

Bridge Building for the Future of the Finnish Polytechnics

Juha Kettunen

Abstract

This study presents the strategy process of Finnish polytechnics using the balanced scorecard approach. The study extends the balanced scorecard from the communication and implementation of this strategy to the planning of the strategy. Stakeholders formulated a strategic management plan for the network of all polytechnics in Finland by applying the balanced scorecard approach. This approach was used in communicating, planning, and implementing the strategy. The perspectives of the balanced scorecard—customer, financial, internal processes, and learning and growth—provided a framework that enabled planning of appropriate activities for achieving organizational objectives. The strategy will help the Rectors' Conference of the Finnish Polytechnics influence educational policy. In addition, each polytechnic can use the overall strategy of Finnish polytechnics as a basis to develop its own strategy and scorecard describing how its internal processes will deliver output to implement the general strategy.

1. Introduction

This study presents the process of strategic planning for higher education institutions (HEI) using the balanced scorecard approach developed by Kaplan and Norton (1992, 1993). The balanced scorecard is an efficient method for the communication and implementation of strategy. This study extends the balanced scorecard to strategic planning and describes how it was successfully used for the network of all the polytechnics in Finland.

The balanced scorecard includes a set of measures that give top managers a brief but comprehensive view of the organization. It has been used across a wide variety of educational organizations (O'Neil *et al.* 1999). Analyzing an organization within the balanced scorecard framework uses four perspectives: customer, financial, internal processes, and learning and growth. Strategic management requires understanding the value creation and causal chains between the objectives sought for each perspective. Organizational theory is the basis for strategic themes, that

describe the causal relationships for value creation and reflect the actions that must be taken to achieve strategic outcomes.

The strategy was planned in 2003 for all the Finnish polytechnics at the meetings of the Rectors' Conference of Finnish Polytechnics. This is a confederation of all thirty-one Finnish polytechnics and their owners. It arranges meetings for the rectors and owners of the polytechnics and aims to influence the educational policy in favor of its member organizations. The national strategy provides the outlines for the strategic planning of each polytechnic. Each HEI can define its own strategic themes consistent with the national strategy. Thus each institution can define its own objectives, measures, and performance targets. Then it can implement the strategy using the balanced scorecard. Consequently each polytechnic can see how it can contribute to the high-level strategic theme that has been planned jointly by all the polytechnics.

“Strategic management is a matter of bridge building, or mapping the route between the perceived present situation and the desired future situation.”

This study is organized as follows: Section 2 presents the perspectives of the balanced scorecard for use in strategic planning. Section 3 presents the objectives and their causal relationships using a strategy map. The balanced scorecard and strategy map provide a general framework for communicating and implementing the strategy and for understanding the theory of organization. Section 4 presents the strategic themes and the vision for the future. Finally, the results of the study are summarized and discussed in the concluding section.

2. Perspectives of the Balanced Scorecard

Strategic management is a matter of bridge building, or mapping the route between the perceived present situation and the desired future situation (*Wheale 1991; West-Burnham 1994*). Strategic management involves taking a view of the whole organization, its place in its environment, its values and culture, its key purpose, its direction, and its strategic choice for a better future (*Middlewood and Lumby 1998; Bush and Coleman 2000; Kettunen 2002, 2003*). The balanced scorecard provides a framework for the implemen-

tation of this strategy using four different perspectives: customer, financial, internal processes, and learning and growth. These perspectives have been found necessary, sufficient, and robust across a wide variety of organizations (*Kaplan and Norton 1996, 2001*).

The results of a study by Lingle and Shieman (*1996*) show that measurement-managed organizations tend to have better teamwork at the top, better communication throughout the organization, and better self-management at the bottom level. A survey by Frigio and Krumwiede (*1999*) concluded that performance management systems based on the balanced scorecard were significantly more effective than other systems.

Customer and financial measures are lagging indicators that report on outcomes. The measures of internal processes describe the organization's current effectiveness, structure, and performance. Learning and growth measures are leading indicators that represent the drivers of future performance. They are indicators of how to create new value through investments in innovation, technology, employees, and customers.

The customer perspective translates an organization's mission and strategy into specific market- and customer-based objectives. The essence of strategy is not just choosing what to do. It also requires choosing what not to do (*Simons 1995; Treacy and Wiersema 1995*). Institutions that try to be everything to everybody usually end up being nothing to anyone. For educational institutions this means having a clear idea of their desired students. Where do they come from and where do they go? Appropriate outcome measures include the share of applicants and graduates by region and employment rate. These outcome measures represent the targets for an educational institution's marketing, student recruitment, cooperation, and employment processes.

The customer perspective enables educational institutions to align their core customer outcome measures to targeted customers. There are generally two sets of objectives for the customer perspective. The first set of objectives includes generic measures used by virtually all organizations, such as customer satisfaction. The second set of objectives represents the segmented performance indicators describing the external impact of HEIs on their local communities.

The financial perspective with traditional financial measures is indicative of past events. The balanced scorecard retains traditional financial measures but expands them to include other perspectives. It complements financial measures of past performance with

measures of the present time and measures of the drivers of future performance. The traditional financial accounting model implicitly incorporates the valuation of an organization's intangible and intellectual assets. Skilled and motivated employees, effective internal processes, high-quality products and services, and satisfied and loyal customers represent valuable intangible assets that should result in financial indicators. In many information-age organizations these intangible assets and capabilities may be much more important than the financial accounting indicators.

The financial perspective describes the sequence of funding actions that must be taken. It is aligned with the internal processes perspective. The objectives of the financial perspective include the funding of research and development and the funding of education. Funding is a prerequisite for education; however, efficient processes enable sufficient funding.

The internal processes perspective identifies the critical processes in which the organization must excel in order to meet the objectives of the strategy. The focus is on monitoring and improving cost, quality, and time-based measures of internal processes. Each organization has a unique set of processes for creating value for customers and producing results. According to Porter (1996) the essence of strategy is in the activities. An organization can choose to perform activities differently or to perform different activities than others. The activities are embodied in the value chain, which the internal processes perspective encompasses. Consequently strategic themes are connected with the value chain.

An internal-processes value chain starts with the innovation process: research and development identifies new findings and develops new solutions. The value chain proceeds then to the learning process, in which education disseminates existing knowledge and services to customers. These processes reflect the traditional mission of HEIs to create and disseminate new knowledge. Educational institutions can choose objectives from themes relating to the efficiency and effectiveness of their main processes.

Strategic objectives of the learning and growth perspective could include building up the level of skills and competencies to facilitate internal processes, which are in a key position to reach the objectives in the other perspectives. Expenditures on learning and growth should also be seen as long-term human-resource investments to sustain future development. When managers are evaluated solely on a short-term financial perspective, they often find it difficult to sustain investments to enhance the capacity of

their people. The expenditures on such investments should not be treated as mere period expenses, where cutbacks can be made to produce incremental financial results.

The learning and growth perspective includes the drivers for the objectives and outcomes in the other perspectives. It includes the capabilities of the personnel to perform the actions in the internal processes perspective. The learning and growth actions supporting these capabilities can be classified into recruitment and internal training. The decisions regarding these actions should be guided by the strategic plan of the organization.

3. Objectives and Their Causal Relationships

A survey was made in February 2003 of the most important objectives of the Finnish polytechnics. Altogether twenty-nine rectors of Finnish polytechnics filled in the form and responded to the questions at the general meeting of the rectors' conference. The purpose of the survey was to identify the most important objectives for the strategic plan of the Finnish polytechnics.

Table 1 presents the results of the survey. The most important objectives in the customer perspective are regional development

Table 1. Perceptions of rectors of the development of the Finnish polytechnics

	Mean on a scale 1-5
Customer perspective	
• Regional development	4.3
• Employer satisfaction	4.4
• Student satisfaction	4.4
• Satisfaction of the owners of polytechnics	4.0
Financial perspective	
• External funding	3.9
• Funding of R&D	4.4
• Funding of education by central government	4.7
• Funding of investments	4.3
Internal processes perspective	
• R&D	4.5
• Support activities	3.3
• Education	4.8
Learning and growth perspective	
• R&D	4.3
• Environmental scanning and customer knowledge	4.1
• Quality and assessment	3.8
• Personnel development	4.6

and employer and student satisfaction; in the financial perspective, funding of research and development and funding of education by central government; in the internal processes perspective, research and development and education; and in the learning and growth perspective, capabilities for research and development and personnel development. These results are reasonable and consistent, because research and development and education have the highest scores in the financial, internal processes, and learning and growth perspectives. Since these are the most important activities in creating value for customers, they form an appropriate basis for the strategic plan.

The strategy is a set of hypotheses about cause and effect. The balanced scorecard provides a general framework for understanding the causal chains. The perspectives, objectives, and measures, and linkages among them, describe the organizational theory (*cf. Drucker 1994*). The definition of these linkages may be based on research, experience, or hypotheses.

In the strategic plan, hypothetical links among objectives in the various perspectives are made explicit so that they can be managed and validated. The linkages of the scorecard should incorporate a set of cause-and-effect relationships among the objectives and describe the strategy. They should incorporate mixtures of performance drivers and outcome measures. The multiple measures should describe the internal processes that constitute the chain of value creation and consist of a linked series of consistent and mutually reinforcing objectives. The value chain becomes easier to understand and manage when it is viewed as a sequential process moving from left to right on a diagram.

The strategy maps by Kaplan and Norton (2001) provide a logical way to communicate the organization's desired outcomes and how these outcomes can be achieved. The linkages in strategy maps describe the cause-and-effect relationships between the perspectives. Strategic planning is possible only when managers understand these relationships.

The objectives in the customer perspective are desired outcomes, but the strategy map does not explain in detail how to achieve them. The internal processes define the activities needed to create the desired result for customers. The financial perspective defines the funding needed to enable the internal processes. The learning and growth perspective develops the ability to execute internal processes. It is based on the skills and knowledge of employees and the technology they use.

Figure 1: Strategy map of Finnish polytechnics

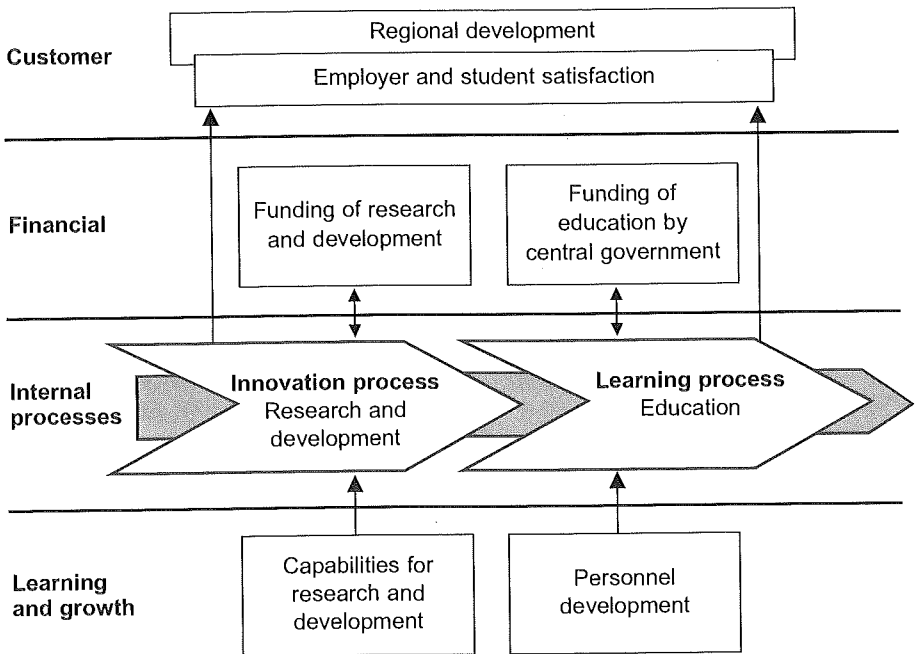


Figure 1 presents the strategy map of the Finnish polytechnics describing the causal chains between the objectives. The objectives are based on the survey of the rectors of polytechnics. Objectives within a perspective were linked to those in another based on the discussion between the rectors and representatives of the owners of the polytechnics. The vertical cause-and-effect relationships describe the chain of value creation between the drivers that will lead to the strategic and desired objectives. Examining the linkages of objectives between the perspectives leads to the conclusion that an increase in the target measure in the customer perspective would result from the activities in the internal processes perspective, which require funding and capabilities for performing the necessary activities.

The customer perspective contains two objectives: employer and student satisfaction and regional development. These objectives can be achieved through the activities of research and development and education in the internal processes perspective.

The financial perspective includes two objectives: funding of research and development and funding of education by the central government. The funding of research and development includes internal funding from the central government and external funding from other sources. Education is funded by the central government, but it also receives some minor funding through commercial services.

The internal processes perspective includes a description of the horizontal sequential elements, innovation process (research and development), and learning process (education), which form the conventional causal chain of value creation in higher education. The objectives in the financial and learning and growth perspectives must be achieved in order to ensure efficient internal processes, which result in the desired customer perspective outcomes regional development and employer and student satisfaction. The objectives of the internal processes perspective can be more fully described as the efficiency of research and development and education.

The objectives in the learning and growth perspective include the capabilities for research and development and personnel development. HEIs must have capabilities for research and development to generate new knowledge in the internal processes. Personnel development is necessary to develop education and achieve high-quality learning.

4. Strategic Themes and the Vision for the Future

Strategic themes: The strategic themes reflect what management believes must be done to succeed and to achieve strategic outcomes. The strategic themes are strategic hypotheses containing their own set of cause-and-effect relationships. Each of the internal processes is connected to the strategic themes.

In March 2003 the rectors of the polytechnics and the representatives of the owners began planning the strategy using the perspectives of the balanced scorecard. Altogether fifty-three individuals participated in the process, which was based on the preliminary survey conducted earlier. The most important objectives of the survey were selected for detailed planning. Once the participants understood these objectives, they were divided into four groups, reflecting perspectives. Each group sought to understand how the applicable measures, targets, and strategic initiatives contribute to achieving the group's objectives.

Tables 2, 3, 4, and 5 present the strategic themes and their detailed contents based on the results of the working groups. The strategic themes include postgraduate education, quality of education, research and development, and regional development. They do not include any financial themes, because the financial result is not the main purpose of public educational organizations. An advantage of the balanced scorecard is that each strategic theme is balanced by the inclusion of policy and objectives in each perspective.

The polytechnics defined their strategy around one main strategic theme and four subordinate strategic themes as follows:

Theory and practice in a balanced mixture

- Permanent postgraduate degrees will be established after the experimental period.
- Polytechnics will improve the quality of education.
- Research and development will serve education.
- Research and development and education will develop the region.

Table 2. Permanent postgraduate degrees will be established after the experimental period

Customer	<p><i>Employer and student satisfaction:</i></p> <ul style="list-style-type: none"> • Employers will be satisfied with the development projects in postgraduate education • Students will be satisfied with the emerging opportunities for postgraduate education and capabilities for R&D
Financial	<p><i>Funding by central government:</i></p> <ul style="list-style-type: none"> • Funding for the postgraduate degrees will be arranged
Internal processes	<p><i>Learning process:</i></p> <ul style="list-style-type: none"> • Postgraduate degrees will be established as a part of the Bologna Process • The dual system of universities and polytechnics will remain and be strengthened • Education will use the results of the expanding R&D
Learning and growth	<p><i>Personnel development:</i></p> <ul style="list-style-type: none"> • The polytechnics will increase the number of licentiates and doctorates taken • The capabilities for R&D will be increased in order to improve education • Postgraduate degrees from polytechnics will constitute competence for lectureships

Table 3. Polytechnics will improve the quality of education

Customer	<i>Employer and student satisfaction:</i> <ul style="list-style-type: none">• Education will have external impact, especially on small and medium-sized enterprises (SMEs)• Employers will obtain skilled labor that meets their needs• Students will be satisfied with good employment opportunities
Financial	<i>Funding by central government:</i> <ul style="list-style-type: none">• The incentive effects will be implemented in the new funding system
Internal processes	<i>Learning process:</i> <ul style="list-style-type: none">• Learning processes will be made efficient• Education will use the results of the expanding R&D
Learning and growth	<i>Personnel development:</i> <ul style="list-style-type: none">• The capabilities of personnel for the cooperation with companies and other organizations will be improved

Table 4. Research and development will serve education

Customer	<i>Employer and student satisfaction:</i> <ul style="list-style-type: none">• R&D will meet the needs of the local economy• The number of R&D projects having regional impact will be large• R&D will serve education
Financial	<i>Funding of R&D:</i> <ul style="list-style-type: none">• The basic funding for R&D will be organized• External funding based on stipulated systems will be increased• Publication will be organized effectively and the number of publications will be increased
Internal processes	<i>Innovation process:</i> <ul style="list-style-type: none">• R&D will be organized effectively in each polytechnic• R&D environments will be developed with working life• Publishing will be developed and the number of publications will be increased
Learning and growth	<i>Capabilities for R&D:</i> <ul style="list-style-type: none">• The competitive advantage of polytechnics will be increased in order to increase the funding for R&D• The number of R&D programs will be increased and networks will be strengthened

Table 5. Research and development and education will develop the region

	R&D:	Education:
Customer	<p><i>Regional development:</i></p> <ul style="list-style-type: none"> • R&D will support the regional development in the innovation system • Municipal R&D will serve the local economy 	<p><i>Regional development:</i></p> <ul style="list-style-type: none"> • Students will have good employment opportunities in the region • Education will meet the needs of the region
Financial	<p><i>Funding of R&D:</i></p> <ul style="list-style-type: none"> • Regional funding of the innovation system of SMEs will be arranged • Regional funding of R&D will be arranged • External funding will be arranged to transform the innovations into action 	<p><i>Funding of education:</i></p> <ul style="list-style-type: none"> • Theses will be done for companies and other organizations • Long-term contracts will be made to facilitate cooperation
Internal processes	<p><i>Innovation process:</i></p> <ul style="list-style-type: none"> • The number of joint R&D projects with working life will be increased • R&D will focus on the strengths of polytechnics 	<p><i>Learning Process:</i></p> <ul style="list-style-type: none"> • Cooperation with SMEs and universities will be increased • Entrepreneurship will be promoted by incubators
Learning and growth	<p><i>Capabilities for R&D:</i></p> <ul style="list-style-type: none"> • Capabilities for project work will be enhanced • Polytechnics will increase their knowledge about the activities and needs of the municipalities 	<p><i>Personnel development:</i></p> <ul style="list-style-type: none"> • Environmental scanning will be done and customer needs will be studied

The scorecard should be the mechanism by which the senior executives present their organization's strategies to their boards of directors and stakeholders. Senior executives become committed to and accountable for achieving the organizational vision by establishing short- and long-term targets and directing strategic initiatives and resources toward achieving them.

The preliminary strategy of the Finnish polytechnics was first presented in May 2003 to a wide audience including staff from polytechnics and other organizations in the General Meeting of Finnish Polytechnics. The representatives from the most important stakeholders made valuable and positive comments.

The vision for the future: The next phase of the process was to plan the vision for the year 2010. In June 2003 the rectors were divided into four groups according to the strategic themes. The purpose was to plan details for each theme using the perspectives of the balanced scorecard. The groups' vision for 2010 encompassed a main strategic theme and four subordinate themes:

Advanced knowledge for working life

- Postgraduate education will be based on the needs of regions and serve working life.
- New methods will be used in high-quality education.
- Education will be based on the results of research and development.
- Research and development, education, and regional development will closely support each other.

Table 6 presents details of the vision organized by strategic theme. The vision has been described in a balanced way by applying the perspectives of the balanced scorecard to each theme. The procedure ensures that the details of the vision are consistent with the strategic themes defined earlier.

At the end of 2003 the board of the Rectors' Conference of Finnish Polytechnics put the final touches to the strategic plan, including the vision for the future. The plan was finally accepted at the General Meeting of the Rectors' Conference of Finnish Polytechnics in March 2004.

5. Conclusions

The study extended the balanced scorecard from the communication and implementation of the strategy to the planning of the strategy. An advantage of the approach is that the strategic plan describes the activities needed in a balanced way, taking into account all the necessary perspectives of the plan. The balanced strategic plan also facilitates the communication and successful implementation of the strategy.

The strategy of Finnish polytechnics represents the collective wisdom of rectors, owners, and other stakeholders of polytechnics. Without actively engaging these partners in the process of strategic planning, a successful outcome is unlikely. In a successful case the strategy drives change and becomes an integral part of the management process of the Rectors' Conference of Finnish Polytechnics.

Table 6. The vision of Finnish polytechnics by strategic themes

Postgraduate education: Postgraduate education will be based on the needs of regions and serve working life

- The strengths of postgraduate education will be selected to meet the needs of the regions
- Postgraduate education will be funded by the sources targeted at adult education
- Efficient postgraduate education will be based on the dual model of universities and polytechnics
- R&D will serve the postgraduate education, which will constitute competence for the lectureship

Quality of education: New methods are used in high-quality education

- Education will meet the needs of regional working life
- The process of learning will be efficient and cost-effective
- New methods will be used in education based on the R&D
- 25% of the resources will be used in R&D

R&D: Education will be based on the results of R&D

- Polytechnics will be well-known and strong actors in regional R&D
- R&D will have permanent funding
- R&D will be firmly linked to Education and regional development
- R&D will be of high quality and its job structure will be well-developed

Regional development: R&D, education, and regional development will closely support each other

- Polytechnics will play a leading role in the development of municipalities and regions
 - Funding for regional development will be achieved
 - Polytechnics will be leading actors in interdisciplinary projects
 - The knowledge of the polytechnics in regional development will be advanced
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The strategy of the Finnish polytechnics describes the objectives and the measures needed to reach these goals. It is a strategy that has been formulated for the network of polytechnics, which is responsible for the implementation of the strategy. Once the strategy has been articulated for the Finnish polytechnics, each polytechnic can develop its strategy and scorecard describing how its internal processes will deliver the output to implement the general strategy.

The high-level national strategy will need updating when the environment of HEIs changes or when the main objectives of the strategic themes have been achieved. In addition, the change in

educational policy may be great enough to change the strategy. The national strategy can be revised by updating the high-level strategic themes and objectives. Updating the strategies of HEIs involves changes in the strategic themes, objectives, measures, and target values.

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About the Author

Dr. Juha Kettunen is the president of Turku Polytechnic, Finland. He was previously the director of the Vantaa Institute for Continuing Education, University of Helsinki, and director of the Advanced Management Education Centre, University of Jyväskylä. He holds a Ph.D. from the University of Bristol, U.K., and a D.Sc. from the University of Jyväskylä, Finland.