

## **Business Integrated e-Quality**

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### **ABSTRACT**

Quality is the most important business factor for organizations' performance and competitiveness. This is valid also in e-business environments. Quality is particularly related to an organization's products. However, its attainment applies to both internal business management and leadership and also external customer, supplier and partner relationships. The concept "e-quality" refers here to professional quality approach related to e-business environments and means. The phenomenon of e-business and its features that are relevant for quality context are highlighted in this paper. Post-hype of e-business would have been and be quite different than what we have seen provided that e-businesses and dotcoms had taken care of quality in managing the business. To be successful, also now V2C (Venture-to-Capital) investments call for professional quality approach in business management and performance. Today often venture capital cases relate to e-business. Considering these issues and reporting on experiences in developing practical commercial applications of e-quality are the main topics of this paper. As a case e-Quality Portal concept and its realization are presented. e-Quality Portal is a cutting-edge gateway to business reality for enhancing quality awareness, improved use of expertise, performance management, and interested party confidence. It provides an innovative portal solution to business integrated quality management (QM) and quality assurance (QA) needs.

### **INTRODUCTION**

Within all kinds of organizations and their business processes the use of information technology has been increased overwhelmingly. This has very often taken place in terms of information technology (IT) experts only. This has induced to difficult and even chaotic situations in many business cases. Often also corporate-wide intranet solutions have just aggravated the situation.

In general quality is understood as fulfilling the needs and expectations of all interested parties of an organization effectively and efficiently. In competitive market situations that requires excellent business performance from organizations. A core issue of quality management, the company-wide realization of quality, is the beneficial use of data, information, and knowledge, including corporate wisdom. E-business is realized through digital based ICT (information, communication technology) solutions. Quality is in e-business at least as important as in conventional business environments. Especially due to an extensive application of the new electronic technologies a more systematic approach is necessary in realization of business systems and their management than in conventional business conditions where actions were principally based on direct and often ad hoc decisions of responsible individuals.

Typically researchers, implementers, and promoters of e-business are not at all familiar with systematic professional quality management principles and practices. On the other hand, normally the quality practitioners don't know even the basics of e-business. Therefore there are very little practical implementations and even research activities of quality and quality management in the field of e-business. In this study we are breaking new paths in this emerging business discipline.

Practical business people don't see the real problem or they see the situation as too chaotic in order to have possibilities to touch it. E-business practitioners are, in fact, in a very "blur" situation, when businesses are "living on the fault line" [16]. Traditional quality experts, e.g. quality managers of various organizations or consultants for quality management, have typically poor knowledge or experience premises for considering special characteristics of e-business. They have neither had any pressure to that because of the small or no interest of business leaders. Our challenge is to consider this dilemma in a contrapuntal way. Creating a contrapuntal perspective consists of setting parallel conflicting and contradictory experiences and forms of knowledge and putting them in proposition to each other as two sides or aspects of the same phenomenon. A lot of information and partial knowledge is available for this consideration. According to Sven Lindqvist: "You know already sufficiently. And me, too. We have no shortage of knowledge. We lack courage to comprehend what we know and to draw the conclusions." [13]

This research was based on the deep and long term theoretical and practical insight of the authors on professional quality management and knowledge technology. Understanding the principles, situation, and effects of e-business was originated in studying available abundant reference material and observations from the real business cases e.g. through benchmarking methodology, and rational analysis of the findings. The ideas have been tested within recognized expert networks. From that basis a R&D project was planned and executed to set grounds for developing new practical and beneficial e-business related quality solutions, "e-quality" solutions. As a prerequisite one should clearly understand both e-business phenomenon and the professional quality principles and methodology. The development project was sponsored by Sonera Corporation and conducted within the established partnership between Sonera Corporation and Finnevo Ltd.

## **E-BUSINESS AS A GLOBAL PHENOMENON**

E-business - electronic, especially Internet Protocol (IP) based form of business - is today's reality and increasing opportunity for organizations in all sectors. E-business is not only a technological issue. Its impacts are very wide due to the standardized digital technological uniformity in telecommunications, IT and information contents (infocom solutions), strong penetration of Internet and mobile telecommunication, and increasing importance of transaction costs. Today Internet covers already the whole life. Internet provides a world wide IP-based technological infrastructure. It includes both the formal Internet and other networks and computers linked in through proprietary systems. The Net includes all the people, cultures, and communities. It has rules and norms - ways we should behave even if no one forces us to. The Net belongs to no particular country or group. The greatest structural impact of the Net is decentralization; things and people no longer depend on a center to be connected. Thus, the behavior of individuals, groups, organizations, corporations, communities, and societies has changed. Also quality professionalism should adapt itself to these new business realities. In fact, it also could be a challenge for it.

Trying to understand the unique development and expansion of e-business one can refer to a lot of fundamental thinking ("Laws") and observations considered in various reference materials [8]. The most significant ones that are also very relevant for QM and QA context include the following:

- Law of disruption: Where social systems improve incrementally, technology improves exponentially (Ref. Alvin Toffler: "Future Shock")
- Moore's Law: Every eighteen months, for the foreseeable future, chip density (and hence computing power) would double while cost remained constant. Moore's Law is a counterintuitive, wealth-creating, anti-entropy principle
- Metcalfe's Law: The utility (value) of a network is increased as the square of the number of its uses.
- Rayport's & Sviokla's findings: In the evolving "market-space", it is not only the infrastructure that is different, but the content and context of transactions as well.
- Coase's observation (1937): Complex, geographically dispersed firms were the result of market inefficiency. Firms organized to reduce the transaction costs of repeated and complicated activities involved in creating, selling, and distributing their goods and services. Firms exist only to the extent that they can reduce transaction costs more effectively than the others.
- Law of diminishing firms: As the market becomes more efficient, the size and organizational complexity of the modern organization becomes uneconomic. Firms will become smaller, comprised of complicated webs of well-managed relationships with the interested parties of the business.
- Ashby's law of requisite variety: Only variety in the regulating system can force down the variety due to the system to be regulated. The controlling / regulating system ought to increase its corresponding variety more than the regulated one.

One can see very big potentials with e-commerce and also the whole e-business [12]. This concerns all kinds of organizations, including both enterprises (corporations or

SMEs) and not-for-profit organizations (governmental or local civil services or authorities, and the third sector voluntary organizations). According to the Gartner Group, worldwide revenue generated by business-to-consumer (B2C) e-commerce enterprises totaled \$31.2 billion in 1999. They predict that by 2003, the sum spent online will increase more than tenfold, to \$380 billion. Corresponding business-to-business (B2B) commerce will grow at a compound annual rate of 119 percent – from \$145 billion in nonfinancial goods and services in 1999, to \$7.29 trillion in 2004. Corresponding results have been obtained also by other research organizations.

However, business analysts are also presenting the threats and difficulties of e-business [14]. At the dawn of 2000, the Internet was riding on the crest of a great wave heralding the future of this industry. Some who staked their future on electronic business of the Internet, have prospered, but some others have found bad set-backs. In the USA investors invested hundreds billion dollars into Internet companies but lost the major portion of the money. A lot of American e-business companies, “dotcoms”, have fallen with consequences also to the other related businesses, e.g. marketing, advertising and media companies. The number of Internet job cuts in 2000 in the USA totaled more than 40000. Many traditional established companies failed in managing change from traditional business mode to business based on new “disruptive” technology. Analysts however see that the best companies will rise out and do well over the 10 to 15 years. The great consensus is that the explosion of the information and technology age is here to stay and is just in the process becoming all grown up. One should clearly differ hype-problems from the poor quality of e-business management.

A key strategic issue in e-business is the crucial role of information, knowledge, intelligence and intellectual property. The market capitalization (the genuine value of the organizations, excluding the hype) has become more critical than loss & profit statements and it is more strongly based on knowledge and intellectual capital of the company than on physical assets. Also networking of the partnering organizations and individuals is emphasized especially through wired or wireless (mobile) Internet. Internet technology has enabled information access to masses. With this medium all business partners have 24\*7 hours connections with each other world-wide. It is also facilitating communication within modern virtual organizations. All these things also emphasize the significance of information security and ethical issues.

Effects of e-business can be widely seen in organizations’ business processes, products, operating and roles of the interested parties (stakeholders). These viewpoints include:

- new opportunities of business realization when applying web technologies for improving customer relationship (CRM – customer relationship management), human resource management (ERM – employee relationship management), supplier partnership (SCM – supplier chain management) and business-internal processes (ERP – enterprise resource planning),
- value network considerations among business partners,
- emphasis of information and knowledge components in products,

- customer focused and centric operation during the different phases of custom, and different embodiments of the customers (recipient, user, buyer, payer, regulator, expert support, leadership etc.),
- employee satisfaction in innovative knowledge work,
- aspects relating to owners, especially investors with exit expectations, and
- needs, opportunities and responsibilities of the society, communities and public authorities.

The new world of e-business where organizations live and work today is blur, driven by three major forces:

- Speed - Every aspect of business and the connected organization operates and changes in real time.
- Connectivity - Everything is electronically connected to everything else: processes, products, people, businesses, companies, countries, etc.
- Intangibles - Every offer has both tangible and intangible economic value. The intangible is growing faster.

Particularly the e-business movement sets requirements for business leaders and for managing processes and related systems. E-business organizations will be living for years to come in the center of various turbulent environments caused by the above mentioned forces. The companies function in the blurred intersection of contents business, telecommunications and information technology businesses. Each of these areas is dynamic enough to constitute a major challenge for successful survival, but the emergent power caused by their combination is changing the world drastically. Living in the center of this tornado – or “living on the fault line” - calls for special means and capabilities. Particularly this is affecting in all management structures and actions (including quality management), and the business can't any more be managed in traditional ways.

All the business systems and their business processes and activities are manifested in three major dimensions of activity. These dimensions are:

- the mechanistic (serial, routine),
- the organic (controlled network, managed complexity) and
- the dynamic (virtual, blurred complexity, chaotic)

Which one of them is most prominent and critical depends on the values, goals, interests, and policies of the business, its stakeholders and other intressees. Regarding excellent business performance, the most important issue is how those activity dimensions are balanced. For example, regarding both external and internal environments of excellence driven e-business companies, it is strategically more vital to understand and innovatively adapt to dynamic than to e.g. mechanistic nature and features of their business environments, although also these must meet the requirements. The needs of these different activity-modes are also reflected e.g. to business documentation (including so called quality documentation). The mechanistic aspect is represented by unambiguous descriptions of practices, the organic aspect is represented by the documentation of stakeholder relationship

management and the dynamic aspect by documentation to support and share an understanding of values, purposes, policies and sources of innovation.

Due to competitiveness also e-business companies are striving towards excellence of business performance. That is also the intention of all modern quality efforts. Improving business performance continually calls for fundamentally the same measures in dynamic as well as in organic external environments and the same in a dotcom as in any other company. Namely, business excellence can be achieved by deploying appropriate approaches with superior effectiveness and efficiency irrespective of environmental business dynamics. The crucial issue is that they realize vital business requirements. Business requirements in dynamic are different from those in organic situations. The same applies in the case of superiority of effective deployment of the planned approaches. Living in a tornado requires that approaches have a special focus on values, principles and policies. The deployment of such approaches needs agile innovativeness in an utmost effective and efficient way. The results of the deployment of appropriate approaches must indicate real values, not merely illusory hype.

Success based on anything else but competitive advantages (or edges) corresponds to the "flight of a turkey" in a tornado. Even a turkey can fly in a tornado, but what will happen once the tornado is over? In dynamic environments technology adoption life cycles as well as the life cycles of competitive advantages are shortening so quickly that the situational strategic value of competitive edges is extremely relevant. Thus, a continual business planning and quarterly business reviews have become necessary. At best, such competitive edges are based on unique strengths providing a relative temporary "monopoly". However, the nature of the technology being adopted and the particular natures of the different life cycle phases should be understood and utilized. Especially the Internet represents a "disruptive" technology that requires new adoption strategies.

Responding to the requirement to speed up everything by accelerating everything all the time is a foolproof way to shorten one's life. Sustaining superior speed calls for two crucial elements. First of all, keep everything real, i.e. do not estimate your speed in running after or creating hype phenomena in a virtual world. Real speed must be earned in the real world. Secondly, more important than accelerating is the capability to accelerate when needed. Concentrate on structural characteristics, such as agility and strategic positioning. "Getting there" is always bound to loose to "being there already". Innovation that enhances satisfaction of human needs is the way "to be there already". As said already David Hume: "From 'how things are' one cannot draw conclusions as to 'how things should be'".

## **MOBILITY IS THE KEY ISSUE**

The Internet Protocol as an industry standard for packaging and moving data and new packet based services enables wide scale realization of mobility. According to the principal promise of the technology, everything that is needed will be with you

all the time. These services are provided through a multi-tiered application model, which consists of

- front-end: enabling all modes of access, including mobile modes
- middleware: providing opportunities for business and products
- back-end: legacy systems and data.

During the last years all major players have clearly become committed to the future of wide scale use of mobility. So the hype phase is over. A typical life cycle of technology adoption [15, 16] starts with innovators and is followed by early adopters. These two compose the early market of technology enthusiasts and visionaries. After having successfully crossed the chasm between the early market and mainstream market, the cycle continues by entering the mainstream with the early majority (pragmatists), then the late majority (conservatives) and finally with laggards (skeptics). Considering mobile Internet as a technology in this respect, one can say that it is still in the early market stage, although there are some applications, which have already been able to attract millions of pragmatists. Key reasons as to why e.g. the USA is still in the early market stage are poor coverage, technological incompatibilities, low speeds and roaming problems. In other words, issues which are disliked by pragmatists. The situation is already different in Finland, Scandinavia and in Japan.

The grand promise of mobility offers instant access to and enables use of all data, information and knowledge anywhere anytime and globally efficiently to individuals and groups, networked or alone. Concise expressions of this promise are:

- “The Internet in your pocket” and
- “The world in the palm of your hand”.

There are already now in the world more mobile terminal devices than personal computers, and in 2005 it is estimated that there will be about 1,2 billion people using mobile phones, and new kinds of PDA’s (Personal Digital Assistants) are being developed continually. So, even if there were to be in the future some company which does not utilize mobility in its business activities, processes or products, at least its employees and customers will.

The development of mobility is changing drastically the nature and role of physical accessibility. For instance, accessibility to work was determined by the effort and time needed for travelling; now it is possible for you to have your work with you anywhere, whenever you want to participate in it. Previously accessibility to groceries was determined by the travelling needed to access them and transporting of the goods. Now the needed goods can be delivered to you at opportune time without any effort from you. The goods are also cheaper than previously, due to the gains generated by e-commerce that enabled optimization of logistics and a lean distribution chain. Full use of mobility means optimization of all traffic & transportation and allocation of time as far as itineraries and scheduled use of time are concerned. If realized, this will have enormous effects and consequences to everything. That is, the importance of all other items needed in human or business interaction except for data, information and explicit knowledge or their sources,

repositories or representatives will increase. This emphasizes physical accessibility to e.g. cultural, social and environmental qualities.

Basically the core consists of the easy availability of needed data, information and knowledge at the opportune time. Utilizing mobility improves exceeding expectations concerning the availability of data, information and explicit knowledge in a focused, personalized and situation/location-specifically relevant way. Impacts on better use of tacit knowledge are indirect and based on multi-tiered consequences. The ways in which positive effects are realized include optimized human logistics, intensified leverage of tacit knowledge of better empowered and equipped people, and the enhancement of vital knowledge-based automatic or semiautomatic services. If participants of interaction have relevant “worlds in the palms of their hands”, they are more likely to find themselves in win/win- rather than in win/lose-interaction.

## **FROM TRADITIONAL QUALITY APPROACH TO E-QUALITY**

Professional quality principles and methodology for quality management (QM) and quality assurance (QA) has long roots and development around the world during decades since 1920s. Now the most important sources and references of contemporary quality approaches can be grouped in four categories:

- ISO 9000 standards and their derivatives
- quality awards criteria and business excellence models
- benchmarks and the best practices of advanced organizations
- teachings of world-widely recognized quality gurus.

All this knowledge reflects today very similar ideas and practices which should also be taken – and is also possible to take – into account when developing QM / QA solutions for e-business environments. The most essential principle is integration, i.e. genuinely achievements of quality can take place only within normal business activities. This excludes e.g. distinct “quality systems”, which even may be dangerous. We refer with “e-Quality” to electronic business, environment and tools in the context of QM / QA within integrated business management.

When integrating quality expertise into the e-business, the quality professionalism must follow the general development of business. That means:

- Flexibility to accommodate to the new needs of business
- Avoid isolation
- Develop itself - as an expertise - along with the general development, e.g. to use means of new e-business technology for QM/QA purposes
- Provide benefits to others within the new business conditions.

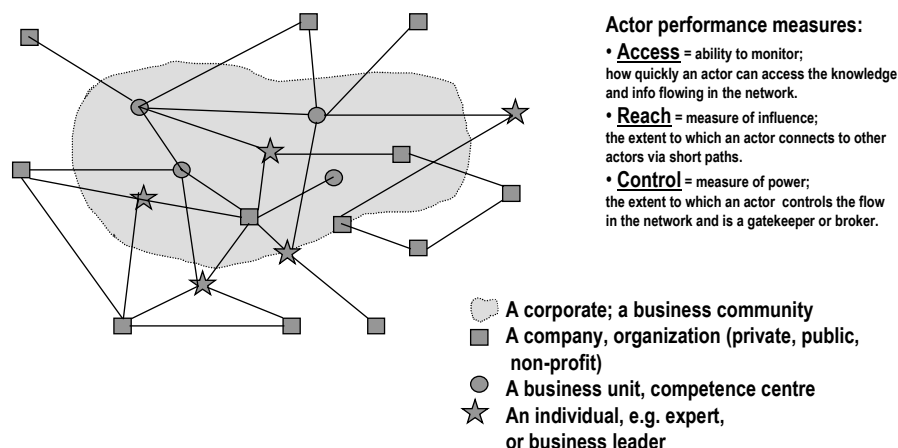
Business leaders should be able to obtain identified benefits from the knowledge of quality experts. That requires:

- development of suitable professional quality-related principles, practices, and methodology for the e-business needs

- modern professional quality experts familiar with e-business facts
- an effective communication between business leaders and quality experts.

Modern integrated quality approach is based on systematic managerial actions regarding to e.g. organizing the business and creating a business system, business environments, interested parties (stakeholders), business performance and targets, management and leadership, technology, products (goods and services), business processes, work and employeeship, customs and customers, and company culture. Now in new e-business environments there are fundamental changes in all these issues. This means that remarkable innovations are necessary also in quality thinking and practices, e.g. relating to quality management principles, quality management and quality assurance practices (including so called Total Quality Management, TQM), quality management frameworks (especially ISO 9000 standards and quality awards models), quality methodology, and quality expertise and experts. Thus, all quality related concepts are still relevant but their substance could be understood in a new way. The French saying “Plus ca change, plus c’est la même chose “ is valid for this paradoxical situation.

We only take here two examples, the concepts of organization and management that are very central issues for QM and QA. These both concepts have very changed states of reference in e-business compared with the traditional business environments (see figure 1). Corporations have changed into virtual organizations whose borders are rather vague. Nobody is any more managing this kind of organization but there are many individual actors with different roles and performance options depending on access, reach, and control characteristics of the actors [11].



**Fig. 1.** Actors and virtual organizations in e-business environments. Networks are often unplanned, emergent systems. Their growth is sporadic and self-organizing. An

actor's role can be characterized by centrality in the network: activity, betweenness, and closeness

According to the Ashby's law, when the business to be controlled is getting mobile and thus potentially increasing its variety, the controlling / regulating system (e.g. QM) ought to increase its corresponding variety more than the mobile one. Otherwise the system will spin out of real control. Managing complexity goes beyond using simplistic tools and the feedback cycle needs to be at least ten times faster than the response time of the system.

This is a key challenge to leaders and managers and to the quality professionals who support them in the e-business. We have often seen how leaders have responded to this challenge through suppression and pseudo-management with no or even extremely bad results. Cutting down the variety of complexity through power or simplicity is strictly in conflict with the requirements of improving business excellence in dynamic environments of the e-business. Meeting these call for a special leadership focus on values, principles and policies, fact-based management and innovative use of empowerment Especially in these environments the effective use of information and knowledge – particularly tacit knowledge – is emphasized. Conventional quality systems and quality manuals have no more any role for QM or QA in these conditions.

Special features of dynamic environments require that win/win-partnerships play an especially important role when crystallizing options in opportune moments of truth. Here “buyer” and “seller” can be interpreted to represent the two parties in any human or business interaction that lends itself to realize a win/win-partnership. All elements in this context are different when mobile as opposed to being non-mobile.

## **BUSINESS PORTALS, AN IMPROVED SOLUTION TO THE NEEDS OF QM AND QA**

The organization needs to share information and knowledge among employees and people in the interested parties, locate information and knowledge sources that are difficult to find, push information to users, or create a central location to navigate through data that one can benefit from.

In order to manage situation, the organizations have invested in IT solutions. However the development and use of the IT solutions has been problematic in practice [9]. During the past years nearly every new application and idea created by software industry has made the jobs of people more complex and difficult, rather than simplifying their responsibilities for them. This includes problems for employees and business leaders making operational and strategic decisions, and today they all have to access many IT applications to do their jobs. In many cases the data sources, systems, and applications located throughout the organization need to be combined to present the summarized information or desired report format that executives expect to review. Corporate-wide systems are complex and designed for a

specific purpose and function, so the IT department is required to deploy many different and often unrelated applications and modules to fill the information and processing needs of the entire organization. An incredible amount of training time is needed for an employee to learn how to effectively use such a complex suite of applications and all of the processes and steps involved to complete their assigned responsibilities.

The corporate intranets were originally designed and implemented to meet the needs for shared information across the organization [7]. Correspondingly Internet and extranet solutions were developed for external purposes. Using the corporate intranet, employees are able to access corporate information using web browser to find forms, open applications to perform their jobs, and review a customer's project status, and for many other activities. The corporate intranet solution provides navigation to different enterprise systems and documents. Corporate intranets are responsible for hosting a multitude of applications and an exponential growing number of documents to be readily available for employees to use. As intranet sites grew larger, a new set of problems created related chaotic situations with information access, knowledge-sharing, and security. The key problems the corporate intranet is likely to encountered include the following:

- Employees need to make more informed and consistent decisions.
- Employees are asked to complete more activities online.
- Intranet sites contain thousands of pages and continue to grow.
- Intranet pages must be continually updated.
- Employees must still access information from multiple sources.
- Navigation through your organization's intranet becomes impossible.

There are also a lot of doubts about the real benefits of the existing business Internet and extranet solutions. Anyway, all these IT solutions have been used very poorly for the purposes of QM and QA.

A portals can help in this situation. They may provide facilitation to knowledge that helps people operate and make decisions. Portal is a Web based interface to a wide range of content, services and links; a gateway that is or proposes to be a major starting site for users when they get connected to the Web or that users tend to visit as an anchor site. It adds value by selecting the content sources and assembling them in a simple-to-navigate and customized interface for presentation to the end user. There are general or integrated portals (horizontal portals) and specialized or niche portals (vertical portals). Portals typically offer such services as Web searching, news, reference tools, access to online shopping venues, stock quotes, e-mail, chat rooms and community forums. The generations of portals are: information portals, collaboration & business intelligence portals, and e-business portals. The main types of the e-business portals are: Business-to-Employee (B2E), Business-to-Consumer (B2C), and Business-to-Business (B2B) portals.

There are several perspectives and issues to consider when looking at how an organization can leverage knowledge for the purpose of making good decisions at opportune time. This is very crucial when considering QM in e-business

environments. The perspectives are operational and strategic. Operational issues are those faced by employees responsible for completing transactional, day-to-day, and well-established tasks. Employees responsible for operational issues in the organization are constantly looking for ways to fulfil requirements of customers and markets and to improve or simplify existing processes or tasks. Strategic issues are those faced by employees responsible for ensuring that the overall mission, vision and strategies of the organization are met. Employees responsible for making strategic decisions are tracking financial and other information that measures how well the organization is performing and improving the performance. The information presented for strategic decision-making is used to monitor and analyze the internal and external business performance so that, when necessary, appropriate improvements can be made for the organization to remain effective in the marketplace.

## **THE CASE: E-QUALITY PORTAL**

### **Idea and purpose of the e-Quality Portal**

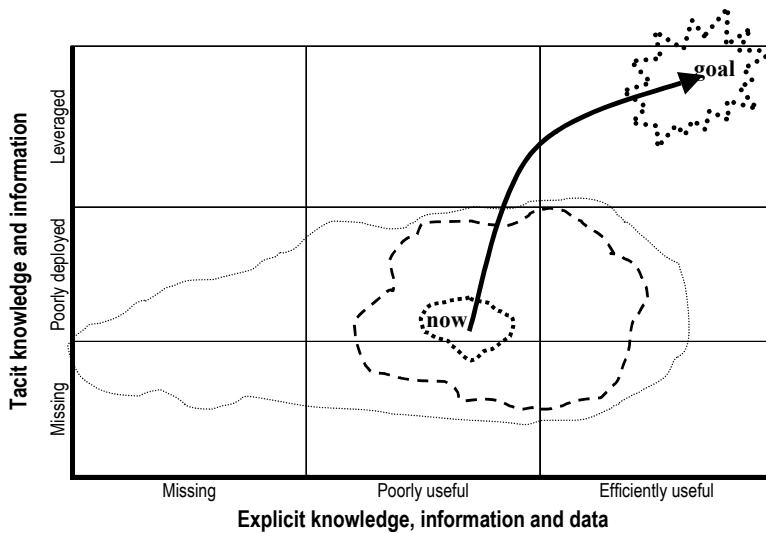
The e-Quality Portal is a cutting-edge gateway to quality-related business reality for enhancing quality awareness, improved use of expertise, performance management and interested party confidence. It was initiated as joint venture of Sonera Corporation seeing the importance to provide a generic solution for the units of its business community and Finnevo Ltd being interested to satisfy the similar needs in the market. To the portal owner organization (POX) the e-Quality Portal is a software engineering product and to the end users (members of the portal organization and its interested parties) the Portal provides automatic services for quality management and quality assurance.

Targeted grade of performance of the e-Quality Portal was to create a killer application to enable to bring about a disruptive and regenerating radical improvement compared with the following traditional quality management and quality assurance practices:

- Conventional posersish activities of a kind of service provided by quality managers
- “Quality System” as a distinct system with inadequate integration with business management to aim at quality of management
- Quality Manual as a distinct collection of disciplinary written procedure etc. documents, which are typically more harmful than useful or then forgotten to bookshelves for auditors of certifying bodies
- Third Party Certificate as a piece of paper with the purpose to end interaction instead of confidence creating discussions with customer.

The biggest challenge for the e-quality Portal is the poor use of business related knowledge and information that may appear in many forms (see figure 2). Knowledge may be missing in general, or just internally. It may be unused because the needed tacit or relevant explicit knowledge is not available or accessible at the moment of truth or is not in a useful form. It may be used but not appropriately or at

opportune time and place, or it may be misused. As we see, a greater challenge than to stretch the usefulness of explicit knowledge, information and data to its extreme is to bring about a radical improvement of utilization of tacit knowledge and information.



**Fig. 2.** Challenge of the e-Quality Portal to enhance the effectiveness and efficiency of the use of knowledge and information

The figure 3, Enabler-Effect Map (EEM) [9] illustrates how the e-Quality Portal will generate value to customer, real option values and costs reductions. (In the figure POX refers to any portal organization X and SBC refers to Sonera’s business community.)

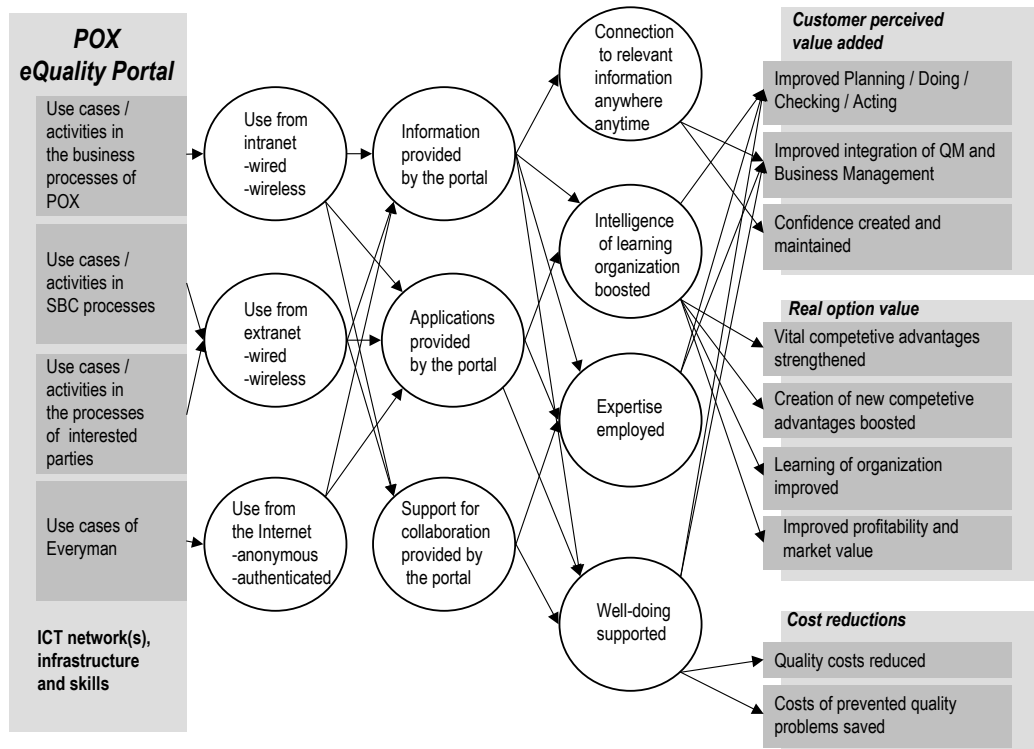


Fig. 3: Enable-Effect Map for a Soneran POX e-Quality Portal

### Product Characteristics and the Brand Characterization

The general systematic hierarchy of the product characteristics was used in the requirement specification of the e-Quality Portal. The most essential specified characteristics of the e-Quality Portal product include the following items:

- Technical performance: Context and business events of e-Quality Portal in intranet, extranet and Internet, software interfaces, and documentation
- Operability (easy and nice operation): Ease of use, ease of learning, operational performance characteristics
- Serveability (accessibility: access is available, and retainability: as long as needed): Quantitative sufficiency (capacity available), dependability: reliability performance (no defects), maintainability performance (defects can be eliminated): maintainability characteristics, maintainability of contents, maintainability of personalizations, maintainability of tailorings, maintainability of customizations, and maintenance support performance (organizational support available)
- Environmental compatibility (environment does not disturb utilization)
- Safety (no hazards)
- Aesthetic (beautiful): Brand, style and outlook, balance
- Ethical (good): Cultural and political requirements, legal requirements
- Price (win / win is realized): Investment and operating costs, monetary expenditures and non-monetary sacrifices

In addition to these characteristics also several important multidimensional performance characteristics were specified including security (accuracy, availability, confidentiality, authenticity, and authority), and portability.

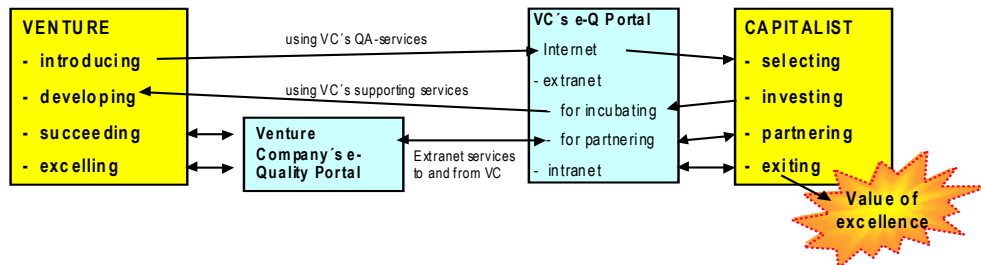
Brand outcome of the e-Quality Portal was based on the requirement survey. In generating customer satisfaction one must excel customer expectations appropriately. The base of expectations is the brand of the product. As a result of the survey was the conclusion of the brand value statement of e-Quality Portal: "factual quality anywhere anytime" based on the brand authority: "a cutting-edge gateway connecting us to everything and everybody we need to excel in quality-related business reality ". As the rational part of its brand personality it was emphasized: "assuring, knowledgeable, helpful, 'killer application'" and as the emotional part "clear, trustable, smart, disruptive way to improvement". The benefits are: "more gain with less pain" as gain increase: new type of value-added experience and breakthrough options and as pain decrease: ease, cost reductions. The brand service is: "support, facilitation, sharing, learning, collaboration, improvement".

### **E-Quality Portal as a tool to enable an excellent exit to Venture Capitalis**

The realization of Venture Capitalist interests calls for an excellent exit. The only sound and non-speculative basis for successful exit is provided by the created business performance excellence of the venture organization. The phases to success are:

- Confidence
- Proactiveness
- Innovation

This can be effectively and efficiently supported by an e-Quality Portal. Ventures, capital and knowledge match could be leveraged by an Incubator e-Quality Portal. The following figure 4 illustrates the rationale to meet this challenge by improved investee / investor interaction using e-Quality Portal services:



**Fig. 4.** Venture to Capital and Quality, a rationale to enable excellent exit

Here the investor organization provides its quality assurance services to interested parties, especially to investee candidates, via Internet access of its e-Quality Portal. The persons and organizations having ventures and having become convinced of the quality of investor services can introduce themselves to the investor using the facilitation provided by the portal. Selected candidate is then authorized for special extranet services of the portal, first for incubating and then for partnering. In incubating phase these services support the selected party to develop their business performance contributed by value-adding potentials provided by the investor. In partnering phase the investee has already a customized e-Quality Portal of its own. Now partnering is strengthened via extranet services of both portals. These and intranet services of the investee's portal strongly support succeeding and excelling of investee's business. Correspondingly the combination of extranet and intranet services of investor leverage successful exit at the opportune time. The grand promise of this rationale is that now the exit can utilize the value of excellence of the venture-related business.

## CONCLUSIONS

E-business based on electronic technology, especially Internet Protocol, and particularly using mobile technology has enormous effects and consequences to everything including the behavior of individuals, groups, organizations, corporations, and societies. Quality management and quality assurance are still crucial issues for business competitiveness and may be handled in a professional

way also in these changed conditions. One should only have profound knowledge on realities of e-business and professional principles and methodology of the modern quality approach. E-quality is a challenge for quality professionals who are developing business integrated quality solutions for e-business environments and using tools for QM and QA based on e-business means. E-Quality Portal is a modern killer application for these purposes. Also V2C investments call for professional quality approach in business management and performance within both venture and capitalist companies.

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