



EDUCATION AND CULTURE

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Initiatives that failed to reach targeted goals

### **The Competence Network of Norwegian Business and Industry (Næringslivets Kompetansenett (NKN))**

#### ***Introduction***

This article is based on a literature search, information originally supplied on the web pages of NKN, and also informal talks with representatives for working life organisations, prior employees of NKN and course providers to NKN. It has been the intention that the result of this research should be as objective as possible. However, the result may be viewed as subjective and is the authors' responsibility only.

NKN was established in August 2000 with a high profiled event in Oslo where top representatives from the government, the Ministry of Education and the Ministry of Trade and Industry, from the employers' organisation, Confederation of Norwegian Enterprise (NHO) and the workers' association, the Norwegian Federation of Trade Unions (LO), and from prominent educational institutions, business and industry. NKN was established as a limited company to operate as a main instrument for providing ongoing, personalised online education and training for employees in the private and public sector, owned by the two largest parties in the working life, NHO and LO, with NHO as the driving force behind the establishment, and also the main financial contributor. The company aimed to become the hub and main centre for competence development services supplied over the Internet for the Norwegian work force. After about one year of operation, the Norwegian Telecom, Telenor (to a large degree state owned), joined NKN as strategic owner buying about 20 percent of the company. NKN was strongly supported by government initiatives (such as the Competence Reform) and by investments from the owner organisations. In spite of the support from owners and agreements with nearly 40 educational institutions and content suppliers, the NKN did not at all succeed. It became never able to cover its costs. After only over two years of operation, the owners, mainly NHO, LO and Telenor, had spent over €7 million on the project (unofficial estimations say €14 million (Larsen 2004)). To avoid the bad publicity of a bankruptcy and let the creditors take the costs, many possible members of NHO, the owners decided already in 2002 to pay off the creditors with about €1 million and to sell NKN to the managing director for a symbolic sum (NUV 2002). The new owner never managed to make NKN profitable and it was quietly closed down after some time.

#### ***Historical context***

The establishment and fate of NKN have to be understood in the light of its historical context. Firstly, Norway was like the rest of the western and industrial world in the late 90's largely

influenced of the IT optimism and 'dot.com' hype. It was established just at a time of extreme expectations concerning growth in the information technology business and what this technology could achieve in all areas of society, including education and training.

Secondly, specifically in Norway, there was great attention towards the needs of competency development, education and training in the workforce and also for people outside working life. The committee, which was set up for proposing new politics for a complete national system for adult education and competence development in work and society, presented its final report late 1997 (KUF 1997). The report proposed a '*competence reform*' with the intention of raising the competence of the whole population, specifically in working life. According to the committee, to reach the goal of general and necessary competence development for the Norwegian workforce the "*educational institutions had to adapt to users' need for flexibility, accessibility, openness, quality and connected to working-life*" (KUF 1997 p. 17 (author's translation)). Among a number of recommendations, the committee proposed that employees' rights for leave of absence for education should be established by law and that a public development program for application of online education was needed. The committee presupposed that the working life parties would give priority to find solutions to make it possible for all employees to take part in further and continuing education (ibid. p.19).

The white paper to the parliament (Stortinget) on the *Competence Reform* (St.meld 42 1997-98) *Kompetansereformen* (KUF 1998)) followed up the committee's work. The white paper suggested efforts for stimulating and strengthening the competence development in working life – with specific emphasis on small enterprises. It was also mentioned that the government would consider establishing a funding program for the support of competence development. The resulting reform and the so called *Competence Development Program* were based on the white paper and the income settlements in 1999 and 2000.

In connection with the income settlement in 1999 the government indicated to allocate up to 400 million Nkr (€50 mill.) over 2-3 years to partly finance a competence development program for further and continuing education and training in working life. The program was established from the first half of 2000. One basis for setting up the program was the assumption by the working life parties that the market for further and continuing education did not function as well as it should. Thus, for receiving financial support from the program, it was required that projects were based on cooperation between supplier and user of competence development, and that the projects were planned in cooperation with the working life parties, i.e. formally supported by both the employers' and employees' side. The projects should also be concerned with or include innovations or new teaching/training/learning practices valuable for transfer of experience within the competence market.

(Although it is not directly related to NKN's lack of success, it should be noted that the competence development program itself was not deemed as a great success. After 6 years 400 million Nkr had been distributed to over 700 projects and 80.000 persons had participated in training programmes (VOX 2005, Norgesuniversitetet 2007). The program was evaluated by the research institute, Fafo (2006). The main criticism of the program was that the main target groups for the reform, people with low basic education, were underrepresented, while people with previous higher level education were highly overrepresented among the participants – a result that was not at all intended.)

## **The Norwegian University Network for Lifelong Learning (Norgesuniversitetet)**

As part of the historical context of the NKN initiative one should also note another initiative, which resulted in the establishment of another organisation, the Norwegian University Network for Lifelong Learning (Norgesuniversitetet) at nearly the same time (May 2000). It is noteworthy that this organisation was initiated by partly the same interest groups as the NKN. Norgesuniversitetet was profiled as “*a unique collaboration between institutions of higher education and employers' and employees' interest organisations in Norway. It is organised as a joint venture and is governed by a board elected by its partners.*” (Norgesuniversitetet 2002)

The establishment of Norgesuniversitetet was a result of a long process started by an initiative taken by NHO (Brækken 1997). This initiative was also prompted by the political work behind the competence reform mentioned above. NHO had a strong opinion that the traditional higher education institutions were neither interested nor able to satisfy the needs for competence development in Norwegian industry and business that were necessary for future international competition. Primarily, NHO wanted a new institution competing with the ordinary higher educational institutions based on similar principles as the British Open University, with open access as a fundamental principle. The associations of universities and colleges saw the initiative a threat and met the initiative by inviting the social parties into a cooperative project developing the network for higher education. The result of this common endeavour was Norgesuniversitetet, which very similar to NKN intended to:

“- *ensure that information on continuing and further education at a higher level, offered by accredited providers, is easily available to all: individuals, companies, and organisations;*  
- *strengthen industry's and the public administration's access to new skills to assist competence development and improvement of competitiveness;*  
- *contribute to the development of relevant, high-quality courses for industry and the public service; and to*  
- *support the continuous building up of our democratic society.*” (Norgesuniversitetet 2002)

The main services included “... *a database containing several thousand courses, and a marketplace where industry and public organisations can find providers to help them develop new courses or training schemes* (ibid.)

While Norgesuniversitetet was meant to be a non-commercial operation, NKN was intended to compete commercially in the same field. There can be little doubt that, specifically on higher education level, the Norgesuniversitetet and NKN could be seen to be in direct competition. It is difficult to understand if this situation never came up as a controversial issue in e.g. NHO and LO. As a commercial enterprise NKN could also be seen to be in competition with its course providers. It should also be clear that cooperation with both these two bodies and adapting courses, information and systems to each one represented great costs in time and money for the educational institutions.

(To avoid misunderstandings: In 2004 this organisation, the (‘old’) Norgesuniversitetet (Norwegian University Network for Lifelong Learning) was merged with the state body, SOFF (Norwegian Executive Board for Distance Education at University and College Level) and named (‘the new’) Norgesuniversitetet (in English Norwegian Opening Universities). This merging was backed by both organisations and the government to get stable funding, to consolidate the two and to gain synergetic effects.)

## **The NKN Vision**

The NKN was founded as a great effort to support the goals of the competence reform and the competence development program. Indeed, NKN was also involved in a number of projects that received grants from the program. The NKN was launched by the working life parties “as a portal for learning” to contribute to the success of the competence reform (Fossen 2000) after an intense trial period of Internet based learning in a number of selected companies. A visit to Silicone Valley by the working committee of the board of the employers’ organisation, NHO, had resulted in strong beliefs in the potential of e-learning (Onarheim 2000). NKN itself viewed the competence network as much more than a portal for e-learning – as a comprehensive overarching system for supporting learning activities and support in directing, developing and structure right and relevant competence development for the Norwegian workforce in a life long learning perspective.

Reports from the opening ceremony express great visions of the potential of NKN. These visions presented by various speakers were well illustrated by a report from the editorial director of *Learning & Performance*, Stuart Rock (2000):

*“Nothing has happened quite like this before. In a grand coalition, an entire country is embracing e-learning. ...The plan is to provide more than four million Norwegian citizens – including government offices, trade unions, colleges and universities, as well as the private and public sector – with access to ongoing, personalised online training.”*

The following citations are partly this author’s English translations and partly cited from Rock (ibid.) from speeches held at the opening ceremony (originally presented on NKN’s web pages):

Grete Knutsen (minister for trade and industry):

*“...Norwegian trade and industry has to learn to live with ...change. We have to transform our wealth creation. We will face special challenges as our revenues dry up and some restructuring is essential. We need to be at the cutting edge of knowledge, so that Norway competes on quality and innovation rather than price. Every enterprise must concentrate on research and development. The answer lies in new competencies – for every worker and every leader. ...And the delivery mechanism for these new competencies – for every worker and every leader – is e-learning. ...NKN has the full engagement of the government. ...because it delivers on the government’s programme of ‘competence reform’ for the whole population. ...NKN serves as a training portal for an entire nation.”*

Finn Bergesen (chief executive of the Confederation of Norwegian Business and Industry (NHO)):

*“It is a unique offering and it re-establishes the workplace as a place of learning. For the 820,000 members of the Norwegian Federation of Trade Unions and for our 16,000 member companies the Competence Network opens for the right and relevant learning. ... For the companies this means a much more cost effective and more and better learning per krone, and it will help enterprises keep their competitive edge.”*

Svein Erik Skjønberg (managing director of NKN) announced that already at the opening NKN there were 200 course offerings supplied by 40 different content providers – with an early emphasis on subject areas such as IT, health and safety beside courses at university level – and that new offerings were added daily, so that the number of courses were expected to reach 1,000 already at the end of the year (four months later). According to Skjønberg NKN was “*moving at a fast speed...*” and he anticipated that after one year of operation more than 100,000 citizens could be using the NKN network, which already from the start would address more than 50 per cent of Norway’s working population through different forms of business and industry, trade unions, the public sector and the bulk of the private sector.

Saba, the supplier of the technology behind NKN had marketed their technology and services well. According to Bobby Yazdani (chief executive of Saba):

*“... This project is going to live beyond this generation, and we are looking forward to it. Generations yet to be all born will benefit from what you are launching today, and I salute you, and I salute you for your commitment. It is an honor to be here today, as Norway teaches the world a very important lesson about speed, cooperation, integration and education. ... Never before has an entire country, an entire country mothered the successful, business practices of many of the world's co-operations: Fords, GEs, GMs, Ciscos. ... The NKN's strategy ... will enable the country's entire work force to remain a highly relevant economic phase and enforce that it's prosperous. This is a precedent setting event for Norway and us and the rest of the nations of the world.”*

## **Technical Issues**

NKN based its technology and learning infrastructure on the learning management system supplied by the American Saba Learning platform. It was assumed to function as a seamless learning network to function for a whole nation with a large number of course/content providers using different kinds of institution specific technologies. Saba should configure its system structure to be flexible enough to constitute a nationwide learning network to effectively address any training level, to be fast enough to deliver timely training solutions, and to be robust enough to integrate multidisciplinary learning applications for every industry in Norway (from [www.saba.com](http://www.saba.com) here from <http://www.kikm.org/portal/egov.htm>).

According to Saba the software was ideal for developing comprehensive Human Capital Management solutions. It included, in principle, solutions for knowledge management, learning management and content management.

NKN offered services based on the system for planning, organising and documentation of training as an ASP solution for SMEs. Further, the system was, of course, intended to be used as a possible learning platform for courses delivered by the cooperating content or course providers. In addition, NKN also from the start offered support services concerning choice of technology for learning and also services on the adaptation of existing internal systems in companies and on development of internal training programmes and integration with the NKN technology.

Although NKN emphasised its dedication to e-learning, many of the courses and training programmes marketed through the portal were face-to-face training – and also printed materials. It was also the total situation from the start that the majority of suppliers of Internet

based training programmes through NKN were not able to distribute their courses through the Saba LMS.

NKN was from the start attentive to problems and challenges concerning e-learning standards, but seems to have underestimated the challenges connected with different standards and system solutions and the problems concerning distribution of existing Internet based courses through NKN's Saba platform. This is why the NKN Saba system for most course providers never worked as a learning management system.

For many of the courses, both from the start and later on, NKN mainly functioned as a web based catalogue of courses from different institutions.

### ***Courses and Services***

The intention was that NKN should establish itself as the centre of a national network for life long and work related learning with all types of courses at all levels from all types of educational providers. Although the profile was on e-learning, a belief in the cost-effectiveness of e-learning and that the market was ready for Internet based learning, especially at the workplace, the NKN catalogue included all kinds of teaching-learning forms.

The open course catalogue, which was presented at the time when NKN officially opened, included 10 (only private) institutions representing distance education institutions, IT course providers, study organisations, multi-media and e-learning companies, publishers and employers' organisations. The courses were mainly IT courses (including IT tests), some general secondary school subjects, and some vocational training courses. Learning forms were distance education (including correspondence education and Internet based learning), CD-ROM based e-learning and books (?). The courses could only be ordered via NKN, but not studied on the NKN Internet platform.

Later on NKN marketed its cooperation with a large number of partners including public colleges and universities, among others the Universities of Oslo and Bergen. The University of Oslo announced in its annual report for 2000 that it as the first of the Norwegian universities had signed an agreement with NKN (UiO 2001). NKN also signed agreements of cooperation with publishing companies, e-learning developers and course providers abroad.

In addition to agreements with educational institutions, NKN offered courses in cooperation with its owner organisations, e.g. such as an Internet based course in 'inclusive working life' developed by the Federation of Process Industries and Statoil and basic training for the Logistics and Freight Association – both examples developed with support from the competence development program.

The NKN courses were organised in an internal comprehensive total course catalogue, in an open access catalogue on the web pages, and as specific catalogues for paying subscribers of the competence network, e.g. specific company course catalogues.

In addition to the course offer, NKN offered solutions for knowledge management, such as constructing competence profiles for individuals and organisations/companies, storing and updating of individual CVs, analysis of competence needs etc.

Thus, besides the training courses NKN marketed its products and services as:

- designing and operating internal training systems in companies, public enterprises and organisations
- outsourcing of internal training
- registration of employees' competence
- training based on work processes (training in work)
- all forms of traditional training
- development of tailor made e-learning
- CLMS systems
- support and guidance on training technology

### ***Management, Strategies and Attitudes***

NKN was governed by a board representing the owner organisations. The main owners were, as mentioned above, the Confederation of Norwegian Enterprise (NHO) and the workers' association, the Norwegian Federation of Trade Unions (LO), and after about one year of operation also Telenor. In addition, many of the nationwide sectoral federations of NHO, national unions affiliated with LO, and also labour organizations not affiliated with LO participated as minor share owners.

From the very beginning NKN built up a competent staff recruited partly from owner organisations and institutions in the field of distance education and e-learning. However, it is reason to believe that in total it was staffed by personnel with more organisational and theoretical competence than real hard business experience and practical e-learning experience to build up a commercial profit making e-learning enterprise in short time according to the vision of the company.

NKN aimed at becoming the main hub for distance education and e-learning provision, including printed and electronic courseware and other types of educational provision, for work related learning in Norway based on its Saba technology, partnership with Norwegian and foreign course providers and its close relationship with the labour market, employers' and employees' organisations. In the first phase NKN courses and services were open for the labour market only for a certain access fee. However, in May 2001, it was announced that the NKN course catalogue was opened for individuals to access free of charge.

A main challenge for NKN, as it was not an educational institution, was to sign partnership with course and content providers, in particular higher education colleges and universities, distance education providers, private schools, e-learning companies, study organisations and publishers. According to published information from NKN, agreements were signed with around 50 course and content providers.

Backed by its owners, NKN assumed to have the best contacts and relationship with the labour market, i.e. the main market for its services. In this connection it was assumed that NKN should be the contact point for the users concerning course enrolments, registration of personal information and invoicing. There is no doubt that the NKN services as an intermediate between the course providers and customers did result in some bureaucratic and complicated extra work for the course providers, that necessarily led to less cost-effectiveness on the providers' hands.

In addition, NKN charged a broker commission on sales that was not unsubstantial. It should be kept in mind that course prices for most providers in Norway do not give large earnings, if profit at all.

Another problem, as seen from the course provider's perspective, was that direct contact between the provider and the customer, i.e. the user of learning products, in many cases is necessary for adapting all aspects of teaching and learning to the needs of participants. Perhaps, specifically in education, an intermediary broker makes administration and teaching processes more complicated, more expensive and most probably of less quality.

From the course providers' side it can also be noted that for course providers with a history of reasonable success in course delivery to enterprises and public services, the organisation, including sales and marketing activities, would have been built up for handling direct communication with enterprises. In such cases NKN could represent an obstacle rather than a supporting mechanism for contact with potential customers. For course providers with less experience in delivering training to the work force, the establishment of NKN was not enough to change priorities from their traditional main activities to attention towards workplace training needs.

It should neither be underestimated that in many respects NKN's cooperating course providers looked at NKN as a possible threat to their business. The interest for participating was for some providers probably seen more as an insurance against being left outside than a belief in its value as a tool for their own marketing and teaching activities.

Seen from the potential customers' side there is no doubt that both employer and employee organisations looked at competence development as an important area for cooperation, and that competence development was necessary for development and competitive power of Norwegian business and industry as stated in the goals of the competence reform (KUF 1998). However, in real life there is a long way from the goals of the social parties to the practical decisions taken by an individual employer or business, large or small, and not least the learner, when deciding to buy or enrol in a course. There is also a long distance between the assumed objective competence needs in the workforce and an employer's willingness to pay for courses (course fees, work hours and possible leave of absence with pay). As did the competence reform, the NKN probably overestimated the market for its possible services, willingness among workers to engage in learning. Specifically, successful e-learning requires that the participant is willing to spend time and effort on active engagement in the learning process.

NKN was established during the IT and e-learning hype of time, and both the possibilities in e-learning and the readiness for e-learning in business and industry were probably highly overestimated.

## ***Economy***

NKN was established as a limited company first owned by Confederation of Norwegian Enterprise (NHO) and the workers' association, the Norwegian Federation of Trade Unions (LO). Also a number of the member organisations of NHO and LO contributed with share capital. The investments from the owner organisations made it possible to build up a comprehensive staff from the establishment.

It was the intention that NKN should offer courses and services based on commercial principles of selling its services with profit.

As NKN was not an educational institution with its own courses, it was dependent on signing agreements with course and content providers. NKN viewed itself as a broker between the course providers and the customers (individuals and organisations/companies). For this service NKN should receive a certain percentage of the course fees.

As mentioned, NKN did not manage to sell services and courses to cover its costs, and the share capital was spent in too short time.

## **Conclusions**

In the following some characteristics of the Norwegian Competence Network (NKN) is related to the success factors for large scale Internet based e-learning to possibly detect some of the main reasons for its discontinuation.

### **Historical context**

#### **1. Long history or tradition in dealing with e-learning, online learning or distance education:**

NKN was a completely new enterprise with no history, tradition or experience in the field. The establishment was based on future prospects resulting from the Competence Reform and was a direct part of wage agreements between the social partners and the government.

#### **2. High competence or tradition in e-learning, online learning or distance education:**

NKN, its owners and staff had a rather limited experience in online education. The initiative came from organisations with main functions far from administering, selling and organising e-learning services. NKN engaged competent staff to perform the necessary functions. However, most of the staff had not direct practical experience in running an e-learning business.

#### **3. Evolutionary (step-by-step) development (scalability):**

NKN was not a result of an existing organisation ready for transferring into an e-learning provider. Although, there had been some positive trials of applying e-learning for competence development – the testing of e-learning programs in some companies – building up a large scale operation from specific funded projects seems to be a lot more complicated and vulnerable process.

#### **4. Continuing research and evaluation related to e-learning and online education:**

In spite of the foregoing trials, NKN as an organisation had not any activities related to research on e-learning.

### **Technical issues**

#### **5. High competence in information and communication technology (ICT):**

It can hardly be said that NKN was an institution characterised by specifically high competence in ICT. The technology was based on Saba software developed and supported from an American firm.

#### **6. Based on standard and widely-used technologies; widely-used technologies enables students to apply the software and hardware they have at their disposal with little need to buy and install additional equipment:**

As NKN offers was based on courses and contents delivered from a large number of providers with different types of technology, forms of education (both organisation and pedagogy) it is probable that standardisation of specifications on the receiving end must at least have been difficult – if not impossible.

### **7. Well integrated ICT systems that support online education:**

Most probably the Saba software represented well integrated and state of the art technology for e-learning at the time. However, there is no doubt that standardisation issues concerning integration and the possibility of achieve satisfactory, or at best seamless, interfaces with systems used by course providers were not solved and led to more difficulties than expected.

### **8. Effective administrative systems:**

There is all reason to believe that the Saba systems were effective for its purpose. On the other hand the success of NKN would also be dependent on student and course administrative systems of course providers. The efficiency of these systems could hardly be followed up by NKN, and lack of integration would reduce efficiency.

## **Course issues**

### **9. Wide range of subjects and levels:**

Partnerships with a large number of course and content providers to be able to deliver ‘all’ types of courses and training programmes were a basic strategy in the establishment of NKN. The course catalogue contained a large number of courses. These represented very different kinds from books and CD-ROMs to correspondence education and Internet based distance education as well as ordinary classroom education and blended learning.

### **10. Wise choice of topics, courses, and programmes that are ‘onlineable’:**

Although NKN was profiled as *“the world’s largest Internet school ... with the aim of giving everybody in the whole country opportunity for further- and continuing education at the workplace or at home via the Internet”* (NKN 2000a), the courses included many offers that in practice were not offered on the Internet.

### **11. Flexible student start-up and progression:**

The flexibility of the courses offered varied a lot. Some were based on individual learning, flexibility and free progression, others were not.

### **12. Students' time flexibility leads to asynchronous communication and little focus on synchronous communication technologies:**

NKN did not seem to have any clear policy on methodological or organisational issues related to synchronous or asynchronous communication or media and communication technologies. Courses on offer differed a lot also in this respect.

## **Management, strategies and attitudes**

### **13. Support from top management:**

NKN had full support from the top management of owner organisations, the board and the top management of NKN itself – as the development of e-learning provision was the basis for establishment and the goal of the company. However, concerning the main owners there is reason to believe that the focus of employers’ and employees’ organisations is on other questions and challenges than running a commercial e-learning operation.

### **14. Enthusiastic employees who believe in online education (little resistance):**

There is also all reason to believe that the staff of the whole organisation was enthusiastic in the endeavour to build up a highly profiled e-learning operation. They had all been engaged just for this purpose.

**15. Strategies that support online education and employees that are loyal to the strategy:**

The strategy was built on marketing and organising education based on Internet and e-learning software. However, it can be discussed whether the strategy of offering the large variety and types of courses, not all e-learning according to accepted definitions, was the best strategy for developing “the world’s largest Internet school”.

**16. Focus (strategy, control, and management) on quality:**

All available information indicates that the NKN had great attention towards quality management, quality assurance and quality control. It can be claimed that quality control of e-learning provision to the labour market and the public was one main function of acting as an intermediate between providers and customers. One focus of NKN was “... *to offer updated and quality assured training and education accessible on the Internet through the brand name The Competence Network*” (NKN 2000b).

**17. Effective administrative routines:**

Seen from the outside it can be claimed that to totality of routines were not efficient. Delivering courses through NKN involved extra work for course providers with their own technology and administrative routines for delivering e-learning. The cooperation established by the agreements between NKN and course providers involved very elaborate routines on who is doing what, communication between provider and NKN and communication and payment structures when training programmes involve provider, NKN, possibly employer and trade union and groups or individuals of learning. Also systems concerning payment, invoicing and reporting became bureaucratic and costly for the provider.

**18. Some sort of industrialization (division of labour, systemization, automation, rationalization, work flow management):**

This issue does not apply directly to NKN as an intermediate between course provider and customer/e-learner. As the courses differed the degree of industrialization of teaching would differ. However, again seen from the provider side the NKN part did not increase cost-efficiency of course delivery.

**19. Focus on predictable and manageable teacher workload:**

Not relevant for courses delivered by partners.

**20. Collaboration with other educational institutions:**

Collaboration with other institutions was the basis and part of the main strategy of NKN. NKN already from the start established partnership with 30 to 40 course and/or content providers. However, it is not certain how enthusiastic the different institutions actually were, and to which extent they really had a lot of training programmes that fitted into NKN’s strategy.

**21. High credibility (formal and informal) with the government and public administration:**

There is all reason to believe that NKN had the full support of the government including ministries of education and trade and commerce. As NKN also was established by the social partners in connection with emphasis on including education, training and competence

development as part of the tariff agreements, the support from leading forces of the Norwegian society should be unquestionable.

## **Economy issues**

### **22. Cost-effective courses (much learning for the money):**

It was the ambition of the owners that NKN should provide cost-effective competence development for the Norwegian workforce – as illustrated by the speech of Finn Bergesen, chief executive of NHO at the opening ceremony, "... *NKN is cost effective, as people learn more per krone, and it will help all enterprises keep their competitive edge*". The fact is that it was not cost-effective and spent much more money than it earned. The question is whether it had potential to become cost-effective with the strategy that was chosen. From the viewpoint of providers of Internet based courses, it is questionable if it could become cost-effective.

### **23. Stable and predictable sources of income from operation of online education:**

NKN never in its life time managed to get predictable or stable income. Course sale is a long process. Support from government policies and the organisations of working life has probably little influence on decisions on training taken by individual enterprises and very little influence on the individual learner's decision to enrol for a training course. It is probably a fact that in establishing NKN the owners largely overestimated readiness for applying e-learning in the market, Norwegian business and industry.

### **24. Pressure on the necessity to change to stay in business and flexibility to adapt to the changing market:**

This factor relates to an educational institution's motivation to change dependent on whether income is based on fixed budgets or income from course fees. NKN was established to supply learning over the Internet and not as a response within an organisation to needs for change.

### **25. Flexible employment and use of part time teaching staff to adapt to changes in markets:**

This factor does not directly relate to NKN, as NKN based its course provision on cooperation with other parties to provide content and courses. But it seems clear that NKN from the start had a staff that was too expensive to be covered by income from courses and services.

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