Modernization Policy

8

First comes, first gains (German proverb). *No way is impossible to courage* (American proverb). The main purpose of the policy study in the modernization science is to explore and find out the right or suitable way of the level-specific, field-related, and sector-relative modernization in the required time.

Generally, the issue of modernization is a strategic one, and the science of modernization is a one about strategies in some content. Modernization policies reflect not only the application of modernization theories in practice but also an integral part of the modernization science. The research on modernization policies covers modernization evaluation, modernization strategy and measures (Fig. 8.1), etc. Advanced and developing countries differ greatly in modernization policies. Modernization policies are not only to change the world but also to create a new world in which everyone has the equal access to all-round development.

8.1 Modernization Evaluation

An ancient Chinese said: *know yourself and your enemy, victory is assured*. Modernization is just like an international marathon of national civilization's competition (Fig. 1.1). Countries running ahead become developed ones, while the rest become developing ones; there is mobility between the two types of status. An objective evaluation of the modernization process makes it possible to monitor dynamically the level of a country's development and transformation and the change of its international status during this process. Modernization evaluation is an important basis for modernization-related decision making.

8.1.1 Principles of Evaluation

Modernization evaluation is one of the comprehensive process and outcome of modernization. It is a common method in modernization research and also a crucial part of modernization policy research. There are several types of modernization

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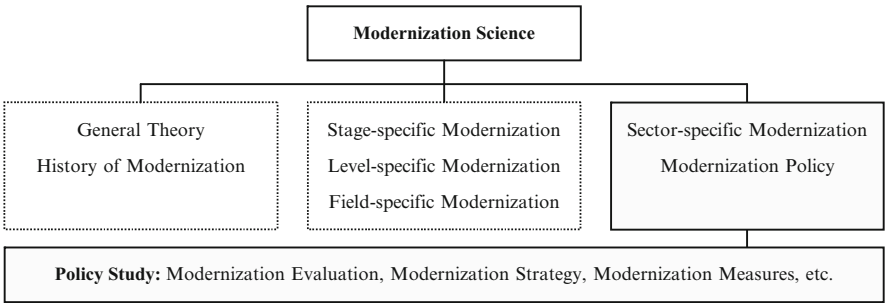

Fig. 8.1 Policy research of modernization science

Table 8.1 Main types of modernization evaluation (examples)

Type	Purpose	Features
Level evaluation	Relative level of modernization	International comparability, theoretical consistency, and continuity
Stage evaluation	Development stage of modernization	
Innovation capacity evaluation	Driving forces of modernization	International comparability, regional comparability, and relativity
Competitiveness evaluation	Competitive advantage of modernization	
Performance evaluation	Performance and progress of modernization	Policy applicability, pertinence, practicability, and timeliness
Diagnosis evaluation	Gains and losses in the process of modernization and causes thereof	
Theoretical evaluation	Examining if the theoretical hypotheses about modernization are scientific	Exploratory, varying as per research needs

evaluation (Table 8.1), each with different principles and methods. Below is a discussion of general principles and methods for modernization evaluation.

8.1.1.1 Theoretical Basis

The theoretical basis for modernization evaluation includes modernization theories, systems science, evaluation theories, etc.

(1) Modernization Theory

The modernization theory is not a single theory but a cluster of theories including general theory, stage-specific theory, level-specific theory, field-specific theory, sector-specific theory, and theories on special subjects. Here, the focus is on the evaluation based on the Second Modernization Theory.

According to the Second Modernization Theory, modernization involves the development and transformation of civilization, international competition, and the change in international status; between the eighteenth century and the twenty-first century, the frontier trajectory of modernization process could be divided into two

stages: first and second modernization, and integrated modernization is the coordinated development of twice modernization; modernization is nonlinear, and its driving forces include innovation, competition, exchange, and adaptation.

Generally, the level of modernization and the development of civilization are closely related to international status, while the stage of modernization is to the transition of civilization, and modernization performance is to innovation and competition. Modernization at different stages has different connotations and characteristics, so it is necessary to do separate evaluations.

(2) Systems Science

The systems theory holds that human society is a large open system that can be controlled and evaluated. The social system comprises a number of subsystems, and each of them has its unique functions and features which need and can be evaluated separately.

(3) Evaluation Theory

Comprehensive evaluation is a commonly used evaluation approach. The basic idea is that the object to be evaluated is a complex system, so it is not enough to use just a single indicator. It is necessary to translate multiple indicators into a comprehensive index for evaluation. After statistical analysis, indicators can be converted into standard indexes which, through weighting and calculation, can be translated into a comprehensive index.

8.1.1.2 General Requirements

Generally, modernization evaluation should respect the laws governing modernization and evaluation rules. The following issues should be noted in doing the evaluation:

First, limited objective. The process of modernization is a nonlinear, complex historical process, and the system of modernization is a large, open, dynamic system, so it is impossible to cover every aspect in modernization evaluation. There should be priorities.

Second, rational evaluation indicators. Usually, typical, critical, comparable, and continuous statistical indicators are chosen.

Third, scientific evaluation method. Evaluation methods include qualitative evaluation, quantitative evaluation, and comprehensive evaluation.

Fourth, quality of the data for evaluation. Usually, statistics of international and official statistical agencies are adopted.

Fifth, relativity of evaluation results. Statistical methods and indicators may differ from country to country; some countries may have incomplete data for some years; there may be no statistics on some important new phenomena. All these may affect the evaluation results to some degree.

Sixth, objectivity and comparability of evaluation results. The influence of human factors should be minimized, for example, by using computers. Generally, the results of modernization evaluation should be of both historical and international comparability.

8.1.1.3 Basic Contents

Comprehensive evaluation generally includes six parts (1) defining the purpose and requirement of evaluation; (2) identifying the features of and laws governing the evaluation object; (3) identifying the theoretical basis and basic principles of evaluation; (4) choosing evaluation indicators to form a system of indicators; (5) choosing an evaluation method and establishing an evaluation model; and (6) gathering data, conducting evaluation, and reporting results.

Choosing evaluation indicators is a key component of modernization evaluation. Generally, when choosing evaluation indicators, the evaluation purpose should be considered and the laws governing modernization should be respected. There are also about six principles to follow (Table 8.2), and attention should be paid to the following three factors:

First, choosing evaluation indicators from two dimensions (Fig. 8.2). The first dimension is process, i.e., choosing indicators from the input, process, output, and

Table 8.2 Principles of choosing modernization evaluation indicators

No.	Principle	Annotation
1	Choosing indicators which reflect typical characteristics and are representative	Ascending variables, descending variables, transition variables, regional variables
2	Choosing indicators which reflect the level of development and are of international comparability	Per capita indicators, structural indicators, efficiency indicators, performance indicators
3	Choosing indicators which are easy to understand, acceptable, and have policy significance	Indicators which scholars frequently use and the public are concerned about
4	Choosing indicators that generate continuous data	Statistical indicators, social survey indicators, monitoring indicators, etc.
5	Choosing a proper number of evaluation indicators	Usually about 10–30 indicators
6	Noting the systematic relations and balance between the chosen indicators	Appropriate proportions of inert indicators and active indicators

Note: Generally, total amount indicators, saturation variables, fluctuating variables, random variables, and regional variables are not appropriate to be used as evaluation indicators

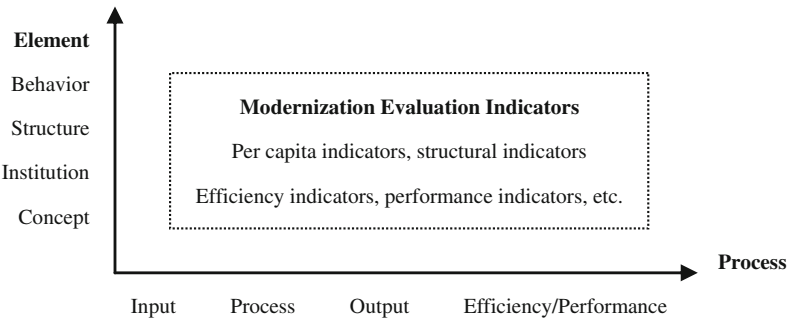

Fig. 8.2 Two dimensions for choosing evaluation indicators

efficiency (performance) of modernization; the second dimension is element, i.e., choosing indicators from four elements including modernization behavior (life), structure (content), institution, and concept.

Second, the number of evaluation indicators should be neither too big nor too small. Too many indicators will make it difficult to do the evaluation and understand, while too few indicators may lead to evaluation instability and distortion. For example, some 30 environmental indicators are enough to reflect about 90% of the demand for environmental policies (Jesinghaus 1999).

Third, the evaluation indicators should be systematic and rational. Modernization is not a synchronous process which means that in a particular period, different indicators may have different sensitivity (elasticity). Some indicators are relatively inert (changing slowly), while others are relatively active (changing fast). In the evaluation indicator system, if inert indicators outnumber active ones, the evaluation index is likely to be insensitive; if the latter outnumber the former, the evaluation index is likely to be unstable. When establishing the evaluation indicator system, attention should be paid to the balance between inert and active indicators.

8.1.1.4 Matters to be Noted

First, coordination between evaluation needs and evaluation rules. An effective evaluation involves not too many evaluation indicators. Researchers and policymakers may focus on many different issues and indicators, so it is necessary to strike a balance between them.

Second, coordination between importance and feasibility. Some modernization indicators are very important, but the acquisition of data, especially on developing countries, is rather difficult. Incomplete data will affect evaluation results.

Third, paying serious attention to nonlinear indicators. Some indicators are nonlinear or are not desirably relevant to other indicators. If involved in evaluation, they will affect evaluation results; if not, the evaluation would be questioned by experts.

Fourth, paying serious attention to new phenomena and new indicators. Some new phenomena and new indicators are quite important as they reflect the new trends of modernization. But there is no statistical data, or no worldwide, continuous statistical data, about them yet.

Fifth, paying serious attention to the weight of indicators. How much weight is given to indicators has a direct bearing on the evaluation results.

Sixth, paying serious attention to evaluation results. Overexplanation of the evaluation results from policy perspective should be avoided.

8.1.2 International Evaluation

An international evaluation targets worldwide modernization phenomena. The evaluation object may be a group of or all countries, and the evaluation results highlight international comparability. An international evaluation of modernization usually includes level evaluation, stage evaluation, and process evaluation. A process evaluation includes the evaluation of innovation capacity, competitiveness, influence, etc.

8.1.2.1 Evaluation of Modernization Level

An evaluation of modernization level is a qualitative one of the object's actual modernization progress and its relative level in the world. The qualitative evaluation of modernization level, which dates back to the 1960s, roughly includes the qualitative evaluation of national modernization level, field-specific (or sector-specific) modernization level, and regional modernization level (Table 8.3).

China Modernization Report, published each year since 2001, used the Second Modernization Theory as its theoretical basis and gave a qualitative evaluation of the modernization levels of 131 countries between 1950 and 2007. Each of the country had a population of more than one million in 2000. The evaluation covered the levels

Table 8.3 Examples of modernization level evaluation

Evaluation purpose	Evaluation object	Evaluation indicators	Evaluation time	References
National modernization	14 countries	11 variables	1960s	Cantril (1965)
	115 countries and regions	10 indicators	1960	Buck (1969)
	112 countries and regions	40 indicators	1950–1965	Harbison et al. (1970a, b)
	120 countries	10 indicators	1998	Zhu and Wu (2001)
	133 countries	16 indicators	1995	He (1999)
	131 countries	20 indicators	1970–1998	China Modernization Report (2001)
Field-specific modernization				
Economic modernization	131 countries	18 indicators	1950–2002	RGCMS (2005)
Social modernization	131 countries	24 indicators	1950–2003	RGCMS (2006)
Cultural modernization	131 countries	24 indicators	1990–2005	RGCMS (2009)
Ecological modernization	131 countries	30 indicators	1970–2004	RGCMS (2007)
Human modernization	Brazil and Mexico	14 variables	1960s	Kahl (1968)
Index of social progress (ISP)	124 countries and regions	36 indicators	Since 1970	Estes (1984, 1988)
Human development index (HDI)	175 countries and regions	4 indicators	Since 1975	UNDP (1990, 2003)
Index of human progress	128 countries and regions	10 indicators	1975–1999	Emes and Hahn (2001)
Regional modernization	48 US states	33 variables	1960	Crittenden (1967)
	50 US states	33 variables	1960–1990	Morgan and Kickham (1997)
	34 regions in China	20 indicators	1970–1998	China Modernization Report (2001)
	205 regions in 18 countries	20 indicators	1980–2000	RGCMS (2004)

Source: RGCMS (2008)

of national, regional, economic, social, ecological, and cultural modernization. Three evaluation models were adopted including the models for the first modernization, the second modernization, and integrated modernization (Example 8.1).

Example 8.1 Three Modernization Evaluation Models

The evaluation of the first modernization included ten evaluation indicators, and the reference values used for the evaluation were the mean values of the indicators of 19 industrial countries in 1960.

Evaluation indicators and model for the first modernization

Item	Evaluation indicator	Evaluation standard	Type of indicator	Evaluation model
FMI	First modernization index	100		$FMI = \sum S_i/10$
Economy	1. Per capita national income, US$	Calculated year on year[a]	Direct indicator	$S_i = 100 \times I_{actual\ value}/I_{standard\ value}$ (Direct indicator, $S_i \leq 100$) $S_i = 100 \times I_{standard\ value}/I_{actual\ value}$ (Reverse indicator, $S_i \leq 100$)
	2. Percentage of agricultural labor force (%)	≤30%	Reverse indicator	
	3. Percentage of value added of agriculture (%)	≤15%	Reverse indicator	
	4. Percentage of value added of service sector (%)	≥45%	Direct indicator	
Society	5. Percentage of urban population (%)	≥50%	Direct indicator	
	6. Rate of doctors, doctors per 1,000 people	≥1‰	Direct indicator	
	7. Infant mortality (‰)	≤30‰	Reverse indicator	
	8. Average life expectancy, years	≥70 years	Direct indicator	
Knowledge	9. Adult literacy (%)	≥80%	Direct indicator	
	10. Gross enrollment rate of tertiary education (%)	≥15%	Direct indicator	

Note: It is designed with reference to the evaluation indicators raised by Professor Alex Inkles (Sun 1988)

Source: RGCMS (2010)

[a]The mean value of per capita national income of 19 industrial countries in 1960 was used as the reference value, and each year afterward, the standard value was calculated based on the inflation rate of US dollar. For example, the standard value in 1960 was 1,280 US$ and 6,399 US$ in 2000. S_i refers to the degree of No. i indicator reaching the standard and is less than or equal to 100 in value. The i is the serial number of an evaluation indicator. The $i_{actual\ value}$ stands for the actual value of No. i indicator, and $i_{standard\ value}$ stands for the standard value of No. i indicator. Reverse indicator means the bigger figure, the less developed.

(continued)

The evaluation of the second modernization included 16 evaluation indicators in four categories and used the mean values of high-income countries as reference values for evaluation.

Evaluation indicators and model for the second modernization

Item	Evaluation indicator	Unit and type	Evaluation model
SMI	Second modernization index		SMI = (KII + KTI + LQI + EQI)/4
Knowledge innovation	1. Financial input into knowledge innovation	R&D/GDP (%)	*Knowledge innovation index:* KII = $\sum D_i/3$ *Direct indicator evaluation:* $D_i \leq 120$ $D_i = 100 \times i_{\text{actual value}}/i_{\text{reference value}}$
	2. Manpower input into knowledge innovation	Researchers per 10,000 people	
	3. Patent output from knowledge innovation	Patents per 10,000 people	
Knowledge diffusion	4. Middle school popularization	%	*Knowledge transmission index:* KTI = $\sum D_i/4$ *Direct indicator evaluation: same as above*
	5. University popularization	%	
	6. TV popularization	%	
	7. Internet popularization	%	
Quality of life	8. Percentage of urban population	%	*Life quality index:* LQI = $\sum D_i/5$ *Direct indicator evaluation: same as above* *Reverse indicator evaluation:* $D_i \leq 120$ $D_i = 100 \times i_{\text{reference value}}/i_{\text{actual value}}$
	9. Rate of doctors	Doctors per 1,000 people	
	10. Infant mortality	‰, reverse indicator	
	11. Average life expectancy	Years	
	12. Energy consumption per capita	Kg of oil equivalent	
Economic quality	13. Per capita GNI	US$	Economic quality index: EQI = $\sum D_i/4$ Direct indicator evaluation: same as above Reverse indicator evaluation: same as above
	14. Per capita purchasing power	International dollar	
	15. Percentage of value added of material industry	%, reverse indicator	
	16. Percentage of labor force in material industry	%, reverse indicator	

Note: Middle school popularization refers to gross enrollment of middle education. University popularization refers to gross enrollment of tertiary education. TV popularization refers to TV set per 100 household. Per capita purchasing power is GNI per capital (PPP). Material industry includes agriculture and industry. The *i* stands for the serial number of an indicator. D_i means the development index of No. *i* indicator and is less than or equal to 120 in value. Reference value was the mean value of high-income countries of the year
Source: RGCMS (2010)

The evaluation of integrated modernization included 12 evaluation indicators in three categories and used the mean values of the year's indicators of high-income countries as reference values for evaluation.

Evaluation indicators and model for integrated modernization

Item	Evaluation indicator	Unit	Evaluation model
IMI	Integrated modernization index		IMI = (EI + SI + KI)/3
Economic indicators	1. Per capita national income	US$	*Economic development index:* EI = $\sum D_i/4$ *Indicator evaluation:* $D_i \leq 100$ $D_i = 100 \times i_{\text{actual value}}/i_{\text{reference value}}$
	2. Per capita purchasing power	International dollar	
	3. Percentage of value added of service sector	%	
	4. Percentage of labor force in service sector	%	
Social indicators	5. Percentage of urban population	%	*Social development index:* SI = $\sum D_i/4$ *Indicator evaluation: same as above*
	6. Rate of doctors	Doctors per 1,000 people	
	7. Average life expectancy	Years	
	8. Eco-efficiency	US$/kg of standard oil	
Knowledge indicators	9. Financial input into knowledge innovation	R&D/GDP (%)	*Knowledge development index:* KI = $\sum D_i/4$ *Indicator evaluation: same as above*
	10. Output of patents from knowledge innovation	Patents per 10,000 people	
	11. Gross enrollment rate of tertiary education	%	
	12. Internet popularization	%	

Note: Per capita purchasing power is GNI per capita (PPP). Eco-efficiency is per capita GDP/energy consumption per capita. i stands for the serial number of an indicator. D_i means the development index of No. i indicator and is less than or equal to 100 in value. Reference value is the average value of high-income countries of the year
Source: RGCMS (2010)

8.1.2.2 Evaluation of Innovation Capacity and Competitiveness

From the 1980s onward, the competitiveness evaluation began drawing attention, and since the 1990s, the innovation capacity evaluation has been thought highly of (Table 8.4).

Competition is a major driving force of modernization. Competitiveness evaluation is an important part of modernization research. There has been no uniform definition of competitiveness so far. Competitiveness evaluation is roughly conducted at four levels: national competitiveness, regional competitiveness, sectoral competitiveness, and corporate competitiveness.

Table 8.4 Evaluation of innovation capacity and competitiveness

Item	Evaluation object	Number of indicators	Evaluation time	References
Innovation index	17 countries	12	1973–1995	Porter and Stern (1999)
National innovation capacity index	73 countries and regions	12	2001–2002	WEF (2003)
Innovation capacity index	117 countries and regions	6	1995–2001	UNCTAD (2005)
World competitiveness index[a]	55 countries and regions	323	1980 until now	IMD (2007)
Global competitiveness index[a]	125 countries and regions	90	1980 until now	WEF (2003)
Objective competitiveness index	131 countries	18	1990–2004	RGCMS (2008)
Per capita competitiveness index	131 countries	18	1990–2004	RGCMS (2008)

[a]From 1980 onward, IMD and WEF began copublishing competitiveness reports until 1996 when they split
Source: RGCMS (2008)

Innovation is also a major driving force of modernization. Innovation capacity evaluation is an important part of modernization research and is roughly conducted at four levels: national innovation capacity, regional innovation capacity, sectoral innovation capacity, and organizational innovation capacity.

8.1.3 Assessment for Policy Making

An assessment of modernization from the policy perspective generally includes performance evaluation, diagnosis evaluation, and policy effectiveness evaluation. Such evaluation is generally a practical goal-oriented evaluation, highlighting policy orientation, pertinence, and operability.

8.1.3.1 Performance Evaluation

A modernization performance evaluation is conducted to assess the outcome and effectiveness of the process of modernization.

First, evaluation purpose. The purposes of performance evaluation may be put into three categories: to find out the actual progress of modernization, to monitor the achievement of modernization goals, and to predict the goals of modernization strategies (Table 8.5). They have different functions and roles to play.

Second, evaluation objects. Objects of performance evaluation include level-specific modernization (national, regional, etc.), field-specific modernization (economic, social, etc.), sector-specific modernization (agricultural, industrial, etc.), and subject-specific modernization (urban, rural).

Third, evaluation indicators. Indicators used for performance evaluation may be chosen according to evaluation purpose and requirement and may include

Table 8.5 Types of modernization performance evaluation

Type of evaluation	Evaluation purpose and content	Function
Actual progress evaluation	Progress in modernization in a particular period	Strategy consulting, campaign consulting, diagnosis evaluation
Goal monitoring evaluation	Degree to which modernization goals are achieved	Goal management, policy consulting, diagnosis evaluation
Goal prediction evaluation	International comparison and goal prediction of modernization level	Setting strategic goals, campaign consulting, modernization planning

Table 8.6 Criteria for modernization performance evaluation

Country	Evaluation criteria	Function
Developed countries	World's top level, average level of developed countries, anticipated goals	Campaign consulting, policy consulting
Moderately developed countries	Average level of developed countries, anticipated goals	Goal management, policy consulting, modernization planning
Other developing countries	Average level of developed countries, world average level, anticipated goals	Goal management, policy consulting, modernization planning

behavioral, structural, institutional, and concept indicators of modernization, as well as modernization input, output, efficiency, and effectiveness indicators.

Fourth, weight of indicators. The weight of indicators may be determined according to policy needs and the laws governing modernization.

Fifth, evaluation criteria. Different criteria may be adopted for developed and developing countries (Table 8.6).

Six, evaluation model. Appropriate evaluation methods and models should be chosen as per evaluation needs and comprehensive evaluation methods.

8.1.3.2 Diagnosis Evaluation

Modernization diagnosis evaluation is conducted to assess the gains and losses in the process of modernization so as to find the causes of failure and come up with the countermeasures.

First, performance evaluation. It is the fundamental work of diagnosis evaluation, including actual progress evaluation and goal achievement evaluation.

Second, strength analysis. It is about analyzing the major achievements and advantages of modernization as well as the reasons behind them.

Third, weakness analysis. It is about analyzing the major mistakes and weaknesses of modernization as well as the causes thereof.

Fourth, countermeasure analysis. It is about making policy recommendations about maintaining and strengthening advantages and overcoming or improving weaknesses.

8.1.3.3 Strategy Evaluation

Modernization strategy evaluation is conducted to assess rationality and effectiveness of modernization strategies, which is applicable to strategy management.

First, performance evaluation. It is the fundamental work of strategy evaluation, including goal monitoring evaluation and goal prediction evaluation.

Second, strategic goal evaluation. It is about analyzing the guidance, rationality, feasibility, costs, etc., of strategic goals.

Third, strategy planning evaluation. It is about analyzing the consistency between strategic goals and measures, coordination between subsystems, etc.

Fourth, strategy implementation evaluation. It is about analyzing the experience and lessons from strategy implementation, the timeliness and applicability of strategic adjustment, etc.

Fifth, strategy advantage evaluation. It is about analyzing the comparative advantage and competitive advantage of the strategy and making suggestions for improving the competitive advantage, etc.

8.2 Modernization Strategy

Strategies are means to achieve goals. Likewise, modernization strategies are the means to attain modernization goals. The modernization goal of advanced countries is to maintain the world's leading or advanced level of development and transformation, while that of developing countries is to catch up with and reaching the world's advanced level. Advanced countries differ considerably from developing ones in modernization strategies. A bridge between modernization theories and practices, modernization strategies represent an integral part of the modernization science and a critical component of modernization policies.

Generally, modernization strategies and tactics are based on modernization theories, and development strategies and tactics are based on development theories. The former apply to all countries, while the latter are commonly seen in developing countries. Modernization includes the development of civilization, the transition of civilization, international competition, and the change of international status. Therefore, modernization strategies are related to yet different from development strategies (Table 8.7).

8.2.1 Modernization Goals

A modernization goal is what is expected to be achieved through modernization in a future period of time. There are many types of goals such as strategic and planned goals, long-term and immediate goals, dynamic and fixed goals, theoretical and policy goals, national and regional goals, field-specific goals, and sector-specific goals. To set modernization goals, one country has to follow the laws governing modernization, figure out the world's trends, and have a clear understanding of its status in the international system and national conditions. In this section, modernization goals in the twenty-first century are to be addressed.

Table 8.7 Comparison between modernization strategies and development strategies

Item	Modernization strategies	Development strategies
Goal	Objective goals: set according to the level of modernization	Subjective goals: set based on the anticipations of researchers
	Advanced countries: the world's top or advanced level	Advanced countries: set based on national needs
	Developing countries: the world's advanced or average level	Developing countries: set based on national anticipations
Path	Objective paths: three basic paths of modernization	Subjective paths: paths pictured by researchers
	Advanced countries: second modernization path	Advanced countries: varied
	Developing countries: catch-up modernization or integrated modernization path	Developing countries: different ideas raised by researchers
Emphasis	Advanced countries: law-driven, frontier innovation, competition analysis	Advanced countries: problem-driven, policy innovation
	Developing countries: law-driven, model innovation, competition analysis	Developing countries: problem-driven, follow-up imitation, policy analysis
Features	Scientific thinking: law—comparison—countermeasure	Practical logic: trend—status quo—countermeasure
	Advanced countries: modernization theory—maintaining advanced level—countermeasure	Advanced countries: development trend—national status quo—countermeasure
	Developing countries: modernization theory—modernization gap—countermeasure	Developing countries: development trend—national status quo—countermeasure
Basis	Modernization theories, science of strategy, etc.	Development theories, science of strategy, etc.

8.2.1.1 Theoretical Basis

Modernization goals are established based on modernization theories and relative national level. According to the Second Modernization Theory, the outcomes of modernization include the formation of modernity, particularity and diversity, international differentiation, national stratification, and side effects, as well as the changes in world frontier, international system, and national state; the first modernization, the second modernization, and the integrated modernization bring about different outcomes; the theoretical goal of national modernization is to complete the first modernization, the transition from agricultural to industrial civilization, and the second modernization, the transition from industrial to knowledge civilization, and catch up with, reach, and maintain the world's advanced level; the policy goal of national modernization is to improve productivity and quality of life, promote social equity and progress, the all-round development of people, and the

Table 8.8 Theoretical basis of modernization goals

Modernization theory	Content and features	Policy application
Outcome of modernization		
Modernity	First modernity, second modernity, and modernity in different fields and sectors	General goal of modernization
Particularity and diversity	Particularity, competitive advantage, etc., of national and regional modernization	Individual goal of modernization
Side effects	First modernization, second modernization, and modernization in different fields differ in side effects	Avoid and reduce side effects
Modernization goal		
Theoretical goal	Complete first and second modernization, catch up with, reach, and maintain the world's advanced level	Dynamic goal, fixed goal
Policy goal	(1) Internal goals: improve productivity and quality of life, promote social equity and progress, promote all-round development of people, and promote the mutualism between man and nature; (2) international goals: that of advanced countries is to maintain the world's advanced level, and that of developing country is to catch up with and reach the world's advanced level	Long-term goal, immediate goal, goal of advanced countries, goal of developing countries

mutualism between man and nature; the policy goal of advanced countries is to maintain the world's advanced level, while that of developing countries is to catch up with and reach the world's advanced level (Example 8.2). Modernization theories provide the theoretical basis for modernization goals (Table 8.8).

Example 8.2 Modernization Goals of Advanced and Developing Countries

In 1994, the US government released a science policy report, *Science in the National Interest*, putting forward five policy goals for the development of science and technology in the USA (1) maintain leadership across the frontiers of scientific knowledge; (2) enhance connections between fundamental research and national goals; (3) stimulate partnerships that promote investments in fundamental science and engineering and effective use of material, human, and financial resources; (4) produce the most outstanding scientists and engineers for the twenty-first century; and (5) raise science and technology literacy of all Americans (Clinton and Gore 1994).

In 1987, Deng Xiaoping launched the "three-step" development strategy for China, which was expected to lead the country to reach the world's moderately developed level and basically realize modernization by the middle of the twenty-first century (Deng 1993). *China Modernization Report 2010* predicts that China is likely to exceed the world's average level by around 2040, attaining the following six policy goals (1) Economic modernization goal: national income per capita exceeds US$ 20,000, and key economic indicators are ranked among the world's top 40; (2) social modernization goal: the coverage rate of both pension and medical insurance is 100%, the rate of both urbanization and informatization exceeds 80%, and absolute poverty is eliminated; (3) political modernization goal: establishing a democratic, free, fair, and efficient political civilization, and the international competitiveness is ranked among the world's top 10; (4) cultural modernization goal: the cultural life exceeds the world's average, and key indicators of cultural innovation capacity are ranked among the world's top 20; (5) human modernization goal: the gross enrollment rate of high education exceeds 80%, average life expectancy exceeds 80 years, and the human development index is ranked among the world's top 20; and (6) ecological modernization goal: economic growth is completely disconnected with environmental degradation, and the quality of living environment basically reaches the level of major advanced countries. China is predicted to reach the world's advanced level in the end of the twenty-first century (RGCMS 2010).

Generally, national modernization goals comprise three types of goals: general goal, individual goal, and the reduction of side effects. The general goal refers to completing the first and second modernization, catching up with, reaching, and maintaining the world's advanced level. The individual goal refers to developing, maintaining, and expanding unique characteristics and enhancing competitive advantages. The demand for reducing side effects may differ from country to country and from period to period.

Fixed goal: complete the first modernization, form the first modernity, and reduce side effects of the first modernization. Advanced countries (industrial countries) completed their first modernization in the 1960s, and their average level of development during the period can be used as the reference standard of completing the first modernization (Example 8.1).

Dynamic goal: complete the second modernization; catch up with, reach, and maintain the world's advanced level; and reduce side effects. No country has completed the second modernization so far. It is predicted that advanced countries can complete their second modernization in the late twenty-first century. By then, their second modernization level can be used as the reference standard of completing the second modernization.

Table 8.9 Methods of setting modernization goals

Type of goal	Content and features	Method
General goal	First modernity, second modernity, catching up with, reaching, or maintaining the world's advanced level of development	Benchmark method, modernization level evaluation, modernization stage evaluation, actual progress evaluation, goal prediction evaluation, etc.
Individual goal	Develop, maintain, and expand unique characteristics and enhance competitive advantage	International comparative analysis, competitive advantage analysis, etc.
Avoid side effects	Reduce side effects of the first and second modernization	Case analysis
Fixed goal	Complete the first modernization	Benchmark method, modernization level evaluation, and modernization stage evaluation
Dynamic goal	Complete the second modernization, catching up with, reaching, or maintaining the world's advanced level	Benchmark method, goal prediction evaluation, etc.
Long-term goal	Strategic goal, which may span over 10 years	Benchmark method, goal prediction evaluation, competitive edge analysis, etc.
Immediate goal	Policy goal, which generally spans 5 years or shorter	Benchmark method, goal prediction evaluation, competitive edge analysis, etc.

8.2.1.2 Goal Setting

There are different types of modernization goals with their respective features, and the methods to set them are also different (Table 8.9). Generally, the reference standard of fixed goals are established, so relevant policy goals can be set by using the benchmark method, modernization level evaluation, and modernization stage evaluation. The reference standard of dynamic goals is the world's advanced level, so relevant strategic and policy goals can be set by using the benchmark method and goal prediction evaluation.

(1) General Procedure

Generally, setting a strategic goal roughly includes three steps: strategic positioning, strategic analysis, and goal integration. Strategic positioning refers to the precise judgment about modernization level, stage, and international status. Strategic analysis refers to the analysis of international environment, objective conditions, competitive edge, etc. Goal integration refers to the integration of three types of goals (general goals, individual goals, and the reduction of side effects).

First, strategic positioning. It includes the evaluation of modernization stage and level, and the identification of modernization stage, level, and international status.

Second, strategic analysis. It includes analysis on world trends, world frontier, international environment, objective conditions, and competitive edge.

Third, choosing general goals by using such methods as benchmarking, actual progress evaluation, and goal prediction evaluation.

Fourth, choosing individual goals by using such methods as international comparative analysis and competitive advantage analysis.

Fifth, the goal of reducing side effects, which requires case analysis.

Sixth, setting integrated policy goals, including general goals, individual goals, and reduction of side effects.

(2) Major Methods

First, goal prediction. Policy goal prediction is conducted based on the actual progress evaluation or goal prediction evaluation. There are many goal prediction methods, for example, linear extrapolation, nonlinear prediction, and goal approximation.

Second, benchmarking. A particular level is chosen as the reference benchmark for setting policy goals. Generally, the policy benchmark value for advanced countries is the world's maximum or the mean value of advanced countries, and that for developing countries is the mean value of advanced countries, the lowest level (threshold value) of advanced countries, the world's average value, or the reference standard of the first modernization (Example 8.1).

Third, competitive advantage analysis. The outcome of modernization includes particularity and diversity. On the basis of following modernization laws, analyze national competitive advantage and weakness, choose advantages that can be maintained and expanded, develop and form new and characteristic advantages, and raise individual goals.

8.2.1.3 Matters to be Noted

In setting modernization goals, the following matters should be noted:

First, respecting laws. A policy goal should accord with modernization principles and the world's great trends.

Second, considering national conditions. A policy goal cannot be divorced from reality, and national condition and international environment must be considered.

Third, be moderately proactive. The time span of a strategic goal may be longer, while that of a policy goal is generally no longer than 5 years.

Fourth, feasibility. A goal should be such that it can only be achieved through endeavor, accepted by society, and supported by national strength.

Fifth, particularity. Policy goals for different regions may be used as reference to each other but should in no sense be the excuse for them to compete with each other.

Sixth, openness. Keep abreast of new trends, new engines of growth, and new technologies so as to ensure the elasticity of goals.

Generally, different types of modernization goals need to be set and managed separately. Policy goals for the first modernization, the second modernization, and integrated modernization of advanced and developing countries, for advanced and developing regions, and for different fields and industries all have their own features and requirements, so they should be set and achieved in different ways.

8.2.2 Modernization Planning

A modernization plan is a blueprint for modernization in a future period and is intended to achieve modernization goals. It is the operational approach of modernization strategies. There are a great variety of modernization plans, for example, strategic and implementation plans, national and regional plans, field-specific plans, sector-specific plans, and special plans. In developing modernization plans, the laws governing modernization should be followed; objective conditions and the international environment should be taken into account. In this section, modernization plans of the twenty-first century are to be discussed.

8.2.2.1 Theoretical Basis

Modernization plans are developed based on modernization theories and strategies. According to the Second Modernization Theory, the process of modernization comprises two stages, first and second modernization, each with different connotations, features, driving forces, and models, and that the coordinated development of both is integrated modernization. By 2005, all advanced countries and a few developing countries had entered the second modernization, the majority of developing countries were in their first modernization, and some adopted the path of integrated modernization. Modernization theories provide the theoretical basis for modernization plans (Table 8.10).

8.2.2.2 Planning

A modernization plan comprises a great many basic contents, for example, basic tasks, stage-specific goals and tasks, path choice, model choice, priority choices, policy, and measure choices (Table 8.11). Generally, the planning is a goal-oriented open process, in which goal analysis, task analysis, and diverse choices are made alternately.

First, goal analysis. It is about analyzing strategic goals, defining basic tasks, and setting stage-specific and yearly goals.

Second, path choice. It is about choosing a basic path as well as the subpaths to achieve the three types of goals.

Third, model choice. It is about choosing appropriate models for achieving three types of goals or making model innovation.

Fourth, priority choices. It is about defining priorities in the three types of goals and allocating resources accordingly.

Fifth, policy choice, including policy analysis and innovation, and choice of policy and measures.

Sixth, developing a complete plan, including goals, path, model, priorities, policy, and performance evaluation.

A strategic plan of modernization generally includes strategic goals, tasks, principles, overall arrangement, priorities, and measures.

An implementation plan of modernization should include yearly goals, tasks, priorities, and measures.

Table 8.10 Theoretical basis of modernization planning

Modernization theory	Content and features	Policy application
Two stages	The first modernization is the foundation of the second modernization. The second modernization is the continuity and development, or "reversion" or turning, of the first modernization in some aspects; in other aspects, it is innovation. The coordinated development of both is integrated modernization	Make it clear what stage modernization is in, understand relations and differences between the two stages, and priority choice
Stage features	The first modernization is featured by industrialization, urbanization, democratization, etc., and the second modernization by knowledgeablization, informatization, greening, etc. They both have different features in different fields	Priority choice
Basic principles	Process asynchronization, unbalanced distribution, structural stability, status changeability, behavioral predictability, optional paths, incremental demand, diminishing utility, no state repeat, and axis transition	General principles
Driving forces	Innovation, competition, adaptation, exchange, national interest, market demand, etc.	Policy choice
Dynamics	Innovation drive, three-innovation drive, two-wheel drive, associative action, composite interaction of three types of civilization, innovation diffusion, innovation spillovers, competition drive, productivity function, etc.	Policy choice
Basic paths	Path dependence; three basic paths, with many subdivided paths	Path choice
Basic models	A great diversity of models as a result of combining over 50 factors; different paths have different models	Model choice

8.2.2.3 Matters to be Considered

First, one priority. The way of achieving general goals is the key to the success of a modernization plan. The aim is to improve the level of modernization, to catch up with, reach, and maintain the world's advanced level. Advanced countries differ from developing ones in this regard.

Second, four choices. The path, model, policy, and priority should be chosen with discretion.

Table 8.11 Methods of modernization planning

Content	Features	Methods
Strategic goals	Long-term goals	See Table 8.9
Basic tasks	Tasks to be completed for achieving long-term goals	Task analysis
Stage-specific goals and tasks	Stage-specific goals, yearly goals and tasks	Decomposition of goals and tasks
Achievement of general goals	Ways and methods of improving the level of modernization	Make measures according to principles and methods of national advancement
Achievement of individual goals	Ways and methods of enhancing characteristic and competitive advantages	Make measures to enhance characteristic and competitive advantages through monographic study
Avoidance of side effects	Ways and methods of reducing side effects of modernization	Make measures to solve or curb side effects through special study
Path choice	Choice from three basic paths; subdivision of path	Raise specific indicators, path analysis, and innovation
Model choice	Model choice for different paths; subdivision of model	Model analysis, innovation, and choice
Priority choice	Make clear the key points of achieving strategic goals	Comparative analysis, principal component analysis, etc.
Policy choice	Policy innovation and choice on the basis of theories and goals	Policy analysis and innovation; choice of policy and measures
Cost–benefit analysis	Investment budgeting, output estimate, and performance analysis	Performance evaluation

Note: Both strategic goals and stage-specific goals include three parts: general goals, individual goals, and the avoidance of side effects. Basic tasks and stage-specific tasks refer to tasks necessary to achieve strategic goals and stage-specific goals, respectively

Third, stage-specific plans. Strategic plans for the first modernization, the second modernization, and integrated modernization are different.

Fourth, plans by category. Strategic plans of advanced and developing countries, national and regional plans, and field- and sector-specific plans are different.

Fifth, national plans. Particular attention should be paid to the ways for a country to get advanced and to prioritization of the six fields.

Six, regional plans. Particular attention should be paid to regional modernization levels, characteristics, competitive advantage, etc.

Generally, on modernization plans, advanced countries may pay more attention to per capita innovation value, efficient labor, advanced technology, skills, and investment efficiency, while developing countries may pay more attention to per capita capital, skills, efficient labor, useful labor, efficient investment, advanced assets, and technical progress.

8.2.3 Strategy Management

The management of modernization strategies includes the management of the entire process from strategy formulation, strategy implementation, to strategy evaluation

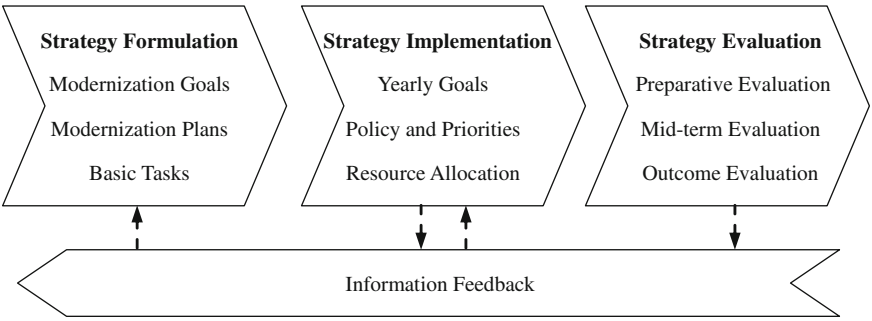

Fig. 8.3 Management of modernization strategies

(Fig. 8.3). It requires full cooperation between strategy makers and implementers, as well as good information communication between them in the whole process.

8.2.3.1 Strategy Formulation

The formulation of a strategy roughly includes three parts: goal setting, plan making, and the preliminary evaluation of the strategy.

First, at the core of modernization, goal setting is to identify long-term goals and basic tasks.

Second, at the core of modernization, plan making is to produce stage-specific and implementation plans.

Third, the preparative evaluation of the strategy is conducted to evaluate various strategic schemes, choose the best ones, and offer suggestions for improvement.

The cycle of a strategy refers to the period of time from the formulation to the implementation and conclusion of the strategy.

Strategy formulation is usually needed during tenure of office, election campaign, project cycle, or on an irregular basis.

8.2.3.2 Strategy Implementation

The implementation of a strategy roughly includes three parts: initiation, execution, and regular adjustment.

First, strategy initiation. It is about announcing the strategy and implementation plan for it, making clear the priorities and measures, and allocating resources.

Second, strategy execution. It is about carrying out the implementation, inspection, evaluation, etc., of yearly plans.

Third, strategy adjustment. It is about making necessary adjustments to the strategy according to external changes and internal progress.

8.2.3.3 Strategy Evaluation

The evaluation of a strategy roughly includes preparative evaluation, midterm evaluation, and outcome evaluation.

First, preparative evaluation, which takes place during the formulation of the strategy, including goal evaluation.

Second, interim evaluation, which takes place during the execution of the strategy, for offering adjustment suggestions.

Third, outcome evaluation, which takes place at the conclusion of the strategy, including comprehensive evaluation such as performance evaluation.

From the perspective of policy and national level in the world, modernization refers to the world's advanced level at present and the process and action to reach or maintain this advanced level, while modernization strategies should provide the approaches to identify, catch up, reach, or keep the world's advanced level continually. This is also the core aim of strategy management.

8.3 Modernization Measures

As the English proverbs *where there is a will, there is a way; well begun is half done*. The outstanding features of a modernization measure are its pertinence and timeliness. Different countries may select appropriate, innovative policies and measures according to their own conditions. Generally, policy innovation and measure selection should follow modernization laws and comply with the basic national conditions and international environment. The first modernization, the second modernization, and the integrated modernization differ from each other in policies and measures.

The modernization science includes core theory of general modernization, and stage-specific, level-specific, field-specific, sector-specific, and subject-specific modernization theory. Different theories have different policy implications. They provide the theoretical basis for modernization policies and measures. In this section, policy innovation and measure choice of the twenty-first century are to be addressed.

8.3.1 Innovation and Selection

Policy innovation and measure selection in the process of modernization represent an integral part of modernization strategies and plans.

8.3.1.1 Sources of Policies and Measures

Generally, there are mainly three sources of policies and measures: theories, international experience, and policy innovation.

First, theories. Every member in the big family of modernization theories has its unique policy implications.

Second, international experience. Abundant successful experience has been accumulated worldwide based on the modernization practices in the past 300 years.

Third, policy innovation. Policy innovation is a manifestation of institutional innovation.

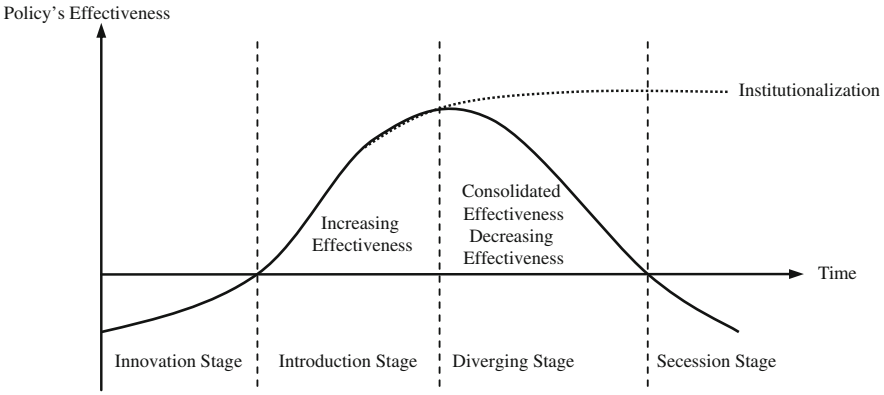

Fig. 8.4 Life cycle of policy innovation. Note: In the innovation stage, policies have no effectiveness, and negative effectiveness means the negative effect of institutional absence. The effectiveness of policies increases in the introduction stage. In the diverging stage, it is saturated; some policies change into institutions that function for a long period of time, with effectiveness being consolidated; some policies begin seeing decrease in effectiveness. In the secession stage, some policies finish their historical missions, lose their effectiveness, and secede automatically; some policies, if they do not secede, are likely to produce negative effects. Some policies function to the full as soon as introduced and then see decrease in or consolidation of effectiveness

8.3.1.2 Cycle of Innovation and Choice

Modernization includes the innovation, selection, diffusion, and secession of policies. There is a cycle of policy from its innovation to secession (Fig. 8.4).

It is a natural process of evolution for the effectiveness of a policy to experience increase, saturation, consolidation (institutionalization), decrease, loss, and then the shift to negative effects.

Generally, in the late stage of decreasing effectiveness, measures should be taken to facilitate the secession of policies so as to avoid negative effects.

8.3.1.3 Priority of Innovation and Selection

On policy innovation and measure selection, priorities should be made according to the principles and methods of national advancement (Table 2.35). Advanced and developing countries can and should have different priorities (Table 2.36). Generally, it will be considered on three layers.

First of all, choice of prior fields. One or more fields can be selected as the priority from the six fields which include economy, society, politics, culture, ecology, and humans in some periods.

Second, choice of prior sectors. One or more sectors can be selected as the priority from the different fields and all sectors in some stages.

Third, choice of prior issues. There are different key issues in different fields and sectors in different stages.

8.3.1.4 Principles of Innovation and Selection

Five principles are usually followed in policy innovation and measure selection.

First, it should be conducive to the emancipation and improvement of productivity.

Second, it should be conducive to social equity and progress.

Third, it should be conducive to the liberation and all-round development of the people.

Fourth, it should be conducive to the harmonious coexistence of man and nature and to both economic and environmental improvement.

Fifth, it should be conducive to technological advancement, cultural prosperity, and the improvement of international competitiveness.

8.3.2 Options for Advanced Countries

In the twenty-first century, advanced countries may adopt the second modernization path. Modernization policies are closely connected with second modernization paths and models. A modernization model is the stage-specific characteristic of a modernization path and is a type of modernization element mix.

8.3.2.1 Model Options of the Second Modernization Path

The second modernization path is a composite one, a mixture of national modernization paths in six fields.

(1) Cross Field Models of Element Mix

First, there are three models of the knowledgeablization–informatization mix, i.e., knowledgeablization first, informatization first, and the coordinated development of the two.

Second, there are three models of the knowledgeablization–ecologicalization mix, i.e., knowledgeablization first, ecologicalization first, and the coordinated development of the two.

Third, there are three models of the informatization–ecologicalization mix, i.e., informatization first, ecologicalization first, and the coordinated development of the two.

Fourth, three combination models of economy and society: economy first; society first; coordinated development of both.

Fifth, there are three models of the economy–ecology mix, i.e., economy first, ecology first, and the coordinated development of the two.

Sixth, there are three models of the society–ecology mix, i.e., society first, ecology first, and the coordinated development of the two.

Seventh, another model is the coordinated development of economy, society, and ecology.

(2) Models of Element Mix Within the Six Fields

First, different fields have different models of element mix. For example, in the field of international environment, there are three models of international interaction:

high trade and high investment, moderate trade and moderate investment, as well as low trade and low investment.

Second, the number of element mix models in different fields can be estimated. For example, 12 elements and variables of economic modernization may produce as many as 4,095 mixes, though not every mix is justifiable.

8.3.2.2 Policy Options at National Level

The policy priorities of the second modernization path should be adjusted timely. Currently, there are about ten priorities (Table 8.12). Both advanced and developing countries that adopted the second modernization path could select the policy priorities from seven aspects such as advanced productivity, social progress, human development, value, labor, capital, and technology, although there should be some difference between their choices (Table 2.36).

Table 8.12 Policy options of the second modernization path

No.	Main contents
1	Improve national innovation capacity and increase the percentage of innovation value. Build an innovation network, optimize the policy on innovation, foster an innovation culture, enhance knowledge innovation, technical innovation, institutional innovation, and concept innovation, and improve national knowledge infrastructure
2	Promote knowledgeablization. Develop knowledge industries, including knowledge production, knowledge and information dissemination, knowledge service industries, and high-tech industries, popularize higher education, accelerate industrial transfer and upgrading, and increase the knowledge content and labor productivity of economy
3	Accelerate informatization and networking. Build information infrastructure, develop the information technology industry, and build a network-based, learning society
4	Implement ecological modernization strategies. Coordinate economic growth and environmental protection and divorce economic development from environmental degradation to help improve both economy and environment
5	Improve cultural creativity and competitiveness, vigorously develop cultural industries, and improve the quality of cultural life
6	Promote suburbanization and urban upgrading as well as balanced urban–rural development
7	Economic globalization. Global operation, e-commerce, economy without boundaries, free trade zone, etc.
8	Distribution according to his contribution, adjustment as needed, and participation by knowledge capital and investment capital in net income distribution
9	Individualized democracy. Advocate tolerable, dialog-based, consultative, and direct democracy and respect individualized choice
10	Risk management. It is necessary to establish mechanisms used to control risks in science and technology, rationality, and decisions

Source: He (2003)

8.3.3 Options for Developing Countries

In the twenty-first century, developing countries may have three options: the catch-up modernization path, the integrated modernization path, and the second modernization path. The three paths have different connotations and features, and different policies can and need to be taken for them. The discussions here focus on the first two paths.

8.3.3.1 Policy Options of the Catch-Up Modernization Path

The catch-up modernization path is to follow the modernization path of advanced countries, completing the first modernization and then pursuing the second modernization. The policies and measures described in the classical modernization theory are appropriate for the first stage of the catch-up modernization path. The catch-up modernization path is a composite one, a mixture of national modernization paths in six fields also.

(1) Cross Field Models of Element Mix

First, there are three models of the industrialization–democratization mix, i.e., industrialization first, democratization first, and the coordinated development of both.

Second, there are three models of the industrialization–urbanization mix, i.e., industrialization first, urbanization first, and the coordinated development of both.

Third, there are three models of the economy–education mix, i.e., economy first, education first, and the coordinated development of both.

Fourth, there are three models of the economy–society mix, i.e., economy first, society first, and the coordinated development of both.

(2) Models of Element Mix Within the Six Fields

Modernization in every field involves many elements, such as behavior, structure, institution and concept, subfields, relevant departments, and the change of international status. Such elements may produce a great many mix models such as models of the economy–international interaction mix.

First, there are three models of the planning–market mix, i.e., planned economy, market economy, and mixed economy.

Second, there are three models of catch-up industrialization, i.e., import substitution, export orientation, and the coordinated development of both.

Third, there are three models of international interaction, i.e., national industry protection, free trade, and dependent development.

(3) Policy Priorities at National Level

The policy priorities of the catch-up modernization path should be adjusted timely. Currently, there are about ten priorities (Table 8.13). Developing countries that adopted the catch-up modernization path could also select the policy priorities from seven aspects such as advanced productivity, social progress, human development, value, labor, capital, and technology (Table 2.36).

Table 8.13 Policy options of the catch-up modernization path

No.	Main contents
1	Accelerate industrialization. Accelerate the transfer from agriculture to industry and service, increase effective labor and investment, actively bring in technology and capital, etc.
2	Advance urbanization. Speed up the migration of rural population into cities, strengthen the building of urban infrastructure, etc.
3	Promote democratization. Establish and perfect systems about democratic election, democratic legislation, and democratic supervision
4	Increase social welfare. Build a welfare society, achieve the social goal of having each person and family enjoy insurance and welfare, etc.
5	Vigorously promote education development. Popularize compulsory education and secondary education, develop vocational education and higher education, etc.
6	Moderately develop science and technology, improve technological innovation capacity, do away with feudal and autocratic culture, etc.
7	Promote ecological modernization. While accelerating economic growth, protect the natural environment as well as the rational utilization of resources, achieve sustainable development, etc.
8	Promote informatization. Strengthen the building of information infrastructure, provide extensive information services, develop the information technology industry, etc.
9	Participate in globalization. Participate in international market competition, support multinational enterprises, develop e-commerce, establish free trade zones, etc.
10	Enhance regional economic cooperation, promote the sharing of regional knowledge and experience, etc.

Source: He (2003)

8.3.3.2 Policy Options of the Integrated Modernization Path

Integrated modernization refers to the process in which the first and second modernization develops in a coordinated manner and the trend is still the transition to the second modernization. The integrated modernization path is a strategic choice for developing countries in the twenty-first century. It involves modernization in six fields and features starting-point dependence and model diversity.

(1) Cross Field Models of Element Mix

First, there are three models of the industrialization–knowledgeablization mix, i.e., industrialization first, knowledgeablization first, and the coordinated development of both.

Second, there are three models of the industrialization–informatization mix, i.e., industrialization first, informatization first, and the coordinated development of both.

Third, there are three models of the industrialization–ecologicalization mix, i.e., industrialization first, ecologicalization first, and the coordinated development of both.

Fourth, there are three models of the industrialization–democratization mix, i.e., industrialization first, democratization first, and the coordinated development of both.

Fifth, there are three models of the industrialization–urbanization mix, i.e., industrialization first, urbanization first, and the coordinated development of both.

Sixth, there are three models of the economy–society mix, i.e., economy first, society first, and the coordinated development of both.

Seventh, there are three models of the economy–ecology mix, i.e., economy first, ecology first, and the coordinated development of both.

Eighth, there are three models of the society–ecology mix, i.e., society first, ecology first, and the coordinated development of both.

Ninth, another model is the coordinated development of economy, society, and ecology.

(2) Models of Element Mix Within the Six Fields

First, different fields have different models of element mix. For example, in the field of international environment, there are three models of international interaction: high trade and high investment, moderate trade and moderate investment, as well as low trade and low investment.

Second, the number of element mix models in different fields can be estimated. For example, 12 elements and variables of economic modernization may produce as many as 4,095 mixes, though not every mix is justifiable.

(3) Policy Options at National Level

The policy priorities of the integrated modernization path should be adjusted timely. Currently, there are about ten priorities (Table 8.14). Developing countries that adopted the integrated modernization path could also select the policy priorities

Table 8.14 Policy options of the integrated modernization path

No.	Main contents
1	New industrialization. Develop industrialization, informatization, greening, globalization, and industry transfer in a coordinated way, increase investment and labor efficiency, etc.
2	New urbanization. Develop urbanization, informatization, greening, internationalization, and suburbanization in a coordinated way, build a society of balanced urban–rural development, etc.
3	Promote democratization. Perfect the democratic system, increase government efficiency and policy transparency, respect individualized choice, etc.
4	Accelerate informatization. Develop the information technology industry, promote the integration of telecom, radio and TV, and the Internet, etc.
5	Promote knowledgeablization. Develop scientific and technological industries, knowledge dissemination, and knowledge service industries
6	Economic globalization. Promote international trade, lower tariffs, promote the development of international economic cooperative zones and free trade zones, etc.
7	Build a learning society. Popularize compulsory education and secondary education, develop vocational education, distance education and higher education, etc.
8	Build an innovative country. Build innovation networks, optimize innovation policies, foster an innovation culture, improve enterprise innovation capacity, etc.
9	Build an environmentally friendly society. Implement ecological modernization strategies, promote the disconnection of economic growth from environmental degradation, etc.
10	Distribution according to his contribution, adjustment as needed, and participation by knowledge capital and investment capital in net income distribution

Source: He (2003)

from seven aspects such as advanced productivity, social progress, human development, value, labor, capital, and technology (Table 2.36).

Modernization refers to the frontier change and international competition of human civilizations since the eighteenth century. In this process, some countries have achieved enormous success, maintained the world's advanced level for a long period, and become advanced countries; other countries, despite their progress, have failed to reach the world's advanced level and thus have become developing countries. Some countries have ascended to advanced countries from developing ones, while some have degraded to developing countries from advanced ones. Stories of success and failure emerge one after another. The modernization science is an emerging science which deals with modernization phenomena and national advancement. It is much more than a science, while it represents a hope, a dream, and a future.

Summary

The modernization science is not only an interdisciplinary science but also a science of strategy. The issue of modernization is a strategic one, and modernization strategies are grand strategies. Modernization policies, the application of modernization theories, represent an important part of the modernization science. The goal of modernization policies is not to change the world but create a new world in which all the people are equal and enjoy all-round development.

Modernization Evaluation

Modernization is just like an international marathon figuratively: Countries running ahead become advanced or developed countries, while the rest become developing ones; there is mobility between the two types of status. An objective evaluation of the modernization process makes it possible to monitor the process of modernization dynamically.

A modernization evaluation is a comprehensive evaluation of the process and outcomes of modernization. The basic idea is that the object to be evaluated is a complex system, so it is not enough to use just a single indicator. It is necessary to translate multiple indicators into a comprehensive index for evaluation. After statistical analysis, indicators can be converted into standard indexes which, through weighting and calculation, can be translated into a comprehensive index.

There are many types of modernization evaluation, and different principles and methods are employed.

An international evaluation targets worldwide modernization phenomena, the results of which highlight international comparability. An international evaluation of modernization usually includes level evaluation, stage evaluation, and process evaluation. A process evaluation includes the evaluation of innovation capacity, competitiveness, influence, etc.

An evaluation of modernization from the policy perspective usually includes performance evaluation, diagnosis evaluation, and policy effectiveness evaluation. Such evaluation is generally a practical goal-oriented one, highlighting policy orientation, pertinence, and operability.

Modernization Strategies

Modernization strategies are the means to achieve modernization goals. From the perspective of policy and national level, modernization refers to the world's advanced level at present and the process to reach or keep this advanced level, while modernization strategies should provide the approaches to identify, catch up, reach, or keep the world's advanced level continually.

Generally, modernization strategies are based on modernization theories, the development strategies are based on development theories. The former apply to all countries, while the latter are commonly seen in developing countries. Modernization strategies are related to yet different from development strategies.

A modernization goal is what is expected to be achieved through modernization in a future period of time. There are many types of goals such as strategic and planned goals, long-term and immediate goals, and dynamic and fixed goals. To set modernization goals, one country has to follow the laws governing modernization, figure out the world's trends, and have a clear understanding of its level of modernization and national conditions.

A modernization plan is a blueprint for modernization in a future period and is intended to achieve modernization goals. It is the operational approach of modernization strategies. There are a great variety of modernization plans, for example, strategic and implementation plans, national and regional plans, field-specific plans, sector-specific plans, and special plans. In developing modernization plans, the laws governing modernization should be followed; objective conditions and the international environment should be taken into account.

The management of modernization strategies includes the management of the entire process from strategy formulation, strategy implementation, to strategy evaluation. It requires full cooperation between strategy makers and implementers as well as good information communication between them in the whole process.

Modernization Measures

The outstanding features of a modernization measure are its pertinence and timeliness. Different countries may select appropriate, innovative policies and measures according to their own conditions. Policy innovation and measure selection should follow modernization laws and comply with the basic national conditions and international environment. The first modernization, the second modernization, and the integrated modernization path differ from each other in policies and measures.

There are mainly three sources of policies and measures: theories, international experience, and policy innovation.

The life cycle of modernization policy has four stages: innovation stage, introduction stage, diverging stage, and secession stage.

There are five principles of innovation and selection: productivity, social progress, human development, environment friendliness, and competitiveness.

According to principles and ways of modernization and national advance, policy innovation and measure selection may have different priorities in different countries, regions, fields, and sectors in different stages. Generally, the focus should be on four aspects: everyone doing his best and fair competition, distribution according to contribution and adjustment as needed, promotion according to performance and selection according to public opinion, as well as making money perfectly, equality, and mutual benefit.

The option for advanced countries in the twenty-first century is the second modernization path which has multiple models and policy priorities.

Options for developing countries in the twenty-first century are the catch-up modernization path, the integrated modernization path, and the second modernization path, each having its unique models and policy priorities.

The ultimate goal of modernization science is to create a happier and better life with greater prosperity.

To change and to change for the better are two different things (German proverb).

The world is a ladder for some to go up and others to go down, and *not to advance is to go back* (English proverb).

Further Reading

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