

## *Original Paper*

# Application of the Concept of the Knowledge Economy with the Tools of the German Economic Experience in Accordance with the Lebanese Economic Environment

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### **Abstract**

*Perhaps the most important thing about this study is that it is the first attempt in the Lebanese economic system to study the concept of the knowledge economy, how to apply it, and the possibility of its application in the local Lebanese economy, in addition to its application. The model of the German economic experience in light of the current economic situation and the challenges of rapid technological development.*

*The study examines the application of the German economic experience model and knowledge economy in Lebanese economic environments, considering the opinions of institutions, companies, and economic actors.*

*Research aims to develop a Lebanese economic model avoiding globalization's external influences and preventing collapse.*

*Study interviews 30 economists and administrators in Lebanon to explore the application of the German economic model and knowledge economy together.*

*The results of the interviews were very positive, and the experts confirmed that there is a possibility to apply a large part of the factors on which the German economic experience relied, and most of these factors have been mentioned.*

*Analysis reveals potential merger of German experience and knowledge economy techniques, with acceptance and encouragement. Priority is given to finding a new formula and proposing a detailed implementation business model.*

### **Keywords**

*German model, Knowledge economy, Lebanon economic, mixed model, economic expert*

## 1. Introduction

It is surprising how Lebanon, despite its small economy, has amassed immense wealth as a result of its residents' diligent efforts, bank savings, and financial and real estate investments (Ottaviano Canuto & Marcelo Giorgetti, 2010). This riches has saved Lebanon from imminent crises and the necessity for rescue initiatives on numerous occasions. However, when the realities of the Lebanese economy are examined, the causes for the persistent hazards become evident (Ottaviano Canuto & Marcelo Giorgetti, 2010).

Lebanon's financial sector personnel, primarily in services, provided around 9% of GDP and 30% of state income tax receipts. From 2005 to 2010, it grew at a consistent 10% rate, culminating in a 6% increase in overall economic growth between 2011 and 2017 (McKinsey, 2019).

In the absence of official intervention, the Lebanese economy became enslaved to a paradigm based on rapid profits in speculative, financial, commercial, and real estate services. The banking sector developed regionally and globally, with approximately 360 banking operations abroad (McKinsey, 2019). As the sole survivor of the conflict, it became crucial following the collapse of infrastructure and productivity, attracting the attention of monetary and financial authorities while other sectors were neglected.

Lebanon's economic crisis stems from a flawed sectarian system, corruption, and waste. Overextended capabilities, diaspora inflows, and donor funding have financed unproductive sectors, leading to a highly indebted economy and fragile banking sector.

Compared to other global crisis cases, Lebanon's pre-crisis fundamentals were relatively weak. Thus, even optimal policies would likely entail a difficult adjustment process (El-Khalil & El-Saeed, 2020). With delayed and absent policy solutions two years into the crisis, Lebanon faces a crisis that will likely prove deeper and longer than most (El-Khalil & El-Saeed, 2020).

Here are the priorities to help build Lebanon economically through institution creation, good governance, and a better business environment, along with physical reconstruction. However, without reform, there can be no sustainable recovery and reconstruction, and the socioeconomic situation will continue to deteriorate. The proposed phase for a fairer realization seeks to rebuild trust, and thus the economy becomes more efficient and resilient. The proposed reform agenda undermines five pillars:

- macroeconomic stabilization program
- governance and accountability reform package
- Infrastructure development reform package
- Economic Opportunity Reform Package
- Human Capital Development Reform Package (Zeina El-Khalil & Ashraf El-Saeed, 2020).

### *1.1 Transforming the Lebanese Economy: Is There a Successful Model for Implementation within the Lebanese Economy?*

The study aims to transform Lebanon's economy by adopting a knowledge- and innovation-driven development strategy, focusing on knowledge and innovation. This approach can create new institutions and jobs, fostering open, entrepreneurial economies, improved education, innovation, research, and expanding information and communication technologies. Lebanon's rich history as a knowledge leader can guide its transformational path.

In 2009, Germany experienced a recession, but quickly rebounded, compared to other OECD countries, particularly within the Eurozone. German companies recovered, and employment increased. The Eurozone's permanent trade deficit is due to German exports outperforming other partners, highlighting the need for further reforms.

Germany's macroeconomic performance is favorable, with low youth unemployment and a "German jobs miracle" in 2009. Labor market reforms and modest wages contributed to this success. The Hartz reforms reduced unemployment insurance duration and introduced short-term Work Allowance (Unger, 2014).

### *1.2 What Makes Germany Successful?*

Germany's success can be attributed to longstanding rivalries between great powers and the European fault lines. Despite destruction, Europe's recovery was faster than expected, with the European Restoration emphasizing state management through taxation, welfare, and civil society. Western Europe's recovery involved liberal capitalism and socialism, but was challenged by Communist parties in France and Italy. Eastern European economies experienced postwar reconstruction, industrialization, and central planning, prioritizing higher education. East Germany became the most economically successful people's democracies (Unger, 2014).

Germany's economic transformation from "sick man of Europe" to a competitive, weak economy in just a decade is due to its flexible industrial relations system. This resilience was evident only under exceptional circumstances and extreme strength in the decade following reunification (Dustmann & Fitzenberger, 2014).

German economic success relied on cooperatives, accountability, laws, property, banking, and partnerships. Knowledge, innovation, and education were crucial for economic advantage, linking knowledge development to improved outcomes. Governments should promote human capital upgrading and education access (Saladin & Arslan, 2012).

The knowledge economy is crucial for maintaining economic competitiveness and global prosperity, as stated by the US Secretary of State for Education. The European Union supports new member states in this area for future economic well-being (Harris & Ormond, 2019).

#### **Here are some facts that should be mentioned:**

- Promote good governance
- Increasing economic potential
- Trade expansion and regional integration
- Human development challenge
- Entrepreneurship and Manufacturing

The knowledge economy shifts from traditional economies to new ones, requiring academic institutions and research companies for knowledge production and use. Key factors include mental capabilities, physical inputs, and natural resources.

The knowledge economy is based on a set of production and transformation processes that overlap with information and knowledge, so its importance lies in:

- An increase in the percentage of its components' contribution to the added value of the project, the institution, and the state
- The ability to achieve rapid growth in the economy
- The high value of intangible assets
- Creating financial markets that trade in knowledge assets

- reducing the cost and increasing the return
- Lower prices
- Building strong infrastructure
- Increase the contribution of work elements to achieving income.

### 1.3 Characteristics

Knowledge and information are crucial for productivity, with high technology and industries attracting investment. This necessitates skilled workers and university degrees, emphasizing the importance of tacit knowledge. Globalization and automation transform the labor market, and sharing knowledge boosts general knowledge. Understanding innovation is crucial for strategic direction and creating opportunities for organizations and countries (Coris, 2008).

The knowledge economy expands science and technology employment, transforms expertise, and enhances competitive advantage. It replaces capital and plays a crucial role in the service industry.

The most prominent point in his study (Lawrence Sithole, October 23, 2022) that talked about the economic miracle of South Korea is that the military leadership played an important role in economic development, even though it is a country that is poor in nature. Resources, planning, and the private sector Entrepreneurship and focus on export-based economic growth, industrialization, human capital development, and the use of concessional financing from donor financiers helped bring about changes and developed economic fortunes.

The second study talked about the role of the knowledge economy in Asian business, and it is one of the leading studies looking at the role of the knowledge economy in Asian business (Shamila, Zip, 2022) using data from 45 countries for the period 2000-2019. The knowledge economy indicators used in the study are education, innovation, economic incentives, institutional system, and information and communication technology. Business pointers to starting and doing a business are categorized.

The study highlights the significance of enhancing business climate in Asia through knowledge economy, education, ICT, economic incentives, innovation, small businesses, policymakers, research, innovation, and addressing corruption for long-term success.

**Can the knowledge economy and the German economic experience model contribute to the formation of appropriate knowledge content to achieve comprehensive economic and social development that enables Lebanon to play a prominent role in contributing to the advancement from the current institutional and economic collapse well and thus take off and grow again?**

**Applying a model for Tripoli-Lebanon can enhance educational and political systems by utilizing local industry and evaluating adaptation options for both private and public sectors.**

German economy experienced economic miracles since WWII; knowledge economy rapidly develops, requiring scientific analysis for Lebanon's growth and development, especially in North Lebanon.

## 2. Methodology

The primary objective is to determine the possibility of applying the German economic experiment model or the knowledge-based economy model in the Lebanese local economy and to determine what components have potential application in the Lebanese local economy. Hence, the research objectives are presented as follows:

- Demonstrate the adequacy of applying the German economic model to restore the collapsed Lebanese economic imbalance.
- Demonstrate the adequacy of applying the knowledge-based economy to restore the collapsed Lebanese economic imbalance.

Evaluate the possibility of applying both the German economic experience model simultaneously with the modern knowledge economy in the Lebanese economy in order to get a synergistic multiplier effect. Identify the external—local, national, and international—obstacles that may prevent completely or partially the implementation of the dual module economic experience.

A study in Lebanon involved 25 high-ranking decision-makers, including specialists, administrators, and academics in finance, economics, and analysis. The sample consisted of 25 participants, all of whom agreed to participate and signed a written consent. The economic Lebanese environment includes public employees, ministers, deans, board members, and parliament members.

52 participants were contacted among economists and heads of departments at important economic facilities, in addition to academics, financial and economic advisors, and heads of liberal professions unions. Interviews were accepted with 25 participants, distributed according to their positions and professions as follows:

Head of the free economic zone in the port of Tripoli, general manager of the port of Tripoli, president of the Chamber of Commerce, Industry, and Agriculture in the north, advisor in economic development and financial management in Beirut, economist and researcher in the Middle East, director of the most important shipping and maritime trade agencies, heads of municipalities, in addition to many academics who specialize in economics, finance, management, and business schools.

The research utilized exploratory face-to-face interviews for empirical analysis, focusing on economic development. Face-to-face research offers control, targeted participant identification, complex questions, and probe mechanisms, making it an appropriate method for qualitative studies.

Participants in our study answer a set of questions to serve the research objectives and basic research questions. The time period it took to conduct the interviews was about three months.

The interview form (which consists of five dimensions and each of which consists of a set of questions)

- The first dimension is the modern economic strategy
- The second dimension is the financial situation
- The third dimension: Work cooperatives raise the level of society and enable it
- The fourth dimension is the technological investment document and the global market
- The Fifth Dimension: Administrative Reform and Infrastructure Rehabilitation

The study has been implemented in four steps:

Step 1: Appointments were taken with respondents beforehand; all questions were asked face-to-face and their responses were recorded.

Step 2: The audio recordings were extracted, the answers were reviewed, and duplicates were deleted. And we make the transcript for the records.

Step 3: Qualitative procedures defining codes and nodes of the responses based on the components of the German model and knowledge economics.

Step 4: Analysis of the results using **NVivo 12** for qualitative analysis.

### 3. Result and Findings

This table presents the main factors that made up the German economic experience, as well as items related to this experience, which agree with the opinions of the economists interviewed.

**Table 1. Main Factors Mentioned in the Interviews Related to the German Economic Model, Sorted by Factors**

Nb of factors	
1	<p><b>Agricultural or farmers' cooperatives</b></p> <p>Through the use of technology in the agricultural sector to rehabilitate, develop and increase production.</p> <p>Cooperation with agricultural cooperatives</p> <p>Developing the agricultural sector</p> <p>Support agriculture, water, biodiversity, and forestry.</p> <p>Increasing support for cooperatives to expand their investment in agricultural activities.</p> <p>Participation by the private sector in providing public goods for agriculture.</p> <p>Through intertwining with global and external programs that have recently increased in activating and moving agricultural activity worldwide.</p> <p>Existence of adequate centers for agricultural research and agricultural extension.</p>
2	<p><b>Worker cooperatives</b></p> <p>Monitoring team for joint projects</p> <p>Providing economic alternatives through local malls</p> <p>Employees training</p> <p>Increasing social spending</p> <p>Create an appropriate environment</p> <p>Accounting and control</p>
3	<p><b>Financial cooperatives</b></p> <p>Joint financial cooperation between the private sector</p> <p>Securing external financial resources</p> <p>Financial restructuring of banks with their components because they are part of the investment</p> <p>Short-term credit facilities.</p> <p>Financial support from External sources:</p> <p>The World Bank through the Digital Financial Inclusion Group</p> <p>Encouragement of assets owners in investment</p> <p>Financial support from Local sources</p>
4	<p><b>Education and vocational training</b></p> <p>Providing research and studies centers on the quality of products and services</p> <p>Focus on educational projects</p>
5	<p><b>Support services cooperatives</b></p>

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	Networking between local organizations
	Using the private sector to contribute to solving economic problems through privatization
	Supporting investment projects
	Promoting the idea of cooperation between organizations
	Establishing joint projects
	Improving the business environment to encourage private sector activities
	Complete privatization
	Support from the private sector
	Encouraging the private sector to invest in infrastructure
<b>6</b>	<b>Consumer Cooperatives</b>
	Monopoly prevention
	Rationalization of environmental resources consumption
<b>7</b>	<b>Housing cooperatives</b>
<b>8</b>	<b>Neutral political environment</b>
	Development and update of current laws
	Applying punishment
	The political reality
<b>9</b>	<b>Industrial sector</b>
	The state spends annual funds for development and rehabilitation
<b>10</b>	<b>Market performance</b>
	Activation Censorship
	Promoting economic diversification
	Integration of foreign experts with the local economy through support programs and facilities
	Work within the scope of the new and modern knowledge economy
	Development of local production
	Creating new productive fields
	Advanced legislative role of renewable energy
	Securing renewal and competition
	Public Sector Development in innovation
	Focus on projects directly related to production.
	Supporting and supporting the state in joint projects between the private and public sectors.
	Promotes Economic Stabilization Programs
	Governmental facilitating of infrastructure projects

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The German model consists of 11 factors, with experts mentioning 10 important ones. However, the application mechanism does not equally emphasize all model components, highlighting the need to prioritize certain elements when designing a rescue plan. Experts did not mention some model aspects at all or infrequently, suggesting they may be less feasible or timely for the Lebanese context. Factor prioritization is advisable given economic conditions, rather than blanket implementation. The study examines applying the knowledge economy model in northern Lebanon, assessing the fit of knowledge economy principles to address the ongoing Lebanese economic crisis.

**Table 2. Main Factors of the Knowledge Economy Model**

#	Main factors of the knowledge economy model
<b>1</b>	<b>Entrepreneurship and Industrialization</b> Protection of innovations and patents
<b>2</b>	<b>Strengthening good governance</b> Create an appropriate environment* Accounting and control Assign tasks to all employees and not limit them from the manager's responsibilities alone. Activation Censorship The political reality
<b>3</b>	<b>Creating financial markets that trade in knowledge assets</b> Approval of ownership road financing The World Bank through the Digital Financial Inclusion Group Encouragement of assets owners in investment
<b>4</b>	<b>Increase income</b> Financial support from External sources: Price control Financial support from Local sources Focus on projects directly related to production. Supporting and supporting the state in joint projects between the private and public sectors. Rationalization of environmental resources consumption
<b>5</b>	<b>The high value of intangible assets</b>
<b>6</b>	<b>The ability to achieve rapid growth in the economy</b> Improving the business environment to encourage private sector activities Promotes Economic Stabilization Programs
<b>7</b>	<b>Building strong infrastructure</b> Restoration of business and infrastructure Governmental facilitating of infrastructure projects
<b>8</b>	<b>Economic incentives</b> Providing incentives to the private sector
<b>9</b>	<b>Reducing the cost and increasing the return</b> Reducing production costs Reduce unemployment.
<b>10</b>	<b>Expanding trade and regional integration</b> Going into the global economy through technology and research Benefit from the newly launched UN-supported program (Lebanon Export Academy) External financial support Projects funded from abroad Networking between local organizations Work within the scope of the new and modern knowledge economy Securing renewal and competition Coordination between local associations and institutions with external institutions Access to international markets



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Public Sector Development in innovation

### 11 Technology

Integration of foreign experts with the local economy through support programs and facilities

The shift towards data science by the state and institutions.

Seeking help from outside experts in new investment projects

Yes, if state-owned institutions, especially energy, are reformed.

Reducing the depletion of public resources that constitute waste and do not provide quality services.

By increasing financial services through mobile phones

Providing research and studies centers on the quality of products and services

Focus on educational projects

Monitoring team for joint projects

Improving financial management and using new technologies.

Access to technology and the information network

Transforming knowledge into products and services

Development and support of research centers

Providing the latest technology in the local markets

Use of technological development

Develop policies suitable for the environment

Through the use of technology in the agricultural sector to rehabilitate, develop and increase production.

Employees training

Existence of adequate centers for agricultural research and agricultural extension.

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The second research question of this study is about the possibility of applying the concept of the knowledge economy as a solution to the economic problems that Lebanon is going through, and after taking the opinion of experts on this subject, it was noted that most of the items were mentioned about this theory, and this indicates the possibility of applying this concept.

However, some items were not mentioned because they are not compatible with the Lebanese environment, or perhaps experts believe that there is a series of reforms that the Lebanese economic environment should start implementing.

We note that this theory consists of 11 factors, and after taking the opinion of the experts and conducting an interview with them, 8 factors identical to this theory were indicated in their answers.

We also see that item No. 5 was not mentioned to at all, while the second group of items that were mentioned, but weakly, are No. 1, 6, 7, 8, and 9.

We add that the third group of basic factors that make up this theory, which has been mentioned extensively strongly, and with various ideas to apply them to factors No. 2, 3, 4, 10, and 11.

We conclude that there is acceptance for the application of the components of the knowledge economy, but as the expert's answers indicated, there are priorities for their application, not all of them at the same time.

The first idea confirms the acceptance of the theory of knowledge economy, while the second idea is not all of its items and not everyone is equally important. Thus, the second research question of this study was answered in the possibility of applying the theory of knowledge economy, but with the prioritization of some items, so if we want to arrange a rescue plan, we must be selective.

The important note that we would like to point out is the items that were mentioned at all or those that were not mentioned strongly, can they weaken the model or not?

Perhaps the reason is that the experts believed that there was no possibility of applying it in the Lebanese environment, or that it was not time for application in the current period of time with the conditions that Lebanon is going through, or perhaps they were not aware of its existence.

We conclude, then, that it is unlikely that they are not aware of it, and therefore the other option remains, which is their belief that now is not the right time to implement it, so the items mentioned must be arranged according to priorities.

The possibility for implementation the two models German economic and the knowledge economic in such a way they will act a complement to each other.

This table contains a final summary of all the participants' and experts' responses to all of the statements upon which the interview was conducted. They were asked basic research questions that revolved around the idea of implementing the German experience as a solution to Lebanon's economic issues. The second question is about the viability of using knowledge economy techniques as one of the solutions to the Lebanese economy's crisis, and the third question is about how far we can push the two models together as a positive and synergistic solution.

**Table 3. The Final Summary of All the Participants and Experts' Responses to All the Statements on which the interview was Based (Prepared by the Researcher)**

<b>Main factors of German economic model</b>	<b>Main factors of the knowledge economy model</b>
<b>Agricultural or farmers' cooperatives</b>	<b>Strengthening good governance</b>
Through the use of technology in the agricultural sector to rehabilitate, develop and increase production.	Create an appropriate environment
Cooperation with agricultural cooperatives	Accounting and control
Developing the agricultural sector	Assign tasks to all employees and not limit them from the manager's responsibilities alone.
Support agriculture, water, biodiversity, and forestry.	Activation Censorship
Increasing support for cooperatives to expand their investment in agricultural activities.	The political reality
Participation by the private sector in providing public goods for agriculture.	<b>Creating financial markets that trade in knowledge assets</b>
Through intertwining with global and external programs that have recently increased in activating and moving agricultural activity worldwide.	Approval of ownership road financing
Existence of adequate centers for agricultural research and agricultural extension.	The World Bank through the Digital Financial Inclusion Group
<b>Worker cooperatives</b>	Encouragement of assets owners in investment
Monitoring team for joint projects	<b>Increase income</b>
Providing economic alternatives through local malls	Financial support from External sources:
Employees training	Price control
Increasing social spending	Financial support from Local sources
Create an appropriate environment	Focus on projects directly related to production.
Accounting and control	Supporting and supporting the state in joint projects between the private and public sectors.
<b>Financial cooperatives</b>	Rationalization of environmental resources consumption
Joint financial cooperation between the private sector	<b>Building strong infrastructure</b>
Securing external financial resources	Restoration of business and infrastructure
Financial restructuring of banks with their components because they are part of the investment	Governmental facilitating of infrastructure projects
Short-term credit facilities.	<b>Expanding trade and regional integration</b>
Financial support from External sources:	Going into the global economy through technology and research

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<p>The World Bank through the Digital Financial Inclusion Group</p> <p>Encouragement of assets owners in investment</p> <p>Financial support from Local sources</p> <p><b>Education and vocational training</b></p> <p>Providing research and studies centers on the quality of products and services</p> <p>Focus on educational projects</p> <p><b>Support services cooperatives</b></p> <p>Networking between local organizations</p> <p>Using the private sector to contribute to solving economic problems through privatization</p> <p>Supporting investment projects</p> <p>Promoting the idea of cooperation between organizations</p> <p>Establishing joint projects</p> <p>Improving the business environment to encourage private sector activities</p> <p>Complete privatization</p> <p>Support from the private sector</p> <p>Encouraging the private sector to invest in infrastructure</p> <p><b>Neutral political environment</b></p> <p>Development and update of current laws</p> <p>Applying punishment</p> <p>The political reality</p> <p><b>Market performance</b></p> <p>Activation Censorship</p> <p>Promoting economic diversification</p> <p>Integration of foreign experts with the local economy through support programs and facilities</p> <p>Work within the scope of the new and modern knowledge economy</p> <p>Development of local production</p> <p>Creating new productive fields</p>	<p>Benefit from the newly launched UN-supported program (Lebanon Export Academy)</p> <p>External financial support</p> <p>Projects funded from abroad</p> <p>Networking between local organizations</p> <p>Work within the scope of the new and modern knowledge economy</p> <p>Securing renewal and competition</p> <p>Coordination between local associations and institutions with external institutions</p> <p>Access to international markets</p> <p>Public Sector Development in innovation</p> <p><b>Technology</b></p> <p>Integration of foreign experts with the local economy through support programs and facilities</p> <p>The shift towards data science by the state and institutions.</p> <p>Seeking help from outside experts in new investment projects</p> <p>Yes, if state-owned institutions, especially energy, are reformed.</p> <p>Reducing the depletion of public resources that constitute waste and do not provide quality services.</p> <p>By increasing financial services through mobile phones</p> <p>Providing research and studies centers on the quality of products and services</p> <p>Focus on educational projects</p> <p>Monitoring team for joint projects</p> <p>Improving financial management and using new technologies.</p> <p>Access to technology and the information network</p> <p>Transforming knowledge into products and services</p> <p>Development and support of research centers</p> <p>Providing the latest technology in the local markets</p> <p>Use of technological development</p> <p>Develop policies suitable for the environment</p> <p>Through the use of technology in the agricultural sector to rehabilitate, develop and increase production.</p>
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Advanced legislative role of renewable energy	Employees training
Securing renewal and competition	Existence of adequate centers for agricultural research and agricultural extension.
Public Sector Development in innovation	
Focus on projects directly related to production.	
Supporting and supporting the state in joint projects between the private and public sectors.	
Promotes Economic Stabilization Programs	
Governmental facilitating of infrastructure projects	

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This study reveals the potential for concurrently implementing the German economic model and knowledge economy principles in Lebanon. Four key strengths indicate a hybrid model could aid Lebanon's crisis recovery:

First, interviews found experts suggesting combining aspects of both models, viewing this as compatible with Lebanon's economy and advocating implementation.

German and knowledge models complement each other, emphasizing trade, regional integration, technology, agricultural cooperatives, vocational education, and infrastructure modernization. Both promote good governance and accountability.

Third, few global publications have examined applying a blended model rather than purely German or knowledge economy approaches.

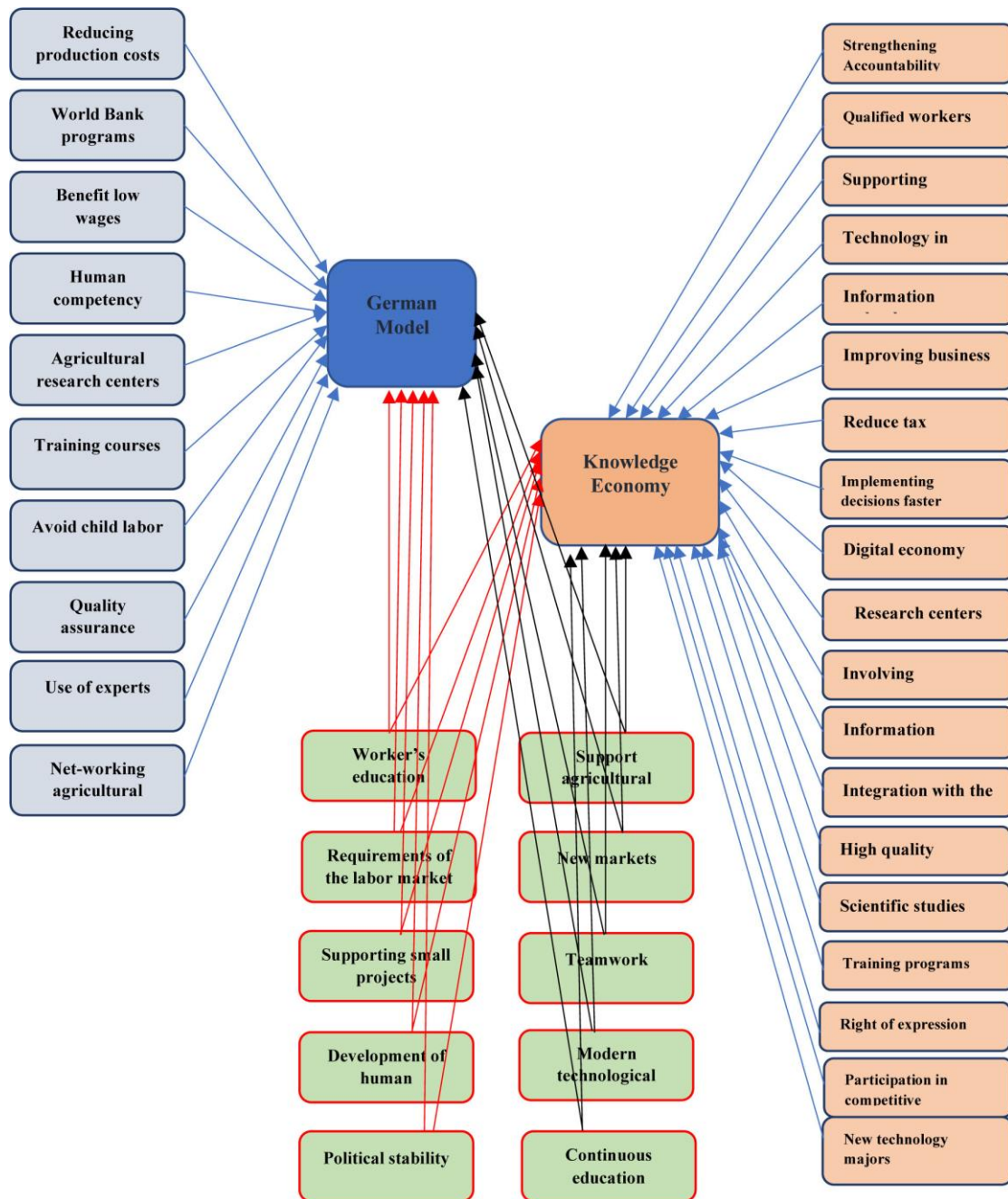
Fourth, integrating the core German components using knowledge economy tools could produce synergistic effects, aligning with modern economic strategy.

In conclusion, this pioneering analysis indicates potential in a hybrid German-knowledge model tailored to Lebanon's unique situation. The expert insights reveal an openness to this complementary approach for stabilizing conditions and initiating recovery.

After collecting and analyzing all the responses of the participants, we found that a group of answers stated that the German economic model can be applied in Lebanon and that it is able to solve important parts of the current economic crisis, and its most applicable components, but those we interviewed did not adopt this.

Applying all the provisions and stages that the German economy went through. Therefore, when implementing the reform plan, the German model needs modifications that suit Lebanese society and the economic environment.

Based on the theoretical stage, previous studies, and the experiences of many countries with regard to weighting any theory that we can adopt and is closest to implementation and success, the answer to this is the need to conduct a quantitative study to determine the order of priorities.



**Figure 1. NVIVO Analysis Graph Derived Components from German Model and Knowledge Economy (Prepared by the Researcher)**

There are several components related to the application of the two theories, the German economic experience, and the components of the knowledge economy, but the board of consultants did not mention them, perhaps in their opinion that they are not applicable in the Lebanese environment or that there are priorities in reforms before working on these items, so the beginning is from the rehabilitation. The basic infrastructure and the importance of its application come before the technology is fully adopted in all companies, and each organization and company have strengths and weaknesses that depend on it.

Experts emphasize the importance of accountability and financial corruption prevention before rehabilitation and support. Fair laws protect rights, banks' conditions, and depositors' money. Most opinions call for state involvement in a proper, serious, and effective manner.

We also note that the exclusion of some items from the two models does not hinder their successful application, nor does it lead to the failure of this application to reach the required economic development and find solutions to the current economic problems in Lebanon.

The most prominent aspect of this study is that the knowledge economy is a new and developed economic model of the economy based on information, where knowledge is the cornerstone and the most important element of production, and its application has been successful in many fields. This indicates the possibility of applying the knowledge economy model in an Arab country such as Lebanon by relying on technology to increase and develop the productive component.

#### **4. Discussion**

##### *4.1 Adapting the German Model and Knowledge Economy in Lebanon*

The importance of the results that emerged from this study lies in the fact that there is a possibility to apply the German economic experience and the knowledge economy theoretically after being confirmed by economists in Lebanon. And that the German economic experience can be applied, but not in its entirety, just as the knowledge economy can be applied, but not in its entirety, too. The conclusion of this matter is that it is possible to apply the two models in the Lebanese economy, but not completely together.

According to the experts' opinions, we can apply the German economic experience as a solution to the current economic problems, but not completely, as some studies have shown and local economists there have expressed their opinions. The reason is the multiplicity of different components between the two countries and the possibility of applying the German experience in Syria. There is also a need for governmental institutions and effective laws, and the private sector is required to contribute more effectively in this field. What is required is to adopt an economic option that can include elements similar to those of the model that succeeded at the German level during the construction phase after World War II and that is less harmful than relying on the market economy alone (Afraa Muhammad, 2008).

And if we want to compare this study with a similar study in Saudi Arabia, the result of the study concluded that there is difficulty in Lebanon in securing and supporting scientific research in educational institutions and companies due to the serious absence of this concept and also to the lack of abundant financial returns in the Lebanese economy at the present time, but there is no problem in Saudi Arabia. In the Saudi economy, liquidity is as much of a problem as securing local human resources capable of training and keeping pace with innovation and creativity that cross the most important pillars of the knowledge economy. Bearing in mind that Lebanon has excellent human

competence, educational capabilities, and professional experiences, all that is lacking is a fair law, a vision for its development by the state, and technical and material support in order to navigate the world of creativity and innovation.

**Table 4. Action Plan (Prepared by Researcher)**

Action plan	Stage One		Stage Two			Stage Three				
	Year	Year	Year	Year	Year	Year	Year	Year	Year	Year
	1	2	3	4	5	6	7	8	9	10
<b>Reduce Tax</b>										
<b>Infrastructure</b>										
<b>Improve laws concerning accountability</b>										
<b>Improve workers conditions (education, health care ...)</b>										
<b>Support chamber of commerce and union</b>										
<b>Reduce cost of raw material</b>										
<b>Use of international financial support</b>										
<b>Encourage local quality of product and services</b>										
<b>Reduce cost of electricity</b>										
<b>Collaboration between universities, public and private sector</b>										
<b>Improve baking sector</b>										
<b>Supporting agricultural cooperative</b>										
<b>Sustainability of political positive environment</b>										
<b>Support research centers in different sectors</b>										
<b>Orienting universities towards applied science</b>										
<b>Providing public data base</b>										
<b>Transform official transactions into digital</b>										



Working plan for the coming 10 years based on German Model and Knowledge Economy Components (Prepared by the researcher).

Tax reduction, infrastructure, Improve accountability laws, Improving workers' conditions (education, health care...), Support the Chamber of Commerce and the Syndicate, Reduce the cost of raw materials, Use of international financial support, Promote local quality of products and services, Reduce the cost of electricity, Cooperation between universities and the public and private sectors, Improve the bread sector, Support for agricultural cooperatives, Sustaining a positive political environment, Supporting research centers in various sectors, Orienting universities toward applied sciences, Provide a public database, Transforming official transactions into digital.

We also note that there are a group of items that have been classified at the top of the list, and according to the opinion of economists and owners of large and medium companies on which the Lebanese economy is based, there is a possibility to apply the German model and the knowledge economy, but they must work first in their opinion to reduce taxes, prepare the infrastructure, and improve fair laws and regulations to fight Corruption, followed by the improvement of workers' conditions...

However, according to the researcher's opinion, we see that this arrangement can be modified and must start with the use of international financial support in order to provide liquidity in banks and in the accounts of companies and union funds in order to complete projects and develop strategic, executive and development plans.

It is also necessary to pay attention, according to the researcher's opinion, to the importance of supporting research centers in all sectors, whether within private centers supported by the state and under its supervision, or in coordination with research centers in universities and institutes, because it is the ideal place to find all solutions to various problems, as well as to set decisions and strategic plans for appropriate development.

Also, it is necessary to expedite the application of conducting official transactions into digital ones for the proper functioning of work and the provision of quality services.

#### *4.2 Recommendations*

After presenting the final results of the qualitative analysis using the **NVIVO** program, several recommendations were reached by the researcher:

##### *4.2.1 General Recommendations*

- The Lebanese government is keen to embrace and develop its cadres and graduate many batches in colleges capable of managing the production process according to correct and organized frameworks.
- The knowledge economy is an increasing trend toward the horizons of global integration, heading towards an open global economy thanks to the information and communication revolutions, and its provisions must be taken into account in any reform plan or development of strategies.
- Improving itself and investing well in information technology. It became clear that the government should work to bring Lebanon into the midst of the current technological developments and remove it from the state of isolation from which it suffers in the field of information technology.
- Opening up to the global economy carries with it risks, but at the same time it carries with it golden and additional opportunities if institutions are able to develop new ones as well.

- Work to benefit from existing natural resources and invest in them, and work to support and reclaim the agricultural sector.
- Countries must create an appropriate climate for knowledge because knowledge today is not an intellectual luxury but has become the most important component of production.
- The human mind is capable of development and innovation, and this is what makes it an effective factor in building the economies of countries because of the values it adds to the economic products subject to development, necessary for future development.
- Providing an opportunity for investments that do not have a huge capital but have the ability to work in the information sector and possess experience, a pioneering spirit, and a developed administrative organization, which constitutes a great opportunity for the new generation of investors and benefits from the Internet and the use of information technology.

#### 4.2.2 Specific Recommendations

- Establish high-quality research and development systems to enhance the research capabilities of individuals and build discovery, problem-solving, decision-making, understanding, analysis, elicitation, and linking skills.
- The new economy is imposed by knowledge and in coordination with all public and private universities. The modern theory confirms that investment in research and development for technical innovation constitutes the law that drives economic growth, in contrast to traditional theories that believe that all the motives for progress lie in the competitive process and this technology.
- Information and communications are the outputs of technical research and development, and it must be ensured that they are available with the required specifications in every development strategy.
- Work to create human capital and develop it with high quality and great capabilities through training and development, as human capital is the cornerstone of building the information society on the one hand and the pillar of development, growth, and success of the economic project on the other.
- Providing information and communication technology, enabling individuals to access it at any time and place easily, and allocating an important part of its investments to scientific research and innovation
- That the state works to re-attract the human minds that migrated under the current economic conditions and the old ones and relies on them to build and develop rescue and development plans for the country.

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