

Strategies for Virtual Organisations in Regional Development

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Abstract: This study analyses the role of higher education institutions in the planning of regional strategies and presents a class of strategies that can be planned for virtual organisations. In addition, it presents an approach demonstrating how the strategy for a virtual organisation can be communicated and implemented using the method of balanced scorecard. The first set of examples presents strategies that have been planned for clusters in the same geographical area. Another example shows how strategies of regional development have been planned jointly for several higher education institutions in the region. The approach has also been applied to a higher education institution, which has no single organisational unit that owns the process of regional development.

Key words: higher education institution, strategic planning, management, balanced scorecard, regional development

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1. Introduction

Regional development has been playing an increasingly important role in the activities of higher education institutions (HEI). The planning of regional strategies is notably different from that of other strategies, because there is no single institution or organisational unit who owns the strategy. This study presents techniques for virtual organisations to gain commitment to a common strategy with applications for regional development.

The strategy usually reflects the structure of the organisation for which the strategy has been defined. Strategies are typically formulated for the whole organisation, but they can also be defined for the organisational subunits. Some educational organisations are focused on a single rather narrowly defined field of expertise so that the strategies of their subunits coincide with that of the whole organisation.

The approach of the balanced scorecard developed by Kaplan and Norton (1992, 1993) is used to implement the regional strategy. The fundamental characteristic of the balanced scorecard is that it allows the decision-makers to view the organisation from four perspectives simultaneously: customer, financial, internal processes, and learning and growth. The balanced scorecard provides information from many perspectives, but it also minimises information overload by limiting the number of measures included.

This study presents an approach where strategies have not been defined to correspond to a single organisation, but the strategies can be shared to achieve synergy across autonomous organisations. The strategies for clusters and the regional strategy of HEIs illustrate how strategies and scorecards can be created even though a single organisation does not exist to implement the strategy. The strategy of regional development involves multiple operators, each of which has their own activities. The approach can also be applied to the subunits, which share the overall-organisational strategy.

The empirical part of this study presents examples of how the strategies for virtual organisations have been applied in regional development. One example is the formulation of the regional strategy to promote the development and coherence of the main clusters in Southwest Finland. Another example is the planning of the regional strategy for the HEIs in the Turku Region. The purpose is to promote co-operation between the institutions in order to increase their external impact. Finally the same approach is applied to the regional strategy of Turku Polytechnic, where no single unit is responsible for regional development.

This study is organised as follows: The strategic approach to the management of HEIs in regional development is analysed in Section 2. It derives an approach demonstrating how the strategic plan and the balanced scorecard can be developed for virtual organisations to promote economic growth and welfare in the region. Sections 3-5 present the examples of the strategies for virtual organisations. Finally, the results of the study are summarized and discussed in the concluding section.

2. Balanced scorecard in regional development

It is popular for HEIs to ask their managers and teachers to aim for higher external regional impact or customer satisfaction. These institutions, however, do not provide their people with the means to meet such ambitious goals. The balanced scorecard is a powerful tool to stretch targets, because it emphasises cause-and-effect relationships and different perspectives for achieving outstanding performance from the whole organisation rather than concentrating on just improving performance in isolated target measures.

The balanced scorecard provides a framework for the implementation of the strategy from four different perspectives, which are balanced between the external measures for customers, the measures of finance that result from past efforts, the measures of internal processes, and the learning measures that drive future performance. These perspectives have been found to be

necessary, sufficient and robust across a wide variety of organisations (Kaplan and Norton, 1996, 2001). The circumstances and strategy of an organisation may require one or more additional perspectives.

The customer objectives may need to be rethought for an educational institution that educates young people. Such an institution educates those who are the most talented and best able to secure the future of next generation, retired persons and the local community as a whole. Clearly the true customers for such organisations are the citizens at large who benefit from economic growth and improved standards of welfare.

The senior staff of Turku Polytechnic discussed whether the four perspectives were adequate and appropriate for its scorecard. Some suggested adding the customer-related perspective of regional development. It was, however, introduced as an objective in the customer perspective to address the organisation's relationship with the local community. Consequently the customer perspective includes the objective of regional development and the customers' objective including measures for the satisfaction of students and employers.

The strategy and the balanced scorecard provide the discipline to describe important strategic themes. The purpose of Turku Polytechnic is to take advantage of changes of the environment and achieve a positive external impact. The scorecards contain the desired outcomes and forces driving performance that are required for the outcomes to be achieved. Individual organisational units then define their own strategies and scorecards that define their contributions to the objectives articulated in the regional strategy.

Examining the linkages between the perspectives and objectives leads to the conclusion that an increase in the target measure would result from drivers for the customer perspective. The inclusion of performance drivers and lead indicators enables managers to identify the factors that must be created if the ambitious final targets are to be achieved.

The vertical strategic themes describe the chain of cause-and-effect relationships between the drivers that will lead to the strategic and desired outcomes. The strategy maps by Kaplan and

Norton (2001) provide a logical way to communicate the organisation's desired outcomes and how these outcomes can be achieved. The linkages in strategy maps are based on the strategic themes and describe the cause-and-effect relationships for value creation over the planning horizon.

The process begins in a top-down fashion, defining the objectives and measures of the customer perspective. It should describe how the HEI serves its region and its target customers. Then the process continues by asking, "What has to be done regarding the internal processes perspective?" It is connected with the financial perspective, where the question is, "What financial resources have to be allocated to achieve the objectives of the internal perspective?" The final question is, "What skill and knowledge is required and is there any need for the in-house training?"

According to Porter (1996) the essence of strategy is in the activities. It is a choice to perform activities differently or to perform different activities than others do. The activities are embodied in the value chain, which can be described by the cooperation between different organisational units in the internal processes perspective. The value chain becomes simpler to understand and manage when it is viewed as a sequential process moving from left to right on the diagram.

The horizontal strategic themes that are connected with the value chain describe the causal chain of value creation. The strategy requires an organisational theory about the causal chains. It is a description about the sequential process including research and development, support activities and teaching. In the long term the purpose is that research and development provide results for high quality learning. In the medium term the purpose is to increase customer value by support activities and in the short term to achieve operational excellence in teaching.

3. Strategies for clusters

Clusters are geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions in particular fields that compete but also cooperate (Porter, 1998). The prevalence of clusters rather than isolated industries, companies

and institutions reveals important insights into the nature of the role of location and co-operation in competitive advantage. The presence of clusters suggests that much of the success of institutions lies outside a given HEI, residing in its location.

The presence of HEIs often enhances the productivity of local firms and vice versa. The mere presence of HEIs does not by itself guarantee prosperity if the firms are unproductive. The firms cannot operate efficiently if the innovation system from basic research to applied research and development, teaching, and business is not aligned. The whole innovation system, which is a cluster-specific value chain, has to be balanced in order to obtain productivity growth, welfare and other results.

Some clusters centre on HEIs, while others draw little on the resources of educational institutions. Clusters occur both in high tech and traditional industries, in manufacturing as well as in service industries. Some regions contain a single dominant cluster while others contain several. Clusters capture important linkages, complementarities and spillovers of technology, skills, information, marketing and customer needs.

Many of the productivity advantages of clusters involve location-specific public goods. Some of the clusters are closely linked to government and to public institutions. They include physical proximity, face-to-face contacts, close and ongoing relationships and access to information. Public investment in specialised infrastructure, educational programs and other forms benefit clusters and increase their competitive advantage.

HEIs located within a cluster are often able to more clearly and rapidly perceive new educational needs (Pfeffer, 1997). Firms in a cluster benefit from the concentration of firms in related industries and the consequential concentration of specialized information-generating entities. Cluster organisations can often discern new trends, operating possibilities and technological changes faster than isolated organisations. Opportunities at cluster locations are pursued, because barriers to entry are lower in the cluster than elsewhere.

A prominent motivation for the formation of clusters is the availability of specialised skills such as the research expertise of HEIs, an efficient physical location, or a particularly good or appropriate infrastructure. The appropriate policy towards cluster development should therefore be to build on emerging or existing fields that have passed a market test. The initial critical mass of firms and other organisations starts a self-reinforcing process in which information accumulates, and local institutions develop specialised training and research infrastructure.

The main clusters in Southwest Finland include biotechnology, information and communication technology (ICT), and metal and maritime technology. All of these clusters are based on high technology, but they mix with low tech, manufacturing and services. The cluster of biotechnology includes drug development, diagnostics and biomaterials. The cluster of ICT includes the manufacturing of mobile telephones and televisions. The cluster of metal and maritime technology includes the building of ships and motors, and metalworking to other clusters.

The clusters include business companies, educational institutions and governmental units such as The Government Technical Research Centre (VTT) and the National Technology Agency (TEKES). VTT is an impartial expert organisation that carries out technological and technoeconomic research and development work and offers also information services. TEKES finances research and development projects in HEIs and companies. The funds are awarded from the state budget via the Ministry of Trade and Industry.

The strategy process for the cluster of biotechnology brought together educational institutions, The City of Turku and the development company Bio Valley Ltd. Educational institutions include Turku Polytechnic, The University of Turku, Åbo Akademi University and Turku Vocational Institute. The analysis investigated the strengths of each institution in the innovation system. Objectives were defined for each of the organisation in the strategic plans (Nordic Adviser Group, 2000 and Turun bioalan strategia, 2000). Sufficient coherence and funding from The City of Turku have secured that the main objectives have been achieved and many buildings have been constructed for educational institutions and companies in the Turku Science Park.

Another approach has been the planning of the ICT strategy for Turku. The institutions include Turku Polytechnic, The University of Turku, Åbo Akademi University, The City of Turku, The Finnish National Fund for Research and Development (SITRA), Turku Chamber of Commerce, The Regional Council of Southwest Finland, Employment and Economic Development Centre of Southwest Finland and the development company ICT Turku Ltd. The objective is to reach the peak European level in the use of public data networks and electronic services.

The strategy for the cluster of metal and maritime technology has been planned jointly by Turku Polytechnic, Turku Vocational Institute, Turku Vocational Adult Education Centre, The City of Turku, The Federation of Finnish Metal, Engineering and Electrotechnical Industries (MET), and local companies. A decision has been made to establish a centre to be called the Centre for Mechanical Engineering Ltd. The centre has selected the competitive strategy of cost efficiency (Porter, 1990). This can be achieved by sharing the infrastructure investments across the educational institutions and companies. The strengths and competitive advantages of the institutions have been defined to facilitate work sharing and co-operation. Another strategy is the focusing of the operation of the centre on serving the selected companies in the cluster of metal and maritime technology in Southwest Finland.

The strategies for clusters have culminated in the concept of Turku Science Park. It is a holding company of regional development owned by The City of Turku and it operates in co-operation with the educational institutions, companies and other stakeholders. Turku Science Park Ltd. owns so far two cluster-based companies, Bio Valley Ltd. and ICT Turku Ltd.

4. Shared regional strategy for higher education institutions

In prosperous regions there are typically several HEIs, which have their unique strengths but also many similarities. In these regions no single HEI has complete control of all aspects of the regional

development or is solely responsible for it. Their strategies and scorecards can, however, be aligned and linked in order to strengthen their external impact on the region.

HEIs have departments and units that operate at different points along the value chain of the innovation system. Without a common strategy, the interfaces between the units that make up the value chain are generally filled with inefficiencies. Each unit has its own systems and standards, and may follow different strategies. A HEI can create significant strategic advantage by better integrating its organisational units in accordance with the cluster-specific innovation system.

Each HEI can also define its own strategic theme of regional development and implement it using the balanced scorecard. Thus each institution can define its own objectives, measures and performance targets for regional development. Consequently they can see how they contribute to the high-level strategic theme of regional development that has been planned jointly between the HEIs in the region.

A HEI can create synergies across its diverse departments by providing students with a broad set of courses. All the institutions in a region can share common students and benefit from co-operation in many ways. If the co-operation is set as a strategic objective the scorecard should emphasise measures such as student exchange, cross selling and integrated teaching.

In June 2002 the Ministry of Education imposed a requirement that, in order to strengthen their external impact, HEIs in Finland increase their degree of co-operation, and plan regional strategies by the end of 2002. No single educational institution owns the regional strategy or is evaluated against it. On their own the decentralised efforts of HEIs would likely fail because a lack of coherence across different institutions. A shared regional strategy for the educational institutions helps avoid such failure.

The Ministry of Education hoped that the HEIs would learn to work together so that they could offer a better integrated service for their key customers. The new strategy would shift the HEIs from being isolated organisations to being units that could best lower operating costs and increase effectiveness in regional development. Talbert (1985), and Gumport and Sporn (1999) characterise

resource dependence and emphasise that activities and organisational structure follow funding sources. It is expected that with additional funding from the ministry the increase in the degree of co-operation and the positive external impact would be substantial.

There are three traditional universities in Turku: The University of Turku, Åbo Akademi University and The Turku School of Economics and Business Administration. They are closely situated in the same district of Turku. There are also four polytechnics: Turku Polytechnic, The Diaconia Polytechnic, The Sydväst Polytechnic and The Humanities Polytechnic. Turku Polytechnic is the largest polytechnic in Finland, but the other polytechnics have relatively small branches in Turku.

It is easy for HEIs in Turku to work in co-operation, because many of them are operating in the same district of the town and many of the subjects are represented in the various HEIs. For example, not only does Turku School of Economics and Business Administration provide courses in economics and business administration but The University of Turku, Åbo Akademi University and Turku Polytechnic also provide courses in the same field. It is more efficient to share the lecturers in basic courses and to concentrate the expertise in a broader set of specific courses providing larger perspectives for students.

Many departments of HEIs share common technologies and facilities in Southwest Finland. The innovation system in biotechnology is a typical value chain, which describes how to create new value for customers. It starts from the basic and clinical research of the universities. The department of biotechnology of Turku Polytechnic uses its capabilities to develop the processes to be used in the companies in the Turku Science Park. For example, it promotes entrepreneurship by lending incubators and uses its superb laboratories to produce proteins for companies and other HEIs.

The shared regional strategy for HEIs has brought the institutions closer together. They have focused on their joint efforts to take new initiatives in regional development. Their meetings used the clusters for framing the discussion of the objectives and major development projects between

the HEIs in research and development, support activities and teaching. The managers paid serious attention to high-impact initiatives that had to be accomplished in a short period of time.

The regional strategy of HEIs and scorecards describe the activities required by a virtual organisation. Each HEI is then able to define its own strategic themes of regional development and implement them using the balanced scorecard. Once it became possible for the HEIs to describe their strategies they were able to develop their own scorecards describing how their internal processes would deliver the output to implement the regional strategy.

There is a need for co-ordination and integration in regional development. The cost reductions and the additional funding for regional development provided by the Ministry of Education have maintained sufficient coherence and secured that the main objectives have been reached. The scorecards provide an approach to achieve synergy across the separate organisational units. The scorecards for the virtual customer-based strategic units provide the insight and direction to guide the individual HEIs and other operators in the region.

5. Regional strategy for a higher education institution

Typically no single organisational unit of a HEI has complete control over all aspects of the regional development that would lead to increased economic growth and welfare. The organisational units of educational institutions benefit from creating synergies through the sharing of students, staff and resources across departments. Acting on their own the decentralised efforts of organisational units would most likely fail because a lack of coherence.

Most organisations consist of many different departments and shared support units, which create synergies across them. Their strategies and scorecards should be aligned and linked. Chandler (1990) describes how synergies across business units and economies of scale can be used to gain competitive advantage in operations dominated by smaller and more focused organisations.

An outstanding strategy is not a random collection of individual building blocks but a carefully constructed system of interdependent parts. All activities and other elements are aligned with one another in an integrated strategy. That alignment is driven by the nature of the organisation's resources, its special assets, skills and capabilities (Collis and Montgomery, 1995).

Usually the strategies, objectives and measures of the educational departments are so similar that they can easily be aggregated into the whole-organisation level. The various organisational units may have strong interactions amongst each other. They may share common staff, facilities and students. Synergies among the units enable the whole organisation to be more valuable than the sum of its parts (see Collis and Montgomery, 1995 and Goold, Campbell and Alexander, 1994).

Organisational units of a HEI may, however, have different customers and in that respect employ different strategies. The heads of these units must determine how they add value in the organisation so that the whole is greater than the sum of the parts. The balanced scorecard provides a framework for clarifying the value created by the different organisational units in regional development even though no unit owns the regional strategy. The synergies generally can come from any of the four perspectives of the scorecard.

The scorecard requires an explicit organisation-level strategy that articulates the theory of how the organisation adds value to its strategic business units. Such a strategy may include common themes that pervade all departments, shared services and explicit interactions among organisational units that create competitive advantage. These strategic themes can be identified and communicated with an organisation-level scorecard and linked to the strategic themes and scorecards of the departments.

The executive team should begin the development of the scorecard. When the organisations long-term goals and the strategy for achieving these goals are well understood, all the organisational initiatives and efforts can become aligned to the changes required. In an ideal case all members of staff can see how their particular actions contribute to the achievement of the organisational objectives.

Strategic management is a continual process, where the management meeting has a central role in the planning and reviewing strategy. Review meetings both analyse what has been learned from the past, but in particular they look to the future and explore how to implement the strategy more effectively. Once the scorecard is launched, the executive team should review it each year and update it to reflect new opportunities and threats in the environment.

The scorecard should be the mechanism by which the senior executives present the strategies of the organisation to the board of directors. Senior executives then become committed to and accountable for achieving the organisational vision and strategy by establishing short and long-term targets and directing strategic initiatives and resources towards achieving them.

The scorecard represents the collective wisdom of the senior executive team. Without actively engaging the senior management team into the process, a successful outcome is unlikely. In a successful case the scorecard drives change and becomes an integral part of the organisation's management process.

When the process of embedding the scorecard into an organisation's ongoing management process is over, the executive team has to plan how to maintain the strategic management system. The strategic management system must be the personal responsibility of the head of the organisation and the senior executive team, because these process owners specify the objectives, set performance targets and allocate resources to achieve these goals.

Turku Polytechnic operates in eight municipalities in Southwest Finland. Its common strategic theme of regional development at the whole-organisation level is that the customer-oriented operation have a positive external impact on its region (Kettunen, 2002, 2003, 2004). This is rather general aim, because the polytechnic is a large multi-disciplinary institution. The strategies and development needs of each region were analysed in planning the regional strategy. Objectives were then defined for each municipality to meet its needs.

The balanced scorecard of Turku Polytechnic describe the measures and activities required of organisational units even though no single department or organisational unit owns the strategy of

regional development or is responsible for the implementation of the strategy. Once it became possible to express the strategies for each organisational unit, each unit was then able to develop strategies and scorecards that describe how their internal processes would deliver the output to implement the regional strategy.

The balanced scorecard provides the framework of regional development that is used at Turku Polytechnic 2-3 times in a year to assess progress made. It is important to encourage employees and managers to take time from their everyday jobs and focus on new initiatives. In meetings scorecards were used for framing the discussion of the targets and the major development projects. The managers paid attention to the regional strategy in their organisational units.

6. Conclusions

The strategies and the balanced scorecards of the whole organisation and its subunits typically reflect the structure of the organisation for which the strategies have been formulated. The strategies and the scorecards of all such units should be aligned and linked with one another to obtain the maximum effectiveness. This study presented a class of strategies where the strategy does not correspond with the structure of the organisation.

The regional strategies have been planned for virtual organisations, because no single operator has complete control over all aspects of the regional development. Some of the interventions have to be carried out in HEIs, and some others in the associated companies and government organisations. There must be a proper strategic process across different organisational units that leads to strategic themes, objectives, measures and performance targets, which are decentralised to different organisational units.

The balanced scorecard can help the HEI accomplish its strategic objectives for the regional clusters. The scorecard can help the institutions define a shared regional strategy for the several HEIs operating in the same region. It also can help a single HEI plan a new strategy of regional

development or redefine an old one. It assists the senior executive teams in each organisation in specifying the objectives and measures, setting performance targets and allocating resources to achieve these goals.

The regional strategies for the clusters were planned in co-operation by educational institutions, The City of Turku, various funding bodies and associated companies. The clusters were used to frame the joint regional strategy of HEIs in the Turku Region. Turku Polytechnic has formulated the objectives of its regional strategy in line with the other regional strategies and also emphasised the specific needs of the different regions in Southwest Finland.

A general pattern of the regional strategies is that strategic themes, objectives and performance targets have been formulated for virtual organisations including clusters, HEIs and organisational units within each HEI. This helps each organisation and organisational unit to set their own strategic themes, objectives, measures and performance targets based on their strengths and competitive advantage. The funding for regional development secures the maintenance of sufficient coherence between the organisational units.

The HEI failing to develop its regional strategy, in at least one of the three alternatives, is almost guaranteed to have low external impact in its region. The HEI that has low external impact should make a fundamental decision to develop its strategy. It must either take steps to achieve strategies for clusters, a shared regional strategy of several HEIs or to develop its own regional strategy.

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