Measuring performance in credit management

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Content

Measuring performance

Why measure performance ?

It Is obvious to us all that there are very good reasons to follow up performance of the organization we work for.

Performance measurement should give the answers to the following questions :

- Where are we now ?
- Where do we want to go ?
- How do we get here ?

This list of simple basic questions, despite the straightforward logic of it, may be a bit too simple.

Especially for the first one we may have to go into the different processes and events that are involved in getting to the current situation.

It will help us to analyze and discover what will happen if we don't change anything, and to decide on changes and improvements.

Unfortunately most performance measurement systems in companies focus mainly – in many cases exclusively - on the first question : where are we and how did we get there ?

But for many organizations it has by now become clear that we should not only analyze past events and performance, but also supply the relevant and correct information to decide on present and future actions that lead to reaching our corporate objectives.

By the way, these corporate objectives are the subject of the second question. The answer should be very explicit and known to everyone in the organization.

Single performance measure ?

Performance measurement will normally consist of a series of measures, since a company is far too complex to manage its performance based on a single measure.

Such a system of performance measures must

- Supply all the necessary information
- Contain no superfluous information
- Be practical and useful

These general requirements will be valid on a corporate level, but also for performance measurement for specific departments or functions.

Credit management performance

Financial Management of Sales

So before we start defining performance measures we have to decide what we really want to know, and of course how we can measure this.

When we consider credit management, it may be useful to start with a definition of what it is all about.

A good description of what credit management is, could be to define it as the 'financial management of the sales process', or also as the 'financial management of customer relations'

A major problem when we discuss the performance of the credit management department or function, is indeed the fact that credit management is very difficult to isolate from the other functions that are involved in customer relationship.

This means that we should really start by wondering what the results of good credit management can be, and what activities have to be performed to reach those results.

This kind of analysis will show us that there are very diverse aspects to and activities in credit management :

- Preventive : in the prospect phase of a potential customer credit management will have to determine the creditworthiness of the prospect. This will be the starting point for defining the credit conditions – payment terms, credit limit, discounts – that will be offered to this customer.

- At this point a second element comes in : the result of the analysis made by credit management must now become part of the negotiation basis, that is to be used by our sales team. This implies that our colleagues from the sales department have to abide to our recommendations the way we intend them to do. An important observation at this stage is that we must also make sure that the customer also (formally) accepted the terms and conditions.

- Once we have supplied goods or services to the customer the next important step is invoicing. We must realize that any error or missing formal requirements of the

customer in the invoice will be a reason (or an excuse) for the customer to slow down the payment.

- Once the (correct and complete) invoice was sent to the customer, the collection process will start. Some customers may not always respect the terms and conditions that we have agreed on, and some additional efforts can be needed in order to collect the payments.

The result of this all is that the performance of credit management is influencing and is in turn influenced by – the activities and performance of other functions, and that there are very diverse actions and activities in the process.

This also means that we can and should consider different viewpoints and approaches in measuring credit management performance:

- Preventive credit management : how good are we in analysing and predicting the creditworthiness of new customers – and in evaluating the same dimensions for existing customers
- How good are we in collecting the payments once the relationship with a prospect has been transformed in a customer relationship
- How good are we in working together with our sales colleagues in order to make sure that we have the same view, the same knowledge and the same approach towards the customers.

The final question is of course to what extent the credit management function will contribute to the corporate goals and strategy.

Performance measures in credit management

The concepts that we have developed here will now be translated into technical measures of the different aspects of credit management performance.

Besides the traditional measures we will also try and go beyond the traditional credit management scope and will integrate credit management - and the measurement of its results – in the corporate goals.

We will in the next chapter define and comment on some of the traditional credit management performance measures.

In the following chapter we will try to integrate it in a broader performance measurement scheme.

Traditional measures for credit management.

When we look for the most prominent and most popular measure in credit management it is obvious that the vast majority of CFO's and credit managers (and – let's hope - even some CEO's !) will come up with the DSO . DSO stands for Days of Sales Outstanding.

It is simply calculated by translating the amount that is due to us by our customers (the total of our accounts receivable) in a number of days . It is indeed very simple : if we have a sales volume of € 100 per day, and the total amount of outstanding receivables of € 4200, this corresponds to 42 days of sales – which can then be translated into an average payment term of 42 days.

Easy and straightforward – at first sight. Useful but on second thoughts : to handle with care.

There are indeed some critical elements to consider when we use this simple DSO definition :

- Not specific : preventive as well as collection aspects are involved
- Misleading in case of seasonal or evolving sales figures
- Payment conditions and behavior of customers may vary with product group, geography, level of competition, ….
- Does not offer a good insight into reasons of changes
- Can be influenced by disputes
- Does not consider the profitability of the customer relationship

The meaning and possible solutions for each of these problems will become clear in the next section.

Let's just start with an easy one : in case of a seasonal activity - or an increasing/decreasing sales volume there is a huge influence of this aspect on the result we measure.

Let's just take a look at the following numeric example

We consider the evolution of sales over the different months as shown in the table below.

When we consider that of this sales volume 40 % will be paid in the next month and the remaining 60 % in the following one, we can easily calculate the amounts of receivables at the end of each month (we have considered sales volumes of 500 in each of the preceding months)

	M3	M4	M5	M6	M7	M8	M9	M10
Sales	500	550	600	700	800	700	600	500
Accounts receivable	800	850	930	1060	1220	1180	1020	860

The amount of 1060 in M6 is calculated as follows : it consists of the total sales of the month (700) and 60 % of the sales of the previous month : 60 % of 600 = 360.

The basic definition of DSO is quite simple : we take the total amount of accounts receivable and divide it by the average daily sales over the period considered. This gives us the number of days of sales that are stored in our outstanding receivables.

An important question here is of course the one of the period to be considered : should it be the last month, or rather 2 or 3 months ? Or a whole year ?

Will this influence the result ? Of course it will, as soon as our sales figures are changing from one month to the other.

In our example we could calculate the DSO based on the sales of the last month : 30 days – so we will show it as DSO_{30}. And we also calculate the DSO based on the sales of the last 2 and 3 months resulting in DSO_{60} and DSO_{90}.

The results are shown here :

	M4	M5	M6	M7	M8	M9	M10
Sales	500	600	700	800	700	600	500
Accounts receivable	800	900	1060	1220	1180	1020	860
DSO30	48	45	45,43	45,75	50,57	51	51,6
DSO60	48	49,09	48,92	48,8	47,2	47,08	46,91
DSO90	48	50,63	53	52,29	48,27	43,71	43

And we see some strange things : despite the fact that payment behavior did not change, the calculated DSO differs from month to month. For the DSO_{30} we see a surprising evolution : where we know that the average payment term is   0.4*30 + 0.6*60 = 48 (the figure that also

shows in M4 based on the constant monthly sales of the preceding months M1 to M3) the DSO_{30} changes from 45 to 51.6 !

DSO_{90} also changes tremendously : it ranges from 43 to 53 !

The DSO_{60} seems to stay closer to reality. It shows values ranging from 46.91 to 49.09. In fact this is not really as surprising as it could be at first sight. The actual payments are indeed made within the first 2 months after the sales were made, so it is predictable that the measure that is based on the sales of these 2 months comes closer to the actual payment term.

More complex payment patterns with receipts spread out over 3 or 4 months would show that the closer the basis for calculation is to the actual payment term, the more accurate the resulting DSO will be.

Anyway we remain a bit unsatisfied with this result and may wonder how we could improve this.

A first possibility will be to use a so called count back DSO :

The computation is (just a little bit) more complex : what we do in fact is to subtract the sales of the consecutive months from the outstanding until the balance is equal to 0.

So we start by subtracting the sales of the last month from the outstanding. If there is a positive balance left, we subtract the sales of the previous month (or a fraction of it transformed in days), and so on until we have the whole outstanding balance handled.

Lets calculate the example for M9 : the total outstanding is 1020.

- We subtract the sales of the month – 600 – and still have a balance of 420 left
- This is compared with the sales of the preceding month : M8 had a sales figure of 700 - so we need 420/700 or 60 % of the sales of that month, corresponding to 60 % of the 30 days of the month this gives us 18 days.

So the total Count back DSO is 30 + 18 = 48 days.

We have found the correct result – or not completely ?

We have at least eliminated the effect of the changes in sales volume – or not ?

Let's just extend the example with some more complexity.

First of all we will introduce a more realistic payment behavior – unfortunately we will often see that some of our customers do not pay their accounts within the term that we agreed upon, in our example we had an average of 48 days. In reality we may have the following pattern :

- 40 % are paid after 30 days

- 30 % after 60 days
- 20 % after 90 days
- and for the remaining 10 % we will have to wait 120 days.

This results in a weighted average payment term of 60 days : .4 *30 + .3 * 60 + .2 * 90 + .1 * 120.

We will again calculate DSO_{30} DSO_{60} DSO_{90} and the count back DSO

	M4	M5	M6	M7	M8	M9	M10
Sales	500	600	700	800	700	600	500
Accounts receivable	1000	1100	1260	1450	1450	1330	1150
DSO30	60	55	54	54,38	62,14	66,5	69
DSO60	60	60	58,15	58	58	61,38	62,73
DSO90	60	61,88	63	62,14	59,32	57	57,5
Count back DSO	60	60	58	57,86	58,13	61,13	62,14

Or graphically
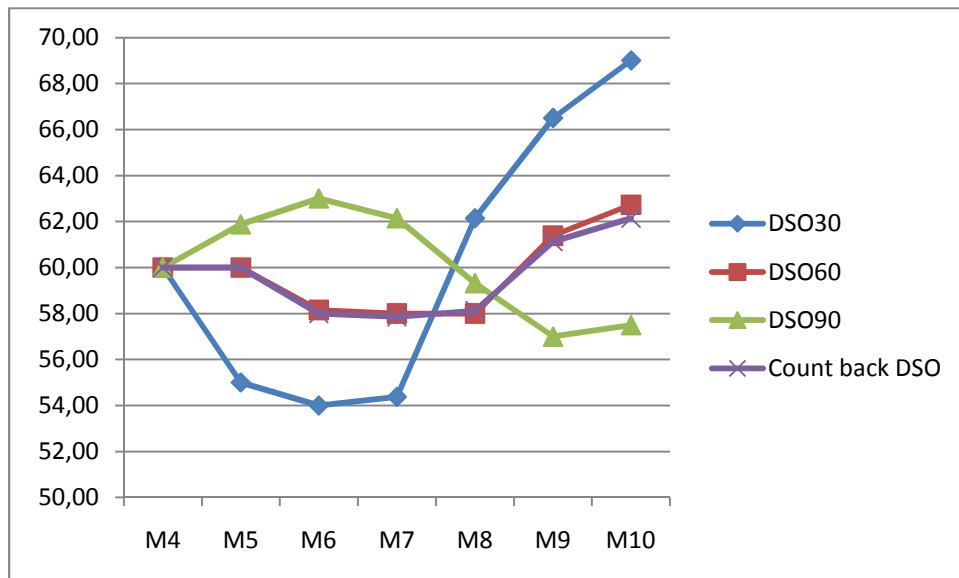
Here we can see that at the starting point (based on constant sales of 500 in the preceding months) all measures start with the real DSO that we have calculated.

When we take a closer look at the results in the following months we see that DSO_{30} is showing big changes. The poor credit manger who sees his performance measured by this kind of calculation will definitely not be very happy. We can also see that the changes are getting less prominent when the reference period is getting longer (or closer to the actual payment term). The count back DSO also stays relatively close to the actual value, but there again we see differences that are bigger than 2 days – which means a lot for the DSO !

This is of course due to the fact that in the case of the count back DSO we suppose that the outstanding receivables refer to the newest invoices, which is in reality not the case of course.

All this shows that the traditional DSO measure is not really a very reliable performance indicator.

And this will get worse when actual payment behavior really changes.

Remember that in this example we have always used the same actual payment pattern.

In the next example the payment term initially is the same as in the previous example, but from M7 on payments are slowing down : so we have the following pattern

% Payment after	M1-6	M7-12
30 days	40	30
60 days	30	40
90 days	20	15
120 days	10	15

We can see that the average payment term for the invoices of M1-6 is 60 days, whereas this becomes 64.5 days for the invoices from M7 on.

The effect on our performance measures is as follows

	M4	M5	M6	M7	M8	M9	M10	M11	M12
Sales	500	600	700	800	700	600	500	450	450
Accounts receivable	1000	1100	1260	1450	1530	1400	1250	1085	1005
DSO30	60	55	54	54,38	65,57	70	75	72,33	67
DSO60	60	60	58,15	58	61,2	64,62	68,18	68,53	67
DSO90	60	61,88	63	62,14	62,59	60	62,5	63	64,61
Count back DSO	60	60	58	57,86	61,29	63,75	66,43	66,75	66,3

As we can see there is a big overreaction for DSO_{30} – which could be expected, but also DSO_{60} is reaching a peak value of 68.53 days !

The count back DSO stays a bit closer to reality but it still shows an important difference with reality in M11

Is there a better alternative ?.

Well there is. The so called Sales weighted DSO is a bit more complicated to calculate but is will give a result that is a lot closer to the real payment behavior of our customers.

How is it calculated ? It is actually quite simple : the total outstanding amount of receivables is subdivided in fractions that correspond to each of the months. This allows us to calculate the fraction of the sales of each month that is still not collected. Adding up all those day fractions gives us the 'sales weighted DSO'.

An example to explain : we see that in M7 the total outstanding is 1450

Of this total amount

- 800 is from sales of the month – corresponding to 100 % of the sales of this month – this gives us 30 days
- 420 is from sales of M6 – this is 60 % of the sales of this month, giving us 60 % * 30 = 18 days
- 180 from the sales of M5, giving 30 % of 30 or 9 days
- Finally we still have 50 from sales in M4, 10 % * 30 gives 3 days

Totaling it all gives us : $30 + 18 + 9 + 3 = 60$ days

Completing it we find the following results :

	M4	M5	M6	M7	M8	M9	M10	M11	M12
Sales	500	600	700	800	700	600	500	450	450
Accounts receivable	1000	1100	1260	1450	1530	1400	1250	1085	1005
Total Days SWDSO	60	60	60	60	63	63	64,5	64,5	64,5

We can see now that the SW DSO changes from 60 to 64.5 days, along with the changing payment behavior. Should the change not be immediate from M7 on ? Of course not : the outstanding in a given month is the result of the payments of several preceding months and obviously not only of the payment term that applies to the invoices of that month.
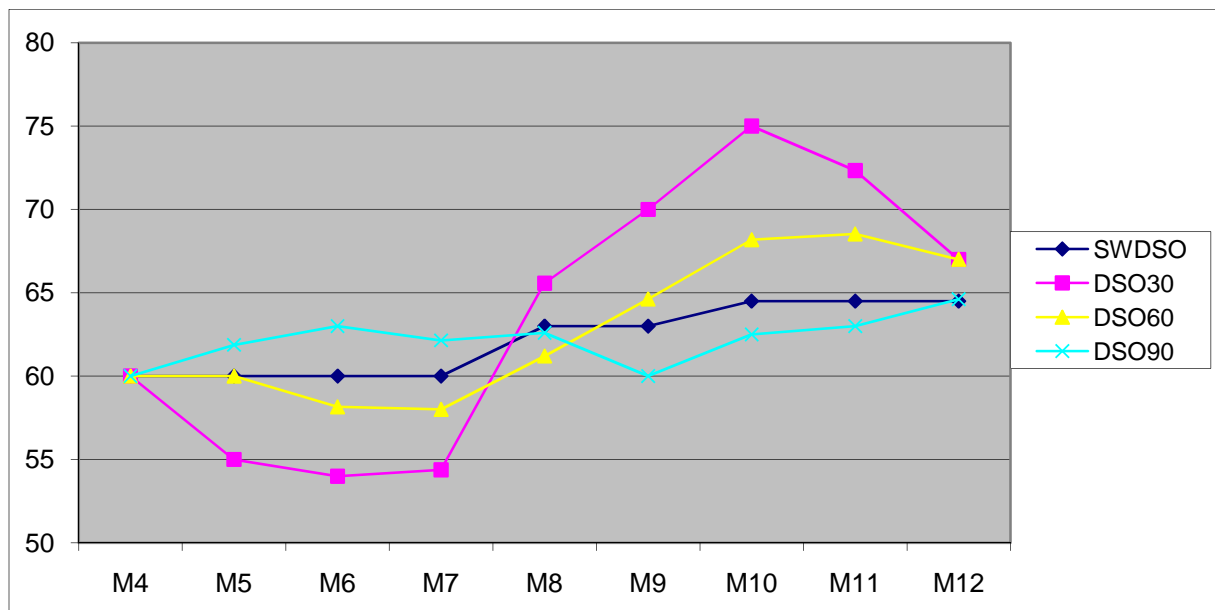
Observations

A general observation : we should limit this calculation to credit sales ! For most companies this is probably not an issue since they have no cash sales.

We should also decide on what we do with disputes. At first sight we would decide that disputed invoices have to be eliminated from this overview since in many cases the origin and the solution of the dispute is not the responsibility of credit management. This is of course not always easy to do, but there is another problem not all disputes are technical disputes, not all of them are really justified. In other words we may have part of the disputes that are in reality used as an alibi for late payment ! And there we come very close to the area of responsibility of credit management !

We may feel happy about our new solution, but there are still some other problems.
As we have mentioned in the beginning, credit management is a multifaceted function, and has to do with preventive aspects and collection, and is highly influenced by the behavior of for instance our sales colleagues.

This also implies that the result of our measurement cannot exclusively be attributed to credit management.

It could then be worthwhile to split up the payment term that we intend to measure with DSO and its variations, into the 2 parts that compose it :

- the agreed payment term : it results from the negotiation with the customer and should be based on a good evaluation of the customer's creditworthiness
- the excess period : not all our customers pay at the moment when we would want them to. This payment excess period is the result of our collection process, and the overall customer relationship.

We could do this by calculating the 'best possible DSO' based on the amount of current (i.e. the non due) invoices in the total outstanding, again translated in a number of days based on an average daily sales figure for the reference period. This indeed corresponds to the amount that would be outstanding in case of no overdue. In that sense it also corresponds to the DSO that would apply if all customers pay on the due date (we neglect the fact that some customers pay earlier than on the due date – why would they ?).

The difference with the total actual DSO represents the overdue – or the average days delinquent .

It is obvious that this approach carries all the possible deflections and misleading interpretations of the DSO itself.

Another quite logical measure for the performance of a specific aspect is the Collection Effectiveness Index. This measure that has a growing popularity is aiming at one aspect of the credit management process : the collection. As the name states we will try to measure the effectiveness of the collection processes. The approach followed is in fact quite simple and straightforward : we compare the actual amount collected during a specific period (normally a month) with the maximum amount that could have been collected. The result can indeed be considered to be a reliable measure for the efficiency of the collection efforts.

The goal of the Collection Effectiveness Index performance measurement index is to calculate which percentage of the total amount of receivables that could be paid in a certain period, is actually paid during that period. This figure indicates the percentage of the total non-current receivables that is paid.

The amount available for collection equals the current month's sales added to the total amount of outstanding receivables of last month.

The best possible score of the index is 100; the worst possible score of the index is 0.

The formula used is:

- the total amount collected is :

    Beginning receivables + sales of the month – Receivables end of month

- The maximum amount available for collection is

    Beginning receivables + sales of the month – Current Receivables end of month

Dividing both figures gives the CEI.

For our example we obtain the following figures – where we have supposed that the agreed payment term was 30 days –

	M4	M5	M6	M7	M8	M9	M10	M11	M12
Sales	500	600	700	800	700	600	500	450	450
Accounts receivable	1000	1100	1260	1450	1530	1400	1250	1085	1005
CEI	47,37	45,45	43,55	43,26	46,97	54,89	56,52	57,75	54,08

Since we are now at the analysis of specific aspects of our credit management it may also be worth while to take a closer look at the preventive part : we intend to approve as much as possible, without however increasing the risk.

2 aspects can be considered here.

The first one would be to calculate the Approved Credit Ratio. It is calculated as follows:

Approved Credit % = $\dfrac{\text{Approved Credit X 100}}{\text{Total Number of Credit Applications}}$

This ratio provides a performance measurement for credit approval. This ratio provides proof (or otherwise) that the credit function is not the function trying to prohibit sales but the

function promoting profitable sales. When using this ratio, it is recommended to indicate the declined forms and to point out the reason/s why the forms were declined.

It is also worthwhile to look at the cases where we did make mistakes in the credit scoring – or where the conclusions of that process were not implemented.

This happens when we are facing bad debt, i.e. invoices that are not paid and are transformed in losses.

The Bad debt to Sales ratio is calculated as the % of sales that is not paid.

$$\text{Bad debt to sales} = \frac{\text{Bad debt} * 100}{\text{Sales volume of the reference period}}$$

It is obviously recommended to relate the bad debt to the sales volume of the period when it was invoiced, and not to the sales volume of the period when the bad debt was recognised.

The final identification and recognition of bad debt is indeed very often quite some time away from the moment when the goods were supplied and the invoice was issued.

We can calculate the bad debt ratio on a monthly basis, but if – as we hope – bad debts will be rare and exceptional, the ratio can vary from month to month. So it could be better to consider a longer time frame (trimester or even year).

In this case as well it will be necessary – if we really want to learn something from the result – to keep track of the reasons of the bad debt.

Credit management and corporate objectives

Another aspect of credit management is obviously as already mentioned, the combination of different tasks and aspects, combined with the need to collaborate with quite some other functions.

Given the combination of preventive credit management (determine the optimal conditions), negotiation in credit terms with the prospect / customer, and collection of overdue, it is not really simple to find a unique measure for the evaluation of the credit management. Some of the traditional measures either reflect the combined effect of all the different aspects mentioned above. We have also tried to define different performance measures where each points at one specific aspect of the process. This is what we have done by splitting up DSO in Best possible DSO and Average days delinquent. Of course the inherent problems of influence form seasonality of other variances in sales remain.

And just to make things a bit more complicated : in all the aspects of this process – and thus in all the performances elements that we wish to measure – other elements than the purely financial performance are important objectives or constraints.

The customer relationship is a typical example of such an element for credit management that is not reflected in the performance measures that we have defined. Also the importance of gaining and sustaining competitive advantages in specific markets is not considered in these measures. Specific technical aspects of the customer relationship that are managed or influenced by the credit management function, and may be worthwhile to measure, are for instance customer queries (speed and quality of our response).

This kind of problem is of course not exclusive for credit management. The traditional performance measurement systems and techniques for corporate performance suffer from the same kind of limitations. Traditional systems will very often be linked to accounting systems. There is of course a very solid argument in favor of this approach: it is always easier to rely on data and information that is already available, rather than having to collect new data. And the primary source of information is in most cases the accounting system. First of all the general ledger, or if available already a step further the management accounting system. However the same limitations remain valid : we are looking at mainly financial (or at least quantitative) data on past performance. On the other hand one of the important objectives in our performance measurement is – besides looking at past performance – to have an idea about the potential for future performance.

On a corporate level the vision on the future situation of the company is translated in its strategy and vision.

Surprisingly enough corporate performance measurement systems have in many cases no relationship whatsoever with the corporate strategy.

This problem was the starting point for Kaplan and Norton for the development of what they called the 'balanced scorecard'.

The basic idea is to set up a corporate performance measurement system that allows to measure to what extent the performance of the company is in line with the strategy. This also means that this system will (have to) be future oriented !

They found that in order to measure this all, there are 4 important perspectives to consider :

- Financial perspective : corresponds to a certain extent to the traditional measures of corporate performance – emphasis is here on shareholders interest

- Customer perspective : the relationship with customers is a key element for the future development of the company

- Internal processes : what are the critical processes in the operations, and how good do we perform them.

- Learning and growth : how well are we prepared for the future ? How strong is our commitment in preparing the future evolution.

Building the balanced scorecard means that we will set up a system allowing to 'measure' how good we are performing in each of those perspectives. This will be done by defining and using critical success factors (CSF) for each dimension.

In fact in quite some cases it may be better to start with the 'strategy map' : this is a graphical presentation of the critical success factors that resulted from a thorough analysis of the elements that contribute to the strategy, and the mutual influence between the CSF's. Once this is done one can attribute them to the different perspectives. It is definitely not a good idea just to bring together (or to copy from another company's Balanced Scorecard system) a series of factors in each of the 4 perspectives, and to define them as the critical ones !

A fundamental element here is to find the right balance between the different perspectives.

The next step then is to define Key Performance Indicators for each of the CSF's, and the measures that correspond to those.

All this means that the Balanced scorecard is a very relevant and important new approach to measure the corporate performance and the fit of it all with the corporate strategy.

But on the other hand, when not well designed, it can be dangerous : a Scorecard system that is not 'balanced' or that is not adapted to the strategy and the processes of the company can give misleading signals, exactly the effects we wanted to avoid !

Is it possible to use this approach not only on a corporate level, but also for departments, business units or specific functions (such as credit management) ?

The answer is obviously positive, but here again the investment in the development of the system can be an important one.

A first warning here is that we should avoid to stick too strictly to the 4 perspectives that were defined by Kaplan and Norton for the corporate BSC. It can very well be that for a specific functional BSC some of the perspectives become less important, but another perspective may become relevant. Here again the definition of the Critical Success Factors is the key element.

It is obvious that for credit management the financial perspective will be a very important one. We could even to a certain extent rely on our traditional measures, but we will combine them with measures that refer to the CSF of other dimensions. That customer relations are relevant will be clear – although it may very well be that the relationship and the communication with the sales department are the key issues.

Optimization of internal processes may require good information flows and a good collaboration with all the other departments involved (it may include ICT, production, quality, field services and of course sales).

The specific CSF for credit management in a given company will depend on

- Corporate culture
- Degree of ICT support
- Decision taking power of credit management (recommend credit limits to sales or make the decision that is mandatory)
- Extent of the credit managements authority (direct involvement in collection, responsibility for dispute management, …)

We have had the experience of developing a functional Balanced Scorecard for the credit management of different corporations. The differences between them were huge ! Some factors will nearly always come back – especially in the financial perspective. Others that appeared quite regularly were : good procedures, good communication with sales, motivation of staff.

But other CSF's were really specific for a given company, in line with the specific industry, customer relations, corporate culture and of course the vision and strategy of the company !

Conclusion : the balanced scorecard can be a very good solution for measuring the performance of credit management, but it requires a very fundamental analysis of all processes involved (as such a excellent idea) and should ideally fit into a company wide BSC system.