Competitive intelligence and regional development within the framework of Indonesian provincial autonomy

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Received 23 May, 2003
Accepted 30 December, 2003

Teaching methodologies and uses of competitive intelligence and competitive technical intelligence in countries where the culture and the technological level are very different from the western world cannot be implemented without a cultural understanding of the tacit local knowledge and cultural behavior of people. As an example of research-action, we have chosen two Indonesian regions: Sulawesi Utara (North Sulawesi) and Tapanuli Utara (North Sumatra). We have applied in these territories the methodology of positive turbulence coupled with Competitive Intelligence and Competitive Technical Intelligence. In this paper we analyze the cultural brakes and levers present in an Indonesian context, and then describe two different approaches to developing an action plan based on postgraduate education in the case the city in North Sulawesi and on Cottage Industry (CI) clusters for the rural zone in North Sumatra.

1. Introduction

From 1965 to 1997 the Indonesian Government followed the path set out in the “Era Orde Baru” – the New Era – issued by former President Suharto. This governance was linked to a very strongly centralized and autocratic system. This system worked for 32 years, but the economic crisis of 1997 resulted in the 1998 revolution against this political orientation. During the first 32 years of the “Era Orde Baru” there was no possibility of autonomy for the different Indonesian Regions. The only Region with a certain level of development was the island of Java (where more than half the Indonesian population is concentrated), and where very large investments were made. The concentration of investment only in this zone, however, has had the consequence of maintaining the population of the other Indonesian regions in a state of under-development. In 1998 this could have led to the collapse of the Indonesian state.

To avoid such a situation, provincial autonomy [1] was granted. Two main laws [2] established the limit of this autonomy: law n°22 of 1999 dealing with the responsibilities of local governments, and law n°25 dealing with the balance of finance.

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between central government and local government. This autonomy should normally allow each Indonesian region (or province) to benefit from equitable programs of development. These programs should have been devoted mainly to local regional improvement, but autonomy was granted, in opposition to the spirit of “Era Orde Baru”, only where funding was devoted to satisfying various pressure and political groups whose interests were not necessarily linked to local development.

One consequence of this autonomous approach has been to induce local decision makers to develop in the short-term and mid-term various local initiatives. For instance, South East Asia in 2003 joined the Asian Free Trade Area (AFTA) [3], and autonomy will become a powerful engine to facilitate new projects and to shorten the decision-making time [4]. But at the same time, autonomy introduces within the regional governments new constraints. This is due to the necessity to promote new projects and to select the most relevant ones (large projects are still designed with the help of the central government). This process will lead to the local development of new analytical capabilities, and new abilities in project management, competencies that were unnecessary during the days of heavy centralization. Autonomy also will bring political power closer to the citizens, facilitating a more harmonious development which will promote a better use of local raw materials, agricultural produce, and also tacit local knowledge. More information on autonomy, one of the main issues in South East Asia today, can be found in the work published by SMERU (The Social Monitoring and Early Response Unit) [5–7] and in the book by Rabasa and Chalk [8].

The work undertaken by the Centre de Recherche Rétrospective de Marseille (CRRM) has been carried out within this context. After two missions to Indonesia, one to present our views and expertise, and the other to use them within the framework of autonomy and local development, we now are entering the implementation phase.

2. The catalysts of local development

Globalization moves societies into liberal capitalism. But various voices have warned on the one hand that development must be sustainable, and on the other hand that the methodologies and western practices will not be able to raise sufficiently the level of developing countries in the short or middle term [9].

We chose to concentrate our action upon the methodologies and tools of Competitive Intelligence and Competitive Technical Intelligence, adapted to local constraints, that is to say taking account of the local technological level, the available facilities (especially to access information), and also (and this seems to be the most important) the local culture within two experimental zones. The objective is not to transplant directly western knowledge and methods to Indonesia, but to modify, improve and adapt these to the local conditions.
3. 2 – Administrative organization and structure of the population and of the territories.

All the provinces of the Indonesian archipelago are divided administratively into four levels:

- kabupaten (department), kotamadya (municipality), kecamatan (canton), and then villages and cities. The different responsibilities accorded by the law to these four levels are:
  - **Central State:** Defense, Foreign Policy, Religion, Justice, Finances (fiscal and money), Education (Bachelor and Postgraduate)
  - **Province:** Administration of the different Regions of the Province (called Regencies), Regional Planning, Primary and Secondary Education, General Infrastructure (with the central state taking over in the larger projects)
  - **Local Level (Region):** Local Development, Public Infrastructure, Health, Education, Culture.
  - **Cities or villages:** Administration of a city or village

It is noteworthy that this division of responsibilities is not yet fixed because regional autonomy is quite recent and this will lead necessarily to adjustments at the administrative level.

From a geographical point of view, Indonesia is formed from islands (see Fig. 1): it is called the country of 18,000 islands (of which only about 3,000 are inhabited). It is a volcanic archipelago stretching across the equator for more than 5,000 km, and its area is 1.919 million square kilometers. It comprises six main regions: Java, Sumatra, Sulawesi, Kalimantan, Irian Jaya and Sumatra. The Indonesian population is 206 million, distributed very unevenly throughout the country: 60% are concentrated in Java (the most populated island in the world). The capital, Jakarta (in Java), has more than 15 million inhabitants. The Indonesia population comprises very different ethnic groups with their own specific characteristics and cultures. Although numerous local languages and dialects are found in Indonesia, linguistic unity is achieved through “Bahasa Indonesian” (the Indonesian Language), and literacy rates are around 90%.

Java is relatively developed from an industrial point of view, due to population concentration and massive past investment by the central government. But, this is not reproduced in the other territories where industrialization is very weak. These mainly are rural areas with a low level of mechanization. In the islands other than Java, the small number of large cities contributes to the fact that most of the population remains in the countryside (not in itself a bad thing, as if this population moved to the main cities the majority would be unemployed).

Indonesia, despite its current state of development, is a rich country with petroleum and gas, tin, gold, and many types of wood. In the case of agriculture, cereals, fruits, copra and palm oil all are important products. Although rice is widely grown it is heavily consumed domestically and Indonesian production is insufficient for the country, leading to a big trade deficit as large quantities of rice must be imported.
4. Indonesian culture

To appreciate the impact of culture on the development of Competitive Intelligence or Competitive Technical Intelligence it is necessary to undertake a comparative analysis of the brakes and levers generated by culture. We must choose a methodological point of view to analyze the main aspects of the Competitive Intelligence cycle in the context of Indonesian culture. The impact of culture becomes more and more important when we leave classical technological development and the western mentality, and move towards new horizons where the perception of “things” is very different from ours.

4.1. The cycle of Intelligence

The Competitive Intelligence cycle is relatively simple because it is quasi-identical to the cycle of Intelligence, that is to say:

According to a strategic question to a precise problem, one analyzes the information sources available (formal and informal) to answer that question. Then a strategy to collect the necessary information is developed. This will be followed by the management of the information collected, and at the end by an understanding of the location of this information (generally made by expert groups). The output of the system generally will be targeted at decision makers in the form of threats and opportunities.

Fundamental questions or problems can only be raised if we have a clear vision of the future of the enterprise (or institution). This allows the development of various possible strategies, and at the end the integration of threats and opportunities in order to select the most relevant. This cycle gives decision makers the best possible vision and analysis that then can be integrated into the decision-making process [5]. Various definitions of Competitive Intelligence have been offered by different authors. Let us go back to some simple definitions of Competitive Intelligence:

– Systematic program of collection and analysis of information based upon the activities of competitors and the general goals of the company, with the objective of fulfilling these goals (Larry Kahanner) [10]
– Analysis of information about competitors which is then used in the process of decision making in the company (Leonard Fuld) [11]
– Knowledge and predictions of the world that surrounds the company; prelude to decision-making by the manager (Jan Herring) [12]
– Information that allows good decision making that will increase the competitiveness of the company (Ben Gilad) [13]
– Knowledge about the current competitive position, historical performance, strengths and weaknesses, and specific future intentions (Kirk Tyson) [14,15]
– Valued-added product resulting from the collection, evaluation, analysis, integration and interpretation of all available information which pertains to one or more aspects of an executive’s needs, and which is immediately or potentially significant to decision-making. Intelligence is necessary to reduce uncertainty and risk in decision making [16]
– Systematic program of collecting, managing and processing information about the activities of competitors, clients, technologies and the broad tendencies of company activities, to help the decision-making process and the realization of strategic goals (Henri Dou, Gilda Massari Coelho) [17]

Competitive Technical Intelligence has been defined as a Competitive Intelligence with a strong emphasis on science and technology and their impact on research and development activities [17].

It is clear from these definitions that Competitive Intelligence is grounded in information, but that information must undergo certain transformations before it can give rise to intelligence (see Fig. 2). It is also clear for us that one important piece of data is missing, this is to understand the meaning of information according to the strategic goal of the corporation.

Intelligence has been described by various authors [18–20] who emphasize the fact that knowledge is not found in libraries or scientific journals or in reports, etc; knowledge has to be created. The processes of creating knowledge, then, become the most important part of the Intelligence Cycle. When information is managed and accessible in push or pull mode to experts, these latter need tools to undertake analysis (for us analysis must be understood as the way to “see” correlations and links between information (formal or written, informal or human). When these correlations or links are present the experts must understand their meaning in relation to the questions asked by the CEOs or decision makers. Then, they will provide answers. It is during the Questions and Answers that corporate (knowledge) Intelligence is built. To facilitate the cooperative work of the experts, various tools are available such as dedicated platforms that facilitate the creation of knowledge, the management of information, etc. Again, various authors and books have been written on this subject [21].

4.2. Cultural impacts

    The major role of the chief:
Older persons (experience) and chiefs, from companies or tribes, are seldom contradicted as far as their decisions are concerned. The result is that the capacity to criticize remains weak, and the chiefs are not inclined to ask for advice and to question their employees, even if they are highly specialized (in large industries).

The general spirit:
The strong position of the enterprise leaders and the resulting lack of power at the lower echelons are not conducive to strong incentives at the company work level: enthusiasm remains weak. This leads to a limited competitive spirit and entrepreneurial behavior. Often an Indonesian may not want to be the best or among the best, but rather considers that all the group must move ahead together (Gotong Royong). For instance, the lack of competition very often leads to buying foreign technologies instead of trying to develop local technology, or to selling raw materials instead of developing products with a higher added value.

The time factor:
In Indonesia time does not have the same value as in the West. The expression “Jam Karet” or “elastic time” illustrates this situation. Since time does not induce a strong pressure, the reactivity of companies and institutions to external stimuli is weak. For instance, the notion of a deadline may not have the same meaning for an Indonesian as for a westerner. Technological products with a short lifespan are not well adapted to such a frame of mind.

To introduce Competitive Intelligence or Competitive Technical Intelligence it is necessary also to modify various mental barriers.

The mental model:
Indonesians tend to employ “multichrome” non-linear thinking in contrast to Westerners who use “monochrome” linear thinking. Although non-linearity in thought
can prove to be interesting from an innovative point of view, it requires training in order properly to exploit its potential.

**Tradition:**
Tradition is very important, especially in the rural zones and for craftsmen. Their ability is certainly a quality, but when this is only linked to tradition, it can stifle innovation.

**Travels:**
Indonesian like to travel, to see new people and appreciate different cultures. This is a major advantage if well used. Indonesian geography, of course, through its large number of islands, contributes strongly to this tendency.

**Tomorrow:**
In Indonesia there is the following saying: “let us live today, we will still have something tomorrow”. It is easy to see the impact of this frame of mind, when the first point in Competitive Intelligence is to have a clear vision of the future of the company or of the institution. The fact that the Indonesians live today without a strong vision of tomorrow (opportunities or threats) is a powerful brake to their use of Competitive Intelligence or Competitive Technical Intelligence methodologies. This again underline the difficulty of promoting projects in short-time cycles and emphasizes the different value of time in Indonesian and western cultures.

**Ability:**
Indonesians make excellent use of tacit knowledge (as exemplified by weaving, batik painting, embroidery, and so on). This can be used more widely if it is focused on a system of production different from that of the craftsman, who often waits for the customer without doing anything more [22,23]. Obviously, if craftsmen move from family production to cottage industry, they will be directly confronted by market demands and by various competitors. Then, they will have to innovate either by enhancing their products or production, or by creating new products, new designs, etc.

5. The levers and the action

Action to develop Competitive Intelligence and Competitive Technical Intelligence [17,24] systems requires above all avoiding the temptation to teach other the same rules and methods that we accept within our culture. Every part of the methodology should be adapted to the tacit knowledge and to the culture of the country, the only valuable goal, at the beginning being to avoid a systematic “status quo”. Here we are very close to the notion of positive turbulence as introduced by Gryskiewicz [25]. We propose to use the turbulence generated by the 1997 crisis, by the new autonomy, by globalization, and in 2003 by AFTA. In the phrase “positive turbulence” the word “turbulence” refers to the new paradigms arising from the Information Society (speed of communication, platforms to create knowledge, e-mail, video phone, information management, etc), from globalization (new customers, new competitors, the impact...
of the cost of manpower on products, etc), and also on forthcoming knowledge as one of the most important assets of companies. All these factors increase complexity and put most businessmen into a turbulent environment. This turbulence may be seen as negative (preventing moves ahead to set up new projects, etc.), but also it can be given a positive turn if we know how to analyze our environment, how to seize new opportunities. Understanding our environment becomes one of the keys to development, and if we understand it more rapidly than our competitors, turbulence will become a positive advantage [26].

5.1. Which places for action

Not surprisingly, many Indonesians think development should be equally distributed in all parts of the country. This requires considerable efforts, since under the “Era Orde Baru” most development was highly centralized, and only a few zones (mainly in Java) have reached a significant level of development; elsewhere the rural state largely has been maintained.

We decided to choose two areas in which to introduce Competitive Intelligence and Competitive Technical Intelligence:

– One with middle-sized industries and SMEs: Manado, North Sulawesi
– One with various rural zones: Toba Lake and Toba Samosir, North Sumatra.

The location of these zones is shown in Fig. 1.

5.2. The methodologies

This project has been structured on the basis of the authors’ earlier experience elsewhere:

– In the field of distance learning techniques (see the bachelor degree “Maîtrise NTIDE Nouvelles Technologies de l’Information pour le Développement des Entreprises, from CRRM in Marseilles) and in distance learning, underway since 1998 [29]), in postgraduate courses in Brazil [17] where 70 students have graduated from the DEA Diplôme d’Etude Approfondi in Veilles et Intelligence Compétitive – Advanced Diploma in Technology Watch and Competitive Intelligence) [30].
– In the education in Marseilles at CRRM of 40 postgraduate Indonesian DEA students over the past seven years, and subsequently of nine PhD students in the same discipline over seven years. Following this experience, the success of the current program will be related to the increase in speed at which students can acquire expertise in Competitive Intelligence, so necessary to accelerate regional development. In Manado the goals were achieved in the academic year 2002–2003, when 31 students followed the DEA program in Indonesia (but received their Diploma from CRRM just as if they were studying in Marseilles). In the
It is necessary to send to the enterprises people with the capability to detect problems and to analyze them, to formulate questions and to start to move from day to day considerations to near future objectives. In fact, to assist the Enterprise Executives in the formulation of a vision. To do so we chose to work together with KAPET (the institution devoted to industrialization and enterprise development in the Manado zone) and the University of UNIMA-Manado as partners. The University of UNIMA, will teach the DEA (Post graduate diploma) in Competitive Intelligence, and the students will complete a probationary period of at least three months in the enterprises, under KAPET supervision. Within this framework are linked the potential of the local University, the knowledge of a foreign university, and the institution having for its objective local development.

Of course, it will be necessary at the outset to adjust all the parts of the puzzle. By doing so we shall have integrated cultural aspects that we will create an incentive, and questions and visions will be developed jointly [27,28]. The location for teaching is the University of Manado, and the course is widely linked to local case studies.

To implant competitive methodologies in rural zones will be more difficult. There are not, as in Manado, bodies or people able to promote a positive and institutional move. To fill this gap, we chose to analyze carefully this territory in terms of potential agricultural production and local handicraft. We then found a possible leverage: the notion of Cottage Industry clusters. We hope to help different clusters to emerge [22] as happened in 1988, but was then abandoned.

The use of new methodologies, of Information Technology, of scientific knowledge about conservation, nutritive values, and new potential markets will certainly improve and speed up cluster formation. The objective is to use tacit knowledge, and ability to move from individual production to a more collective model, and then to open various markets. This will show that more money can be earned this way, and this will push people to become more innovative and to shift to new products or to improve them (incremental innovation).

The ultimate goal is to open to the local people the doors of management, production, knowledge of the intermediates and may be to raise funds to move ahead. Rural high schools or small municipalities will undertake the necessary teaching.

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Current academic year (2003–2004), 30 students are registered. Moreover, of the 29 who completed in the first year, six are continuing with PhDs. These results show clearly that there are many alternatives to the kinds of classical grants that enable students to study abroad in developed countries. In our case, in a period when grants vanished rapidly and sponsors are scare, we obtained in one year in Indonesia almost the same results as over seven years in France. Moreover, all the students chose projects linked to the development of their local resources (coconuts, nutmegs, seaweed, cloves, wood, etc.), and received strong help from local Indonesian industries. This type of project that necessitates interviews, visits, tests and benchmarking could not have been carried out in France.

The financial aspect of this program is very simple: all the education has been supported (lodging and per diem) by the local North Sulawesi Government, the French Professors did not ask for extra money, and the students were registered for the DEA at the University of Aix Marseilles III with fees of 350€. The Diploma that the Indonesian students receive is the same as that received by the students who complete all their DEA course in Marseilles.

In the case of Toba Samosir, the difficulty is greater because the region is different. There is no university close by, most of the schools are vocational, and industry is...
not really developed. With the experience that we gained in Manado, we have set up
a program of short workshops aimed at Bupatis (small municipalities) to show the
importance of Competitive Intelligence and Competitive Technological Intelligence,
and to encourage people to begin to see and think differently. This program will be
tested during 2004.

6. Chronology

At the end of 2000 we undertook a first mission to Manado to present to the
local authorities at the demand of some of our Indonesian students in Marseilles
the role that Competitive Intelligence and Competitive Technical Intelligence can
play in local development. In May 2002, a second mission to Manado and Toba
Samosir was made to finalize various projects. During these two missions we took
various steps to “socialize” the project (mainly done by producing two sets of CD-
ROM explaining the project, slides, videos and explanatory texts). At the beginning
of October 2002, the Rector of the University of UNIMA (University of Manado,
Kampus Tondano) [31] visited Marseilles to sign a cooperative agreement between
l’Université de Droit d’Economie et des Sciences d’Aix-Marseille UDESAM [32]
and UNIMA. At the end of October 2002 the Indonesian Ambassador in France
visited DESAM and the first course of the DEA of Competitive Intelligence took
place in UNIMA in November 2002. We are still working in the Toba Samosir zone,
where the objective was to arrange a general meeting on local development tools with
all the main actors in the project in mid-2003 (due to the SARS epidemic in Asia, the
meeting was postponed until 2004).

7. Barriers to the establishment of Competitive Intelligence

We identified during the course on Competitive Intelligence at UNIMA in Manado
two main problems which act as a significant brake to the establishment of the
methodology and the tools associated with Competitive Intelligence.

7.1. Material and information access

From a material point of view, the students have at their disposal several computers
(Windows XP, 40 GB HDD, CPU 2 Mz) with Microsoft Office Package and access
to several printers (about one third of the students have a laptop computer or a PC at
home). We added Adobe Acrobat Professional and Acrobat Reader, and to handle
pictures PSP number 6 (Paint Shop Pro). We also added the Matheo Patent Software
to access the Patent Espacenet Database which is free, and to automatically build up
and analyze homemade patent databases [33], and we provide access to Management
Online [34] to enable the students to have access to a bibliographical resources in Business, Competitive Intelligence, e-learning, e-commerce, etc.

As far as Internet access is concerned, the University of Manado has Internet at a speed of 64 KB, and this will increase to 128 Kb in 2004. There is also an “Internet Kiosk” (we tested it and it worked well) available in town, and some of the students also have access to the Internet from their offices. If it is possible to compensate quickly for the lack of journals, books, or other documents published in the field of Competitive Intelligence by buying or by placing at the disposal of the students a certain number of newspapers, books and dissertations, it is not possible to set up the physical facilities allowing access to the Internet by most of the students from home. The access speed remains low because they can use only modems with 30 KB speed. Moreover, the telephone link with the providers is difficult, and the telephone line is subject to interruptions. This complicates teaching as most of the information, because of the slow Internet speed, will have to be taken from the university computer network. For example, it is common to use software to download patents (from the database of the European Patents Office which is available free of charge) and to analyze them automatically to position the subject and to make the students think in terms of technological clusters (starting from the IPC (International Patent Classification) and related to a set of themes, or in terms of company aggregates (patent assignee and co-patent assignees) [33,35]. We were thus obliged to search the larger queries (for more than 1,000 patents) in Europe, and then to develop a specific viewer to display the results, and to put the whole lot on CD-ROM. This enabled us to provide locally a modern facility to access the most accurate patent information on topics such as coconuts, seaweed, cloves and spices. Indeed, the knowledge of technologies and of the uses of the materials associated with the natural wealth of the area enable the students to think in terms of new applications or new products with a larger added value, instead of simply selling at low prices the raw material.

To access certain web sites, we decided, to give the students the means to consult these latter offline. To do so we downloaded a certain number of web sites, and saved them on CD-ROM. We chose to use Adobe Acrobat, which has a function allowing the capture of web sites by fixing the depth from which one reaches the data. Within this framework, we captured the following web sites:

- CRRM (http://crmm.u-3mrs.fr),
- Bappenas (http://www.bappenas.go.id/) which is in Indonesia and which deals with industrial development,
- the site of the Chamber of Commerce of North Sulawesi and KAPET with which we work (for the training courses) (http://www.kadin.sulut.or.id),
- part of the Dialog online vendor site (http://www.dialog.com), to provide a description of a large numbers of databases
- part of the site of Fuld and Company Inc (http://www.fuld.com) to give an idea of what services a broker in Competitive Intelligence provides.
It is obvious that these solutions are not perfect, but they are useful because they make it possible for the students to work under conditions closely related to reality.

For certain databases (in this case Chemical Abstracts), offering statistics online and allowing users to identify Indonesian scientific production in certain fields, we used Lotus Screen Cam to capture a session and to highlight the way in which one could obtain and download the data (for example sets of themes on a subject, such as the main institutions and authors, etc). This was done from Chemical Abstracts, with access through Science Finder Scholar. These practices give a good indication of the information processing in Competitive Intelligence. Moreover, the treatment of the patents, or the simple statistics (sorting) resulting from Chemical Abstracts, introduces the concepts of automatic information analysis [36] (bibliometry), which out of a local context would not be fully understand by the students. If Internet access remains what it is, however, it will be necessary each year to update the data in order to give the students the most appropriate material. So problems in accessing the Internet are a real brake because they allow only the exchange of short messages, and do not allow the transmission of a large volume of data (either by files attached or by ftp) nor a fortiori the use of a point-to-point interchange system such as NetMeeting, which we use regularly to work with Brazil, for example [37].

7.2. The conceptual level

We noticed in treating the cycle of Competitive Intelligence (vision, strategies, questions, search for formal and informal information, management, analysis and comprehension) a major problem was the vision (company, institution), i.e. the sharp definition of the objectives in the short or medium term. This situation was alarming, because it is in fact the principal point of entrance to Competitive Intelligence, as it brings into the cycle the decision makers and their questions. To achieve this goal and among other things to allow the students to highlight the various actors, their relations and their vision of the development (value map) [25], we used various methods, some of them being extracted from the work presented by the United Nation University [38] and others linked to conceptual graphs. Then, having noticed that the students often took preferred reality, we introduced for each of the preceding methods a quick SWOT analysis (Strength, Weakness, Opportunity and Threats) [39].

Three methods were selected from the University of the United Nations [40]:

- Delphi
- morphological boxes and relevance trees
- environmental scanning.

If the Delphi method, which brings into play experts and a moderator, is well known, relevance trees and the Zwicky matrix (morphological boxes) are less known. This method clears up ideas by mapping the various parts of a problem and the bonds which link its different parts (relevance tree), or by building matrices based on data for example for tourism, the type of local proposals according to tourist types (a
matrix of tourist events or places according to age, tourists with or without children, etc...). The intersection of the lines and columns must contain the information necessary for reflection and to generate a certain number of questions and responses. Finally the third method is based on an analysis of formal data, generally published in journals or databases. It is obvious that today this method is not applicable on the spot because of the lack of facilities, but it points out the necessity to build databases that could be widely used to select local expertise and works.

Conceptual computer-assisted cartography or Mind Mapping uses software that helps to draw all the existing links between various topics, developments, people, ideas, etc... brought into play in the vision (http://john.redmood.com/brainstorming.html). We chose to make the students work on a software package called The Brain. This software has a very low cost and is available from the Internet – and a free evaluation package can be found on the Web (http://www.thebrain.com/Default.htm). The Brain makes it possible to trace interactive links between ideas and projects and then to associate them with the nodes of the network information (Word files, PowerPoint, Calc., Photographs, Web sites addresses, videos, audio, etc...). This allows students to work in groups on the same vision, for example, and then to compare the graphs obtained as well as the associated information. Moreover, this software package has a version which makes it possible to equip a company or an institution with an Enterprise Knowledge Platform, BrainEKP?. This introduces the concept of a platform to create Intelligence, to manage ideas, etc. To quote from BrainEKP, it “integrates information from document repositories, Web sites, databases, and other applications. BrainEKP’s knowledge architecture models the way information is created and accessed, forming a single knowledge map that reflects the best thinking of your organization. By leveraging the connected parts of information, BrainEKP’s patented interface transforms isolated data into a knowledge map. This map provides the framework that puts collaboration in context so people can share and communicate – in the same place”.

These methods, supported by Brain Storming and Innovation, can also be used within the framework of Competitive Intelligence, among other ways by highlighting the interactions between the various actors involved in a project. The software package (costing US$70) was downloaded in Europe via the Internet; the students or the University then are able to buy it. We treated in this manner the concept of local development, (father) with other actions associated to it (sons) such as political good-will and actors, local industrial development, and the development of local tourism. For each of these actions new “sons” were associated. This method forces the students to work in groups, and to represent their ideas in such a way that most of the aspects of the problem are present (with the associated information) so that choices can be made easily.

To achieve the goal of positionings forces and weaknesses compared to the objective (vision) or compared to competitors, we used the quick SWOT analysis method, which consists of placing in four quadrants the forces, weakness, opportunities and the threats. This is significant, because it makes it possible to set up forces and
weaknesses and to compare the project with alternatives (for example local tourist offers compared to other tourist offers in Europe, etc.). This method is very well known, and has the advantage of being easy to understand and implement.

8. Main methodological steps to develop the Competitive Intelligence concept

8.1. Small and middle size industries

For the Province of North Sulawesi, four main points should be kept in mind:

– In SME (Small and Medium Enterprises) the top decision makers cannot always be involved. Works of the OECD [41], of the Reveil program of the European Community [42,43] and Information Management Technology [44] show that very often when a program of Competitive Intelligence starts in this type of company, the decision makers may be involved at the beginning, but very rapidly if people do not take care, the program will drop down to the operational level (the company must produce on a day to day rate) and most of the action of Competitive Intelligence or Competitive Technical Intelligence will end up as specialized documentation. Then, in the classical Strategic, Tactic, Operational model, Competitive Intelligence will be useful if its remains close to the decision makers. In small companies, the decision makers will be the group of two or three people who are close to the owner of the enterprise. In larger companies it could be the people who are involved in the capital of the company (but this is not the case in the Manado region). We had to use the political leverage of the Governor of the Province of North Sulawesi, to implant Competitive Intelligence in the Region. This could not be done, of course, without the help of the local University and KAPET. A council of the DEA will help to maintain contact with these people, and open meetings will be held at least once a year to promote the work, proposals and ideas developed by the students in close relationship to local needs and industries. This was done in October 2003 in the International Seminar on Competitive Intelligence held at UNIMA in Tondano, North Sulawesi, where several aspects of regional development and Competitive Intelligence were presented as well as the works of local students.

– To point out that regional development could take advantage of the positive turbulence created by globalization, the information society, and the Province’s autonomy. This is done by demonstrating the necessity to create value-added products from the large variety of local facilities, and how this will create a competitive advantage for the Region. This introduces the idea of cooperation and benchmarking.

– To associate education to regional development, not only for Competitive Intelligence and Competitive Technological Intelligence, but in disciplines that can give back the best return on investment according to the vision of regional
development. This will avoid the need to introduce research and disciplines not related to regional necessities, and will also show how continuing education is important and can bring to enterprises the basic concepts of Competitive Intelligence and Competitive Technical Intelligence. This is why we chose to use Indonesian students as a “vector” for this purpose. This could be done only if the students remain in Indonesia and this emphasizes why teaching in France is not suitable for this purpose: the number of students would be too low (because of a shortage of grants), and permanent contact with local enterprises and regional objectives would not be possible.

- To be able to set up regional projects, with a wide consensus, but with a deep analysis of the whereabouts, the why and how? associated with the forces, weaknesses and ROI (Return of Investment).

8.2. Development of the rural zones

For the rural zones, the situation is completely different. We are dealing here with people who cannot integrate the above steps, so it is necessary to use new methods which take account of local factors:

- Local workers, peasants and craftsmen.
- Local rural high schools and small municipalities to undertake the teaching, as there is no university in the zone (the closest are the universities in Medan).
- Local decision makers (economic and political)
- One foundation particularly active at the high school level, the foundation Soposurung (a foundation that gives free teaching, board and lodging to Indonesians students until the end of high school. These students are from poor families unable to support such study).
- Local advisors from other countries present on the spot (for instance, an agricultural advisor from the German Embassy).

In this type of zone, there is very little information available locally. It will be necessary to provide some basic information through rural high schools, the Foundation, and rural unions. We shall also promote informal (human) information exchange. An Internet host will be set up for this purpose.

8.3. Tourism

The two regions (North Sulawesi and Toba Samosir) have a strong tourist potential. This is an important component, but more or less undeveloped, and too sensitive to external factors (such 9/11 in the US or the bombing in Bali). This is why, as a first step, we think that the endogenous development should be promoted.
8.4. Some past experiments:

- Various experiments have been undertaken with the help of the Central Government (BIPIK) [40] concerning cottage industries. The following remarks were made: “Cottage Industry workers in Indonesia were seen as remarkably passive in skills, product range, marketing and raising of capital, they stick to known products and wait for buyers to come to their doors. This has not prevented, however, an encouraging success in exporting furniture, clothing, baskets, carvings, etc [45]. This observation ran quite contrary to the general belief that cottage industry goods could be sold only in small quantities to local markets.”

- Local actions: to promote locally “an innovative move” we shall use various methods as described by the United Nations University (Millenium 2000). We chose to work with the participatory method which seems well suited to the local culture [46]. This method will have as a main goal to involve many local decision makers and actors, and to “socialize” our action. This will help to prepare the Conference on local development tools planned for mid-2004. We hope to set up the use of the participative methodology and to receive help from the Soposurung foundation, and from last year’s high school students.

9. Conclusion

This paper shows that even if we are well aware of the methodologies and tools of Competitive Intelligence it is not possible to directly transpose them to a developing country. A careful analysis of the cultural context must be undertaken to understand the existing brakes and levers. This work emphasizes also that cooperation between countries such as France and Indonesia is better achieved by mixing the education of Indonesian students in France with the local teaching of the Postgraduate Diploma in Indonesia. The Indonesian students in France learn about Competitive Intelligence and help us to see where the cultural problems or the lack of prerequisites block the learning process. At the same time, they can be considered as providing a bench mark which allows us to choose the best tools and methodologies later to use in Indonesia, the goal being then to accelerate the understanding of Competitive Intelligence locally and to graduate in Indonesia a sufficient number of people in a shorter timespan. The impact of the local culture is taken into account by analyzing for each Competitive Intelligence step the impact of the local behavior of people on the development of these steps. Of course, the process may be a little more time consuming, but this is the only way to ensure a successful transition from technological forecast to technological foresight and to ensure a full acceptance of this methodology [47,48] and [49].
Acknowledgement

We like to thank very much His Excellency Adian Silalahi Indonesian Ambassador in France, His Excellency A. J. Sondakh Governor of the North Sulawesi, Mr Y. Santosa Cultural and Scientific Advisor of Indonesian Ambassy in France and Pr. Dr J.L.L. Lombok Rector of the UNIMA University and Mr Pr Dr Bourdon, President of the Aix Marseilles III University for their efficient help to realize this Post Graduate Program in North Sulawesi.

Appendix A.

Case study on improving innovative thinking in the coconut industry

The development of innovative thinking in developing countries cannot be grounded in fundamental research results since in those countries the amount of fundamental research produced is generally insufficient. We chose to use technologies as a source of information to provide the necessary leverage to help local people think differently and to try to develop innovative thinking. To use patents as a think tank requires us to select the right database, at the low possible cost (free is the best), but it requires us also to have adequate software to query the host (in this case Espacenet (http://www.european-patent-office.org/online), the European Patent Database), to download the patents and build up local patent databases, and at the same time to perform all possible analyses on these data, according to the fields available: Applicants, Inventors, International Patent Classification (IPC) (http://www.wipo.org/classifications/fulltext/new_ipc/index.htm), European Classification (EC), and Patent Dates. These facilities allow users to select one or more technological domains or applications (from the IPC or EC) according to the local technological level available, and after to map all the interactions in these fields. This will provide a global view of these domains, and show to the users that with their own knowledge they could develop new products and applications.

This work was performed within the Postgraduate Diploma of Technology Watch and Competitive Intelligence (DEA), taught at UNIMA in North Sulawesi by French and Indonesian professors to Indonesian students registered at CRRM in the University of Aix Marseilles III (the Indonesian students receive the same diploma as those students who follow the program in CRRM).

A1. Information source and material

We use as the information source the Espacenet database, (European Patent Database) which is freely available on the Internet. Because most of the best inventions are protected in Japan, the US and European countries, this database is a
good tool to test the availability of technologies about one product, or one technique, or to test new ideas, etc.

To access the database, to perform queries, to select patents, to build up local databases and to analyze the results, we use a software called Matheo Patent (http://www.imcsline.com). Matheo Patent as well as Matheo Analyzer have been developed by former CRRM students who set up two companies for this purpose. Accessing the host http://www.imcsline.com provides a full description of the software and an evaluation version which is free. This software also introduces students to bibliometric analysis [50].

We then perform a search using the words COCONUT OR COCONUTS in the title and abstract of the patents. We obtain 1114 patents, six of which were downloaded (title, bibliographic reference, description and claims), and we build a local database. From this database we sorted the data by IPC (International Patent Classification), to select the technologies and applications closely related to the technological ability of the local people.

Figure A1 shows the various IPCs involved in the patents retrieved during the search.

The IPC may also be viewed within the context of the patent (titles) and from the titles to the bibliographic patent data. Figure A2 shows how the IPC may be viewed and how from the meaning of the IPC and from the patent title, description and claims the selection of the applications or technologies is made [51].

This allows the selection of the best technologies to improve the innovative thinking of the users.
A2. The choice of the technologies

We choose a set of technologies which are not too far removed from the local facilities and expertise [52]. This is the reason why cosmetic products and extracts for cosmetic products as well as various chemical have not been selected, because the technologies involved are far from what is locally available. The selected technologies are presented in Fig. A3.

On each of the technologies selected, we may then perform various analyses of Applicants, Inventors, and related technologies (IPC) since one patent may be indexed by more than one IPC. The correlation involved charts as well as networks or matrices. Figure A4 shows a matrix between the selected groups and the IPC involved in all the groups; this helps to establish a map of the local competencies which will be necessary to develop this type of applications [53].

A3. Results improving innovative thinking

Coconuts are one of most valuable products from North Sulawesi, but only a small number of products are developed locally such as coco fibers, or carbon black. Wood burned and partially crushed to produce a very thin powder that can be used
to absorb chemicals in gases or water) from coconuts, and they are sold as raw, unprocessed materials. The profit made from these products remains limited. It is, then, urgent that in the framework of Competitive Intelligence and Innovation a move should be made towards a more sophisticated approach. The results obtain above open the way to new areas to add value to coconut products: biodegradable pet litter, building materials, animal fodder, horticultural material, mattress chairs, objects made from fibers, organic fertilizer, textiles, water treatment, and so on.

For instance:

- People locally produce traditional wood houses that are sold in Indonesia, but also in Australia, New Zealand, the US and even Europe. These houses are not noise-insulated (especially the internal partitions), but insulating panels can be made from coconut fibers. This opens the way to innovative thinking in house building by integrating different local resources.

- As the region is volcanic, building materials characterized by their very light weight are potentially interesting.

- The near-by port of Bitung provides facilities to ship all kind of products. The production of biodegradable pet litter therefore may represent an opportunity, as well as insulating panel or building materials.

- The region of North Sulawesi is well known for its pig breeding. The production of fertilizer by mixing pigs’ droppings with coconut material is also an opportunity.

- Wine made from fruits is another opportunity. In fact, because we worked for more than seven years with Brazilian students and various Brazilians institutions, cross collaboration south-south is interesting, especially in the domain of alcoholic beverages (cachassa), dry fruits (bade), corn (polenta), etc.
Table A1  
Example of selected IPCClasses according the local facilities and expertise

<table>
<thead>
<tr>
<th>IPC (first 4 digits)</th>
<th>Products or applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01G Frequency 69</td>
<td>HORTICULTURE; CULTIVATION OF VEGETABLES, FLOWERS, RICE, FRUIT, VINES, HOPS, OR SEAWEED;</td>
</tr>
<tr>
<td></td>
<td>FORESTRY; WATERING (picking of fruits, vegetables, hops, or the like A01D 46/00; plant</td>
</tr>
<tr>
<td></td>
<td>reproduction by tissue culture techniques A01H 4/00; devices for topping or skinning</td>
</tr>
<tr>
<td></td>
<td>onions or flower bulbs A23N 15/08; propagating unicellular algae C12N 1/12; plant cell</td>
</tr>
<tr>
<td></td>
<td>culture C12N 5/00)</td>
</tr>
<tr>
<td>A23K Frequency 25</td>
<td>FODDER FOODS, FOODSTUFFS, OR NON-ALCOHOLIC BEVERAGES, NOT COVERED BY SUBCLASSES A23B</td>
</tr>
<tr>
<td></td>
<td>TO A23J; THEIR PREPARATION OR TREATMENT, e.g. COOKING</td>
</tr>
<tr>
<td>B01D Frequency 22</td>
<td>SEPARATION (separating solids from solids by wet methods B03B, B03D, by pneumatic jigs</td>
</tr>
<tr>
<td></td>
<td>or tables B03B, by other dry methods B07; magnetic or electrostatic separation of solid</td>
</tr>
<tr>
<td></td>
<td>materials from solid materials or fluids, separation by high-voltage electric fields B03C;</td>
</tr>
<tr>
<td></td>
<td>centrifuges, vortex apparatus B04; presses per se for squeezing-out liquid from liquid-</td>
</tr>
<tr>
<td></td>
<td>containing material B30B 9/02; treatment of water C02F, e.g. softening by ion-exchange</td>
</tr>
<tr>
<td></td>
<td>C02F 1/42; arrangement or mounting of filters in air-conditioning, air-humidification or</td>
</tr>
<tr>
<td></td>
<td>ventilation F24F 13/28)</td>
</tr>
<tr>
<td>C04B Frequency 22</td>
<td>LIME; MAGNESIA; SLAG; CEMENTS; COMPOSITIONS THEREOF, e.g. MORTARS, CONCRETE OR LIKE</td>
</tr>
<tr>
<td></td>
<td>BUILDING MATERIALS; ARTIFICIAL STONE; CERAMICS (de-vitrified glass-ceramics C03C 10/00);</td>
</tr>
<tr>
<td></td>
<td>REFRACTORIES; TREATMENT OF NATURAL STONE</td>
</tr>
<tr>
<td>A47C Frequency 21</td>
<td>CHAIRS (seats specially adapted for vehicles B60N 2/00); SOFAS; BEDS (upholstery in</td>
</tr>
<tr>
<td></td>
<td>general B68G)</td>
</tr>
<tr>
<td>B27N Frequency 20</td>
<td>MANUFACTURE BY DRY PROCESSES OF ARTICLES, WITH OR WITHOUT ORGANIC BINDING AGENTS,</td>
</tr>
<tr>
<td></td>
<td>MADE FROM PARTICLES OR FIBRES CONSISTING OF WOOD OR OTHER LIGNOCELLULOSIC OR LIKE OR-</td>
</tr>
<tr>
<td></td>
<td>GANIC MATERIAL (containing cementitious material B28B; shaping of substances in a plastic</td>
</tr>
<tr>
<td></td>
<td>state B29C; fibreboards made from fibrous suspensions D21J; drying F26B 17/00)</td>
</tr>
</tbody>
</table>

Coconut fibers can be used for water treatment.

These few examples show how, by using technological analysis and patent databases as a source of unique information, people can acquire a global view of the potential development of the area.

We successfully use this method in the course in Technology Watch and Competitive Intelligence at the University of Manado in North Sulawesi. These results were used also to select the subject of the research work that the students have to perform during their three to four months with local industry. Other subjects than coconuts have been successfully explored in the same way and gave promising results in the field of cloves, nutmeg, seaweed, dry fruits, etc.
The use of patents as a unique source of technical information, associated with a software allowing a fully automatic exploration of the selected set of patents, provide an easy way to build up innovative thinking among the Indonesian students involved in a postgraduate course. The facility provided to build up patent clusters, related technologies, etc, allows the mapping of all the available interactions from the selected patents. This helps the students to begin to think in terms of value-maps and networks. Very often, we associate the results and the new area of application using software to represent the idea mapping of users. For this purpose we use The Brain, which is available on the Internet in a free evaluation version. We combined very often Matheo Patent with The Brain, allowing us to map ideas and to associate information with this mapping. These applications can be stored on your computer and updated if necessary. This is a very powerful tool for brain storming and to stimulate working groups (http://www.thebrain.com/).

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local jurisdictions. The implementing regulation devolves authority to the 30 provinces and the 365 regencies (kebupaten) and assigns the areas of administration, public welfare, and public health as the first three areas to be decentralized, as a test before more authority is transferred. Presentation by Faisal Basri, United States-Indonesia Society (USINDO), Open Forum, Washington, D.C., July 21, 2000. Extract from "Reinventing Indonesia the Challenge of Decentralization., Chapter V. Indonesia’s Transformation and the Stability of Southeast Asia Angel Rabasa, Peter Chalk, http://www.rand.org/publications/MR/MR1344/MR1344.ch5.pdf.


[5] Regional Autonomy and the Business Climate: North Sulawesi and Gorontalo, project number 497-0337, September 2001 For further information, please contact SMERU, Phone: 62-21-336336, Fax: 62-21-330850, E-mail: smeru@smeru.or.id; web: www.smeru.or.id.

[6] Regional Autonomy and the Business Climate: Three Kabupaten Case Studies from North Sumatra, project number 497-0337, May 2001 For further information, please contact SMERU, Phone: 62-21-336336, Fax: 62-21-330850, E-mail: smeru@smeru.or.id; web: www.smeru.or.id.


[23] http://www.indohalibuy.com.This site present various indonesian products, and in the introductory presentation relevant comments are made on the ability and habit of indonesian craftsmen.

33] http://imcsline.com IMCS (Information Management Consulting and Solution) provides all information on Mathe Patent and allows to download a trial version at no cost.
34] http://www.managementonline.org Managagement Online retrieve information on more than 600 journals and provide an easy access to management, intelligence, e-learning, . . . literatures.
39] See the description from James Manktelow of the Mindtools Company at the following address: http://www.mindtools.com/pages/article/newTMC05.htm.
