the “well-managed loser”—meaning that ships with a declining growth rate. 3) The PML—the “Poorly-managed” loser—meaning the ship, which her market share and her growth are decreasing. 4) The PMW—the “poorly-managed winner”—meaning the ship whose market share is decreasing (**Graph 6**).



Source: author; modified in that in Priesmeyer (1992), p. 95.

Graph 6. A nonlinear strategic portfolio matrix.

The horizontal axis shows the changes in the growth of the industry, and the vertical one, the changes in ship’s market share. The four positions marked by the circles, show the ship’s domain and her position in the “Plane Phase”. Being in Quadrant 1, or moving towards it, is the only movement in the *right direction*. This ship is well managed, because her market share was increasing, and she was also a winner, because she has been found in a growing industry (or in a section of it, e.g. the Tankers). A PML is found in Q3; her future course is analogous. Being in Q2 and in Q4, means positions of both failure and success. Q2 hosts the WML, which, however, is a *source of cash flow*. Such ships have to be kept in the fleet, though they have a declining market share. We can see that such vessels show an emerging success, even in a declining market; despite the fact that the market became selective; such ships are more and more employed. A WML has an important potential.

In Q4, the market share declines, while the growth rate continues to increase: a PMW case. This ship has an excellent potential, *but it is poorly managed*. **Table 5** shows what measures of intervention a shipping manager has to take in each of the 4 situations in which his/her ships were found.

As shown, Chaos Theory recommends the sale of a PML, while Greek shipowners—as we know—preferred to sell their WMWs... This was so because the lack

of cash led them to sell ships that could obtain the higher possible price.

We turn now to an analysis which Greek shipowners have been found ineffective and inefficient: the Cash-flow analysis.

Table 5. The measures of intervention a shipping manager can take.

Class	Measure	Class	Measure
WMW	Maintain current strategies or do more of the most recent changes in it	WML	The vessel may survive a shakeout. Refocus on a market niche & develop as needed to continue increases her market share
PML	A source of cash flow? Selling her is recommended by having a high market share	PMW	Re-assessment by redesigning her chartering and her management; invest and differentiate her services to reposition her in the expanding marketplace

Source: author; modified from that in Priesmeyer (1992), p. 98.

12. Part VIII: The Cash-Flow Analysis

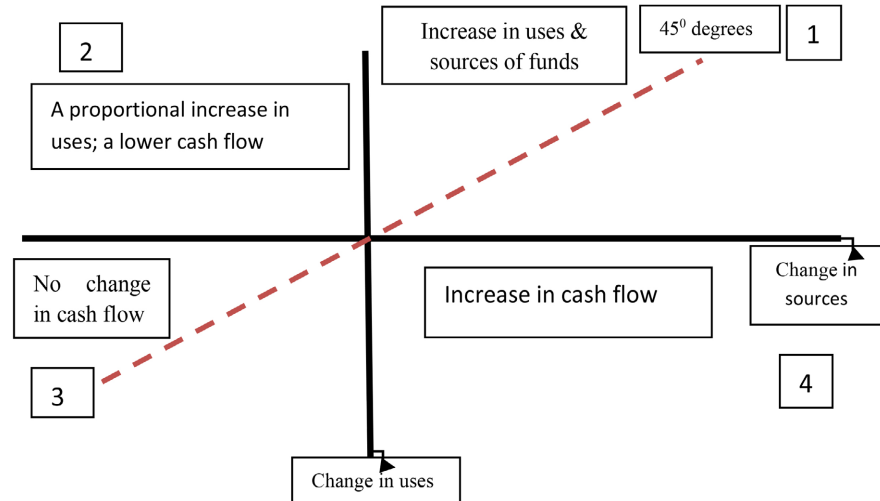
Cash-flow is made-up by company's Net Profits. Also, the clever managers have to adopt a smart *depreciation* policy, which it too *boosts* company's cash flow; of course, *the maximization of company's net profit is the prime factor suggested also by Economics, but this is out of manager's control in shipping depending on demand and supply. Cash-flow is also a statement that bankers pay attention when lending money...* Worth noting is the fact that the "cash-flow statement" is the only common financial report, which focuses on *changes* (in receipts and disbursements), known as "*the sources & the uses of funds*". The difference between these two indicates an increase (or a decrease) in company's *cash flow*.

The manager has to decide, therefore, further, cleverly, how much to resort to his *bankers* and how much to resort to his *shareholders*. How much to spend for buying ships with cash, and how much to pay in reducing company's debt. Also, management has to decide *when* to sell company's ships, and when to pay, and what amounts, to company's shareholders (dividends). To pay dividends, the manager gives-up his control over company's net profits, or retained earnings, while he keeps satisfied his shareholders. However, liquidity in shipping has to be kept at proper levels, before all other decisions. *In a depression the manager has to know that neither shareholders or bankers or stock exchanges can support the company in distress.*

As a result, a long term decision concerning the growth of the company by buying (or building) ships have to be taken first, and accordingly the other decisions can follow. For how much to pay for dividends, we have argued elsewhere in Modern Economy, that this has to be decided on shareholders' opportunity benefit from deposits of similar risk per annum. Finally, we have recommended for de-

preciation to be *analogus to company's net profits...*

In **Figure 3**, (a Descartes' diagram with all its 4 quadrants), we placed the “sources of cash” on the horizontal axis and the “uses of cash” on the vertical one (Priesmeyer, 1992).



Source: author; inspired by Priesmeyer (1992).

Figure 3. The “sources” of cash and the “uses” of it in an Enterprise.

If the company finds itself in quadrant 1, (upper half), then its cash-flow remains *unchanged*, because company’s uses of funds and sources of them, increased proportionally. Being in quadrant 2, it means an increased use of funds, and also a reduction in the sources of them, resulting to a *decrease* in cash-flow. In quadrant 3, both uses and sources of funds *decline in* proportion, and thus cash-flow does not change. In quadrant 4, the source of funds increased and the use of them decreased, while company’s cash-flow increased, *this was company’s desired position*.

But for a company in quadrant 4, we would suggest to increase its “earning” ships by reducing its accumulated liquidity... In a 2nd—best strategy, a company could decrease its *liabilities* by paying-off any expensive debt, (i.e. debt running at interest rates higher than company’s cost of capital). When a company is in quadrant 1, moreover, this means to have achieved a *normal growth*, where it should decrease further its UF.

Particular attention is called, however, when a company finds itself in quadrant 2, where both UF and SF *fall*. There are two solutions: 1) to sell ships and 2) to cut-down UF. This means either: a) to increase liabilities, or b) to raise company’s net worth, or c) to attempt a stock issue—but this last one it is advisable to be done *when* company’s cash flow is high.

13. Conclusion

When a shipowner obtained many ships, and it was impossible for him to be on

all of them, at the same time, (in “Owners’ Cabin”), he managed his ships by *delegating—part of his authority—over to ship’s Captain*. As a result shipping businesses, we can say, became one of an “*obligatory delegation*”. Apparently, this was a crucial task for company’s management and for the “sea human resource management” department. A sea-going factory, valued certain times at \$200 m, employing about 25 lives and a cargo of a considerable value, *has to be trusted-out to one person—the Captain*.

Shipping offices, resorted, in the case of “Management by distance”, to applying “formalization”, meaning a set of written instructions in the form of 100 - 150 circulars, containing instructions *of what the “ship” has to do* in various circumstances... This meant to “standardize ship’s jobs” and determine the extent to which crew behavior has to be guided by rules and procedures.

The circulars are written by the departments on the occasion of a mistaken action from the part of the crew, and are rarely proactive as they should be. Of course a number of errors from the crew, ignoring repeatedly, and especially, ship operator’s instructions, leads to the removal of him from company’s staff. In certain, serious cases, it is management, which writes these circulars.

Historically, till 1860s, international communications were carried-out only by mail. In 1841, P&O introduced a fast mail service to India. In 1855, the first Atlantic cable was laid up. In 1865, a land cable from Siberia to Bombay laid-up. The S/S “Great Eastern”, in 1865, laid-up the first transatlantic cable, having, however, an unfortunate end. In 1866, a new cable laid-up, and by 1897 162,000 n.m. of cables have been laid-up.

The “obligatory delegation” was very important, which has transformed completely the importance of the human resources management on vessel and the quantity of risk, which shipowners had to run thereafter. Thus, managing a vessel became a task from managing her “personally” (“in site”) to “manage her from a distance”. The managers of the shipping companies had so a disadvantage vis-à-vis their shore colleagues, because they have to manage a “factory” *which do not see* and their eyes and ears are not their own, *but those of their Captains...*

Today, the use of the mobile phones, cameras, etc. greatly improved the effectiveness of the task of management by distance 24 hours per day. “Management by distance” has also resulted for shore management to be absolute scholastic on *matters of control* and on *matters of organizing*. Today, the “satellite communications” have undertaken the task to connect ships to shore and ships among them. Thus “the effective management by distance” is possible nowadays to be done through faster, perhaps cheaper, and certainly more effective communications by using satellites. Moreover, the 2019 Pandemic, made the practice of “working by distance” from an exception to regularity: but were the managers ready?

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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