

# Economic Intelligence and Innovation: Case Study

Armita Maleki Shahraki<sup>1</sup> & Elmira Maleki Shahraki<sup>2</sup>

<sup>1</sup> Master 2 Research and Consulting in Management, University of Caen Basse-Normandie, Caen, France

<sup>2</sup> Department of Computer Engineer, Islamic Azad University, Ashtiyan Branch, Tehran, Iran

Correspondence: Armita Maleki Shahraki, Master 2 Research and Consulting in Management, University of Caen Basse-Normandie, Caen, France. E-mail: armita\_malekishahraki@yahoo.fr

Received: August 30, 2016

Accepted: October 22, 2016

Online Published: November 16, 2016

doi:10.5539/ass.v12n12p220

URL: <http://dx.doi.org/10.5539/ass.v12n12p220>

*With the support of Corinne ZERBIB Intervener at University of Caen Basse-Normandie*

## Abstract

If the systems and practices of Economic Intelligence have evolved considerably in industrialized countries, What about the countries called developing countries? Do the new entrants in an economy henceforth global, have to develop their Economic Intelligence systems, to promote innovation which is a key factor for growth? The research presented here is a study devoted to the field of Economic Intelligence and its connection with innovation. The automobile industry in Iran constitutes a field of study particularly interesting in this domain. Does its dynamics of innovation is based on the structured and developed Economic intelligence practices? Is there any connection between Economic Intelligence and innovation in the Iranian auto industry?

**Keywords:** economic intelligence, innovation

## 1. Introduction

“Enterprises, regions and states are henceforth forced to integrate this new competitive geography in the definition and the adjustment of their strategies”. (Note 1)

At the heart of the competitive strategies followed by states and organizations, the Economic Intelligence feeds and arbitrates not only the decisions of international and national authorities, but also the decisions of the largest numbers of international groups, as myriads of small businesses. These organizations, large or small, confronted by a worldwide competition, nevertheless anchor “their roots in history and culture and are often the expression of an ambition and a national solidarity” (Note 2).

The challenge is crucial, because “the Competitive Intelligence process is a lever that allows the nations of the South to rebalance gradually their negotiating power within the world economic power relations” (Note 3).

In the first part, we will study the Economic Intelligence and innovation as well as their interactions, and we will analyze the impact of the national culture on strategies and practices in this field. Then we will talk about the survey among the Iranian auto manufacturers with whom we interviewed about their practices regarding the Economic intelligence and innovation, and finely we will analyze the results.

## 2. Economic Intelligence

### 2.1 Definition and Characteristics

The enterprise is submitted to fluctuations increasingly strong and rapid of its environment: cost pressures, consumer infidelity increasingly demanding and busy, regulatory evolutions, intense competition. To evolve in this universe in perpetual change, the enterprise must “know more about its economic environment, in order to better anticipate, not only the opportunities, particularly through innovation, but also some potential threats surrounding” (Note 4).

The Economic Intelligence is armed with the power of the information technologies and communication, and is based on the human networks to provide enterprises and States the means for a better competitiveness against their adversaries.

In the 80s and early 90s, Economic Intelligence is seen essentially from the viewpoint of means and resources that it mobilizes. Then the Economic Intelligence analysts focused on its uses and objectives. Thus, the

designation of Economic Intelligence by the term of Competitive Intelligence has emerged in reference to the devoted providers, such as SCIP for Society of Competitive Intelligence Professionals who consider the activity as reserved for senior executives who can rely on information to define their R & D strategy or marketing, and choose their investments, etc.

But this term appears for the first time in literature, in Ruth Stanat's (Note 5) publication. In her book, she defends the need for Competitive Intelligence and systematic study of the competition, while considering numerous possible forms of the approach.

For JAKOBIAK, "improving the competitiveness of enterprises is the principal objective of Economic Intelligence". In fact, this competitiveness implies anticipation on future markets, knowledge of concurrent strategies, and a good circulation of information internally, as many activities under the Economic Intelligence.

Economic intelligence satisfies two complementary needs related to the intangible heritage of the enterprise: on one hand *protection*, on the other hand *development*. When it comes to protection, the activity is considered as a defensive order, but "it can be up to offensive actions (for example exertion of influence)". The Economic Intelligence is so similar to business information, even espionage.

So we can distinguish globally three types of intervenors: observers, experts and decision makers, each one with a different role.

The effectiveness of the Economic Intelligence system in the enterprise is based particularly on the motivation of experts. Indeed, this role involves for these specialists an extra work. Presently these intervenors are the plinth of Economic Intelligence: they are the ones who turn raw data transmitted by observers, in developed information which as soon as is provided to decision makers, would enable them to orient their decisions. So Jakobiak insists on the crucial challenge of "Making clear to the responsible people not yet convinced everything that can bring them the Economic Intelligence."

The time is also a crucial factor of Economic Intelligence. Indeed, Economic Intelligence is only useful if it provides for decision makers some information before others. However, the transformation of the raw data takes time. It is therefore essential to consider the time factor in the development of circuits and in the process of Economic Intelligence in the company. In particular, we can provide a special procedure for urgent information.

Regarding to the geography of the Economic Intelligence, Jakobiak considers that it covers henceforth a "global" field: "the coverage of each monitored sector is global." (Note 6) The actions of the competing nations in terms of Economic Intelligence are crucial.

### *2.2 Economic Intelligence at the Service of Competitiveness*

Competitiveness is a key issue of Economic Intelligence. Monitoring permits not only to provide for company's actors the information on tendencies and prospective, but also to control the strategic environment so that the company maintains, even improves its competitiveness.

The Economic Intelligence has thus a powerful base of competitive activity of the enterprise: product positioning in the market, development of information sharing, securing the information and the intellectual heritage in particular securing patents, creation of a system for mastering informational and organizational risk. The enterprise has countless benefits of Economic Intelligence regarding competitiveness. "Competitive intelligence is a way to alert companies constantly of exchanges in the competitive environment". (Note 7)

### *2.3 The Three Pillars of the Economic Intelligence: Monitoring, Benchmarking and Knowledge Management*

The activities of Economic Intelligence cover a wide spectrum starting from simple monitoring to full cycle of information.

#### *2.4 Monitoring*

Monitoring whether general or specific, is today widely used in enterprises that have fully understood that their decisions are highly dependent on their environment. "Monitoring" as a founding element of the Economic Intelligence process "consists in collecting, organizing, analyzing and disseminating of collected information. (...) The advantage well understood of monitoring is to not to be taken by surprise by being updated with market knowledge" (Note 8). Monitoring therefore implies a constant process to detect the environmental signals.

For Cahen (2011), the monitoring inherits the means and procedures devoted in the past to the documentation in enterprises. But to ensure its efficiency, the author warns against a profusion of information that could "drown" its recipients. "The ranking, sorting, communication, are therefore essential." (Note 9)

Massé and Thibaut consider that "The watcher does not always know what he searches for and does not

understand from the beginning what he finds”. On the contrary, Economic Intelligence extends the monitoring field to all the subjects that concern the enterprise. It uses the monitoring as an exploitation method of the information and provides it with a strategic target.

While the monitoring is interested in shaping, Economic Intelligence cares about sharing of information.

Indeed, if the strategic, technological and competitive Intelligence is at the heart of the businesses of Economic Intelligence, the Economic Intelligence consists, according to Michael Porter, in “giving the right information to the right person at the right time to make the right decision”. The Economic Intelligence, tactical or strategic, aims decision making. For Meddah, The Economic Intelligence can be seen as a “systematic process of extraction and qualification of information” (Note 10), intended for providing decision makers the elements of pertinent decisions.

### *2.5 Benchmarking*

While the Economic Intelligence consists in extending the approach of competitive Intelligence to the market and the nation, benchmarking constitutes its internal continuity.

Beyond the “comparison and expertise of the enterprise with enterprises considered as models for excellence” (Note 11), the Benchmarking consists in analyzing and explaining the performance gaps, and transposing the best practices observed, into the enterprise.

Questions that benchmarking can answer have different origins: How works the competitor, what are the key factors for success, what is its generator process to reduce costs... It is usually to “appropriate the sources of competitive advantage” (Note 12) of the competitor.

In particular, benchmarking is applied to Economic Intelligence itself, in order to identify the best practices by studying the practices of the best performing enterprises. The approach allows companies to be based on one hand on recommendations of specialized organizations, and on the other hand on existing practices within the best enterprises in order to adapt them to their specific problems.

### *2.6 Knowledge Management*

The knowledge management (KM) constitutes an important component of Economic Intelligence. Thus, for Jakobiak (2004), Economic Intelligence and competitive intelligence are “offensive uses” of information “in a strategic purpose”, whereas KM helps to optimize knowledge within in the company. KM allows indeed capitalizing on the expertise of specialists in order to “transform the raw information collected in developed information” and “knowing the enterprise's specific resources.” (Note 13)

The term “knowledge Management” formalizes an ancient activity. Indeed, “Knowledge Management (KM) is the process of gathering, managing and sharing employee's knowledge capital throughout the organization” (Note 14). As Jakobiak says (2004), so, this is, first of all, to create value from intellectual assets and knowledge. He specifies however that the process, although based on the information technology, is closely linked to the strategic objectives of the enterprise. The technologies, indispensable, are limited to equip the process.

Thanks to KM tools, the experts of the Economic Intelligence will be able to create a global or specialized knowledge base, and disseminate internal information as external, to share these informal knowledges within the groupware, who can enjoy an optimal use of the enterprise intranet.

## **3. Innovation**

Innovation is at the heart of the creation and development of enterprises and world economies. The influence of innovation, applied to all the fields of action of the organizations is very wide.

In its general definition, innovation involves “the introduction of novelty in an established field” (Note 15). Innovation is distinguished from invention insofar as it seeks a commercialization. Massé & Thibaut (2001) consider so the innovation as “the effective introduction into the economic circuit of what is invented and discovered and which constitutes progress.” (Note 16)

Loilier and Tellier (2013) note, however, that the term innovation means at the same time not only the result of an innovative approach, but also the process for obtaining a new product, a new process etc. Fernez-Walch and Romon (2006) put accent on “organizational process, Willful, which led to the proposal and adoption (...) of a new product”. According to them, innovation allows enterprises “to improve their strategic position (...) and / or reinforce their skills and technologies”. (Note 17)

### *3.1 Innovation Challenges*

Innovation as a key factor of the economic growth of enterprise is the source of a value chain that extends from

research to benefit, through the development, production and sales. Beyond research and development, innovation covers all the key success factors of the enterprise as the market, the design, marketing etc. Competitiveness is therefore based on innovation.

But if innovation is strategic, the direct link between innovation and performance remains difficult to demonstrate. Indeed, the efficiency of an innovation comes first of all from the competitive advantages that it provides. Therefore, Loilier and Tellier (2013) warned that innovation can even be destructor of value. Indeed, the competitive advantage is based on two principles: “the costs generated by the activity and the value of the services received by the market” (Note 18).

If the Oslo Manual targets his remarks on enterprise innovation, it also seeks to provide macroeconomic information to put it in perspective. Fernez-Walch and Romon (2006) say that innovation is “simultaneously the most just way to give underdeveloped countries their chance to access to a better living standard, letting them competes with us on activities based on basic technologies” (Note 19). The authors therefore refer to the World report 2001 of the United Nations Development Program pointing the role of innovation in the development of poor countries: food, medicine, IT etc., contribute to the growth of these countries. Is it still necessary to allow them access to these innovations whose entry ticket is often very high?

To be effective, the innovation process must follow three key steps in its implementation in the enterprise.

- The first step is fundamental: the emergence of a new idea.
- The second step is to verify the feasibility of this idea, a process that can lead to filing of patent.
- Finally, the third step is to develop the results of previous researches. Contrary to previous steps, this step requires a framed and rigorous approach.

The first step is decisive: the creation of a new idea requires creative qualities, based on an artistic type of approach. So the researchers who developed the technology after the war were from very diverse backgrounds, with an original attitude.

But the qualities necessary for creativity and therefore for innovation can not be combined in one person. Innovation is the case of groups of people working collectively.

To describe the state of mind necessary for innovation, Massé & Thibaut resort to a few slogans that marked their time: “The only engine to win, that's Innovation!” (Renault slogan, Formula 1 racing), “The passion is always right” (Elf Aquitaine slogan in the early 90s) that authors federated in their own slogan: “Put qualities in your engine.”

If passion and optimism are the basis of the essential qualities for innovation, they are not sufficient. Curiosity and listening are basic qualities. Indeed, for Jakobiak (2004), “To be curious is to know see, watch, observe, compare, hear, listen and be attentive to others.” (Note 20)

### *3.2 Economic Intelligence and Innovation*

Focusing on the development of intellectual capital guides the thinking and action of the Economic Intelligence towards innovation, which feeds of information generated thanks to Economic Intelligence. For Soula, the link between Economic Intelligence and innovation is not proven: “Economic Intelligence (...) can be an important tool in the production of pertinent inputs allowing accelerating and controlling the innovation process. The Economic Intelligence gets here perhaps even the meaning of approach; Innovation comes to finalize the Economic Intelligence system as one of its operational achievement. This is of course a hypothesis that, as far as I know, has never been empirically tested in enterprises”. (Note 21)

Essential tool for decision support, Economic Intelligence provides according to Salles (2006), “representations of the environment susceptible to help decision making. In case of non-repetitive decisions, the Economic Intelligence system must be able to support the emergence of innovative representations, within the enterprise” (Note 22).

The Economic intelligence feeds innovation: Thanks to observation and analysis of the environment in all its aspects, this is innovation that reveals, and even anticipates the threats and opportunities for development, and thus orients the innovation in a useful way.

Indeed, among the fields covered by the Economic Intelligence, innovation has a place increasingly important, because it is one of the main engines for the growth of enterprises and nations. Therefore, to boost innovation, we must “be knowledgeable about technology, markets and competitors” (Note 23). This is an approach that is exactly the heart of Economic Intelligence.

Technological monitoring operated by the Economic Intelligence is therefore the heart of innovation. As noted earlier, it provides essential information on the processes and on the existing and future products of competitors, and provides also to the actors, in research and development, technical information.

If the technological monitoring is essential, it is not enough: only Economic Intelligence, associated with benchmarking, allow reaching the total creativity (...) that is to say the innovation of products, production, market, and environment (Note 24).

**4. Survey Methodology and Results Analysis**

The theoretical study has allowed us to form the basics of Economic Intelligence and Innovation as well as their essential components in the enterprise. If it is proven that the modalities of the Economic Intelligence vary according to countries, we have focused our survey on the automobile industry in Iran in order to better determine the specificities at work, in a very specific context.

In this regard, we have administered 45 questionnaires for senior managers of Enterprises of a large Iranian automobile manufacturer.

The reliability of the questionnaire is a factor that allows to ensure the validity and accuracy of the survey. To increase the reliability of our survey, we proceeded to calculate Cronbach's Alpha coefficient using the SPSS software on the questionnaire.

The reliability test provides a result of 87.5%. Considering the volatility of Cronbach's Alpha value being between 0 and 1, the number that is higher than 70% indicates a good level of reliability.

Demographic questions specify respondent's profiles to our survey. More than 70% of them are aged over 40 and less than 60 years. 66% of respondents are male and 34% female. 41% of respondents “have” more than 20 and 59% “have” less than 20 years of seniority. 90% of respondents have a university diploma equal or superior to Master degree.

**5. Results Analysis**

The collected data in our survey constitutes the object of our analysis. We have chosen the Principal Components Analysis (PCA), because this is one of the most used methods, when we are in the presence of multivariate data.

The PCA is a method that allows to project the observations from space at  $P$  ( $P$  dimensions are variable), to a space at  $K$  (dimensions in which  $k < p$ ), so that a maximum of information measured through the total variance of the point cloud, is kept on the first dimensions.

**6. Analysis of the Collected Data**

Table 1. Economic intelligence proper values

	F1	F2	F3	F4	F5	F6
Proper value	9,901	1,271	0,578	0,447	0,386	0,161
Variability (%)	76,162	9,779	4,443	3,435	2,969	1,242
%Cumulative	76,162	85,941	90,384	93,819	96,788	98,030

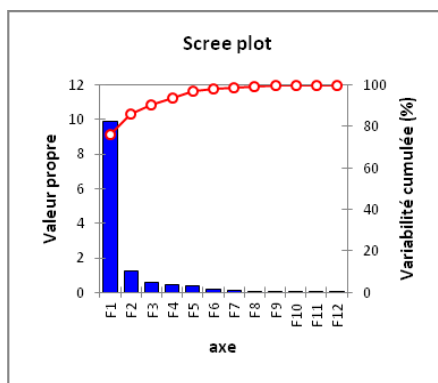


Figure 1. Scree plot

Concerning these 13 items measuring the Economic Intelligence, the Table 2 and the Graph 1 present the proper values that are related to the following concept: the quality of projection when moving from N dimensions (N being the number of variables, here 13) to a lower number of dimensions. The proper values and factors are sorted in descending order of represented variability. The PCA performed on Economic Intelligence has generated 13 factors explaining 85.94% of this phenomenon. The axes representing a proper value greater than 1 are the first two axes which explain respectively 76.16% and 9.78% of the total variance. However, according to Table and graphic of proper values, the major part of variability concerns axis from 1 to 76.16%, against 9% for the variability of axis 2. Considering the limited information provided by axis 2, it is not very useful to retain that in our interpretation.

The graph below replies to one of the main objectives of the PCA: it allows to represent individuals on a two-dimensional map, and so to identify trends. According this graph we can clearly distinguish three groups of enterprises according to their position on axis 1, interpreted as the intensity of Economic Intelligence.

Group 1 (left) corresponds to factories that practice Economic Intelligence to a small extent, less than -3.

The second group has an average practice of Economic Intelligence (from -3 to 3)

The last group has a high practice (greater than 3).

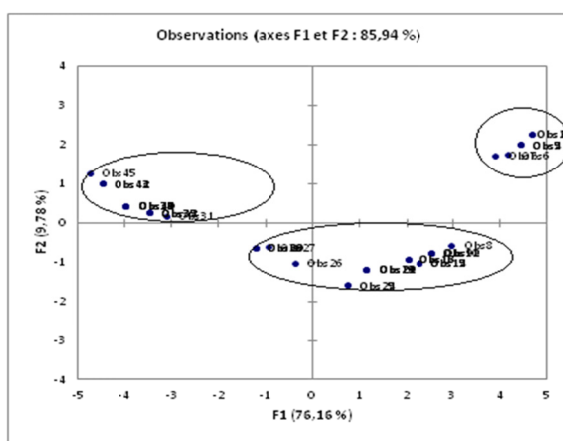


Figure 2. Economic intelligence observations

The PCA led to innovation allowed the selection of 10 independent factors explaining 93.53% of the phenomenon.

According to the table of proper values below, a large part of variability relates to axis 1 Presenting a variability of 89.559%, against 3.975% for the variability of axis 2. There is no need to perform a second analysis. We choose the axis 1 for our analysis to identify the intensity of innovation practiced by the surveyed factories.

Table 2. Propre values

	F1	F2	F3	F4	F5	F6
Proper value	8,956	0,398	0,303	0,142	0,068	0,050
Variability (%)	89,559	3,975	3,028	1,418	0,678	0,504
%Cumulative	89,559	93,534	96,562	97,980	98,658	99,162

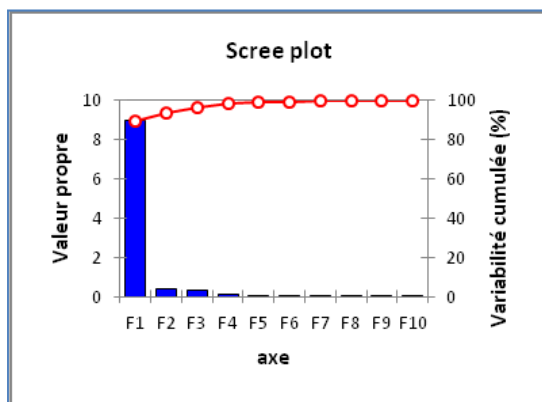


Figure 3. Scree plot

The used statistical treatment distinguishes clearly two groups. Figure 17 allows to characterize each of the obtained groups by examining averages of the origin variables.

- Group 1 (left) corresponds to the factories practicing innovation to a small extent less than 0.
- The second group (right) has a high practice (greater than 0).

6.1 Pearson's Chi<sup>2</sup>

The last step of the statistical treatment consisted in an analysis, using the test Chi<sup>2</sup>, of possible links between the partition classes obtained on the Economic Intelligence and the two types of highlighted innovation. The obtained distribution is shown in Table 3.

6.2 Tests of Independence between the Lines and the Columns of a Contingency Table

The Pearson's Chi<sup>2</sup> statistical tests allows testing of the independence between the lines (Innovation groups) and columns (Economic Intelligence groups) of the table, By measuring how far the table is (as Chi<sup>2</sup>) from what could be obtained in average, maintaining the same marginal sums.

Table 3. Contingency table (group / group)

IE \ Innovation	Group 1	Group 2	Group 3	Total
Group 1	15	5	0	20
Group 2	0	19	6	25
Total	15	24	6	45

The table below shows the relationship between different groups of innovation and groups of the Economic Intelligence.

Table 4. Test of independence between the lines and columns (group / group)

Khi <sup>2</sup> (observed value)	28,969
Khi <sup>2</sup> (critical value)	5,991
DOF (Degree of freedom)	2
P-value	0,0001
alpha	0,05

6.3 Test Interpretation

The table below shows the reliability of the relationship between Economic Intelligence and innovation. In this

table, two kinds of  $Khi^2$  appear. The first  $Khi^2$  concerns the observations, and the second is related to the critical points, considering that the p-value is greater than 0.0001 and the alpha value exactly equals 0.05.

It assumes that the study of the relationship between Economic Intelligence and innovation is confirmed.

## 7. Conclusion

The results of our research indicate that the Economic Intelligence and innovation are related to each other within the automotive industry in Iran, although practices in Economic Intelligence are limited. The leaders of the analyzed enterprise may therefore consider further actions to improve the linkage between Innovation and Economic Intelligence, and especially:

- Creating specialized research laboratories dedicated to the conception and implementation of the economic intelligence in enterprise structure.
- Having an effective management and evolving the organizational culture to derive the benefits of economic intelligence and globalization.
- Establish a strong industrial group, composed of national and foreign automakers to produce and supply components with international quality standards for the globalization of competition
- Orienting strategies of the enterprise towards production on a global scale, and to do that, building partnerships with enterprises internationally renowned.

But global competition is nowadays the most important challenge for organizations in Iran. To face this challenge, this competition requires knowledge of what do rivals. This is what forms in Iran, the basic Economic Intelligence. For now, the Economic Intelligence, in the Iranian automotive industry focuses mainly on Competitive Intelligence.

However, Professionals and Company leaders as well as university professors in Iran identified some key points to improve Economic Intelligence:

- Information audit on the market and on customer complaints brought against the enterprise and competing organizations,
- purchase verification of competitor equipment
- verification of information contained in brochures and booklets of competing products,
- lessons from defeats and successes of competitors etc.

To do this, the company will rely on the Benchmarking process that as we have seen, can identify the bests and compare itself to, then develop a model of the new needed organization. Modeling is a systematic and continuous process of evaluation of products, services and methods, that are implemented, compared to key competitors or enterprises which are considered pioneers. This is a particularly effective tool for improving work processes.

It appears that the Iranian auto industry has certainly made great progress in Economic Intelligence to innovate, but there is a long way to go.

This road will go through the training of skills necessary to bring changes, particularly through creativity, organized skills in an appropriate structure, based on an effective management of human resources.

But to be effective, this innovation cannot go without the contribution of Economic Intelligence and strategic information that it provides, and allows to guide the creativity and decisions of the organization.

However, this research has not studied all the determining factors that can foster innovation through Economic intelligence.

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### Notes

- Note 1. Rapport Martre.
- Note 2. Rapport Martre.
- Note 3. Clerc, p. 336.
- Note 4. Meddah (2012), page.
- Note 5. Stanat (1990).
- Note 6. Jakobiak, page 92.
- Note 7. Muller (2005).
- Note 8. Cahen (2011), page 24.
- Note 9. Cahen (2011), page 25.
- Note 10. Meddah (2012), page 2.
- Note 11. Jakobiak (2004), page 221.
- Note 12. Magakian et Payaud (2007), page 130.
- Note 13. Jakobiak (2004), page 202.
- Note 14. Bhojaraju (2005), page 37.
- Note 15. Loilier & Tellier, page 19.
- Note 16. Massé & Thibaut, page 244.
- Note 17. Fernez-Walch et Romon (2006), page 22.
- Note 18. Loilier et Tellier (2013), page 123.
- Note 19. Fernez-Walch et Romon (2006), page 24.
- Note 20. Jakobiak (2004), page 283.
- Note 21. Soula, 2013.
- Note 22. Salles (2006), pp. 14-15.
- Note 23. Jakobiak (2004), page 257.
- Note 24. Jakobiak (2004), page 257.

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