

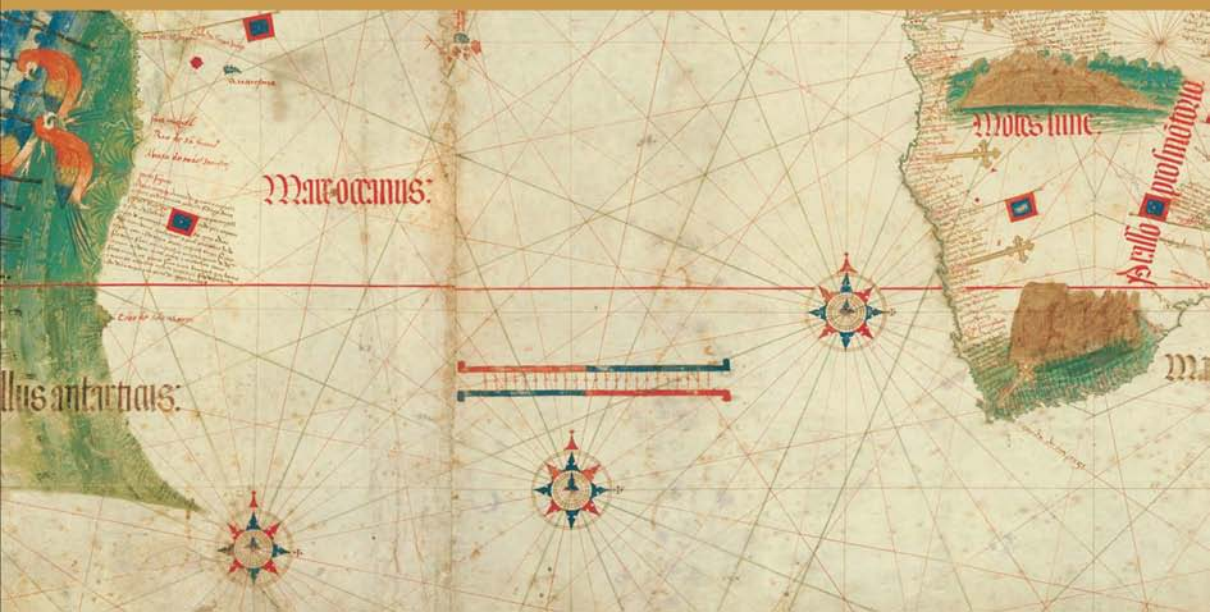


PIONEERS OF GLOBALIZATION

Why the Portuguese surprised the world

CENTROATLANTICO.PT

JORGE NASCIMENTO RODRIGUES / TESSALENO DEVEZAS





FIVE THESES

A 270-page time travel along the routes that led to the birth of Globalization, contributing robust evidence regarding the pioneering role of the Portuguese in this important chapter in the evolution of the world system. The Portuguese alone originated the maritime routes on a global scale and this feat will remain recorded in human history for the millennia to come.

Five main theses are defended in this book:

- History is not a mere accumulation of past facts, the fruit of chance and uncertainty, and the Science of History is not a simplistic narrative of past 'stories.'
- Globalization is an evolutionary and irreversible process, initially conceived in China around the 10th century, and born with the Portuguese Discoveries movement in the 15th and 16th centuries.
- The Portuguese were pioneers in the process that led to the transition to a true global system of cultural and commercial exchange.
- The application of systemic methodology to the analysis of History allows for the construction of viable future scenarios.
- There is an inheritance from the Portuguese generations active during the apex period between the 15th and 16th centuries (the "Discoveries Matrix"), as well as a portfolio of acquired knowledge regarding this country's capacity for resilience and its historical relationship to some of the emerging 21st century powers.

Global Way, Fair Way

Since its organization as an Entrepreneurial Group in 1994, EDP, Energias de Portugal, SA, has affirmed a clear globalization strategy in the sector of utilities.

Today it is the third largest Iberian company of electricity, is second reference to the gas sector of the Peninsula, is the fourth largest enterprise in wind energy on a world scale, has a relevant position in Brazil, has a presence in the United States of America and develops projects in other parts of the world, such as the south of China.

One of the key values in our EDP Way is ‘Global and Fair’. It is in this perspective that we continue and see our own spirit in the sixteenth century Portuguese Discoveries, which this book, now published, documents through a consistent and stimulating scientific approach.

The Portuguese were, in that period, the pioneers of Globalization, introducing a group of distinctive elements – *the Portuguese difference* – which the authors of this book condensed in what they coin “the Discoveries Matrix”.

The EDP Way sees itself in the essence of these principles, which make unique the Portuguese historical feat.

To all those who would like a more complete vision of the Portuguese difference, we suggest this book. It presents new analytical perspectives for the times we live in and for the ones to follow.

Last, but not least, we add that reading this book brings moments of pleasure and therefore may be considered a good companion for an intercontinental flight in this “flat world” we inhabit.

ANTÓNIO PITA DE ABREU

Executive Director of EDP, Energias de Portugal, S.A.

Thinking 'global' six centuries ago¹

All Portuguese learn very early in the school about our glorious 15th-16th century navigators and explorers, who expanded European knowledge of the world and built the first truly global empire, one that has beaten records of longevity, having lasted in various forms for almost six centuries, until quite late in the 20th century.

Those glorious times became part of our common culture and convention: a period during which Portugal reached a zenith of global pre-eminence never again repeated, but of which in reality most of us know little more than that.

We should learn from the lessons of the past to embrace the challenges of the future. The first globalization strategy demonstrated that countries and companies don't have to be big or to be in the centre to become successful. It proved the value of the right combination of risk, curiosity, ambition and knowledge, to design and execute such a remarkable endeavour.

The Portuguese globalization was also the first revolution in communication. "The geographical discoveries brought in their wake a mass of new information about the extent and true appearance of the world. They led to encounters with many other peoples, and brought into contact a profusion of different cultures and civilizations. Much-coveted products and new sources of wealth arrived daily in the ports of Europe. The secrets of the planet were gradually being discovered. The circulation of printed information was increasing." (Graça Moura)

In today's world, a growing part of the population is already connected and knowledge is available everywhere – in a few decades the Internet has changed the world and is still in its infancy. We believe in the power of this Human Network: the more we know each other, the more we are prepared to cooperate and co-create. Globalization needs both local and global leadership, so that we can embrace a future based on collaboration, trust, and dialogue between civilizations.

And these are the lessons that Jorge Nascimento Rodrigues and Prof. Tesaleno Devezas bring to us with unprecedented scientific value in the present book. Thus a final word of gratitude to the authors of this work, which Cisco proudly sponsors and which we strongly recommend to the daring discoverer that sleeps within each of us.

CARLOS BRAZÃO, General Manager, Cisco Portugal
DIOGO VASCONCELOS, Distinguished Fellow, Cisco International

¹ Complete version at www.centroatlantico.pt/globalization

Looking at the world from outside the box

At Critical Software we feel we truly understand the Portuguese mindset during the “Discoveries Period”. Being global is our natural way to be. There would be no point in developing the technologies we have, if we were considering only a local or national market. Partnerships throughout the world help us implement this policy.

We praise knowledge and cherish wisdom. We thrive daily to put in place the mechanisms that allow us to identify valuable knowledge, to manage it wisely, and to create an environment where it may steadily flourish. This is a long term, endless battle that also means a lot of fun and adventure along the way.

We think on a long term basis and look at our world from outside the box. The hardest daily version of this is, as the Portuguese did in the 15th century, to conciliate this strategic focus with the most pragmatic issues that come to our door. Motivation and a firm united team are key factors in accomplishing this goal.

This is why we decided to support this distinguished book. The authors have done, as we are used to seeing from them, excellent work in bringing the subject vividly back to our minds, and systemizing it in an incredibly intuitive way.

GONÇALO QUADROS
CEO of Critical Software
www.criticalsoftware.com

A tale about strategic intent

This book is a tale about how strategic intent can bring success or even domination, regardless of original size or the resources you have. It is a message of hope and pride for all Portuguese companies. Being about our own country, Portugal, this book concludes as to the effect that may have on us, but any other start up company in the world may enjoy the underlying message: you do not need to be big and resource-loaded, nor be born in the middle of a magnificent Michael Porter Diamond Model “cluster” to be successful through internationalization. Intent and focus will provide a chance to everybody with a great idea.

Fifteenth century’s Portugal had a population of barely 1 million people, with no relevant natural resources nor agricultural or manufacturing abilities worth mentioning. It hadn’t even domestic wood to build the ships at the beginning of the process (back in the 14th century). But within the following century it projected influence and control in regions as distant as the Far East.

As with Portugal 600 years ago, by the early 1990s Euronavy decided to ‘sail’ with not much more than a Vision blowing its sails. We strongly believe in strategic intent and focus, that means, focus as a plausible path for success. Portugal proved it, and Euronavy together with a lot of innovative contemporary Portuguese companies are following the same path.

A much deserved ‘thank you’ to the authors for reminding us of our History, in a way that reinforces our trust in the path we follow in our professional lives.

MÁRIO PAIVA
President of Euronavy, S.A.

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This book is dedicated to Professor George Modelski,
political scientist and founder of the Long Cycle Theory;
a due homage to his worth and wisdom.

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Our thanks go first to the “father” of the idea of this publication in English, Professor Carlos Zorrinho, coordinator in Portugal of the Technological Plan and the Lisbon Agenda of the European Union, as well as to the Calouste Gulbenkian Foundation, in the person of its Science Director, Professor João Caraça, who continually encouraged and supported the investigative project and the expression of the theses presented in this book, after its presentation at the conference “Globalization as Evolutionary Process,” held at the IIASA (International Institute of Applied Systems Analysis), in Laxenburg, Austria, in April 2006.

Further, our sincere acknowledgements go to the sponsors of the English edition: *EDP-Energias de Portugal* (the largest provider of energy in Portugal, and one of the top 3 in Iberia); *Cisco Systems Portugal*; *Critical Software* (a high-tech Portuguese leader in its technological field), and *Euronavy* (a Portuguese world leader in its niche of

offshore marine and protective coatings), four meaningful examples of successful globalization strategies.

Our thanks also go to Fundação Luso-Americana para o Desenvolvimento (FLAD) and the Portuguese Consulate in Boston for their support for the presentation and discussion of this project at Harvard and Brown Universities.

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Introduction

Why the Portuguese Surprised the World

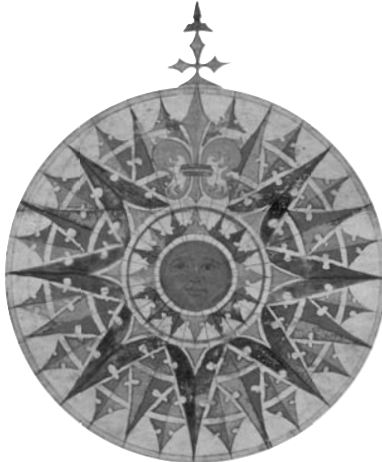


«*Ele começa: “Ó gente, que a natura / Vizinha fez de meu paterno ninho,
Que destino tão grande ou que ventura / Vos trouxe a cometerdes tal caminho?
Não é sem causa, não, oculta e escura, / Vir do longínquo Tejo e ignoto Minho,
Por mares nunca doutro lenho arados, / A Reinos tão remotos e apartados.»*

LUÍS VAZ DE CAMÕES, **Os Lusíadas** (1572), Canto VII, 30

«*He begins: “You people whom nature made / Neighbors of my own dear homeland,
What chance, what stroke of destiny / Led you to embark on such passage?
Some deep, hidden purpose brings you / From the far Tejo and obscure Minho,
To voyage on seas unsailed, / To kingdoms as remote and strange as these.»*

LUÍS VAZ DE CAMÕES, **The Lusiads** (1572), Canto VII, 30¹



This book has a central idea – to demonstrate that Portugal was the first world power to develop the process that is now known as *Globalization*. It is a topic of major importance to the world today yet is often misunderstood on both academic and non-academic levels.

We elaborate here the vital role of Portuguese pioneers, the oceanic explorers in the 15th and 16th centuries, and hope to demonstrate that it is not a myth created by certain enthusiasts of the Age of Discoveries. What is new about our approach is that we do not rely solely on arguments and historical facts as done by previous authors, referred to throughout the book; but also, and mainly, we employ scientific models based on mathematical tools and principles of physics heretofore never brought to bear on the subject.

These scientifically based models and concepts are described in a manner that any interested layperson can grasp. On the other hand, this book is also carefully designed for readers acquainted with general principles of science and mathematics to present the concepts in their complexity without being monotonous.

Contents

Chapters I & II: The scientifically supported models referred to above are expressed succinctly and ‘softly’ in the first two chapters. Chapter I: “Globalization and World System”. Chapter II: “Systems Building – A Learning Process”. Although perhaps a difficult initial approach for some readers, both chapters are fundamental to the understanding of the complexity surrounding the subjects of globalization; of *hegemonic power*; of the struggle between world powers; and of the windows of opportunity for the emergence of globalization, its rise, fall, or alternatively its failure of implementation.

Chapter III: “Chronicle of the Rise and Fall of Portuguese Globalization”. The reader will find an historical analysis of the Portu-

guese expansion using a geostrategic vision easily understood by the layperson. This serves as a factual and temporal basis for the exposition of 15th and 16th centuries pioneering and the initial period of decline following the mid-16th century. After comprehension of the more difficult scientific context in the first two chapters, the book turns in this chapter to a brief walk through 200 years of Portuguese history, viewed through the lens of keywords (e.g. power strategy, global intent, global projection, dilemma of overextension, etc.). The outstanding characters in this time travel, especially Prince Henrique “the Navigator” and King João II (Prince Henrique’s grandnephew) are showcased as part of the gallery of the great European strategists of all time.

Chapter IV: “The Portuguese as System Builders”. The *heart* of the book. It is subdivided into four sections: “Technical and Scientific Environment of Phase I,” “Technical and Scientific Environment of Phase II,” “Quantitative Analysis,” and “The Wave Mechanism.” For the more knowledgeable reader as well as those coming to this area for the first time, this chapter synthesizes the innovative and unique role that distinct Portuguese generations of 15th and 16th centuries had on the world stage, both on a technological and a strategic level.

Chapter V: “The Detours of History”. One of history’s most common misconceptions and misjudgments is its diminishment of the role played by Portugal in relation to that of Spain during the reign of Queen Isabel I of Castile and King Fernando II of Aragon, mainly by virtue of an almost media-created celebrity surrounding the figure and expeditions of Christopher Columbus (this controversial figure is discussed in Chapter III). The reader will also find here a brief analysis of the main impacts of the Portuguese discoveries on the world’s culture of that time.

To finalize this chapter, a speculative viewpoint on the “Discoveries Matrix” is formulated regarding its importance as the wellspring

of inspiration for the Portuguese to “navigate” in today’s context of change. The return to this matrix, in contrast to the modern tendency of erratic politics in terms of international relations, does not share any inherited revival of the old vision of a country in the corner of Europe having a “mission and historical consciousness” of divine manifestation or myth of a “Fifth Empire.” Our vision of the 15th and 16th centuries is based on the evolutionary role of a set of Portuguese geostrategic and technological innovations and the strategists associated with them. We have not taken these strategists as myths and do not make moral judgments on them – though being fully aware of Prince Henrique’s role in the expansion of Europe’s African slave trade, King João II’s exertion of brutal tyranny and King Manuel I’s *hard power* strategy in the Indian Ocean.

This “Discoveries Matrix” allows us to understand what was original and unique about Portugal of that time: organizational improvisation; step by step development for more than a century in creating a strategy based on variable geometry; escape out of the strictly European geopolitical battlefield; and the design of a strategic global objective which targeted the international commerce routes. These routes had until then been under the dominion of alliances between great Oriental powers, Muslim governors and merchants, and certain European financial institutions (from the Mediterranean and the North Sea). They formed a quasi-multipolar world of a variable geometry shared thus by the Italian maritime republics, which were then in charge of the system; by the Flemish financial centers; by the Muslim and Ottoman routes through North Africa and India; and by the great power of the Far East, China, that in 1433 abandoned its maritime exploration strategy. The transition from this quasi-multipolar world to a hegemonic world dominated by the first global power represents a spectacular lesson of history taught by the example of 15th and 16th centuries Portuguese strategists. It establishes a turning point that exceeds the traditional perspective on the transition from the Mediterranean to the Atlantic.

Chapter VI: “Epilogue – Suggestions for the Future”. The final chapter resumes the five main theses presented throughout the book, which may serve as an orientation for future generations.

Appendix: “History – Facts and Dates”. A timeline is presented of the main historic events which marked the evolutionary process of the Portuguese expansion. Two hundred of these were chosen to measure the intensity of Portuguese activity during the Age of Discoveries and these events served as the basis for the quantitative analysis presented in Chapter IV.

Bibliography: works used or referred to by the authors. There follows a sequence of notes divided according to the different chapters, with extensive bibliographic references helpful to readers interested in more in depth knowledge of this subject. Readers familiar with mathematics can find a brief explanation of the logistic curves and their properties, which were used for the quantitative analysis in Chapter IV, by following this book’s link at the website www.centroatlantico.pt/globalization

Globalization

As further introduction, it is necessary to devote some attention to one of the main topics of this book: the evolutionary concept of *globalization* as treated in the present analysis.

The first use of the adjective “global” appeared in 1892 in the pages of *Harper’s Magazine* (September issue)² and in 1961 the word “globalization” was introduced in Webster’s dictionary, displacing in the 1970’s the French expression “mondialisation.” In the mid-1960’s and during the 1970’s the topic of globalization started to gain form and substance, when there appeared the expression “global village” (attributed to Canadian author and philosopher Herbert Marshall McLuhan, especially in his 1968 book co-authored with the graphic

designer Quentin Fiore) to denote the global communication system in expansion at the time.

Nowadays, globalization is the preferred term to indicate the new world affairs era consolidated after the end of the Cold War, having become a true buzzword. There is some agreement that a universal definition for this term cannot be found. On the other hand, it is a growing concept in the world scene in that it translates the feeling of great transformations on the way which must be understood, because their effects reach all strata of human society, on the planetary, national, and local levels.

Today there are more than 5000 publications associated with this topic, various entries in Wikipedia in different languages, and nearly 80 million references on Google in four languages (English, Spanish, Portuguese in both forms, and French, in decreasing order of search results).

Discussing and comprehending the dictionary definition of this term or concept is not the objective of this book. However, we cannot stress enough that the approach followed in our analysis considers globalization to be an evolutionary, irreversible, multidimensional, transformational, long-term historical process of paramount current importance.

There are more restrictive schools of thought that consider globalization an institutional phenomenon or merely a consequence of global interconnectivity. Even the definition attributed by the National Intelligence Council (USA, 2004:27) – “*Globalization denotes the growing interconnectedness reflected in the extended flows of information, technology, capital, goods, services, and people throughout the world*” – seems too narrow to express the multidimensionality of the evolutionary process which this phenomenon represents.

In the models presented, globalization is regarded as a process that occurs over time, and therefore it is an historical process. Its com-

prehension implies a journey back in time to the first silk routes of Eurasia and to the world empire pursued by Genghis Khan (1165-1227) and his Mongolian successors in the 13th century. A process surfaced more clearly in the following centuries with the first Atlantic adventures led by Portugal, which conceived the first true global expansion project and brought “new worlds to the world” – as expressed by the Portuguese poet Luís Vaz de Camões (c. 1524-1580). By this the Portuguese pioneers forged the genesis of the modern world.

Globalization is a product of the modern world. Although among economists there is no common overarching opinion in relation to the development of economic globalization, recent studies show three basic waves in the last five and a half centuries.

The first wave was a consequence of the voyages across the oceans, initiated by the Portuguese at the beginning of the 15th century. It is only after the discoveries they made that the term «international commerce» begins to make sense – it became truly global involving four continents. Leo Huberman, in his famous **Man’s Worldly Goods**³, considers this period a real “commercial revolution”, when trade took on a dimension that had not existed during the Mongolian Empire or the golden Mediterranean age with the Italian maritime republics.

The elaboration of an evolving portfolio of commodities transformed Portugal, the “small peripheral rectangle of Europe,” as a main focus point. First, in Lagos, with the establishment of the House of Guinea by Prince Henrique, which assisted the infamous boom of slave trade, and later on, with the appearance of the new golden route in the Atlantic Ocean. The cultivation of sugar cane in Madeira, from 1452, would also bring a new type of business.

Later, King João II decided to move the House of Commerce to Lisbon, naming it the House of Mina. After Vasco da Gama’s return from India, spices entered through the Tejo river and Portugal assisted in the birth of the House of India, set in Ribeira Palace, during the reign

of King Manuel I. In 1503, the “Baixa Lisboaeta” became the center of the European pepper trade.

Gomes Eanes de Azurara in his **Chronicle of Discovery and Conquest of Guinea** (1453), stated that the expansion brought together two fundamental ingredients: the compelling force of the unknown and the attraction to high-profit commodities.

The Portuguese control over the international trade would last until the Dutch and English positioned themselves in some of the strategic Portuguese chokepoints, between 1580 and 1665. The two powers of the North Atlantic signed an agreement in London in 1619, by means of their East India companies, for this takeover operation. Since 1500, the international commerce grew 1% per year, according to studies by Michael D. Bordo – director of the Monetary and Financial History Centre of Rutgers University⁴. Alex MacGillivray affirms that the number of multinationals grew from 500 in 1600 to double that amount in 1700.

The second wave of economic globalization was launched after the Vienna congress, following Napoleon’s defeat at the beginning of the 19th century. The opening of the Suez Canal in 1869 was a landmark event in the formation of new route to India. It was considered the golden period, according to J.A. Hobson’s 1902 study⁵, which later would be called ‘Imperialism’. Michael D. Bordo stated that international commerce grew 3.5% per year until the appearance of the First World War in 1914. In the field of foreign direct investment (FDI), England, then the leading global power, dominated 50% of FDI in 1914, followed by France (20%), Germany (17%), USA (6.5%) and Holland (3%)⁶. The number of multinationals shortly before the war was 3000, six times more than 300 years before.

Cecil Rhodes (1853-1902), British-born South African, founder of De Beers, director of the British South African Chartered Company (1889), prime-minister of the first British Cape Colony (1890), and colonizer of the region known as Rhodesia (Zimbabwe today), declared

in his political posthumous testament (published in 1902)⁷ the following concise statement in relation to world powers: “The world is almost completely divided, and the rest is being divided, captured and colonized... I would add planets if I could. I always think about this. I am saddened by seeing so clearly but, at the same time, so hazily”.

It is important to remember that Rhodes was one of the many propagandists against the “Pink Map” (the document representing Portugal’s claim of sovereignty over the land between Angola and Mozambique), obtained by the Portuguese negotiators of the treaties from 1885 and 1886 with France and Germany. In 1890, the British Ultimatum led to a strategic withdrawal of the Portuguese King Carlos I and the negotiators of that time, which accepted England’s demands and ruined the possibility of uniting the two Portuguese colonies of Angola and Mozambique.

The third wave of globalization indicated in Michael D. Bordo’s study began with the Nixon “shock” due to the abandonment of the gold standard in 1971 (suspending the conversion of the dollar into gold) and of the Bretton Woods System (*Agreement* signed in 1944 by the Allies) in 1973, which had progressively eliminated control over the flow of capital.

In the following years this wave was further impelled by three political facts with global impact – the economic reforms introduced by Deng Xiaoping which opened China to the world in 1978, the fall of the Berlin Wall in 1989 together with the implosion of the Soviet Union, and the beginning of the economic reforms in India in 1991.

According to MacGillivray, the growth in the number of multinationals has been overwhelming during the last 20 years: from 18,500 in 1980, to 30,000 a decade later, and more than 64,000 presently.

More recently, Goldman Sachs revealed shocking news: China, the largest member of BRIC (the group of four emerging economic

powers – Brazil, Russia, India and China), could transform itself into the primary economic superpower of the world between 2020 and 2040⁸. This statement opened the door for Zhibin Gu, a Chinese consultant and author, to name his country as the biggest “globalizer” and the biggest “world business theater”⁹.

Recently 20 Chinese societies were listed among *Fortune* magazine’s annual list of the 500 biggest enterprises of the world, and The Boston Consulting Group identified 44 promising Chinese businesses among the 100 «new global challengers» or, in other words, among the companies which will dominate in the future.

Motivation

We were motivated to write this book by the great interest and curiosity that developed after the presentation of this topic in an international seminar (“Globalization as Evolutionary Process”) at the International Institute of Applied System Analysis (IIASA) in Laxenburg, Austria, in April 2006, sponsored by the Calouste Gulbenkian Foundation. The scientific content briefly described in Chapters I, II and IV can be found in greater detail in the scientific magazine *Globalizations*¹⁰. This book is the result of a partnership between two authors with unrelated academic and professional backgrounds: an international scientific investigator, born in Brazil and presently working at the University of Beira Interior, Covilhã, Portugal; and, based in Lisbon, a Portuguese editor of web portals, author of an array of books on select topics, and contributing editor to management and technology periodicals. Therefore, this book reflects the combination of two diverse yet complementary approaches.

The Authors

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TESSALENO CAMPOS DEVEZAS, based in Covilhã, Portugal, is Associate Professor with Habilitation at the Faculty of Engineering of the University of Beira Interior, Covilhã, where he teaches and researches in the field of Materials Science and Technological Forecasting and leads the Working Group in Technological Forecasting and Innovation Theory. He is a member of the World Future Society, World Futures Studies Federation and International Kondratieff Society and member of the Advisory Board of the periodical *Technological Forecasting & Social Change*. Prof. Devezas earned a BSc in Physics in 1970 at the University of the Estado do Rio de Janeiro (Brazil), a MSc in Materials Science in 1974 with the Instituto Militar de Engenharia (Rio de Janeiro, Brazil), and a PhD in Materials Engineering in 1981 at the University Erlangen-Nürnberg (Germany). In 2002 he was honored with the “Elsevier Best Paper Prize” for his paper proposing a model explaining the mechanism underlying the long economic waves (Kondratieff waves). In 2004 he was awarded with the Kondratieff Medal by the Russian Academy of Natural Sciences for his written contributions to the understanding of the Kondratieff waves. He is the editor of the books **Kondratieff Waves, Warfare and World Security** (2006, IOS Press, Amsterdam) and **Globalization as Evolutionary Process** (2007, Routledge, London) and has more than 50 publications in international periodicals.



INNOVATION & STRATEGY IN MODERN HISTORY

**The world system's telltale signature unveils
the emergence of the first globalizing power**

- How did the Portuguese of the 15th and 16th centuries become the Pioneers of Globalization?
- How did the Navigators give "*new worlds to the world,*" as voiced by the great Portuguese poet Luís de Camões?
- Who were the great strategists of the Discoveries, Prince Henrique, "the Navigator," and King João II, "the Perfect Prince," and what roles gave them their curious sobriquets?
- Why did the Portuguese "innovate in the art of innovation"?
- Why did the Spanish draw into their service the enigmatic Christopher Columbus and the Portuguese Ferdinand Magellan and what did it mean for the Portuguese?
- What killed the Portuguese cycle of leadership?
- What was the secret of the Portuguese difference?

This is an innovative contribution to the global debate about globalization. It makes a cogent – and readable – case for Portugal's pioneering role in the early phase of globalization. It also is an extended test of an evolutionary analysis of that process, which is driven by K-waves and the long cycle of global politics. That understanding, in turn, forms the basis of the future suggestions that completes this successful work.

GEORGE MODELSKI
Professor Emeritus of Political Science,
University of Washington

This book represents one of the best treatments of the Portuguese technology utilized in its major contribution to an earlier phase of globalization. The idea of system building is also a contribution. It is one answer to the classical structure-agent problem: the Portuguese set out to build a system. While they may not have fully understood what they were doing, they did create and impose a new partial structure on world politics and the world economy. A third contribution is the long cycles discussion, which demonstrates that these efforts have a temporal shape and are finite. Bluntly put, system builders eventually run out of steam.

WILLIAM R. THOMPSON
Rogers Professor of Political Science,
Indiana University

A non-nationalistic approach in the revisitation of the developments in the spreading of a 'scientific' mentality among key figures involved in the Portuguese maritime explorations is fundamental if we are to enter into a dialogue with non-Portuguese historians, particularly those recognized as

the dominant forces in contemporary historiography. There is indeed much in our 21st century books that is not yet known, or insufficiently known, outside of Portuguese circles, and that deserves its place in the narrative covering the emergence of modern science and technology. Let us hope that this book catches the attention of those who should learn from it.

ONÉSIMO T. ALMEIDA
Department of Portuguese and Brazilian Studies,
Brown University

This extremely well-researched and truly globally oriented book is a welcome reminder, especially to the European reader, of the world-system relevance of the Portuguese experience. The "Lisbon Process," initiated in 2000 by the European leaders, gathered at the European Council in Lisbon, aimed at transforming Europe into the leading economy in the world until 2010. Most indicators tell us that Europe will not achieve this ambitious task. This book, written from the very best perspectives of evolutionary world systems theory, shows to us that there are more important things to "worry about" than just the European Constitution, the accession of Turkey, and the further tightening of the external borders of the European Union: the position of Europe in the world system. And indeed, this small country at the far south-western corner of the European continent has an important message.

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