

The GDOR model. A new methodology for the analysis of training needs: The case of Andorra

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Abstract

Purpose: This article investigates the status and importance of continuing training in companies in the Principality of Andorra and its impact on the economic development of the country.

Design/methodology/approach: The analysis is based on GDOR, a methodology based on the impact of training decisions on economic indicators and ratios that has been developed by the authors. By using GDOR, the authors explore and understand the current situation and the training needs of the main sectors in the Andorran economy.

Findings: The findings incorporate a different view of lifelong learning training needs in Andorra much more related to the development needs of the country.

Originality/value: With reference to best practice from different countries, particularly those in Europe, an original and new proposal to address those training needs is presented including recommendations to the country's authorities on how to manage lifelong learning policies.

Keywords: Andorra, human capital, intangible investments, continuing education, training needs, training gaps, GDOR

Jel Codes: I25, I28, O15

1. Introduction

It is a fact that recent years have produced changes in the environment which affect all organisations and which reflect a series of factors such as: an escalation in competition within the field of business, the globalisation of markets, increasingly rapid technological advances and new forms of work organisation.

In order to ensure its survival, this environment demands that companies develop their capacity to adapt and maintain their competitive advantage, as the evidence shows that particular internal resources, for instance the human factor, are those which will make it possible to maintain those advantages over time (Aragón-Sánchez, Barba-Aragón & Sanz-Valle, 2003) and (Crespo & Mishra, 2011).

Although all personnel management practices contribute to the development of this resource, as several authors indicate (Bartel, 2000; Raghuram, 1994; Macduffie & Kochan, 1995), training is the activity that allows organisations to rely on qualified employees, who are flexible and well-prepared, thus enabling the companies to make the adjustments required to compete in the environment described above.

In the current article an attempt is made to demonstrate a methodology to determine the continuing training needs in one region, and subsequently offer a solution for the Principality of Andorra for the period 2007-2009. Furthermore, the results relating to this small country are compared with similar studies conducted in other countries, especially those within Europe. The main hypothesis of this article is that a small country like Andorra with a economy mainly focused on two sectors must have a peculiar training needs map very much related to the profile of those sectors. To demonstrate this hypothesis we are using GDOR, a methodology based on the impact of training decisions on economic indicators and ratios.

The Principality of Andorra is situated in the middle of the Pyrenees, between France and Spain. Its capital being Andorra la Vella, the country occupies an area of 468 Km², and has a population of approximately 82,000 inhabitants. Tourism is the main economic activity. At the present time more than 10 million people visit Andorra annually, that is to say more than a hundred times its population.

Currently the GDP is € 28.729 per capita, which places it among the European countries with a higher than average income, above both Spain and France. As for

the sectoral structure in terms of the percentage of employment, 79.3% belong to the service sector whilst industry and construction account for 20.3% of employment. When these figures are compared to the average of the 25 countries in the European Union (EU-25), where employment in services reaches 67.6% and in industry and construction 27.5%, the extent of the move towards tertiary employment within the Andorran economy becomes evident.

Despite the efforts made in Andorra in recent years in the field of education and training, particularly the establishment of the University of Andorra, the overall educational level of the population is notably influenced by the important factor of inward migration, basically by an unskilled workforce. Consequently, this has led to elevated training deficits which hinder the conditions needed for the development of a skilled workforce.

The importance of the principality's economy and the characteristics of the working population suggest that, as has been the case in other countries, there is a need to develop a policy of continuing training that serves the needs of Andorran companies, and their employees; and furthermore, that the policy targets the specific requirements of the country.

Moreover, in their inherent efforts to consolidate and develop, organisations (independent of the sector to which they belong) are obliged to educate their personnel, in the widest sense of the word.

For some time, Andorra has faced two distinctive situations that have stirred the interest of its government concerning its human capital: firstly, the high level of competition between Andorra and its neighbouring countries as tourist destinations; and secondly the growth of the unskilled workforce due to the recurrent immigration that has been witnessed in recent years. Continuing training in Andorran companies is a fundamental tool with which to increase the competitiveness of this economy.

2. Conceptual framework

In recent years, with greater intensity than during previous stages, the business environment has introduced, tested, accepted or rejected models that imply new concepts of management.

At the beginning of the 1990s it was thought that "constant innovation causes new strategies in human resource management to be adopted by companies, and within

this framework, training actually becomes the catalyst - indispensable in confronting those changes, and indeed, can in itself become a motor for organisational change" (Solé & Castells., 1993). In this context the key word seems to be 'training', but what is understood by 'training' and how is it structured? The system of professional training is constituted by three main sub-systems, which are: regulated training (both public and private), professional vocational training, and continuing training.

The objective of "continuing training" is to provide both on-going training and the retraining of employed workers. It plays a part in the improvement of their skills, and the increases in profit, productivity and competitiveness in the companies where they are employed (Marín-Díaz, Llinàs-Audet & Chiaramonte-Cipolla, 2011).

The success of continuing training depends on proper execution of its composite activities: prior analysis of training needs, development and implementation of a suitable training plan and evaluation of the entire process (Pineda, 1995), (Gómez-Mejía, Balkin & Cardy, 1996) and (Solé & Mirabet, 1997).

Training is really important and "should be considered as a strategic factor of the organisation that drives the development of profiles, of aptitudes that facilitate adaptation to lasting changes in work, and that stimulate the process of learning to learn" (Solé, Eguiguren, Llinàs-Audet & Pons, 2006). The same authors declare that "only with more capable personnel (i.e. human capital and training) can new processes and new products to surmount the competition be envisaged." Human capital is crucial for the management of change, and herein lays its importance.

If there is a relationship between improving companies' competitiveness and at the same time augmenting the development of the country to which they belong, would it not be logical to think that a country would have an organizational model for continuing training, arising from the specific needs of its companies, and applied with the help of the government? Would it not be successful, and contribute to the resolution of the training deficit problems that exist in the companies? (Solé et al., 2006).

At corporate level, continuing education has been put into practice in different forms and countries and the public sector has different levels of intervention in continuing training. The public sector's contribution is most relevant in France, where it is made available through the National Association for Adult Professional Training (AFPA) and the National College for Arts and Crafts (CNAM).

Within countries that were studied, the themes which receive the most attention are all those related to administrative and management skills, quality, prevention of risks at work, training in and implementation of new technologies, the effective use of human resources and organizational change (Goodwin, Hills & Ashton, 1999; Mulder & Tjepkema, 1999; Yadapadithaya, 2000; Eguiguren, Llinàs-Audet & Pons, 2006; Heraty & Collings, 2006; Llorens, Llinàs-Audet, Ras & Chiaramonte-Cipolla, 2010).

3. Some comparative data and models of continuing training management

With respect to the general characteristics of continuing training at international level, it must be pointed out firstly that to make a standardised comparison is a complicated task given the huge heterogeneity that exists between the different systems and the rapid pace with which they are modified and up-dated. However, it can be asserted that in all countries continuing training for workers is given increasingly more importance. More and more, the up-dating of knowledge, the improvement of professional ability in the context of globalisation, and the rapid technological, economic and social changes are taken into account. In this setting, the duty of the public sector as the motivator or financer of continuing training is often related to subsidies and/or tax deductions and rebates.

Despite the diversity displayed in continuing training at international level, as has already been examined, the results of the European Study Continuing Vocational Training Survey (CVTS) can be considered.

It should be emphasised that one of the most noticeable statistics arising from the CVTS survey is that the 60% of companies which engage in training activities lie within the European Union 15 (EU-15). This percentage reaches a peak of 90% in northern countries such as Sweden and Denmark.

The workers who participate in continuing training courses represent 40% of the total number of workers employed by the companies surveyed within the EU-15, again with the highest rates found in the northern European countries.

At European level, each participant in those courses did an average of 30 hours training. The total cost to the companies (including both the direct costs of the training and the remuneration of staff salaries) accounted for an average of 2.3% of total labour costs. Within this category of expenditure, the highest rate was in Great Britain (3.6%) whilst the lowest was in Rumania (0.5%).

The results of Eurostat's Labour Force Survey, which incorporates a specific model of lifelong 'traineeship' or lifelong learning, should also be taken into account. These results show that 43% of the EU-25 population aged between 25 and 64 had participated in some type of training activity in 2003. If attention is focused on both employed people and informal training activities (intentional, planned and structured activities which lie outside the regulated educational systems of each country) it can be observed that the corresponding percentage of the EU-25 is 20.6%, with the highest values being in the Nordic countries (Denmark and Sweden with the highest rate of 50%), followed by the United Kingdom (participation of around 40%), whereas the lowest rates are found in and Greece (6.1%), Hungary (6.3%) and Italy (7.4%).

4. Continuing training in Andorra: The current situation and future training needs

The methodology used to determine training needs and propose the final model involved rearranging the primary data along with the surveys and tables of experts.

For the questionnaire design the authors devised their own methodology known as Outcome Driven Development Management (GDOR ©). GDOR facilitates research into the reality of continuing training, with particular reference to the relationship between training and company profitability, at the level of a specific region or of an industrial sector.

The GDOR model, initially designed for use at company level, has had several transformations although it still functions with the same philosophy of the initial model (being applicable to specific companies). It has been used in the design and the analysis of the comprehensive performance of companies which operate training policies and activities, from any sector or region. The model has been implemented at company level in financial and insurance institutions like La Caixa and Zurich, and at regional and sector level for SEA (Sindicato de Empresarios Alaveses) and Andorra itself.

The model begins with a set of management indicators and organises them by into "value drivers" (which might be viewed as significant building blocks) and outcome areas. The completed model gives an extremely useful composite representation of in which areas would be more profitable to invest in the delivery of company training. In the case of public administration, the model illustrates which themes are suitable to be promoted as the training offer by the public administration in charge of pushing and promoting continuing training.

The model analyses the impact of continuing training in five major fields of modernisation, and, within each field, up to fourteen key outcome areas. Each of the key outcome areas is subject to more detailed analysis, considering between two and five associated value drivers so that the model analyses a total of forty value drivers, each with its corresponding business indicators, totalling around sixty eight.

An example can be seen in table 1:

Field	Example of key outcome area	Example value drivers (Significant building blocks)	Example of indicators
FINANCE	GROWTH & INCOME	Growth and sustainable income	No. of new products sold to existing clients
		Diversification of risks	% sales coming from new products or markets
	COSTS & PROFITS	Cost management in general	Indirect costs and structure of income from sales
CLIENT / SUPPLIER MANAGEMENT	CLIENT FOCUS	Client information	No. of fields in client database
		Categorisation of clients	% of clients identifies in key segments
PROCESSES	INNOVATION	Design of services	% product sales < 2 years of their total sales
MANAGEMENT OF INTANGIBLES	HUMAN RESIURCE MANAGEMENT	Staff retention	Average duration of employment in the company
		Teamwork	Staff satisfaction index
METHODS OF QUALITY CONTROL, RISK PREVENTION & ENVIRONMENTAL POLICY	ENVIRONMENTAL POLICY	Environmental policy	Possession of specific ISO
		Environmental policy	Respective EFQM grade

Table 1. Example on how to structure and connect fields of modernisation with outcome areas, value drivers and indicators

Another important part of the model is that it can identify best practices in training and development on the part of companies and social agents and, furthermore, shows synthetic indicators to rate the perceived profitability of the investments made by business people and social agents.

The primary activity during the field work carried out for this project was to survey 90 Andorran companies, and then attempt to analyse the potential impact of training on key operational issues, and the future of the companies. For this reason it was important that the people directly responsible for training (i.e. managers, owners or general directors) responded to the survey. The size of the sample permits to obtain a sampling error of 8.62%, perfectly acceptable to complete the study, seeking the most detailed information possible regarding the training needs

of Andorran companies. Furthermore, comprehensive techniques and participant feedback, such as the focus groups and the in-depth interviews were utilised, as mentioned above.

Having confirmed the number of establishments in the population, the variable 'number of workers' was used to define how many questionnaires should be conducted for each sector selected: 1) Primary and secondary sectors, minorities within the tertiary sector, and others, 2) Construction, 3) Commerce, 4) Finance and insurance, 5) Leisure and tourism and 6) Public services and administration.

This sample includes companies of different sizes and number of workers, and was conducted with the people directly responsible for training: managers, general directors and owners of those establishments. The number of questionnaires completed was defined by the number of contracted workers, according to the sector in which they belonged.

Later, in order to complete the survey thoroughly, five focus group sessions and in-depth interviews were organised with member of the participating companies who had responded to the questionnaires.

5. Discussion and results

The current status of training in Andorra: Main results

With respect to the investment Andorran companies make, as indicated in the diagram, it can be seen that investment in training is prioritised in fourth place.

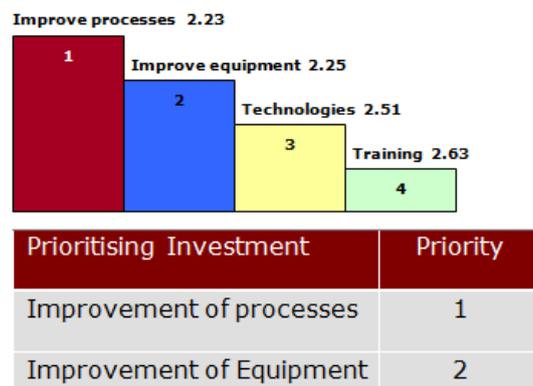


Figure 1. Current priorities for investment by Andorran companies

Other indicators obtained through the survey suggested that the largest volume of investment in training was associated with the companies employing the highest number of workers.

Trends in investment in training, 2004 & 2005 vs 2006 & 2007

Firstly, what happened concerning investment in training in the two years 2004 and 2005 is assessed, by function of company size.

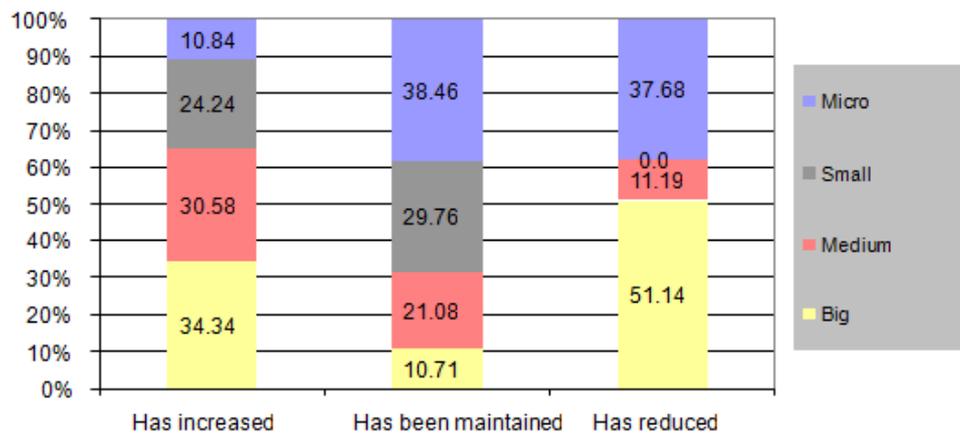


Figure 2. Training Investment trends 2004 & 2005

Next, the foreseen trends in behaviour concerning investment in continuing training for 2006 & 2007 are presented.

Possible combinations (in order of highest to lowest % of companies choosing each combination)	% of all companies
Has increased and will continue to increase	34.09%
Has been maintained and will continue to be maintained	27.27%
Has increased and will be maintained	17.05%
Has been maintained but is beginning to increase	12.50%
Has decreased but will be maintained	5.68%
Has been maintained but will decrease in the future	2.27%
Has decreased but will increase in the future	1.14%
Has increased but is beginning to decrease	0.00%
Has decreased and will continue to do so	0.00%

Table 2. Foreseen trends in behaviour concerning investment in continuing training 2006 & 2007

It seems clear that in recent years most of the companies have initiated an increase in investment in training, and that the trend will continue in coming years. Of the companies that have increased their investment in training, 33.3% will reach a point of stability, while the remaining 66.6% will continue to increase their investment.

Percentage of gross payroll expenditure invested in training

The study found the following results with respect to the percentage of gross payroll expenditure invested in training:

	Commerce	Construction	Finance	Leisure	Public	Rest	Total
% of gross payroll expenditure invested	2.65	2.84	3.90	1.93	1.06	2.82	2.54
Optimal % of gross payroll expenditure	2.88	3.89	4.17	2.70	-	5.20	3.67
Difference	-0.23	-1.05	-0.27	0.77	-	2.38	1.13

Table 3. Percentage of Gross Payroll Expenditure invested in Training. Main industries

The percentage of gross payroll expenditure invested in Andorra is 2.54%. Given the diversity of methodologies used to compile such data, and the temporal differences between the various studies, it is difficult to compare these figures. As further reference, the same indicator is presented, illustrating the percentages of investment in training drawn from different sources that various authors found.

- India 1.2% (Yadapadithaya, 2000)
- Spain 1.2%. (CVTS-3, Eurostat., 2007)
- Catalonia 1.8%. (Solé et al., 2006)
- Finland 2.4%. (Hytonen, 2003)
- Holland 2.0%. (CVTS-3, Eurostat, 2007)
- United States 1.8%. (Marquardt, Nissley, Ozag & Taylor, 2000)
- European Union-15 2.3%. (CVTS-2, Eurostat, 2002)
- France 2.3%. (CVTS-3, Eurostat., 2007)
- Austria 1.4%. (CVTS-3, Eurostat., 2007)
- Ireland 3.85%. (Heraty & Collings, 2006)

Subsequently, the more comparative and recent data originating from the Continuing Vocational Training Survey with data from 2005, and partially published on 2007, was considered.

It is true that the percentage of Gross Payroll Expenditure invested in Training in Andorra shown by our research, 2.54%, is slightly higher than the figures shown above for other countries. Regardless of the differences on methodologies used and in the very dates in which the different surveys were conducted, this higher percentage is not linked to a high value perception of training investment among Andorran companies (see detail at the "conclusions" chapter below) yet it is rather related to the structure of such a small an open economy, the relatively high weight of the banking industry, always quite intensive in training investment, and the continuous need of Andorra to attract and train new inflows of unskilled workers from neighbour countries. Although this inference seems quite clear, further studies would probably be conducted by these authors in the future to ratify it.

Themes and contents featured in company training

Training Content	Average
Understanding processes	2.64
Financial management	2.30
Quality management and improvement	2.27
Technological techniques	2.09
Safety and risk prevention	2.06
Human resource management	2.01
Commerce and marketing	2.00
Production management	1.94
Application of technologies	1.94
Production techniques	1.93
Office automation	1.87
Languages	1.86
General management and planning	1.79
Management of technology	1.41
Logistic management	0.54

Table 4. Themes featured in company training

Utilizing a scale of 1 (minimum) to 4 (maximum), the figure below illustrates that the most important theme for company training in recent years was understanding processes, followed by financial management, then quality management and improvement. The least important theme was training in logistics.

Training providers

32.18% of the companies deliver courses using their own trainers, leaving traditional schools (for example, universities) among the last priorities to be considered as training providers. By way of comparison: in Finland this percentage reaches a rate of 50% (Hytönen, 2003), and in Holland, that of 67% (Mulder & Tjepkema, 1999). Also in the United States, (Marquardt, *et al.*, 2000) the trend of outsourcing the delivery of corporate training is very high.

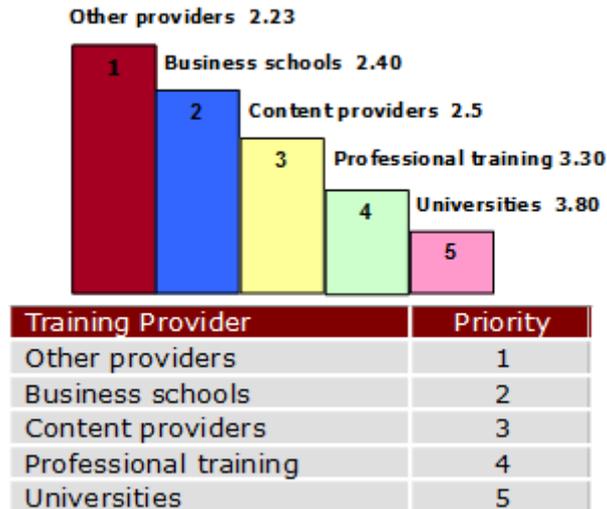


Figure 3. Distribution of training providers

Training prospects in Andorra, by sector

This study shows that the prospects reported by the companies surveyed indicate that higher investment in training is foreseen for the future, and that the largest companies have greater expectations in that direction.

The proposals for continuing training, for the three-year period 2007-2009, as prioritised by sector, suggest that:

In the **Leisure, Tourism and Hostelry** sector (being one of the main sectors in the Andorran economy), the creation of a model for continuing training, would offer strategic differentiation for Andorra. In this sector, training should be oriented towards improving the quality of services. The blocks of training themes considered most important are:

- Customer loyalty
- Quality management methods
- Technical knowledge
- Worker satisfaction
- Establishing objectives

Qualitatively speaking, it seems that it would be of strategic benefit to use Andorra's geography and cultural wealth to create regional differentiation. That is to

say, training should be oriented towards promoting the country's culture and environment to give tourism more added value.

In the **Commerce** sector: Quality should be the motto that identifies Andorran companies, referring to the term 'quality' in its widest sense, from purchasing and customer service to internal processes. The significant blocks considered most important are:

- Customer loyalty
- Environmental policy

In the **Construction** sector: Little training is done at the moment. This presents the paradox that whilst the majority of companies do not provide training, the employer actually believes that training is essential. The blocks of themes considered most important are:

- Technical knowledge
- Quality management methods
- Risk prevention policies

In the **Public Administration** sector: The number of entities in this sector is extremely limited. The analysis of the results identifies the following as blocks of relevant training themes:

- Quality management methods
- Worker satisfaction

In the **Banking and Insurance** sector: Training is important, although of relatively little importance in the sub-sector of underwriting, where the staff are contracted from other companies within the sector. The block of training themes considered most important are:

- Customer loyalty
- Quality management methods
- Technical knowledge
- Worker satisfaction

In the **Industry and 'Other Activity'** sectors: this sector is atypical, given that it covers very diverse activities. The type of specific needs vary significantly from activity to activity. The blocks of training themes considered most important are:

- Customer loyalty
- Handling products
- Worker satisfaction

Once the data from this study was analysed, generally speaking, the future training needs focused on customer loyalty, worker satisfaction and quality management.

6. Conclusions

The results obtained from the purposely developed survey conducted during this research bring us to some conclusions.

The first of these refers to the percentage invested in training in relation to the gross payroll expenditure. The results obtained confirm a figure of 2.54% for Andorran companies as a whole, fluctuating between a minimum of 1.06% in public administration and a maximum of 4% in the finance sector. Beyond the considerations that can be made in relation to the similarity of the figures, this percentage, which is higher than that of the European Union as a whole, indicates extensive activity in continuing training in the Andorran companies surveyed.

Still other indicators such as, for example, the presence of a specific training manager or coordinator in the companies (43% of the total companies surveyed did not have this type of post) could suggest an over-estimation of the percentage invested in training in relation to gross payroll expenditure (2.54%). On the contrary, the essential role of the company itself as provider of continuing training (in fact, around 50% of the training delivered was by internal trainers) might justify the previous figure.

In the same vein, with reference to the role training plays as a success factor of the Andorran company, the survey results show that the role which continuing training traditionally has in Andorra is rather low-key, and relatively little-valued by the employer. As a matter of fact, the average rating of training as an important success factor is 2.63 over 4 (i.e. the equivalent to 6.5 over 10).

This conclusion seems to gain strength from the fact that among the various investment opportunities an employer has (eg. improvement of processes, training, information technology, equipment) training is given the lowest priority.

Other indicators obtained by the survey point out that the larger the size of the company, the greater their investment in training. The big companies reported that they foresee a greater investment in training in the future, and also that they have the greatest expectations from that training.

Furthermore, as far as which type of institution should provide the training, the study shows clearly that the company itself is likely to be the main provider, leaving consultants or firms providing training materials in second place, with universities having no significant role.

In the same way that the descriptive analysis showed that Andorran companies predicted a growth in investment in training, the industry analysis illustrated a belief that training will have a more important role in the future than it has had until now.

In practically every sector, the measure of this conviction exceeds double figures. This change and the higher value placed on the role of training becomes most pronounced in thematic areas such as quality management methods and risk prevention.

With reference to the thematic blocks that should be significant, or very significant, for the future role of training in Andorran companies, the results of the survey identified the following:

- Client-oriented customer service
- The processes of handling goods and quality management methods
- Risk prevention and the company's environmental policy
- Worker satisfaction
- Knowledge management policies and related access procedures

From the methodical standpoint of analysing training needs in Andorra, in order to define the topics in which continuing training should play a significant role, it is not only necessary to focus on those themes perceived positively by the employer, but also on those factors which are considered fundamental for the future success of

the Andorran company. This point, derived from the proactive methodological approach adopted, is considered to be one of the main contributions of the study.

The diagram below, which refers to the analysis of training needs in the Principality of Andorra, synthesises the two features previously mentioned in the following way:

- In the vertical axis, the issues and themes that are considered as important or very important as factors for the future success of the Andorran company are presented.
- In the horizontal axis, the issues and concepts in which continuing training must have an important or very important role in order to further commercial consolidation, or as a factor for the future success Andorran companies are presented.

The information contained in the diagram helps to define prioritisation criteria for the continuing training offered in Andorra. Those training programmes which address the issues associated with the success factors identified should form the basis of the definitive map of continuing training needs for Andorran companies. The map itself could be fundamental in establishing an official initiative to drive a national system for continuing vocational training.

Operational recommendations for the three-year period 2007 – 2009, relating to the gaps in training, are also presented in the article for the following sectors: Leisure, Tourism and Hostelry; Commerce; Construction; Public Administration; Finance and Insurance; Industry and other activities.

In conclusion, it is worth highlighting one of the final recommendations of the study, which is the creation of educational routes in Tourism, Commerce and Finance via universities as an element to support the fundamental educational system for the economic development of the region.

	Value drivers Important for future success	Value drivers very important for future success
Training important	<p>Client Satisfaction (there are systems to measure the degree of client satisfaction; this has an influence on the provision of future services and ensures the systems of communication with clients are suitable).</p> <p>Risk Prevention Systems (the processes are intended to eliminate work-related accidents).</p> <p>Environmental Policy (the products are designed following rules respecting the environment and the company has a coherent policy for disposal of waste and residues).</p>	<p>Client loyalty (the organisation itself and the attitude of employees generates the loyalty).</p> <p>Quality management methods (planned processes in an authorised system, philosophy of quality throughout the entire organisation).</p> <p>Bank of information (information remains within the organisation, leading to improved quality and less costs).</p> <p>Worker satisfaction (the worker has enough information to do his/her work and is well supported by his/her line management, thus promoting satisfaction.)</p>
	<p>Clients and competitors (the company values its clients more than the competitors value theirs).</p> <p>Accountability of management and channels (those staff in contact with clients use an exclusive and specific management system).</p> <p>Access to the bank of information (the staff have easy access to company information and there are shared information systems).</p> <p>After-sales services (the client receives appropriate information to use the product or service, which is accompanied by clear, legible instructions).</p> <p>Establishing objectives (each employee knows what is expected of her/him, and the objectives she/he must meet).</p>	<p>Delivery of products / services and client feedback (according to authorised processes, the service is always delivered within the prearranged terms and the client has a say in defining the service he or she receives).</p>

Table 5. Mapping the analysis of continuing training needs for Andorran companies for the three-year period 2007 – 2009

References

- ARAGÓN-SÁNCHEZ, A.; BARBA-ARAGÓN, I.; SANZ-VALLE, R. (2003). Effects of training on business results. *International Journal of Human Resource Management*, 14(6): 956–980. <http://dx.doi.org/10.1080/0958519032000106164>
- EGUIGUREN, M.; LLINÀS-AUDET, X.; PONS, O. (2006). Incompany training in Catalonia: organizational structure, funding, evaluation and economic impact, *International Journal of Training and Development*, 10(2); 140-163. <http://dx.doi.org/10.1111/j.1468-2419.2005.00249.x>
- BARTEL, A.P. (2000). Measuring the employers's return on investmens in training: Evidence from the literature. *Industrial Relations*, 39(3): 502-524. <http://dx.doi.org/10.1111/0019-8676.00178>
- CRESPO, J.; MISHRA T. (2011). The role of age-structured education data for economic growth forecasts- *Journal of Forecasting*, 30(2): 249–267. <http://dx.doi.org/10.1002/for.1171>

- GÓMEZ-MEJÍA, L.R.; BALKIN, D.B.; CARDY, R.L. (1996). *Gestión de recursos humanos*. Madrid: Prentice Hall.
- GOODWIN, J.; HILLS, K.; ASHTON, D. (1999). International briefing 2. Training and development in the United Kingdom, *International Journal of Training and Development*, 3, 2, 167-179. <http://dx.doi.org/10.1111/1468-2419.00075>
- HERATY, N.; COLLINGS, D.G. (2006). International briefing 16. Training and development in the Republic of Ireland. *International Journal of Training and Development*, 7(3): 164-174. <http://dx.doi.org/10.1111/j.1468-2419.2006.00250.x>
- HYTÖNEN, T. (2003). International briefing 14. Training and development in Finland. *International Journal of Training and Development*, 7(2): 124-137. <http://dx.doi.org/10.1111/1468-2419.00176>
- LLORENS, A.; LLINÀS-AUDET, X.; RAS, A.; CHIARAMONTE-CIPOLLA, L. (2010). The ICT skills gap in Spain: Industry expectations versus university preparation. *Computer Applications in Engineering Education*. <http://dx.doi.org/10.1002/cae.20467>
- MACDUFFIE, J.P.; KOCHAN, T.A. (1995). Do US firms invest less in human resources?. Training in the world auto industry. *Industrial Relations*, 34(2): 147-168. <http://dx.doi.org/10.1111/j.1468-232X.1995.tb00366.x>
- MARÍN-DÍAZ, M.; LLINÀS-AUDET, X.; CHIARAMONTE-CIPOLLA, L. (2011). Training as a factor of business excellence. *Intangible Capital*, 7(2): 280-305. <http://dx.doi.org/10.3926/ic.2011.v7n2.p280-305>
- MARQUARDT, M.J.; NISSLEY, N.; OZAG, R.; TAYLOR, T.L. (2000). International briefing 6. Training and development in the United States. *International Journal of Training and Development*, 4(2): 138-149. <http://dx.doi.org/10.1111/1468-2419.00102>
- MULDER, M.; TJEPKEMA, S. (1999). International briefing 1. Training and development in the Netherlands. *International Journal of Training and Development*, 1(2): 63-73. <http://dx.doi.org/10.1111/1468-2419.00066>
- PINEDA, P. (1995). *Auditoría de la formación*. Barcelona: Editorial Gestión 2000.
- RAGHURAM, M. (1994). Linking staffing and training practices with business strategy: A theoretical perspective. *Human Resource Development Quarterly*, 5(3): 237-251. <http://dx.doi.org/10.1002/hrdq.3920050304>

SOLÉ, F.; MIRABET, M. (1997). *Guía para la formación en la empresa*. Madrid: Edit. Cívitas.

SOLÉ, F.; CASTELLS, E. (1993). *La Formació Quaderns de Competitivitat, nº 14*. Direcció General de Industria, Generalitat de Catalunya.

SOLÉ, F.; EGUIGUREN, MARC.; LLINÀS, X.; PONS, O. (2006). Los aspectos económico-organizativos de la formación: Una aproximación al caso de Cataluña. *Universia Business Review*, 9, Primer trimestre 2006: 29-40.

YADAPADITHAYA, P.S. (2000). International briefing 5. Training and development in India. *International Journal of Training and Development*, 4(1): 79-89. <http://dx.doi.org/10.1111/1468-2419.00097>

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