Korea’s National Standards System as an Economic Growth Engine and Its Implication

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I. Economic Growth and Standard Development
1. GDP and Export Growth in Korea

- **GDP:** (1970) 279B$ → (2022) 33,591B$ (120 times)
- **Export:** (1970) 0.84B$ → (2022) 683.6B$ (814 times)

![GDP and Export Growth Chart]

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP per capita</th>
<th>Export (billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>158</td>
<td>0.03</td>
</tr>
<tr>
<td>1965</td>
<td>109</td>
<td>0.17</td>
</tr>
<tr>
<td>1970</td>
<td>279</td>
<td>0.84</td>
</tr>
<tr>
<td>1975</td>
<td>618</td>
<td>5.1</td>
</tr>
<tr>
<td>1980</td>
<td>1,715</td>
<td>17.4</td>
</tr>
<tr>
<td>1985</td>
<td>2,482</td>
<td>30.3</td>
</tr>
<tr>
<td>1990</td>
<td>6,610</td>
<td>67.8</td>
</tr>
<tr>
<td>1995</td>
<td>12,565</td>
<td>131.3</td>
</tr>
<tr>
<td>2000</td>
<td>12,257</td>
<td>172.3</td>
</tr>
<tr>
<td>2005</td>
<td>19,403</td>
<td>284.3</td>
</tr>
<tr>
<td>2010</td>
<td>23,087</td>
<td>466.4</td>
</tr>
<tr>
<td>2015</td>
<td>28,732</td>
<td>526.8</td>
</tr>
<tr>
<td>2020</td>
<td>31,721</td>
<td>512.6</td>
</tr>
<tr>
<td>2022</td>
<td>33,591</td>
<td>683.6</td>
</tr>
</tbody>
</table>

Source: IMF and KITA
2. Korea’s Export Performance

- Korea’s Export was among Global Top 10 (2022), 683.58 (in billion US dollars) / Ranking 6th
- Followed by China, USA, Germany, Netherlands, and Japan

![Top 10 export countries worldwide in 2022](chart)

Source: KITA
3. **World Class Product**

- The number of Korea’s World Class Products has grown eight times:
  - (’01) 120 products/140 companies → (’22) 939 products/1060 companies

- Expansion of world No.1 products has been supported by export-driven policy and globally-harmonized standardization strategy

![Chart showing the growth of Korea's World Class Products and Companies from 2001 to 2022.](chart.png)
4. Growth of Korean Standards

- **1962-2000**: Zero to 10,000+ KSs
  - ✓ Product Based Standards; Mainly from JIS, BS, DIN, ASTM, etc.

- **2000-2022**: 10,000 to 20,000+ KSs
  - ✓ Function based Standards; Mainly from ISO, IEC
Quantitatively, the number of KS is world class level
✓ Similar to the total volume of ISO

In consideration of industrial changes, Korea adopted new classification system in KS:
✓ In line with ISO ICS (International Classification System)
✓ More standards on functions and processes than product standards
6. Korea’s International Standardization Activities

- Increasing number of NWIPs
  - 7 NWIPs (2001) → 1,234 NWIPs (2022) (176 times)

- Actively participating in international standardization works
  - Number of Leaders: (2001) 6 persons → (2022) 250 persons (42 times)
II. Establishment of National Standard System
1. Background

The Korean national standard system was adopted as a strategic tool for economic development!

- To achieve economic growth, Korea needed to develop heavy & chemical industry for export
  - Selected petrochemical, steel, electrical/electronic, shipbuilding, and automobile as key industries

- Competitiveness in price and quality is a key to export in global market.
  - Enhancing price competitiveness through higher productivity
  - Improving quality competitiveness required for fine measurement technologies

- The government was aware of the need for measurement standards and industrial standardization
  - The government adopted industrial standards for mass production and as an national economic growth engine.
2. Introducing Korea Standards (KS)

Korea built organizations and systems to introduce Korea Industrial Standards

- Set up an organization to coordinate standard policies and affairs at the Ministry of Commerce and Industry
  - Set up the Standards Bureau (1961) and founded the Korea Standards Association (1962)

- Enacted the relevant laws to lay the foundation for the standards system
  - Enacted the Industrial Standardization Act (1961) and the Metrology Act (1961)
2. Introducing Korea Standards (KS)

Korea established development strategies for KS system and introduced ways to utilize KS.

- Established long-term development strategies to enhance KS System
  - Planned the 10-Year Plan for Industrial Standardization (1971)
- Sought ways to utilize standards so that the industrial standards system could take root early on institutional framework
  - Adopted the KS mark system (1963) and enacted the Industrial Goods Quality Management Act (1967)
  - Required businesses to employ quality managers and promote the training of standards experts (1971)
3. Framework for National Standard System (1/2)

Laws, organizations, and standards utilization and management are key factors.

- Enforced standard-related laws and organizations
  - Industrial Standardization Act and Industrial Goods Quality Management Act
  - Government organizations and private organizations
- Established the institutions for utilizing and managing standards
  - Set the standards for quality improvement, established medium and long term standardization plans, pursued international cooperation, and addressed TBT issues
3. **Framework for National Standard System (2/2)**

Adopted the conformity assessment system and built up standard infrastructures

- Adopted a system for KS certification and modernized testing facilities
  - Adopted the KS mark system and inspected export goods
- Continued to invest on standard infrastructure development
  - Trained human resources, secured budget, and adopted IT systems
4. Development Stages of Korea’s National Standard System (1/2)

Korea’s national standard system has developed in four stages: establishment, maturity, leapfrogging, and diffusion.

  - established organizations, laws, management systems, and plans
    - Industrial Standardization Act, Standards Bureau, Korea Standards Association, and medium and long term plans

- Maturity (1973–1995, Industrial Improvement Administration):
  - Maximized the utilization of standards to boost economic growth
    - Increased standards and specifications, consolidated the KS certification system, linked standards system with quality improvement, and modernized facilities
4. Development Stages of Korea’s National Standard System (2/2)

Korea’s national standard system has developed in four stages: establishment, maturity, leapfrogging, and diffusion.

  Internationalized Korea’s Standard System
  - Enacted the Framework Act on National Standards, adopted international standard systems, and participated in international standardization activities

- Diffusion (2015–present, KATS & government-wide participation): specialized standardization areas
  - For enhanced specialization, delegated standardization areas to nine ministries
5. Korea’s National Standard System

Constitution 127②
“The state shall establish a standard system”

National Standard Committee (MOTIE)
Working Committee (KATS)

Framework Act on National Standards(KATS)
Measures Act (KATS)
Industrial Standardization Act (KATS)
Industrial Standards(KS)

Laws
Scope
Measurement Standard
Legal Metrology
KATS

Organization
KRISS
9 Ministries

Mgt. System
Calibration
Reference Materials
KASTO
KTC.KTL

Customers
Industries/Testing Labs
Industries

Int’l Org. (Nat’l Body)
BIPM(KRISS)
OIML(KATS)

Inquiry points (KATS etc.)
Standard Conference
TCs(SCs)
WG
KTL,KTC,KTR, etc Testing Labs
Accredi-tations KOLAS
KEA
KIEL
NSU

Industries/Trade Org.
Potential People(Human Resource Development), IT tools, Budget, Equipment, Social systems, Technological Innovation

Industries/R&D Inst.
ISO/IEC(KATS) ITU(MSTICT)

ISO/IEC(KATS) ITU(MSTICT)

WTO(KATS)

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III. Implications from Korea’s Experiences
1. Implications from Establishment of Korea’s NSS(1/4)

Began by enacting practicable laws and applicable systems

- Metrology Act (May 1961): for consumer transaction
- Industrial Standardization Act (September 1961): for industry
- Industrial Goods Quality Management Act (March 1967): for business
- Constitution amendment (October 1980): for inclusion of provision
  “The state shall establish a standards system.”
2. Implications from Establishment of Korea’s NSS(2/4)

Consistently made medium and long term development plans to establish a national standards system

- Industrial Improvement Administration (1988–1997): 5-Year Plan for Industry Standardization (2 times)
3. Implications from Establishment of Korea’s NSS(3/4)

Harmonized national standards system with international systems by effectively adopting international guides

- **Strategy**
  - harmonized with International Standards
  - Originated from advanced formal or non-formal standards

- **Statistics**
  - 64% from ISO, IEC
  - 36% from JIS, BS, DIN, ASTM and Original

Source: KATS
4. Implications from Establishment of Korea’s NSS(4/4)

Invested on standards infrastructure to build up standardization capability and to ensure active use of standards

- Made crucial decisions to borrow loans for standards infrastructure development.
IV. Conclusion
Korea achieved economic growth using standards as a strategic means of growth

- Economic growth driven by exports through price and quality competitiveness
- Quality and price competitiveness ensured through higher productivity driven by national standards system

ISO/TC 211 56th Plenary Meeting

1. Roles of Standards in National Agenda

Mass production enabled by standardization

Higher productivity

Quality and Price competitiveness

Private enterprises

Export Promotion

Strong export promotion supports high economic growth
1. Roles of Standards in National Agenda

Korea achieved economic growth using standards as a strategic means of growth.
2. Roles of People in Standardization Works

Excellent people is a key for building up standardization capability.

(source: KSA)
3. Roles of Standards in Your Businesses

Standard is not a document on your table, but valuable tools to solve your problems.

- to facilitate International Trade
- to facilitate Technological Innovation
- to lower or eliminate Regulations
- to secure Safety
- to protect Environment
- to protect Consumers
Thank you!
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