Strategic Opportunities Ahead: Leadership Options for Portugal in the 21st Century

Partha S Ghosh

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MIT Portugal
Three points:

1. Where are we? The Challenges and the Possibilities Ahead

2. Uncovering the Next Economic Paradigm? Towards a strategically guided future

3. *Likely strategic initiatives Portugal must consider*: Being Transformational, yet practical
Since integration with EU

1. Increased FDI
2. Higher level exposure to Global Economy
3. Modernizing Industry
Exports have increased, but imports have outpaced

Portugal Exports

- Exports
- Imports
- Hi-tech Export
- World Market Share

Hourly Compensation

$5.58

$11.95


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Portugal’s income statement has rapidly deteriorated

Balance sheet has become unhealthy

Portugal External Debt % GDP

*Date Source: World Bank

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Sovereign Debt crisis is indeed become infectious

US Debt as % of GDP
Unemployment has been on the rise for a decade

Portugal’s Unemployment Rate
% of Total Labor Force

*Date Source: IMF, Eurostat, CIA Fact book

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What is the pathway forward?

Liquidity to spur demand

Market is the driver
Best govt. is the least government
Portugal’s Future Leadership

Liquidity to spur demand

Market is the driver
Best govt. is the least government

Strategic Reflector

1. Harness energy to bounce back
2. Reflect on the past to define new model
3. Agree on a Global Strategy

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Portugal’s Future Leadership

Liquidity to spur demand

Market is the driver
Best govt. is the least government

Strategic Reflector

Strategic Guided
2011 ~ 2020
Portugal’s trade deficit per capita has to be corrected

Average Growth Rate (1998-2008) vs. Trade Balance($) per Capita (2008)\textsuperscript{1,2,3}

<table>
<thead>
<tr>
<th>Country</th>
<th>Average Growth Rate</th>
<th>Trade Balance ($)</th>
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<tbody>
<tr>
<td>Portugal</td>
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<tr>
<td>Japan</td>
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<td>US</td>
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<td>France</td>
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<td>Greece</td>
<td>9%</td>
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<td>Bangladesh</td>
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<td>Greece</td>
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</tbody>
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1. Energy Information Administration - EIA (http://www.eia.doe.gov/)
2. UN Nations Population Division (http://www.un.org/english/)
3. World trade Organization (http://stat.wto.org/)
External orientation is essential

Exports per Capita (US $)

Germany

Portugal

$118,440/Capita of mfg labor

$35,056/capita of mfg. labor
Develop a strategic pathway

Japan GNP ($)/Capita growth curve

Super Advanced Area

Advanced Area
Take advantage of phase shift the world is in middle of Paradigm Shift

Discontinuity

The Past/Past
- Consumption Driven model
  - G7 focused
  - Relatively more clear boundaries

Emerging requirement
1. Conservation driven model
2. Rise of Emerging Economies
3. Fuzzy and blurring boundaries
The Two Strategic Vectors: Scope of the Future Industry?

**Balance?**

- Conservation driven
- Consumption driven

- Positioning Science & Engineering with a strategic perspective?

- Point Solution
- Thesis of Economic Advance
- Holistic/Integrative Solution

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How could Portugal could take advantage of Expanded Field

Industry’s Future (?): Two Strategic Vectors

Balance?

Conservation

Balance of Ecology

Carbon Free Energy System

Future Engineer

Creating New Game Energy/Materials

Next generation Knowledge Intensive Solutions: “Small is beautiful”

Energy Efficient consumption

Perspective?

Point Solution

Thesis of Economic Advance

Today Improved functionalities

Process Intensification

Lighter Products

Recycling

New Chemistry for the Car

Full recovery of Waste

Agro based High value added Industry

Systems Approach to Energy & Transportation Management

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Towards Circular Economics = *Play of 5Rs*

Old paradigm: Linear Business Model

- **Create**
- **Make**
- **Sell/Serve**

Shrinking resources

Overflowing landfills

Possibly Paradigm: Circular Business Model

1. **Reclaim**
2. **Reverse Logistics**
3. **Recover**
4. **Re entry**
5. **Repurpose**

Enhanced Value Recycle model
Three points:

1. Where are we? The Challenges and the Possibilities Ahead

2. Uncovering the Next Economic Paradigm? Towards a strategically guided future

3. Likely strategic initiatives Portugal must consider?: Being Transformational, yet practical
“Strategic Connectivity” with the World through distinctive value propositions
Three strategic Imperatives

1. Move Towards a strategically guided economy
2. Adopt a strategic framework
3. Agree on the strategic Platforms
Portugal must consider to make a philosophical shift

Economic Philosophy

- Free Market
  - Market is the driver
  - Western Europe
    - USA
    - UK

- Mixed Economy
  - Portugal

- Strategically Guided

- Socialism
  - State is the Driver
    - USSR
    - EE
    - China
    - North Korea

- Centrally Controlled

Where is the Power?
Adopt a Strategic Framework that group industries into different roles *requiring different policy supports*

**Socio-Economic Impact**

- **Development Sector**
  - Build Competitiveness through special incentives

- **Locomotive Sector**
  - Develop Aggressively through infra-structure supports and policy incentives

- **“Free market” Sector**
  - Leave to Market Forces

- **Promotional Sector**
  - Promote / Create Scale through innovative marketing

**Global Links**

**Stage of development and uniqueness**

**Domestic Environment**

**Competitiveness of input factors**

*Partha S Ghosh & Associates Model*
Complexity of growth: Successful Innovation typically builds on the core

- G7 restructuring
- Conservation driven industries
- Rise of Asia Pacific

Trends

Core

Global Niches

New-to-world needs
New substitutes
New models

Strategic Platforms

Soft & Hard Assets

Value Propositions

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Strategic Opportunities

Strategic Platforms?

Energy | Ecology | Finance | Industry

Investments to define niches & increase productivity

Seat current assets while creating new assets
Many new businesses are “born” globally

<table>
<thead>
<tr>
<th>Platforms</th>
<th>Europe</th>
<th>Asia Pacific</th>
<th>North America</th>
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<tbody>
<tr>
<td>New energy Equipment</td>
<td></td>
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<tr>
<td>Agro Products</td>
<td>1</td>
<td></td>
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<tr>
<td>Aero space</td>
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</tbody>
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1. Wind Power
   - Turbine parts
   - Storage electronics

2. Discontinuity
   - New materials
   - Bio fuels
   - Service Centers

3. Globally niches
   - Solar
   - Aircraft components
   - Pharmaceuticals
   - Engine PARTA
For example with British Auto Industry could Portugal rejuvenate its engineering industry

- **The UK is positioned as the home of world motorsport**
  - Wealth of technology
  - Precision engineering
  - Advanced skills
  - 4,000 companies involved in motorsport industry

- **Economic Impact**
  - 221,000 Jobs in the manufacture and design of vehicles and components
  - 550,000 Jobs supporting the motor industry
  - Industry Represent 12.7% of total UK Exports

- **Opportunity – influence and produce components for efficient cars throughout the world**
  - Efficient engine designs, concepts, and production
  - Light weight materials design and production
Portuguese Industry must strategically build on its wage rate advantage

Hourly Compensation versus Labor Population by Selected European Countries


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Current Assets to Adjacent Industries
Japan’ changing Population “Pyramid”: Could Portugal carve out a role?

Source: Population projections for Japan, National Institute of Population and Social Security Research (NIPSSR)
Building a strategic bridge with Germany

- Leader in Production of Chemicals
- Research & Development
- Workforce
- Manufacturing Supply Chain
- Market Leader in High Tech Products
- Worldwide Demand

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Particularly as Japan & Germany transitions into higher value added products

As Germany and Japan invests in advanced manufacturing for high-value products, could Portuguese adopt “Push & Pull” strategy?
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The timing is right for a fresh look at developing an Enterprising Portugal

1992 2011 2020

Socio Economic Experiments

1. Increased FDI
2. Higher level exposure to Global Economy
3. Modernizing Industry

Freedom from Old Constructs & Thinking Habits

Becoming Enterprising?

1. Form a Strategic Guidance Unit
2. Strengthen “income statement”
3. Nurture a sustainable economic Model

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Different regions of Portugal must be strategically developed as Growth Platforms

- High knowledge intensive services
- Agro based knowledge intensive industries e.g. Port wine, Cork based
- High knowledge intensive manufacturing
- Local skill intensive Agro industry
- Next generation niche tourism services

Illustrative
Different technology centers will need to be created

Four technological Building blocks for the 21st century

- Nano
  - Nano electronics
  - Nano medicine
  - Nano Materials e.g. Nano carbon tubes
- Opto
  - Optical circuits
  - Photo conductivity
  - Photo emissivity
  - Photo voltaic/electric effect
  - Stimulated emission
- Bio
  - Bio mimetics
  - Genetic Testing
  - Pharmagenomics
  - Gene therapy
- Bio Informatics
- Bio Materials Polymers
- Agriculture
  - Crop Yield
  - Increased nutrition
  - Reduced dependence on fertilizer
- Information
  - 24 Hour Commerce
  - Interactive Content
  - Broadband wireless
  - Distributed Intelligence
- Medicine
  - Light emitting diodes
  - Photo voltaic/electric effect
  - Stimulated emission
  - Photo conductivity
Portugal’s New Role?

Prominent stature in key emerging industries

EU member with Middle Income Economic Stature
Two Significant Requirements for Ideation Economy

- *Innovation Game Board*

![Diagram with axes labeled Global, Perspective, Scope, and Rules, ranging from Low to High. The diagram also highlights the concept of Courage to reconfigure.](image-url)
The Frontier spirit