

# Use of the Balanced Scorecard for ICT Performance Management

Jan de Boer, Joachim Vandecasteele and Ken Rau

The financial performance of Information and Communication Technology (ICT) organisations has always been under close scrutiny. To assess the overall performance of an organisation, various management methods and tools have been implemented, but only to a limited extent. The well-known Business Balanced Scorecard can also be applied in an ICT environment to provide the different stakeholders with performance information.

## Introduction

The need for adequate ICT control and management is growing rapidly as organisations relentlessly step up the pace and increase the size of investments in ICT. Dependence on reliable, continuous and competitive ICT systems is growing accordingly. As a result, organisations, and hence ICT departments, are under increasing pressure to achieve an above-average performance using ICT. The various stakeholders, including executive management, line managers, the ICT manager, audit and regulatory authorities, shareholders, suppliers and customers, therefore require better insight into whether ICT strategy and the operationalisation of that strategy yields added value without generating unwarranted risks.

Remarkably enough, the current day-to-day control of ICT organisations in general is still limited to annual budgeting rounds and subsequent monthly financial reporting. In the case of new ICT developments, project overviews are frequently used, the main input of which consists of descriptive qualitative data. The operation and management of ICT is usually monitored with the aid of up/downtime and helpdesk statistics. This monitoring is often organised on an ad hoc basis. No correlation exists between the various reports, nor is there any relationship with the business strategy. As a result, most organisations lack a well-structured performance management system for ICT.

This article looks at how performance management can be applied to ICT on the basis of the Balanced Scorecard. First of all, the meaning of the term 'performance management' is briefly discussed. Secondly, the theory of the Balanced Scorecard is explained. The growth phase model of the ICT organisation is also taken into consideration, given that the way in which performance management is set up strongly depends on the organisation's level of maturity. Finally, a description is given of how the Balanced Scorecard can be used for each ICT growth phase.

## Performance management in ICT organisations

In order to decide which performance areas require performance management, it is important first of all to determine the role and added value of the ICT organisation. This may vary from business management and ICT management to ICT supply management. The latter, incidentally, is now increasingly a separate entity within ICT organisations. Secondly, in extension of this role, the planning & control process must be carefully designed to determine the objectives and monitor their realisation.

It is important to determine the role and added value of ICT from different angles, preferably from the perspective of each stakeholder. Every stakeholder has his own questions after all, which the organisation must be able to answer. Table 1 [Saul00] provides examples of the various stakeholders and their respective queries.

In order to answer these and other questions it is important to monitor the processes concerned. However, this should never be confined to financial monitoring alone. As the saying goes: 'If you can monitor it, you can manage it'.

This process is operationalised by means of performance management. Performance management can be described as:

*a management process rather than a steering mechanism, aimed at setting objectives (planning) and monitoring whether these objectives are achieved by the organisation (control).*

In applying performance management, the organisation must first form a clear notion of what it considers important. The monitoring of the most significant aspects links up with the management cycle and also shows who is responsible for what. Important issues are identified by means of performance management and can thus be analysed. In this context, the monitoring of performance ranges from the use of simple transparent indicators to that of complex monitoring systems. Various aspects can be monitored, such as finance, efficiency, effectiveness, service, etcetera.

Stakeholders perspective	Key questions
Board of Directors Executive Management Committee	<ul style="list-style-type: none"> <li>* What value does ICT add?</li> <li>* Does ICT enable or retard growth?</li> <li>* Does ICT stimulate organisational innovation and learning?</li> <li>* Is ICT well managed?</li> </ul>
Line of Business Management Customer	<ul style="list-style-type: none"> <li>* Are our ICT investments profitable?</li> <li>* How does ICT affect the customer's experience?</li> <li>* Does ICT improve productivity?</li> <li>* Does ICT put us in a position to meet future market demands?</li> </ul>
Risk Management and Regulatory Management	<ul style="list-style-type: none"> <li>* Are the organisation's assets and operations protected (incl privacy)?</li> <li>* Are the key business and technology risks being managed?</li> <li>* Are the proper processes and controls in place?</li> <li>* Are we doing the right things?</li> </ul>
ICT Organisation	<ul style="list-style-type: none"> <li>* Are we effectively managing our service and technology providers?</li> <li>* What do we need to improve to meet our objectives?</li> <li>* Have we satisfied all key stakeholder interests?</li> <li>* Are we able to attract/retain the talent we need?</li> </ul>

Table 1. Stakeholders perspective.

The advantages of implementing performance management are:

- \* a clear view of the realisation of strategic financial and non-financial objectives;
- \* an explicit definition of key performance indicators for success (enabling monitoring);
- \* the application of forecasts and action-oriented reporting;
- \* consistent management information at strategic, tactical and operational levels (drill down);
- \* the results serve as a guideline for communication within the organisation;
- \* the promotion of a results-oriented culture;
- \* opportunities to benchmark the organisation.

Various models can be used to set up performance management, e.g. McNair's Performance Pyramid, the Effective Progress and Performance Measurement Model by Adams and Roberts, the EFQM model and the Balanced Scorecard model by Kaplan and Norton. The Balanced Scorecard is used more and more in practice ([Kapl97]). This model was developed in order to provide a performance management system which aims to create an ideal balance between objectives in the short and long term, between financial and non-financial monitoring and between internal and external performance perspectives. The model recognises that

financial performance is important but the emphasis is placed on the fact that the basis for good financial performance consists of satisfied customers, a high level of innovation and internal business processes that run smoothly. Practice has made it clear that the Balanced Scorecard is also particularly suited for measuring the performance of ICT organisations.

The Balanced Scorecard translates the vision and strategy of the enterprise into concrete objectives, organised along the lines of the four different perspectives: the financial perspective, the customer perspective, the internal processes perspective and the learning and growth perspective. Together, these perspectives constitute the framework for the Balanced Scorecard. Figure 2 shows a version of the Balanced Scorecard based on Kaplan and Norton.

The central issue for each perspective is defined. Each perspective requires the identification of critical success factors (CSFs). These indicate the areas in which the organisation should excel in order to achieve its strategic objectives. These success factors or 'Do Wells' should be similar to organisational core competencies. For each CSF, key performance indicators (KPIs) are fixed. These provide a quantitative indication of the degree to which the CSFs are achieved.

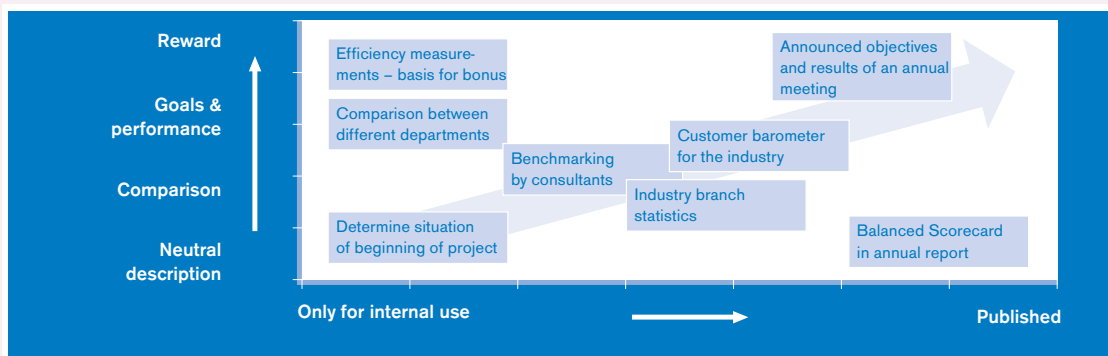


Figure 1. Various objectives and applications of measurements [Olve96].

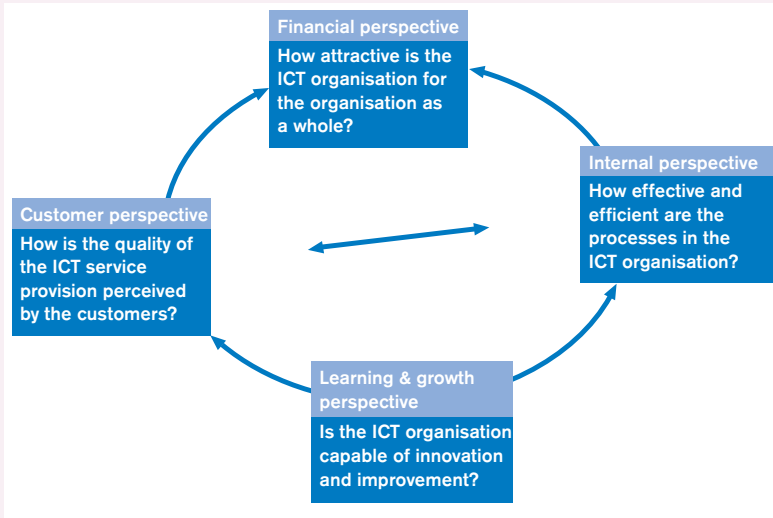


Figure 2. Balanced Scorecard [Kap196].

The Balanced Scorecard has a number of other important features. The financial and customer perspectives in particular, are characterised by a clear ‘outside-in’ approach. In other words, the view which customers and stakeholders have of the ICT organisation. In practice however, the concept of focus is used but this primarily concerns an ‘inside-out’ approach. For example: ‘How does the ICT

organisation view the customer?’. The time horizons of the perspectives are also distinct. These vary from a relatively short period of time for the financial perspective to the long term for the learning and growth perspective.

Our experience is that, by applying the Balanced Scorecard, cause and effect relationships become clear. These relationships allow us to identify the consequences of a performance level in one perspective on the performance level in another perspective. These cause and effect relationships are used to prevent sub-optimisation.

Another distinctive feature is that KPIs need to be SMART: Specific, Measurable, Ambitious, Relevant and Time-bound. On the other hand, they should have a positive impact on behaviour and it should be possible for managers to exert influence on them. Only if the KPIs meet these quality standards, can performance management provide ICT managers with a relevant picture.

In order to establish a picture of the performance of the ICT organisation and to be able to make better decisions, periodic reports are created relating to the various KPIs. Figure 3 is an example of a KPI report for ICT.

Figure 3. Sample Balanced Scorecard.

Balanced Scorecard Example										
Strategic objectives	Measures	Business proponent	2000 Baseline	2001 Target	Dec	Jan	Feb	Actual YTD	Plan YTD	B/(W) Plan
Grow revenue	1. Revenue by product/service	K. Gilbert/ M. Baumli	\$ 710	\$ 940				\$ 768	\$ 660	
	2. # and % of active online customers	K. Gilbert	104,000 48%	419,000 72%				246,000	268,000	
Retain value customer	3. # of incremental and total online customers	K. Gilbert	120,000 260,000	160,000 480,000				28,000	41,000	
	4. Profit (value) per customer and portfolio (blended)	M. Baumli	\$ 240	\$ 280		QTRLY	QTRLY	\$ 250	\$ 258	
Maximize reliability	5. Weighted internet availability	L. Gasparini	96.3%	98.9%				94.2%	98.9%	
	6. Response time (open net account summary)	L. Gasparini	18.2 sec.	15 sec.				15.2 sec.	18 sec.	
Effective marketing	7. Acquisition cost per enrollment	K. Gilbert	\$ 28.16	\$ 18.29				\$ 24.16	\$ 21.8	
Manage attrition	8. Customer satisfaction ratio	R. Wallace	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
	9. Online checking attrition rate	K. Gilbert/ R. Wallace	16.3%	11.0%		QTRLY	QTRLY	13.8%	14.2%	
Superior leadership	10. Weighted competitor index measurement	M. Baumli	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
Superior service	11. Bill pay claim ratio	S. Geraghty	2.6%	0.9%				2.1%	1.6%	
	12. Telephone total service factor	R. Wallace	77.2%	86.0%				83.0%	82.0%	

Greater than 5% worse than plan
 Within 5% of plan
 Greater than 5% better than plan

Reporting of this kind is referred to as Balanced Scorecard reporting. For the vast majority of the KPIs, a monitoring frequency of one month is required in order to establish an adequate picture and in order to make precise forecasts. Performance forecasts can be made on the basis of past results and an understanding of cause and effect relationships. The quality of the forecasts can be assessed after the event in order to learn from it and make the necessary adjustments.

The final feature of a good Balanced Scorecard: a mix of results adapted to the organisation ('lagging indicators') and performance drivers for the achievement of strategic objectives ('leading indicators'). Short-term KPIs of a financial nature are mainly lagging indicators. Non-financial KPIs with a long-term focus are generally the performance drivers. With the financial indicators it is also possible – for the monitoring of costs and income – to apply management accounting principles that are different from financial accounting principles.

### Balanced Scorecard for ICT organisations

#### Linking business and ICT objectives

Organisations that use the Balanced Scorecard to derive a Business Balanced Scorecard, will recognise the need to first derive objectives specific to ICT before identifying indicators of ICT performance. Here, the desire to link organisational objectives with ICT objectives is finally realised. As a first step in the development of the Balanced Scorecard for ICT, the business strategy is analysed to identify strategic business intent. For each strategic business intent, one or more ICT objectives are identified that describe how ICT can contribute. These objectives, which are not necessarily equal to the business objectives, are then used in the identification of performance indicators for ICT as described below. In this way, ICT objectives are inextricably linked to business direction and strategy.

### Financial perspective

#### Theory

The financial perspective of the ICT Balanced Scorecard comprises the more traditional indicators for establishing the organisation's financial position. The factors measured here are those that generate proceeds for the shareholders.

#### Looking back

No matter what action is taken within an organisation, it always leads to a positive or negative result that is expressed in financial terms. The financial perspective is the perspective that ultimately reveals the economic effects (of the other three perspectives). Financial performance monitoring shows whether an organisation's strategy and its implementation of that strategy contribute to the improvement of the 'bottom line' or 'top line'.

#### Cause and effect

The financial perspective contains the financial ICT indicators. The traditional indicators usually refer back to the organisation's performance in the recent past. They basically provide a reflection of decisions made. Examples of key performance indicators in relation to ICT projects are the return on investment (ROI), the economic value added (EVA), growth in net result, the added value per employee and various cost ratios. A cause-effect diagram (see figure 4) can be useful in this context.

#### Looking ahead

It is also possible within this perspective to think of indicators for future results, e.g. sales growth in a new target market. In addition, the performance in the other perspectives can also serve as an early warning for future financial developments. For instance, the quality of product innovations can be assessed in the internal perspective, while the net profit on new products is used as an indicator in the financial perspective.

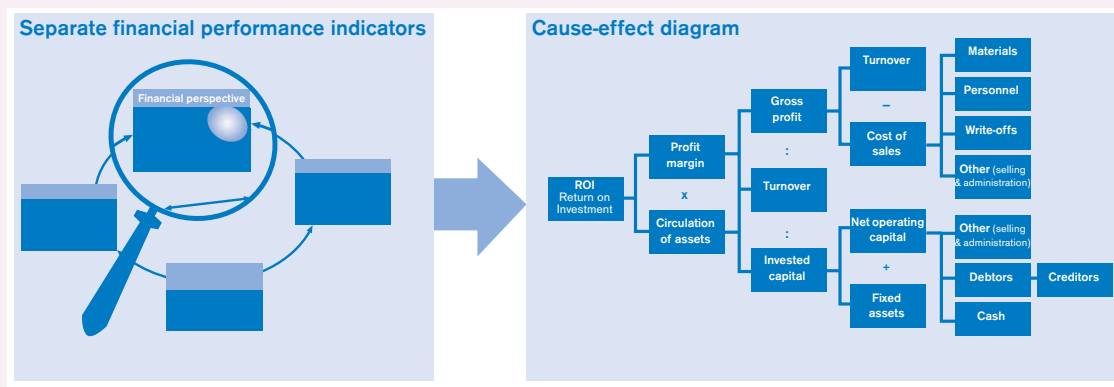


Figure 4. DuPont cause-effect diagram.

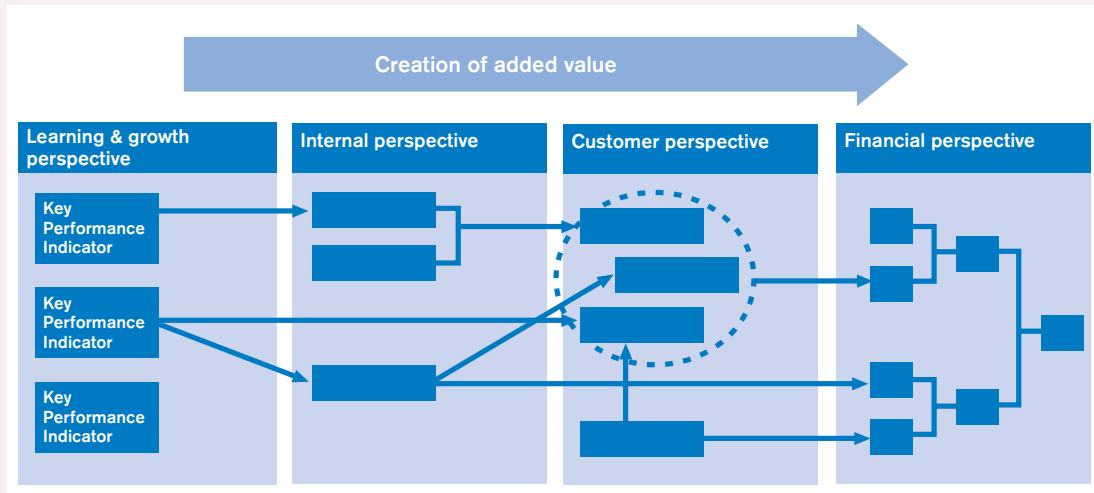
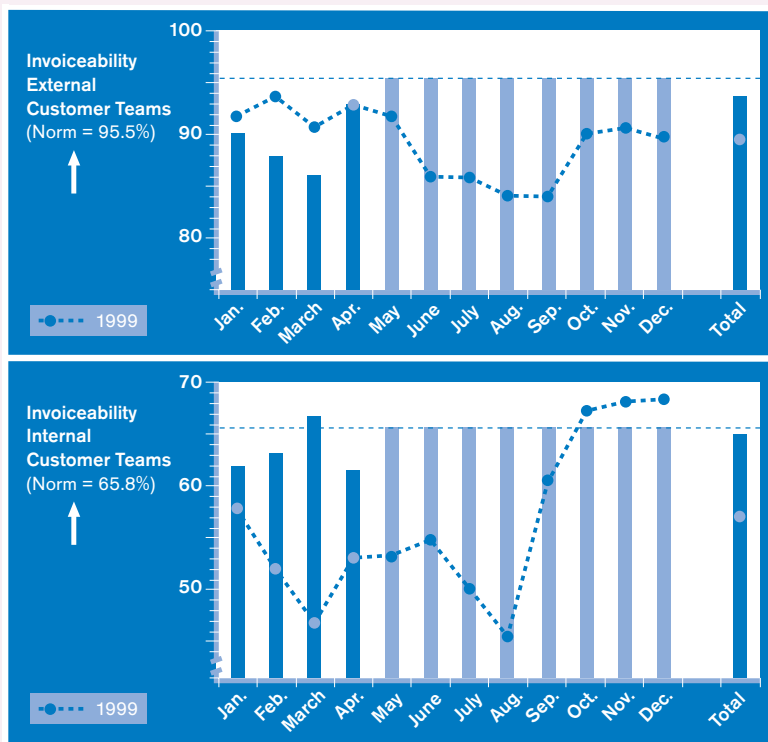


Figure 5. Relationship Key Performance Indicators and Scorecard.

### Practice

In the Balanced Scorecard (see figure 6), the organisation's management strategy within the financial perspective is aimed at improving management information and achieving a performance level in line with the market. The indicators used here include: reliability of provisions, reliable financial forecasts, invoiceability of ICT customer teams and the internal/external staff ratio. The invoiceability of the ICT development teams over the past months is indicated below. In addition, a (budgeted) forecast is also given for the remaining months, as well as the trend in 1999.

Figure 6. Sample Invoiceability report.



### Analysis

In April, the invoiceability of internal staff was lower than budgeted for. The invoiceability of external staff increased in April but still remained below the norm. The failure to achieve the invoiceability norm for internal staff was due to the public holiday(s) in April and a higher rate of absenteeism. The number of hours worked on internal projects is also clearly below the norm.

The invoiceability of the external staff increased because fewer hours were spent on internal projects. In addition, less time was devoted to departmental activities. In the last quarter of the financial year, the organisation can try to prevent the absenteeism peak in the previous year by introducing interesting assignments and a clear vision for the future.

### Customer perspective

#### Theory

The customer perspective of the Balanced Scorecard centres around a single question: 'how does the customer perceive the quality of the ICT service?'. The customer has steadily become more significant in recent years. In the past, organisations were able to compete on the basis of the quality of their products and services as well as technological innovation. Today, organisations are focusing primarily on customers and their specific needs. It is extremely important in this context to carefully select one's market segments and customer groups. Businesses that try to be everything to everybody usually end up meaning nothing to nobody.

#### Looking back

Once the organisation has established what its market segments are, it selects the objectives and the type of monitoring required for the chosen segments. As a rule, organisations select two groups of monitoring criteria for their customer perspective. The first group consists of common criteria used by virtually all organisations. In organisations whose departments are not obliged to use the internal ICT service, this core group includes general indicators such as:

- \* market share;
- \* customer loyalty;
- \* customer acquisition;
- \* customer satisfaction;
- \* customer profitability.

A number of general indicators can be found on virtually every Balanced Scorecard. Customer satisfaction is of course crucial to almost every organisation. Yet it is surprising how few organisations have insight into e.g. the profitability per customer. Many customer portfolios are therefore managed without this key information. Being forced to think about what is important to know about which customers, often proves to be a very valuable exercise.

### Looking ahead

The second group of monitoring criteria is based on a number of more in-depth assumptions, namely the added value propositions. This group of criteria represents the features that suppliers provide with their goods and services in order to promote the level of satisfaction and loyalty among their customers. Added value propositions thus lead to product differentiation. The characteristics of these added value propositions can be subdivided into the following three categories:

- \* characteristics of goods and services: functionality, quality, time and price;
- \* customer relations: quality of purchasing experience and personal relations;
- \* image and reputation of the product or service.

The particular significance of this second group of indicators in the Balanced Scorecard is that these indicators provide insight into future customer behaviour while the general indicators look back at how customers valued the organisation in the past.

### Practice

In the Balanced Scorecard of an organisation, the management strategy within the customer perspective is designed to achieve clear products, services and prices, a good relationship with satisfied customers, a project-based approach and good cooperation between the customer and the ICT organisation. These are called the critical success factors for the customer perspective.

Taking these critical success factors as a starting point, various quantifiable indicators have been defined. Examples of these are 'performance according to SLA norms', 'realisation of projects according to plan' and 'trackable progress of projects'. For this perspective we have looked more closely at part of the 'performance according to SLA norms'.

### Analysis

May shows an upward trend in the incident resolution times, as can be seen in the first diagram of figure 8. The norms for priority B and priority C incidents are easily met. After a decline in April, the figures for priority A incidents also improved in May, though the norm for priority A incidents is not yet achieved.

The second diagram also displays an upward trend for the delivery of standard workstation equipment, though the performance here still falls considerably short of the norm. Dealing with other non-standard workstations shows a downward trend and the norm is not met. The results of implementing authorisations are inferior to the previous months; this norm is not realised.

### Internal perspective

#### Theory

The internal perspective of the Balanced Scorecard considers factors that indicate: 'How effective and efficient are the processes of the organisation?'. As described in the customer perspective, it is extremely important for an organisation to gear its operations to the requirements and needs of its customers. To cater for these needs, customer-focused measures must be transformed into internal measures that are designed to meet the customer's expectations. After all, in the final analysis, an excellent customer service is the result of the processes, decisions and activities that take place within the organisation.

Figure 7. Price/quality ratio.

#### Price/quality ratio as perceived by customer

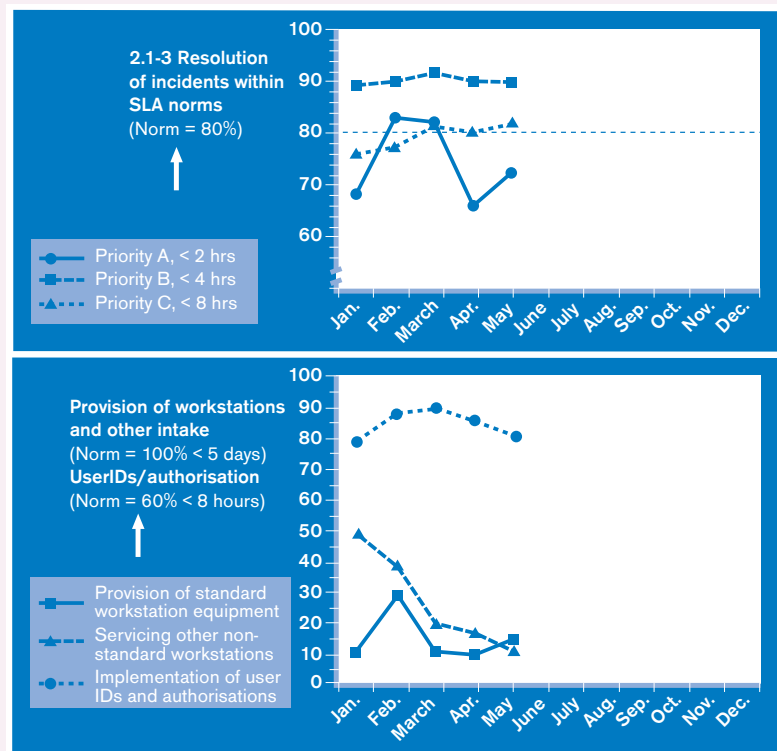


Figure 8. Sample Operations reports.



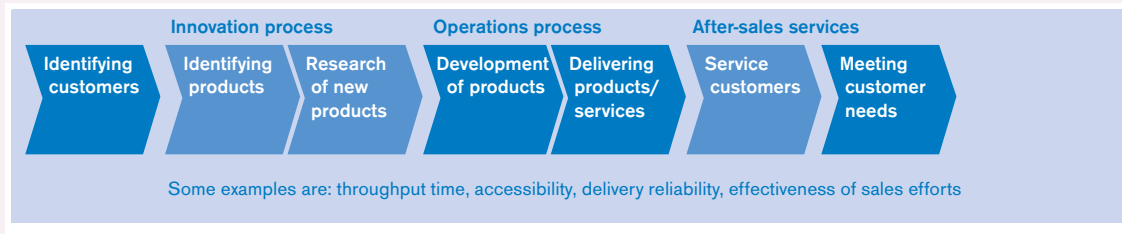


Figure 9. Value chain processes [Kap97].

Managers must focus on the critical internal processes that enable the organisation to meet the customer's needs. Primary processes, for instance, need to be improved with regard to quality, time, productivity and costs. Perhaps even more important is to fine-tune these processes to the strategy in order to avoid any inconsistency between operational activities and long-term objectives. The objectives and performance indicators for this perspective can therefore only be developed in practice, after the management has prepared the objectives and performance targets for the financial perspective and the customer perspective.

#### Value chain

The internal processes assessed in the Balanced Scorecard are the most important processes for delivering goods and services to the customer. Every organisation comprises a unique complex of processes by means of which it is able to create added value for customers and achieve financial results. Kaplan and Norton have developed a standard model for adding value which may serve as a framework for the design of the internal processes perspective.

The value chain consists of three essential business processes:

- \* Innovation process: sudden and latent customer needs are traced, after which goods and services are developed to cater for these needs.
- \* Operational process: ensure the production and delivery of existing goods and services to customers. This is the traditional focus of performance measurement systems. Cost reduction and operational processes that run smoothly, remain important objectives.
- \* After sales service: in this phase all activities are aimed at managing the relationship and adding value to the customer to whom a product or service has already been delivered.

#### Focus

It is essential that all processes – not just the most obvious ones – are held against the light. If the production department is highly efficient but the post room takes three weeks to dispatch parcels, there is little point in (only) screening the first. Not all process indicators can be included in the Balanced Scorecard. Remember that the significance of the scorecard lies in its focus. It is therefore best to select processes that are in need of improvement and opt for a small number of relevant process indicators.

#### Practice

In the Balanced Scorecard of this organisation, the management strategy within the internal processes perspective is aimed at realising effective ICT development and management processes that are firmly embedded in the organisational structure; at realising operationalisation of supplier management; and at realising integration of the various branches.

The indicators applied to this customer situation are:

- \* Development processes partly at CMM<sup>1</sup> level 2;
- \* Operational SLM<sup>2</sup> processes at level 3;
- \* Operational partnership with key suppliers;
- \* Performance of principal suppliers;
- \* Integration in conformity with road map.

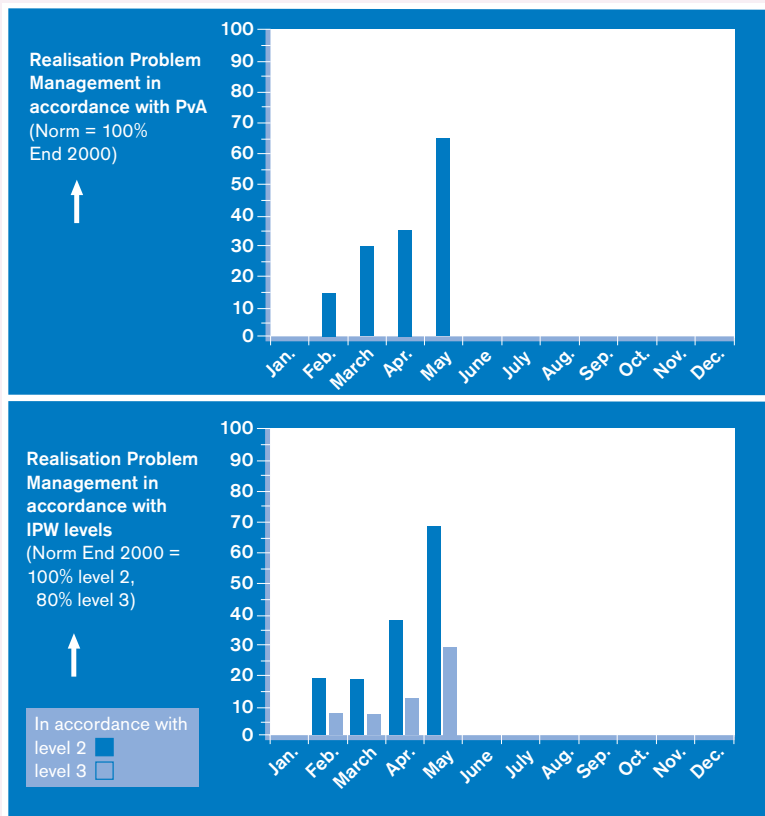
The Key Performance Indicator 'Operational SLM processes at level 3' for Problem Management is shown in figure 10.

#### Analysis

In the case of Problem Management, a lot of time is spent on the coaching of staff with respect to analysis. In May, significant steps were taken towards the implementation of the plan of approach, but the performance was still substandard (same level as previous month). On the other hand it does appear

- 1) CMM: Capability Maturity Model  
2) SLM: Service Level Management

Figure 10. Sample Problem Management reports.



that this deficiency is being tackled consistently and seriously. In that same month, progress was also made with respect to the audit items for levels 2 and 3.

In the case of Change Management, the implementation of ITSM (support tool) is helping to accelerate the process. Progress is being made but close monitoring remains essential in view of occasionally unexpected tensions. At the current rate of improvement, CMM level 3 can be achieved by the end of 2000.

### Growth and learning perspective

#### Theory

The central question in the growth and learning perspective of the Balanced Scorecard is: 'Is the ICT organisation capable of innovation and improvement?'. Today, many organisations operate in a highly dynamic environment. The fourth perspective of the Balanced Scorecard contains objectives and monitoring criteria with which to improve the organisation's growth and learning process. These objectives usually concern the staff, the information systems and the internal procedures (see figure 11). This comprises the infrastructure that the organisation needs in order to attain the objectives in the other three Balanced Scorecard perspectives.

In many organisations the introduction of the Balanced Scorecard not only causes many changes for the management, it also marks the beginning of a process of radical change for the ICT staff. In order to realise the organisation's objectives contained in the internal processes perspective and the customer perspective, staff must be prepared to adjust and to take on completely new responsibilities. Front line employees should increasingly provide the ideas for improvement in customer service. After all, they are in direct contact with the customers.

#### Intangible

The staff gets to play a different role. The routine makes way for a more proactive and customer-focused approach. People look out for possible improvements. This means that managers and senior staff must be given optimal support and access to relevant up-to-date information on customers and internal processes. But even if an organisation has proactive, well-trained personnel with access to relevant information, they will still be unable to contribute towards the organisation's success unless clear procedures have been laid down. These procedures should define the extent to which the employee is free to make decisions independently. Where applicable, they must also make clear how the reward system is linked to the profitability of the organisation.

The growth and learning perspective is the most abstract of the four Balanced Scorecard perspectives. It nevertheless includes indicators relating to staff satisfaction, staff performance and their ability to learn and adjust. This perspective also includes indicators that allow the organisation to adapt quickly to changing market circumstances. Some organisations will find that the flexibility of their ICT department plays a crucial role, while for others the ability to

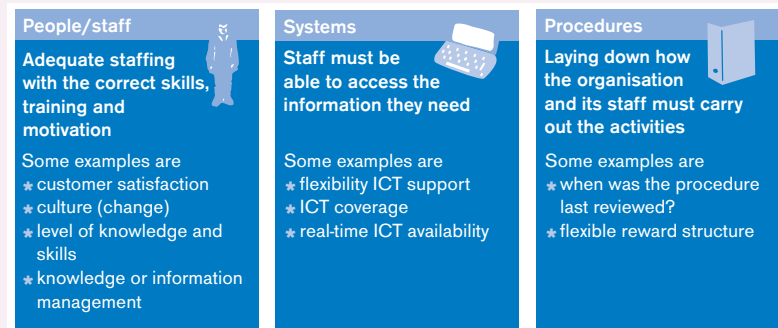


Figure 11. Key Growth and Learning elements.

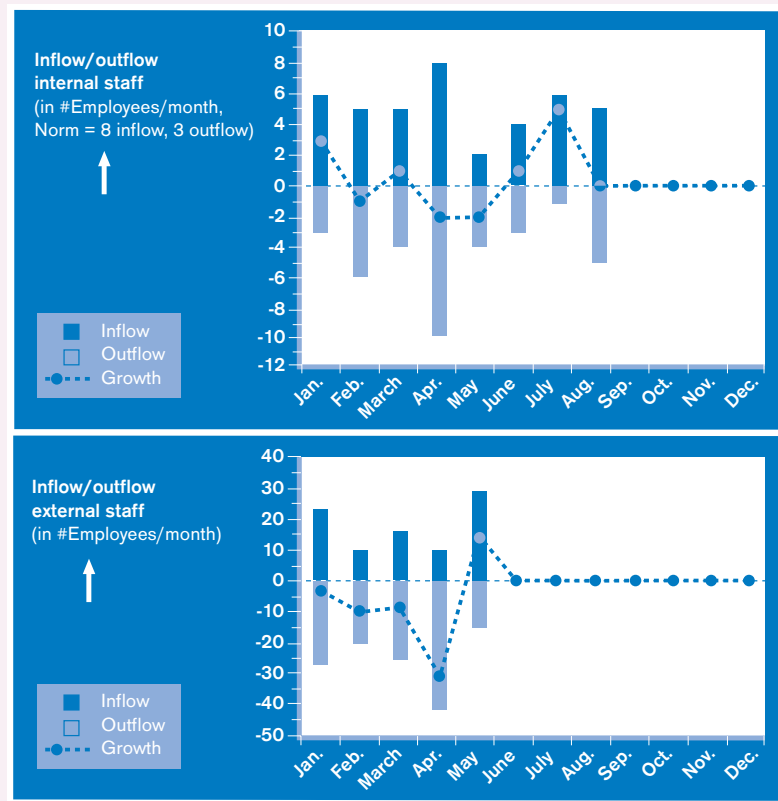
produce highly innovative ideas may prove vital. It does however not automatically follow that these aspects should immediately be converted into indicators for product development. Sometimes the internal processes perspective may be a more appropriate place for them because the rigidity of procedures or the inability of staff to adjust to new circumstances may well turn out to be the most important bottlenecks.

#### Practice

In the Balanced Scorecard of our case organisation, the management strategy within the growth and learning perspective is aimed at reinforcing:

- \* core competences;
- \* staff satisfaction and their optimal development;
- \* the role of the organisation as catalyst for integration and synergy with the customer.

Figure 12. Sample report inflow/outflow ICT staff.







Indicators applied in this respect include: implemented competence management, implementation of an MD-programme, staff satisfaction, giving useful advice five times per customer, and in/outflow. The KPI in/outflow per month over the past months is indicated in figure 12.

#### Analysis

Both the internal staff inflow and outflow were much lower in May than in the previous month. Unfortunately, the net effect was a decline in the number of internal staff. The staff inflow prognosis for the coming months is positive. The recruitment campaign has had a favourable effect. External staff figures show an inflow of 29 and an outflow of 15. May is the first month in which the number of external employees increased.

Due to the external staff inflow, the strongest inflow/outflow effect can be seen at Exploitation & Management. The prognosis indicates a cumulative expansion with five internal employees after August. This is substantially lower than the budgeted number of 24 by May. It is therefore unlikely that the targets for the year will be met. In the coming months a lot of attention will be given on the targeted recruitment of internal staff.

#### ICT Value Proposition

A final step in the identification of ICT performance indicators should include confirmation with Senior Management and ICT customers that the selected performance objectives and indicators, if achieved, will result in ICT having added value to the business. A useful technique for ensuring this communication and concurrence is the ICT Value Proposition document. This final deliverable of the development of the Balanced ICT Scorecard serves to document what will be measured, specifies the desired/planned performance levels to be achieved and results in a Service Level

Agreement contract between ICT and its customers. Figure 13 shows an example of an ICT Value Proposition.

#### Maturity level and results of ICT organisations

A Balanced Scorecard can be used at different levels (organisation/business unit, department, group/individual etc) and by various parties. In this instance the scorecard is customised; KPIs and CSFs are aligned with the other components and levels in the organisation. During this process, the number of KPIs generally falls as we move downward through the organisation levels because the degree to which indicators can be influenced also decreases.

An important factor in the customisation of KPIs is the maturity level of the ICT organisation. To establish this, we use the growth phase model for an ICT organisation. In order to structure thinking about the growth of an ICT organisation, a model has been developed which shows the growth phases (see figure 14) of an ICT organisation and orders them in a logical way ([Boss99]). In addition, this model also shows the relationships between the various growth phases. It has become clear that the model provides an excellent instrument with which to show the current status of an ICT organisation in practice. It provides insight into what kind of step needs to be taken next, which 'hard' and 'soft' aspects require attention and what level of balance is required in order to provide, as a manager, maximum stimulation for the development of the ICT organisation.

In an ICT organisation a distinction is made between the development, maintenance, control and exploitation of the automated information systems. For each of the processes, we distinguish between 'growth phases' (see figure 14). What phase a process has reached, depends on the actual structuring of the ICT organisation. Here, the growth phases are typified in accordance with the maturity level of the ICT organisation. We distinguish between the following categories: technology-driven, controlled, service-oriented, customer-oriented and business-oriented.

The management of an ICT organisation should be on a par with the maturity level of the organisation. On the basis of the growth phases of the ICT organisation and by applying the Balanced Scorecard, it is possible to customise performance management for the ICT organisation and ICT managers. The specific application of performance management for each growth phase is explained below.

#### Phase 1: Technology-driven

##### ICT specialists and managers provide minimal management

The ICT organisation is an unstructured technical department in which ICT experts manage on the basis of technical indicators. An ICT budget is made available and expended on an annual basis.

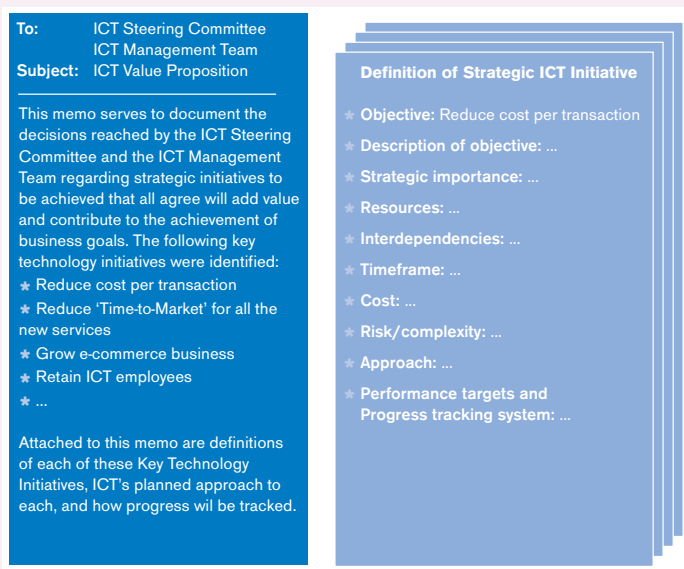


Figure 13. ICT Value Proposition.

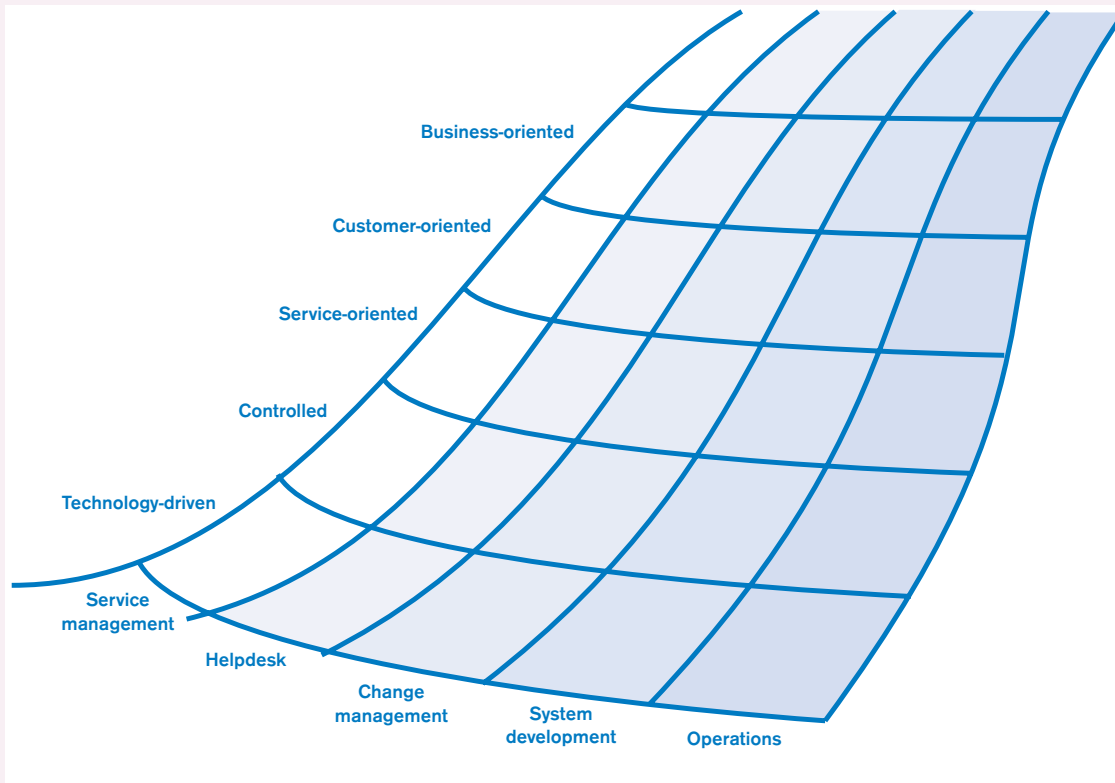


Figure 14. Growth phase model for ICT organisations [Boss99].

The relevant perspectives are 'financial' and 'internal processes' with a fairly technical emphasis (see figure 15). Customer (i.e. client and end user) satisfaction plays virtually no role and the ICT organisation is not yet actively involved in innovation. A few basic links can be established on the basis of the internal processes perspective, such as the financial consequences of fewer in-house employees and more external employees.

The main problems with regard to performance management in this growth phase are caused by the weak reporting functionality of the financial and personnel systems, as well as the technical nature of the management information, leading to limited usage by ICT managers. Often, all sorts of separate spreadsheets are created and staffing overviews are kept manually.

A structural and periodical planning & control cycle, operated by the ICT managers, is almost entirely missing. The controller or business accounting department monitors the financial situation and the ICT managers acquire insight into staff functioning and the technical situation through their direct supervision. In this growth phase, the available monitoring criteria are generally inadequate to make complete control of the ICT organisation possible.

#### Phase 2: Controlled

**Process managers & ICT department managers set up basic management**

In order to establish control over ICT, process-based working methods – such as ITIL<sup>3</sup> for operations and

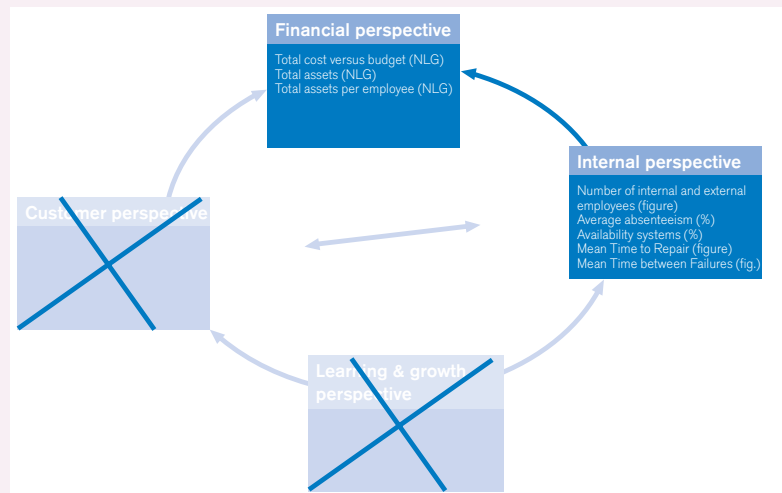


Figure 15. Template Balanced Scorecard for an ICT organisation in the technology-driven growth phase.

CMM for system development – are introduced. These include the process and quality managers. The emphasis is on operational indicators with which the quality of the processes is monitored.

In addition to the financial and internal processes perspectives, the learning and growth perspective becomes more important (see figure 16). This latter perspective primarily expresses the long-term process improvements and human resource aspects. Monitoring in this growth phase mainly concerns the extent to which norms and standards are applied. The financial indicators are primarily used to establish a picture of development, maintenance and operational

3) ITIL: IT Infrastructure Library

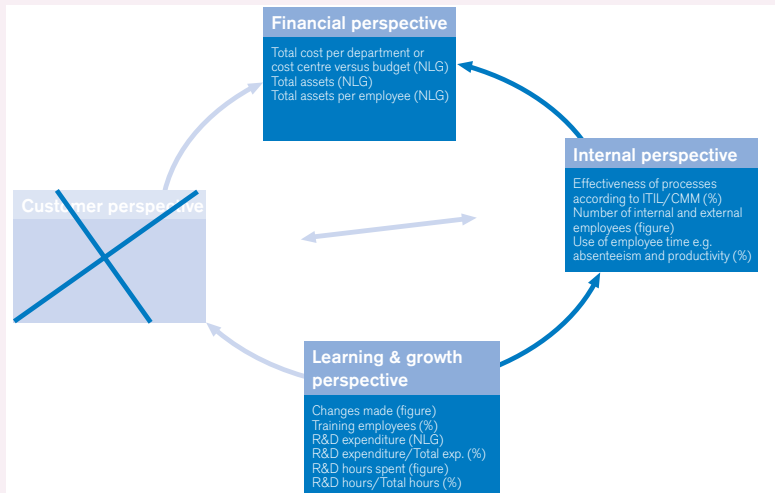


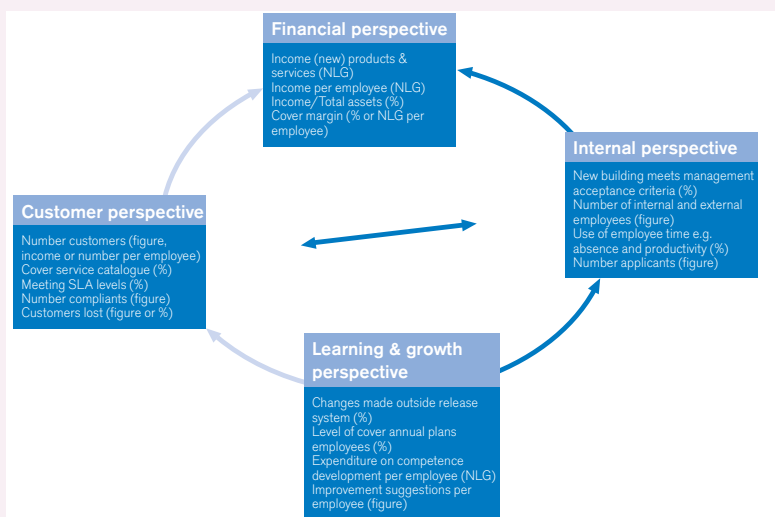
Figure 16. Template Balanced Scorecard for an ICT organisation in the controlled growth phase.

costs. The expectations and perceptions of the client with respect to ICT service provision hardly play any prominent role in the ICT organisation. A number of cause and effect relationships can be identified between the learning and growth perspective on the one hand and the operational internal processes perspective on the other. For example: trained staff improve the effectiveness of the processes. In addition, internal performance is still the primary determinant for financial results. For instance: the implementation of incident management has an influence on helpdesk costs.

The main opportunities for improvement in performance management concern the effectiveness of the ICT processes. The manual updating of status is impractical, given the number of activities and interdependencies. A variety of sources can be consulted – for example man-hours or invoices – for the updating of training performance. The direction of the ICT organisation is based on a profusion of process indicators with limited depth.

Figure 17. Template Balanced Scorecard for an ICT organisation in the service-oriented growth phase.

Process managers establish the fundamentals of the planning and control cycle. Only in this way can they demonstrate their added value. The ICT managers



make a limited contribution to the fixing of the ICT budget. Reports on the implementation of the budget are made by the controller or business accounting department. ICT management does lay down the basis for the control of human resource management aspects. These are becoming more important for the recruitment and retention of internal staff.

### Phase 3: Service-oriented

#### Controllers and ICT managers provide the organisation with structural management

A new dimension is added to the processes: the supply of products and services to customers. A service catalogue and service level agreements describe which services should be provided, at what quality level (service levels) and at what costs.

The financial, internal processes, learning and growth and customer perspectives are included in the control process (see figure 17). The influence of the learning and growth perspective on the internal processes increases continually. Examples are: working on a software release basis and meeting customer acceptance criteria. The customer perspective acts as a mirror for the internal processes perspective, for example to determine whether the processes meet the generic service levels. This explains the introduction of the arrow that connects these two perspectives. Finally, allocation models for products and services make the financial relationship with the internal business processes more transparent.

Challenges for performance management lie in the source systems for the indicators for the customer perspective. Are customer satisfaction surveys conducted periodically? What agreements in fixed SLAs are met and what agreements are not? What should be done if the customer considers 99.9% availability to be unsatisfactory because of a single major malfunction?

On the basis of controlling, the emphasis is placed firmly on financial process management. ICT managers increasingly pay attention to customer indicators. Planning and control are structuralised in terms of business plans and monthly reports. During this growth phase, performance is assessed in such a way as to allow ICT managers to steer organisational performance.

### Phase 4: Customer-oriented

#### ICT managers are supported by controllers and receive input from line managers

Customer-based service differentiation ('customisation') becomes increasingly crucial. For the processes, it can only be achieved by establishing complete control over generic areas and active management based upon the differentiated service elements, for example rapid processing of malfunctions, longer opening hours for the helpdesk and the continuous availability of applications. Pricing becomes an issue for the services, and ICT managers will start managing on the basis of profit margins for each service line and customer group.

The financial, customer, internal processes and learning & growth perspectives are all equally important and in balance (see figure 18). For this reason, a relationship is developed between the learning and growth perspective and the customer perspective. Satisfied and service-oriented employees will be better able to satisfy customers. And because satisfied customers tend to meet their financial obligations sooner, for example, the customer perspective can be linked to the financial perspective.

Opportunities for improvement in performance management can be sought in the establishment of consistency between data from the various source systems while a range of cause and effect relationships between the indicators are recognised. Discrepancies between management accounting and financial accounting might be found. For example between management based on time spent versus actually generated income during a specific period of time.

In planning and control, business managers from the user organisation get to play a more important role. They are now the customers who determine the demand for ICT services and who expect a certain level of quality.

#### Phase 5: Business-oriented

##### ICT managers and line managers jointly manage the ICT organisation

As soon as the ICT organisation has reached the customer-oriented growth phase, attention can be paid to the added value of ICT products and services in the primary processes of the end user.

The financial, internal processes, learning and growth, and customer perspectives are all equally important and in balance (see figure 19). At the same time,

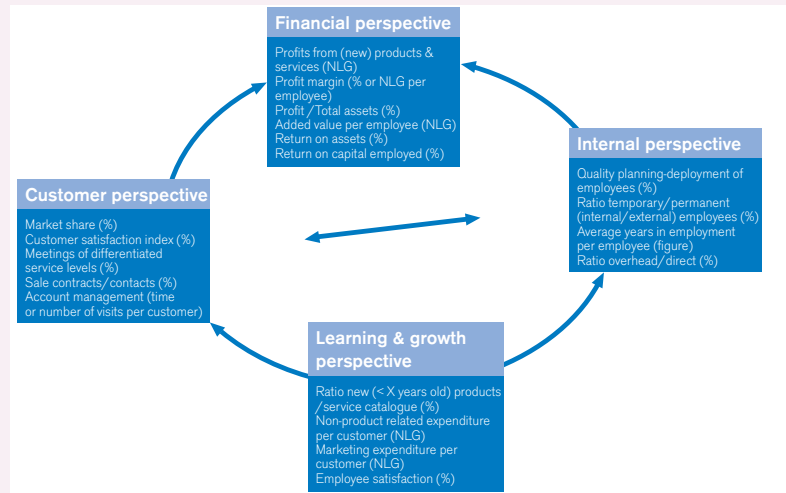


Figure 18. Template Balanced Scorecard for an ICT organisation in the customer-oriented growth phase.

however, the relationship becomes clear between the customer/financial perspective and, for example, the Business Balanced Scorecard for the entire organisation and, more specifically, the entire business organisation.

In this growth phase, the challenge in terms of performance management is to acquire data from the primary process and financial source systems of the business organisation in order to establish a clear picture of the added value of the ICT services.

The ICT managers manage the ICT organisation in close collaboration with the business managers. The minimum time horizon used, varies from one to three years. Performance management in this growth phase provides a picture of the various differentiated products and services of the ICT organisation, and makes their added value explicit.

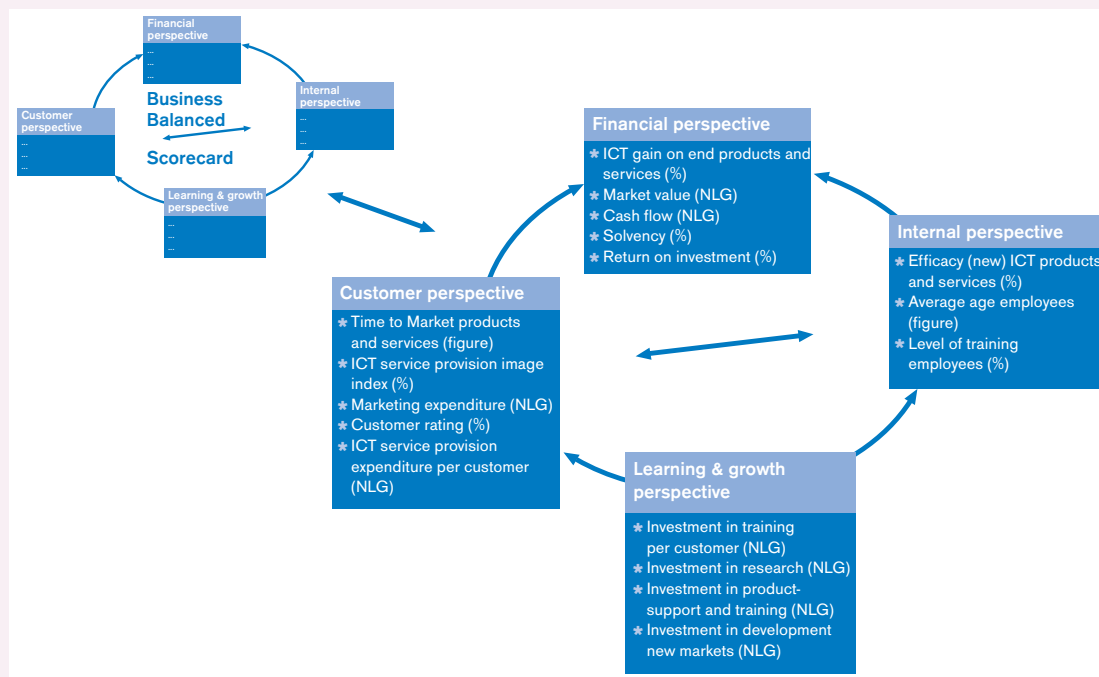


Figure 19. Template Balanced Scorecard for an ICT organisation in the business-oriented growth phase.

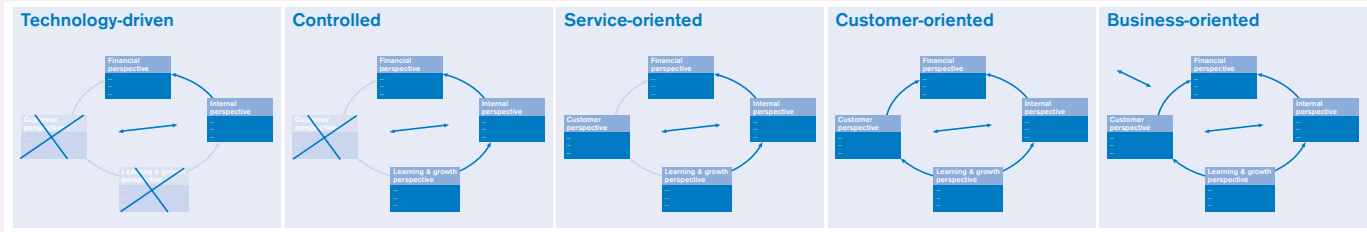


Figure 20. Overview of Balanced Scorecard perspectives and relationships in each growth phase of the ICT organisation.

### Conclusion

The Balanced Scorecard proves to be an excellent management tool in the implementation of performance management. It converts an organisation's vision and strategy into concrete ICT objectives, organised along the lines of the four different perspectives: the financial perspective, the customer perspective, the perspective of internal processes and the learning and growth perspective.

At the heart of this perception of performance management in ICT organisations lies the fact that successful management of ICT organisations in practice is based on a specific and limited set of indicators and perspectives. The maturity level of the ICT organisation, in accordance with the growth phase model, plays an important role in the determination of this set. As ICT organisations grow more mature, the number of perspectives increases (see figure 20) and a better balance between the perspectives is established.

Table 2. Do's and don'ts for ICT Balanced Scorecard implementation.

Implementation Balanced Scorecard	
Do's	Don'ts
<p>1 <b>Is the Balanced Scorecard in line with the organisation's strategy:</b> Use the scorecard as a platform for implementation of the strategy (ensure alignment with ICT strategic and operational plans). Don't regard the tool as a management control instrument. The results must be directed at the future and not at the past.</p> <p>2 <b>Secure sufficient commitment:</b> All stakeholders must be involved in the design and implementation of the scorecard. An ICT Balanced Scorecard conceived solely from the the ICT organisation's point of view will have only limited added value. The Balanced Scorecard should preferably be accepted by all stakeholders. In all events, senior management must fully endorse the implementation. Link the objectives and norms to the personal plans of managers.</p> <p>3 <b>Adapt the Balanced Scorecard to the maturity level of the organisation:</b> Not every ICT organisation should seek to develop each of the four different perspectives of the Balanced Scorecard. To ensure successful application, the content of the Balanced Scorecard must be in balance with the growth phase. Naturally, the costs of drawing up/ implementing the IC scorecard must also be weighed against the added value.</p>	<p>1 <b>Do not try to achieve perfection:</b> Not all aspects can be assessed quantitatively (not everything can be exactly calculated). Even when using the ICT Balanced Scorecard, interpretation and estimates are still necessary. Try to combine different quantification methods already available within the organisation, such as return on investment and historical comparisons. Integrate benchmark insights into the factors.</p> <p>2 <b>Do not apply too many indicators:</b> Restrict the scorecard to 16 to 20 relevant performance indicators. It is not difficult to think up a large number of performance indicators, but monitoring and interpreting a large number of indicators often proves to be a laborious and complex affair. Also avoid the situation in which, after several months' utilisation of the scorecard, all attention is directed at the implementation of technical Balanced Scorecard tools.</p> <p>3 <b>Do not underestimate the efforts and costs.</b> Therefore, make a cost/benefit analysis before collecting data.</p>

In addition, the relationship with the organisation as a whole becomes clear.

The first growth phase (technology-driven) involves short-term performance management of technological processes and finances. In the controlled phase, more emphasis is placed on the internal processes perspective and on long-term developments by means of indicators in the learning and growth perspective. The various relationships between the three perspectives also become tighter. The service-oriented growth phase contains an initial expansion of the customer perspective which also acts as a reflection of the internal processes. In the customer-oriented ICT organisation, the scorecard is balanced. Cause and effect relationships have become a structural ingredient for management. Finally, a business-oriented ICT organisation also includes safeguards to ensure that the scorecard links up to the business scorecard (customer).

Practice has shown that the maturity level of the ICT organisation is indeed a determining factor for the way in which performance management is shaped, and that performance management helps ICT managers to take well-considered decisions with which to achieve strategic objectives.

To conclude this article, we would like to list a number of do's and don'ts in the implementation of the ICT Balanced Scorecard in table 2.

Evidently, the design and implementation of a Balanced Scorecard is not a one-off event. The Balanced Scorecard must be genuinely used for performance management. Balanced Scorecard reporting on a monthly basis, requires the allocation of several responsibilities and tasks. The tasks that underly the monthly preparation and use of the balance scorecard report are illustrated in figure 21.

Often the challenge is not to design the Balanced Scorecard, but to structurally preserve an organisation that can prepare Balanced Scorecard reports every month, use the results effectively for control purposes and modify the Balanced Scorecard as requires and when necessary.

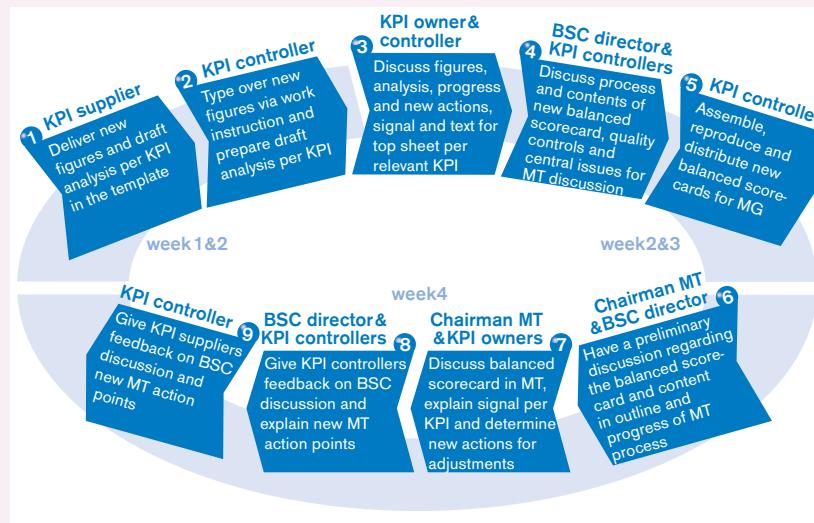


Figure 21.  
ICT scorecard  
preparation process.

### Literature

- [Jong98]  
B. de Jong and D. Starre, *ICT governance and management*, Nolan, Norton & Co., 1998.
- [Kapl97]  
R. Kaplan and D. Norton, *Op kop met de Balanced Scorecard*, Uitgeverij Contact, 1997.
- [Keun96]  
D. Keuning and D.J. Eppink, *Management & Organisatie*, Educatieve Partners Nederland BV, 1996.
- [Leeu96]  
O.C. van Leeuwen, *Managementinformatie voor periodieke besluitvorming*, Samsom Bedrijfsinformatie, 1996.
- [Mast95]  
W. Mastenbroek, *Er is geen nieuw type organisatie*, Holland Management Review, No. 44, 1995.
- [Nola92]  
R.L. Nolan and W.J.D. Koot, *Actualisering van de Nolan fasen-theorie*, Report of Nolan, Norton & Co, 1992.
- [Saul00]  
Saul, *The ICT Balanced Scorecard – A road to effective Governance of a Shared Services ICT Organisation*, Information System Control Journal, Volume 2, 2000.
- [Teeu96]  
P. Teeuwen, *Een beheersbaar verandertraject voor rekencentrummanagers*, Compact, June 1996.
- [Zee97]  
H.T.M. van der Zee, *In search of the value of ICT*, Tilburg University Press, 1997.

*Jan de Boer*  
(deboer.janjc@kpmg.nl)  
is a manager at KPMG Information Risk Management where he works as ICT audit consultant. His specialisation lies in the field of ICT management. He is engaged on audit and support assignments for ICT organisations.

*Joachim Vandecasteele*  
is a consultant at KPMG Management Consulting. He is involved in consultancy assignments in the fields of scanning, organisation and transformation of ICT organisations.

*Ken Rau*  
(krau@kpmg.com)  
is a director in KPMG's Information Risk Management practice where he works as a specialist in the areas of ICT management and planning. His specific areas of expertise include ICT assessment, planning, project management, performance measurement and governance.