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Business Intelligence applied in Small Size for Profit Companies

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Abstract

With the expression, “Business Intelligence” we refer to intelligent technologies that may help companies improve their performances and have better possibilities to survive and develop. Anyway, in this regard, we sometimes have a double negative impression, namely that on one side there is a certain lack of practical indications on how to apply this in everyday companies’ life and, secondly, that it is often not taken into due consideration the extremely reduced size of companies, the limited entrepreneurial competences and the scarce availability of technologies. In this paper, apart from highlighting the role of Business Intelligence in practice, we try to find a way to apply it also in small size companies focusing on two critical aspects, namely customer’s profitability and their satisfaction level that, especially if considered in their reciprocal interaction, may have a great impact on companies’ outcomes though using simple technologies.

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1. Introduction. CRM and Business Intelligence

As we pointed out in one of our previous contributions, Business Intelligence is quite often strictly related to CRM, Customer Relationship Management that anyway should not be considered in any way only a technology.

In fact – despite the technological aspect regarding the nature of CRM may be still very much widespread – we were able to capitalize on the contributions of many authors, such as Coltmann (2011), Lambert (2009), Lazer (1997), Hasan (2003), Walter Scott (2001) and finally Baran (2013), to state how CRM should be considered a real strategy that nowadays all for-profit companies should adopt for their survival and development.

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With this outlook on CRM we also explained the key role of customer retention to implement a CRM strategy, referring to some important contributions such as Zineldin's (2006), who coined the rather impressive slogan, "The Royalty of Loyalty," and who states, "A company has to create customer relationships that deliver value beyond... the core products.

This involves adding tangible and intangible elements to the core products, thus creating and enhancing the product surrounding. Customer loyalty is an important function to ensure the fulfilment of given customer requirements and companies' profits, survival and competitive positioning."

We then analyzed Business Intelligence and we found quite a different situation. In fact firstly, there is no confusion in definitions as we have in the case of CRM; for instance Luhn's (2010) defines it: 'An automatic system developed to disseminate information to the various sections of any industrial, scientific or government organization. This intelligence system will utilize data-processing machines for auto-abstracting and auto-encoding of documents and for creating interest profiles for each of the action points in an organization'. Beyond this, the fundamental importance of BI to businesses seems to be fully appreciated; in fact according to Moss (2008), 'In today's highly competitive and increasing uncertain world, the quality and timeliness of an organization's business intelligence (BI) can mean not only the difference between profit and loss, but even the difference between survival and bankruptcy.'

Finally, we highlighted the fundamental contribution by Pennarola (2006), who gives one of the more complete representations of a CRM system that is very effectively summarized in Figure 1 which also displays the vital interconnections between the operative and analytic components, two separate parts that nonetheless have to be fully and constantly integrated.

In fact, in this way, it is possible to integrate a standard database with all possible relevant data so to build up an advanced customer warehouse, the indispensable pre-requisite for advanced Business Intelligence.

As we already said in the abstract, rather than focusing on all aspects, we considered only profitability and customer satisfaction level that, nevertheless, seem to us of the utmost importance.

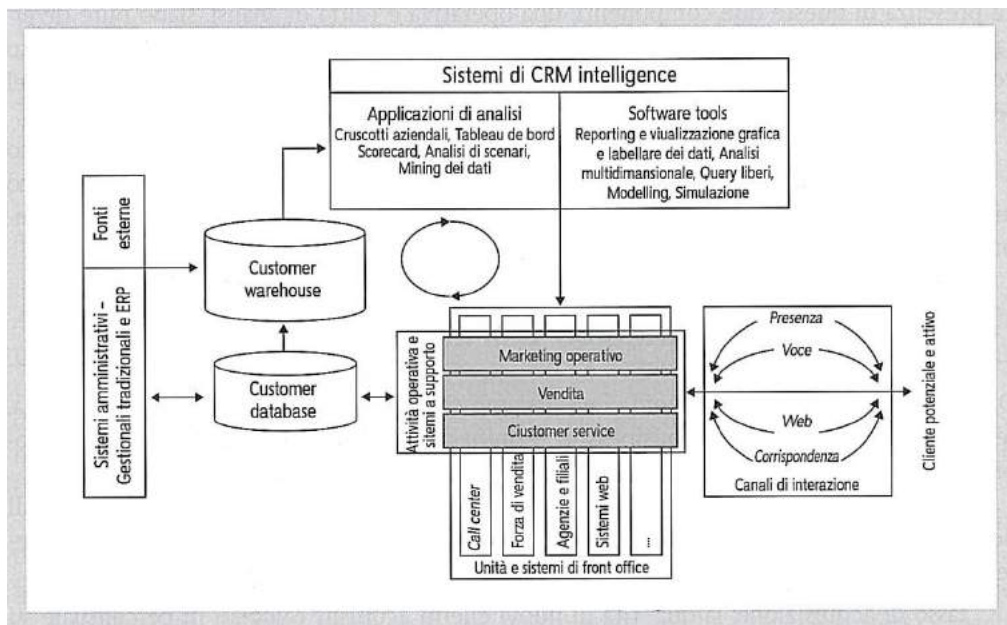


Fig 1 Architectural plan of operative and analytical CRM business intelligence. Source: Pennarola, F. & Perrone, V. 2006.

As we can see in the figure 2, data may come basically from two different sources, namely they may be internal or external data, as we can see in the same figure respectively on the left and the right

side of the data warehouse; in the first case the focus is inside the company, analyzing and improving processes and technologies, controlling costs and so on

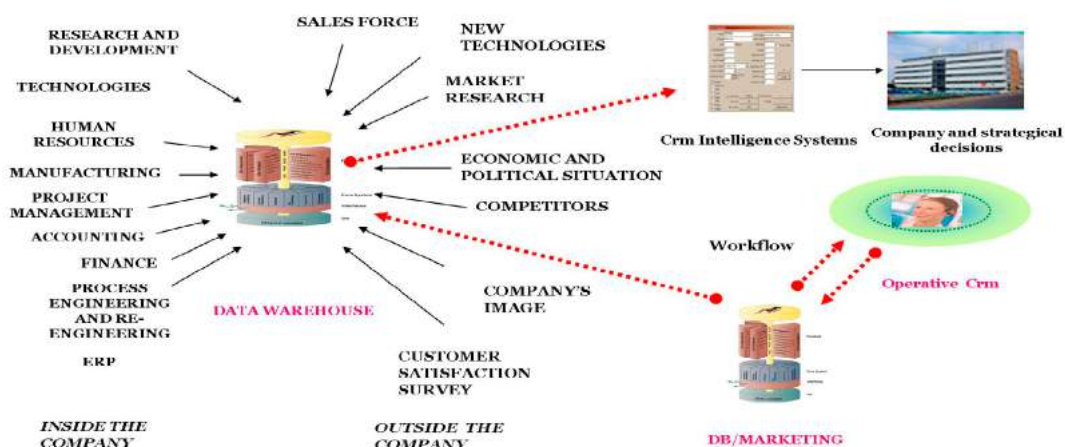


Fig 2. Internal and external sources to be used for Business Intelligence. Source: D'Arconte, 2017

This should also make it possible both intelligent research and the production of real-time analysis of the information necessary for various personnel, who not only can access the available data rapidly, but can also extrapolate - in an easy way and in a self-service format - the information they need to carry out their appointed tasks.

As for external data the various levels of interaction with both potential and acquired customers, suppliers, competitors and other stakeholders as well as market research and adequate environment scanning, may generate information assets in the field of operative CRM; such information must not only be acquired and safeguarded, but also analysed and interpreted. In this way, it will be possible for management to make focused decisions and set up the most suitable procedures for achieving company objectives. This mainly refers to the analysis of future trends and the identification of new products, services, and so on, so that companies, when scanning and proactively monitoring the market, are not taken aback by the inevitable market changes but are always ready to adequately meet customer demand.

All this sounds perfect and promises excellent results providing we have in companies' personnel with the necessary competences and adequate technologies are available but, however, what is the situation in practice?

2. Research on entrepreneurs competences, companies size and Business Intelligence in Italy

We carried out a research in Italy interviewing around 50 entrepreneurs using a questionnaire with many questions on entrepreneurs' competences and approach to CRM and Business Intelligence; the results demonstrate how the entrepreneurs we interviewed, apart from their technical skills, display some natural proclivities in their personalities that have helped them to start and run a business; these include propensity to risk, creativeness, fatigue strength, intuitive problem-solving, and interpersonal competences.

Anyway, as far as managerial skills are concerned, they seem to be quite poorly equipped, mainly because they haven't received any preparation in this regard; in fact, not only have most of them began their activities without precise business ideas or even an embryonic business plan, but they also have difficulty with fundamental issues such as the methodology for preparing an estimate, fixing and adapting prices, cost assessment and control, balance sheets and managerial accountancy, finance, etc.

We have to add that we also proposed the same questionnaire to around 100 students of Business Administration from different countries (namely Italy, Bulgaria, Serbia and Malta) and students' responses, though faring slightly better than that of entrepreneurs, also display rather disappointing results.

Beyond this, if we refer to the Italian market specifically, in 2012 - as we can see in table 1 - around 60% of companies were comprised of individuals and approximately 35% were micro-companies with an average of 3.6 employees each (SBA, 2012); therefore, it's easy to understand how in these conditions a doubly negative factor exists, i.e., entrepreneurs have neither professionals aides who may help them to compensate for managerial limitations, nor access to advanced technologies which are often too expensive for them. Unfortunately, after 2012 until all 2017, not only we do not have evidence of improvements but, on the contrary, due to the still ongoing worldwide financial crisis, the situation since then seems to have taken a turn for the worse with a further increase of individual and micro companies.

If this is the situation for technologies in general, we only can expect a worse situation as far as Business Intelligence is concerned, In fact, considerable investments in technology and highly skilled personnel are required to achieve good results, and this is only possible for large companies, which are, in Italy and likely in most European countries too, the exception.

Table 1. Italian companies composition.

	%	Companies	Personnel Average	Added Value (Billions)	
Individual companies (estimated value)	59,4%	2.268.563	2.268.563	1,0	180
Micro Companies (2-9)	35,1%	1.341.527	4.818.651	3,6	
Small Companies (10-49)	4,8%	184.345	3.250.491	17,6	139
Average size Companies (50-249)	0,5%	19.370	1.875.598	96,8	99
Little and average Companies.	99,9%	3.813.805	12.213.303		418
Big companies (250+)	0,1%	3.253	2.998.619	921,8	194
Total	100,0%	3.817.058	15.211.922		612

Source: Imprese e industria, Scheda informativa SBA 2012 Italia (I dati si riferiscono alla "economia aziendale" comprendente industria, costruzioni, commercio e servizi)

Therefore we can expect that only the few big companies may have access in their normal routine to advanced Business Intelligence applications while the overwhelming majority seems doomed to be excluded unless there might be a simpler and more accessible way to obtain similar, even though partial results, remaining however in line with Business Intelligence principles. How to do this?

3. Business Intelligence for small companies

We believe that even for small companies it is possible to have at least the most important benefits deriving from Business Intelligence even though in a reduced and simplified way, in despite of the fact that highly effective but also highly expensive technology is not available for them.

We will firstly focus on the importance of two critical aspects, generally not fully appreciated, on which all companies, on the contrary, should concentrate their efforts, namely customer satisfaction level and profitability; we will then see how to build a particular matrix that enables to implement a special segmentation of customers portfolio and finally will we explain how this may be a fundamental starting point to implement some basic business intelligence in small companies.

3.1 Focus on customer satisfaction level and profitability

If we ask ourselves what types of client are fundamental for a company, it will probably not be difficult to agree on the fact that clients should simultaneously have two basic characteristics, which are:

- to be loyal over time because they are satisfied with their relationship with the company so as to constitute a permanent source of revenue
- to generate sufficient income for a company

As for the first point we have to say, first of all, that generally companies still fail to understand its importance and they are mainly caught up in indiscriminate sales policies, continuously looking for new customers²². Unfortunately for them, customer satisfaction is of course at the root of customer loyalty, and, as we have already said, this loyalty is of fundamental importance for the success of a company.

Companies – as our research confirms – tend to neglect the customers they already have and therefore they generally do not take care to evaluate their satisfaction level or in many cases, they do this in an ineffective way.

The only method to conduct serious monitoring of Customer Satisfaction would be to ask customers directly about their experiences with companies at all levels, that is to say the quality of intervention during sales, the handling of administrative aspects, post-sales management and so on. As far as data gathering methods are concerned, it is obviously important to avoid any “do-it-yourself” approach and to use specialized external Research Institutes; these will carry out periodical surveys on representatives samples and give the results to companies without any type of conditioning both in the start-up and research management phases and, above all, in the final phase when conclusions are drawn.

How many companies follow these indications? We do not have an exact answer to this question; we can only state that among the entrepreneurs we interviewed nobody is behaving in line with these criteria regarding customer satisfaction monitoring.

Why is it so important to monitor the Customer Satisfaction level scientifically? Because, especially in case of companies with many customers, this will in any case have its own distribution, statistically speaking, in the sense that there will obviously be greater or lesser differences between customers.

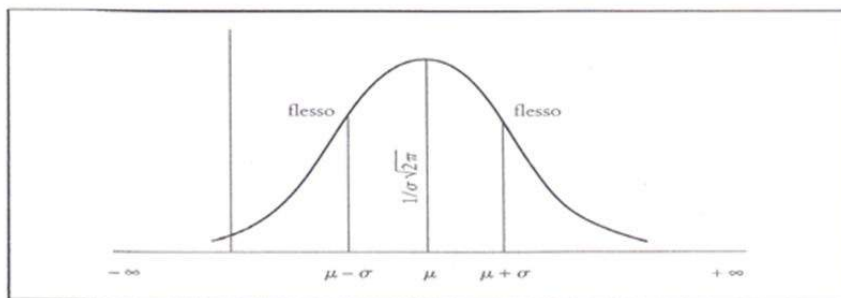
What will the satisfaction level distribution probably be in case companies are not monitoring continually and improving it with specific actions? The central limit theorem can help in this case since it states that: “Whichever probabilistic model is chosen, using very general hypotheses, as the number of replications increases, the standardized sum of casual variables tends to be distributed as a Normal²³”. As we know, this curve has a classic bell shape, with two inflections near $\mu + \sigma$ and $\mu - \sigma$, where μ is the distribution average and σ is the standard deviation, that is to say the square root of the variance; it can be seen how μ , $\mu + \sigma$ and $\mu - \sigma$, subdivide the area of the curve into 4 areas (see figure 3).

As a result, if a company has n customers we can reasonably assume, under the conditions already specified, that we will have a Gaussian curve, which will subdivide the customer portfolio into roughly 4 segments as indicated in figure 3:

²² D'Arconte C., (2016) Critical Aspects related to Optimum Volume of Sales and Indiscriminate Sales Policy. Published in “Challenges to promoting Entrepreneurship and competitiveness” PEP. Belgrade

²³ S.M. Iacus (2006). *Statistica* McGraw Hill.

- 15.86 % very dissatisfied
- 34.14 % averagely dissatisfied
- 34.14 % averagely satisfied
- 15.86 % very satisfied



Very dissatisfied•Averagely dissatisfied•Averagely satisfied•Very satisfied

Fig 3. Probabilistic distribution of the level of Customer Satisfaction among a company’s customers

In more expressive terms it would be “normal” to expect that about half of the customers will be dissatisfied (and of these about 16% very dissatisfied), that about 34% will be more or less satisfied with our services and that only 16% are very satisfied, which for sure is not an excellent scenario.

Now one major aspect that we wish to highlight is that a smart for-profit company should not take care in an indiscriminate way of the satisfaction level of all customers; it should on the contrary focus first of all on the more profitable ones having at the same time the utmost care to identify possible unprofitable customers where paradoxically customer loyalty, far from being an advantage, may only turn into a real critical aspect.

This introduces us to the second topic, namely being able to assess and control profitability. If out of simplicity, we imagine to have a company with only 3 customers and we look at the table 2, we can understand easily how dangerous it can be to make evaluations based only on the overall results that we can obtain from the balance sheet. On the contrary, it is essential to have detailed data on individual products or activities that can only be obtained thanks to good analytical accounting.

In fact only in this way we understand that the three customers contribute in very different ways to the final result, which is in any case positive overall; in the first place C is in the red and only “contributes” to making the situation worse, namely in this case the company is working only to lose money. B has the highest sales income at 60% but only represents 20% of the turnover, and then A follows with a gross profit – at sales level – of 33.33% but that vice versa ensures 60% of total revenues.

Table 2. Simplified analysis per individual customer of a company which shows a positive result equal to 30%

	A	B	C	TOT	%
Revenues	60.000	20.000	20.000	100.000	100
Costs	40.000	8.000	22.000	70.000	70
Margin	20.000 33,33%	12.000 60%	2.000 10%	30.000	30
% on tot revs.	60,00%	20%	20 %		
% on tot marg.	66,66%	40%	6,66%		

If companies, do not have efficient accountancy systems they cannot assess the profitability of every single activity and apart from the above example, they run a serious risk especially if they have many customers; in fact, in the same way of satisfaction level, also profit will have its own natural distribution and here again it is reasonable that this may be represented with a “normal” distribution as follows:

- 15.86 % with a high income
- 34.14 % with a good income level

- 34.14 % with a modest income
- 15.86 % with minimum income.

In this case the value in the middle of the abscissa in the figure 4 would be the average profit. Anyway as Cole and Wayland (1997) very wisely point out, we may have another paradoxical extreme scenario, namely that the value in the middle correspond to 0 profit because in practice all the profit generated by the customers on the right of this point is destroyed by the loss of the remaining customers in the left side. In this case, in practice, we will have quite a different situation, namely:

- 15.86 % with high losses
- 34.14 % with modest losses
- 34.14 % with a modest income
- 15.86 % with a high income

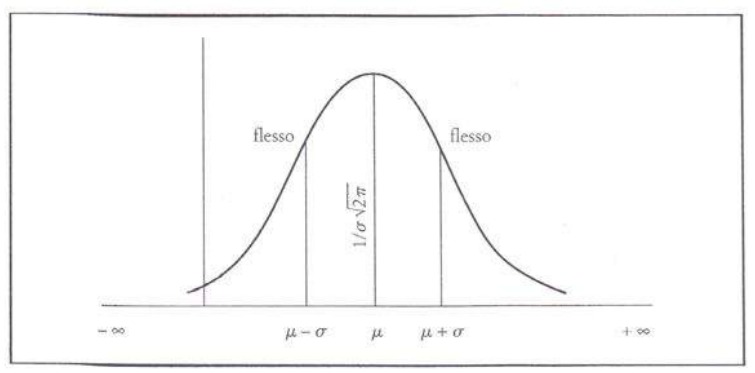
Which of the two hypotheses is more truthful? For Robert E. Wayland and Paul M. Cole there is no doubt that it is often the second one since they maintain that “some customers remain in the negative cash flow area for a long time before they reach the break-even point. Even then the cash flow they generate may be a little weak. Others never leave the negative zone and the authors even state that “this distribution model may found in almost all sectors”.

Quite honestly it seems highly improbable that in reality there will be an extreme case in which the profit is completely wiped out because of internal compensations between profitable and non-profitable customers, because obviously entrepreneurs would be aware that there is no profit. Anyway, especially considering the lack of advanced accounting systems in companies, we are inclined to believe that intermediate situations are quite common and these also represent serious damage for companies that should be carefully avoided.

3.2 The satisfaction-profit matrix

Once we have a reliable representation of both customers' satisfaction level and profitability, we can proceed to a fundamental portfolio segmentation, summarized in Figure 5, with what we describe in one of our recent contributions⁴ as the Satisfaction-Profit matrix.

In the matrix we have 4 classes both for the state of relationships (on the ordinate side) and for profitability (on the abscissa) considering as a precaution the pessimistic scenario; the basic idea here is to have a reliable representation of how each customer's activities contribute to the total financial result and, at the same time, of their level of satisfaction.



Optimistic hypothesis of profitability
Minimum modest good high

⁴ D'Arconte C., (2017). CRM, Business Intelligence and their Impact on Companies' Performance. University of Telecommunications and Post. Sofia, Bulgaria.

Pessimistic hypothesis of profitability
 high modest modest high
 losses losses profits profits

Fig 4. The Gaussian curve and two hypotheses for the distribution of the profitability of a company’s customers

All of the classes add up to 16 quadrants, identified here as 16 “classes of customers”; two classes, such as the customers in the bottom-right and those in the top-left, are immediately drawn to our attention because they require immediate intervention. In the former group, we have high profitability combined with highly dissatisfied customers; a company should give absolute priority to intervening and ensuring that these customers do not leave the company for another supplier. In the latter group, on the other hand, we have customers who represent a serious loss for the company – probably because they do not pay enough for the company’s services – but who are, alas, highly satisfied. It should be noted that the level of customer satisfaction could play a negative role here, as customers are likely to remain loyal indefinitely and therefore worsening the damage over time. It is essential to take immediate and corrective action with this group too, or, for lack of other alternatives, to try and disinvest as soon as possible (contractual clauses and commercial “good manners” permitting, so as to avoid negative fallout in terms of company image).

Apart from these two particular fundamental classes, it is obvious how the matrix allows to identify 14 other different classes of customers so to make it possible extremely tailored actions and improve significantly company’s financial outcomes⁵

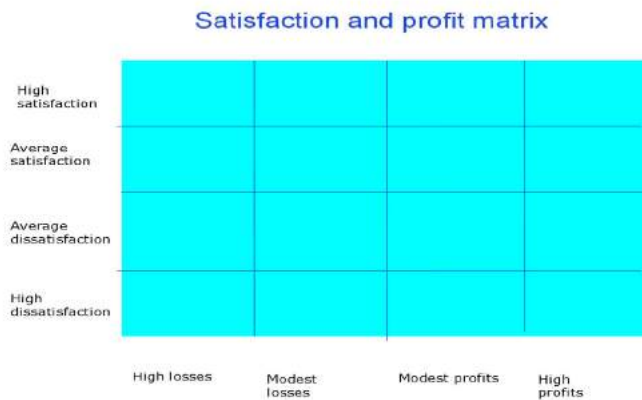


Fig5. The Satisfaction-Profit matrix. Source: D'Arconte, 2017

4. Business Intelligence in small companies

We believe we described a very important tool that all companies with many customers should use extensively.

Actually we firmly believe something much more pregnant for every kind of business, namely that no company, whatever its size may be, can avoid focusing systematically inside the company especially on these two fundamental aspects; not doing this, as we have indicated in the table two and even more with the possibility of a “normal” profit distribution, may mean to be working with several customers only to lose money.

Companies – as we already pointed out – are generally engaged in an indiscriminate research of new customers, investing on top of this also in some kind of advertising that in many cases is not all that successful, sometimes

⁵ It is worth remembering how W. Pareto pointed out, a long time ago, how 80% of turnover is usually only due to 20% of customers, a principle that has constantly been empirically confirmed, which makes findings of analogous situations regarding profitability highly plausible

useless and in some cases even damaging the company's image as we described in another of our contributions⁶; on the contrary they should much more concentrate their efforts in optimizing the situation inside the company.

What do we need to build the satisfaction-profit matrix? Only two information are necessary: the first is how far every customer we have is satisfied of our services or products and the second what are the revenues and the costs of every activity we are carrying out in the company.

Being able to collect these two basic information is it something that may be accessible to all companies including small ones? Well, we have to say that the reduced dimension – a negative factor for many other aspects – may simplify the task to monitor effectively customer satisfaction and profitability.

First of all small companies have generally only a few customers and it will not be complicated to understand whether they are satisfied or not providing that the management is smart enough to interact systematically with them, asking their opinion and listen carefully to what they say. In case customers are more than a few and we also wanted more objective results, we could ask a consultant to interview them so to have customers' comments through him rather than asking them directly.

Therefore monitoring customer satisfaction in small companies it is not a matter of technology but of entrepreneurial culture that in many cases seems to be lacking as far as the right approach to the market and to the customer is concerned. An emblematic example of this may be the comment of a young important manager with whom I shared the basic contents of a course of mine on CRM. His main "contribution" was: "Your course is interesting, anyway avoid speaking about the centrality of the customer, this is nothing more than a myth and nobody really cares about it!"

The second point, namely monitoring the profitability of different activities, may be for sure a little more complicated but in all cases far from being impossible; here again the reduced dimensions of the company play an important role in simplifying the task. Customers and their activities are not so numerous and most of small companies are generally offering services so that the main difficulty stays with being able to allocate the working time of every member of the personnel to specific activities.

In this regard, we would like to quote one of our contribution as a consultant in a small publishing firm in Sofia, Bulgaria, Media Key EOD (www.mk-editoriale.eu); they asked our help to put some order in their accountancy and we helped them to develop a very simple system where every member of the personnel (five altogether) every day has to produce a report with the amount of time spent in the activities in which he is involved (namely 2 hrs for A, 5 hrs for B and so on). In this way, in a simple excel sheet they can find the sum of the working hours spent for every activity that may be easily related to the total number of working hours estimated and to the progress of work. In other words if the estimate is 100 total working hours and we have finished 75% of the work, we also should have employed 75 hours and not more. In this way, this extremely small company is now in a position to monitor so to say on-line the profitability of its activities, though in a rough way, and to intervene promptly in case there were significant variances from the estimated values.

In case of manufacturing this may become a little more complicated because, apart from working hours we will have to know exactly how much of the different materials involved has been consumed for every activity so to have the exact figures about costs per product or service. Apart from this, it will also be fundamental to know whether the amounts of materials and labour have been consumed according to what previously estimated and this implies the necessity not only of an analytical system but also to define standard costs, cost allocation and cost centres, implementing processes and procedures for costs determination and control.

In the picture 6, greatly simplifying, there is a concise representation of how analytical accountancy, thanks to a well designed and implemented information system that produces the necessary reports, is an indispensable tool for management to control the costs and the efficiency of internal processes and make the necessary optimizations. In this way from general accountancy that gives us only the total result as shown in the Balance Sheet, with values aggregated considering their "nature" (revenues or costs), we have "partial" costs to be aggregated according to their "destination" (that is cost 1 is for product A, cost 2 for product B and so on), typical of analytical accountancy.

⁶ D'Arconte C. (2016), *Critical Aspects in Business Communication*. PEP. Belgrade.Serbia

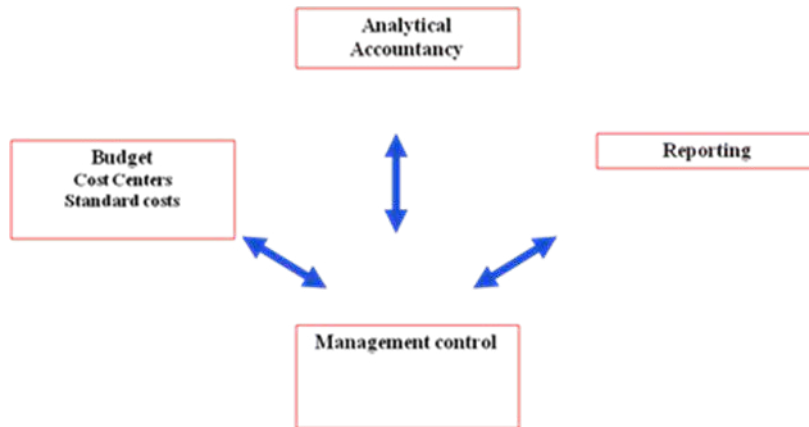


Fig 6. The fundamental elements of an analytical accountancy system

Thanks to analytical accountancy can also be created a close relationship between every revenue with the cost we sustained so to have the so called “accrual accountancy”, an accounting method that measures the performance and position of a company by matching correctly revenues to expenses. Incidentally this is also the only way for a company to be sure to evaluate correctly the costs when making an estimate and be able to make the right prices, a fundamental issue for all profit companies; it is also an excellent method to be able to assess the efficiency of internal processes and try to improve them.

These companies will obviously need much more than an excel sheet; first of all it will be necessary some support from a consultant to set up an analytical accountancy system that may allow to monitor the profitability of every activity and they will also need that a standard operational system may be personalized in line with the specific needs of the organization.

To set up all this, there will be no extremely expensive technology to buy, but an initial absolutely reasonable sound investment to have the system up and running, investment that may be recovered in a relatively short time considering that it will become a kind of compass for the management to monitor the production process and make the necessary optimizations. Here again we believe that it’s not a matter of technology but of entrepreneurial culture and of the difficulties managers have to understand the fundamental importance of analytical accountancy and of the necessity to invest on it.

5. Conclusions

The first fundamental conclusion is that most companies, in particular small ones, do not make use of technologies to collect the data they should need to manage successfully their business; in most cases, the balance sheet is the only incomplete and insufficient accountancy tool they have. In this regard, we highlighted two fundamental aspects with a very high impact on financial outcomes that companies should monitor continuously and that, on the contrary, seem to be very much neglected, namely customer satisfaction level and profitability.

Nowadays in Business Intelligence we have very effective technologies that nevertheless, apart from being very expensive, require high technical competences so that we run the risk that all remain the exclusive privilege of large companies that, in turn, represent in Italy – but most likely in most European countries – an extremely limited percentage.

In fact, in Italy, individual companies are approximately 60% and a large majority of them offer services of different nature; as we pointed out for them it would not be difficult to have a realistic representation of their customers' satisfaction level and profitability, due to the limited number of customers. As for profitability, it may be sufficient to make use of elementary technologies such as an evolved excel sheet or even better a simple data

processing system personalized on the specific needs of the organization. The same considerations may be extended to most of the micro (35%) and small companies (4,8%) that have respectively a staff of 2-9 and 10-49 persons.

Therefore an even more important conclusion is that the main problem here is not a matter of technology but of entrepreneurial culture that prevents companies from investing in relationships with customers as well as in internal fundamental analyses such as monitoring customer satisfaction and profitability, because they tend to neglect the customers they already have and they concentrate most of their efforts in an indiscriminate sales policy, namely a continuous research of new customers.

A last critical conclusion is that if in the case of entrepreneurs all this seems the logic consequence of the fact that most of them did not receive any managerial preparation, the rather disappointing results from students of Business Administration in different countries let us think that the problem is even more serious, namely that also the educational system might not be fully up to the task of preparing adequately students to become entrepreneurs.

6. Future outlook

What is the future outlook like and, above all, what can be done?

The first fundamental step should be understanding that entrepreneurs are the main pillar of our economic system as we highlighted in one of our recent contributions[†]; they take on great risks, pay a high price in case of failure, create labour, offer work to the people they need and pay them a salary with their own money; they are a real drive to socioeconomic development.

The state should therefore be much more proactive in their regard, and apart from better economic policies, taxes and fiscal drag, it ought to support much more entrepreneurs to start and run a business. Many initiatives should be fostered, such as the case of CNA (Cassa Nazionale Artigiani) in Italy, which organizes basic courses of management for entrepreneurs, or even better a state-run institution like the SEBRAE in Brazil, which systematically supports individual and smaller companies at all levels to start and run their businesses.

Another important intervention should concern the educational system and with regard to this aim, much more collaboration should be made with universities and companies, so to avoid concentrating too much on theory and focus much more on the practical aspects that are important in business.

Entrepreneurial competences lie also in the traits of everyone's personality and it would be rather difficult, if not impossible, to make certain kind of changes in a person; someone was born to be a quiet clerk happy to spend his life in an office among documents with little or no contacts with others, while someone else may be an extroverted salesman who feels fulfilled only having outside the company a lot of relationships. In the same way, we have to consider many other entrepreneurial traits such as need of achievement, propensity to risk and so on; this suggests that it would be excellent if people who wish to become an entrepreneur could undergo some specific personality tests such as F-DUPn a psychometric test that according to the authors of an interesting research (Egbert, H.; Neumann, 2014, page 20) makes it possible to measure personality traits considered to be important for entrepreneurial potential.

On the contrary, the competences necessary to run an established company, such as communication, marketing, production, accountancy and so on, may be learnt, at least the fundamental principles that really need entrepreneurs and from here the necessity of investing on practical and useful managerial courses.

Once that a better entrepreneurial culture is established, entrepreneurs will be more inclined and receptive to fundamental topics such as the vital necessity of customer satisfaction and of implementing an accounting system to monitor customers profitability.

The state should also provide incentives that can stimulate individuals and smaller companies to increase the size of their business so that entrepreneurs may more easily receive support from specialized aides, rather than doing everything on their own.

[†] D'Arconte, C. (2017) The Key Role of Human Capital and Entrepreneurial competences in Economic Growth. IIDS Australian INC

A last recommendation is for Engineers and technicians that are involved in developing technologies; as far as Business Intelligence is concerned we would recommend not to be fond of technology in itself, no matter how exciting scenarios this may possibly disclose in the next future but to try to focus on developing some application that may be useful for small companies that may be in line with our indications regarding analytical accountancy and costs control. For instance we believe that it would be possible to develop a standard application - maybe different standard applications according to different market sectors – that can be personalized according to the specific and quite often unique characteristics of every single company. Such applications could be devised and made available on some advanced technological platform, possibly cloud based, so that entrepreneurs may share, at a reasonable cost, at least the most basic services and relevant benefits that Business Intelligence can provide. If entrepreneurs were able to take advantage of the most elementary of supports, they would most likely be stimulated to improve their knowledge of Information Technology and to invest in it further.

Every entrepreneur should have every day on his computer or on his smart phone the fundamental data regarding his business and first of all the data about profitability and the updated progress of all his activities as well as a reliable budget with a forecast of sales, revenues and costs at least for the next future.

For this, apart from more entrepreneurial culture, some basic technology would be fundamental so to help him collect and analyze data; we generally are enthusiastic to speak about smart houses, self-stopping cars, robots, artificial intelligence in general and other exciting and stimulating aspects that most likely will change our next future, but in the meantime we should invest time and resources also in developing a simple and practical technology to support entrepreneurs who generally seem to be left to their own devices both from the state and from technology.

This seems rather illogic if we consider the critical role of entrepreneurs in our economic system; actually people are inclined to think that for an entrepreneur, being successful or unsuccessful is only his own personal problem. However, with due respect, it seems to be a new kind of myopia similar to what Lewitt (1960) long ago highlighted for marketing: it does not allow us to see how every company that shuts down represents not only a tragedy for the owner and the people working in it, but a real social tragedy that make all of us poorer than before.

We believe that investing in this direction may allow companies to fully exploit the potential benefits derived from technologies, with a consequent substantial benefit to the whole economic system.

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