

## **FlexWork Blueprint No. 09**

**(Issue v.01 – 11/10/01)**

### **How to Create a Virtual Organisation**

#### **How ICT can be used for creating teams of specialists irregardless of the constraints of time and space.**

This is one of a series of 'blueprints' designed to illustrate models of flexible working. It is designed for use by business advisors as a resource when providing assistance to SMEs who are investigating flexible working for their business, or whose business development might benefit from consideration of flexible working.

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## FlexWork Blueprint No. 09 (Issue v.01 – 11/10/01)

### How to Create a Virtual Organisation

- How ICT can be used for creating teams of specialists regardless of the constraints of time and space.

Note that ICT refers collectively to information and communications technologies, e.g. computers, telephones (fixed and mobile) and networks such as the Internet.

#### 1 Overview

ICTs have opened up new opportunities for businesses to organise the working process, i.e. the way people work together to achieve results. In principle, networked computers and the Internet enable companies to exist outside the constraints of time and space, thereby turning into what is called 'virtual organisations'. The reality, however, is rather more complex. This Blueprint describes the basic features of virtual organisations from the viewpoint of (a) existing companies that want to turn (their whole business or parts of it) into virtual organisations and (b) entrepreneurs that consider starting a business as a virtual organisation from the outset.

What is a virtual organisation? Their main features can explain why virtual organisations often achieve higher efficiency, greater competitiveness and faster adaptability than traditional companies. Virtual organisations:

- are temporary networks of individuals, small companies or parts of larger corporations that are set up for a specific purpose (such as developing a product);
- are made up of participants that are not located together in a central office facility, but each at a separate location, sometimes even across national borders;
- put an emphasis on the core competence of the participating parties, which means that everybody does only what he can do very well;
- rely heavily on communication via ICTs such as e-mail, Internet-based file transfer and messenger services;
- have no common legal structure such as that of a company, joint venture or strategic partnership;
- rely on self-management and self-responsibility, made possible by a shared common goal;
- present a single identity towards customers, i.e. products and services are marketed just as if the organisation was a traditional company.

Virtual organisations allow participating specialists to choose their geographical location very freely, at least in principal. This might act as a stimulus to regional development in peripheral areas, although only regions with a high living quality potential and reasonable good access to the nodes of physical traffic networks are likely to benefit.

#### 2 Rationale and Target Audience

##### Target audience

In general, the virtual type of organisation is well suited for companies that are in highly volatile, fast-moving markets in which competitiveness is primarily a question of being able to react fast enough on changes in the business environment. However, virtual organisation face

many challenges which means that only organisations that fulfil certain requirements can hope to benefit. The following is a list of preconditions.

<b>Preconditions</b>	<b>Practical implications</b>
must have some <u>core competencies</u> (capabilities) that set them apart from the majority of their competitors.	Workers/companies that are highly specialised are better suited. In-depth analysis of competitive position required.
work climate must be characterised by <u>shared common goals</u> and <u>trust</u> .	Thorough self-assessment is critical.
must be <u>experienced users of advanced ICTs</u> .	Companies working in knowledge-intensive branches of the economy, especially those which are related to computer technology, are best placed.
must have <u>experience in tele-cooperation</u> .	Collaboration over computer networks requires special communication and other social skills which can only be acquired through experience.
should have <u>difficulties to find specialist staff</u> .	Companies that rely on staff which is scarce on the labour market will greatly benefit from offering telework to prospective workers.
limited business value of <u>tacit knowledge</u> not being made available to competitors	The more a company relies on knowledge that has been created internally to stay inside of the organisation, the less it is suited for the virtual organisational form.

By far not every company is suited for turning into, or participating in, a virtual organisation!

### **Rationale**

The rationale behind virtual organisations is straight-forward: Adaptability to changes in the market environment has been identified as one of the major feature of competitive companies. This is because product life cycles have decreased continuously in all sectors of the economy. Customers want better products, they want more innovative and/or fashionable products, and they are able to obtain them from a greater number of suppliers from all parts of the world. Virtual organisations are more adaptable than traditional ones because they are not constrained by the features of ordinary companies which create stability, most importantly a permanent staff, large-scale offices fixed to one location in place, and legal underpinnings that make changes slower, and more difficult.

Of course, this applies to a very different extent to the branches of the economy. For this reason, virtual organisations are mostly found in knowledge-intensive industries including business services, IT product development and R&D for manufacturing.

Central to the question whether virtual organisations are an efficient way of doing business is the trade-off between the benefits and the costs of this type of organisation. Before any decision to go ahead is taken, it has to be carefully evaluated whether this trade-off is likely to turn out positive. The table below shows some of the main aspects involved.

Main benefits	Risks/drawbacks
Create teams flexibly according to the exact expertise needed for an individual project.	Collaborators who are temporarily not participating in any project may be unavailable next time.
No problems to lay off unwanted staff.	Low job security means commitment is limited. No access to specialists who seek permanent employment.
Access to expertise from all over the world regardless of distance.	Getting to know each other and building trust is made more difficult in case of no face-to-face contact.
No need for large investments in fixed assets ("sunken costs"), e.g. large central offices.	More difficulty in creating loyalty and feeling of belonging together.
Non-central activities can be outsourced to specialised service providers, reducing costs.	Management of outsourced activities requires special know-how, and manpower.

### 3 Usage scenario

In the following we will describe two distinctive usage scenarios, each with its own special characteristics. The cases used here are based on actual case companies which have been analysed as part of an EU-wide benchmarking exercise. As the preceding sections have already mentioned the possible drawbacks and limitations of the virtual form of organisation, some of the main challenges that affected these real-world cases are highlighted when describing the typical usage scenarios.

#### Turning a traditional business in a virtual organisation

The company is a Danish SME producing audio technology equipment located in a small town far away from the major agglomerations of the country. It changed from a traditional organisation to a 'networked' organisation. Production has been completely outsourced and now freelancers working from home handle design, construction and occasional support. Products are distributed world-wide through a network of around 30 dealers.

The cause for the change were difficulties in creating the necessary overhead to cater for continuous development and growth, a common problem of growing enterprises of this size. Production and quality control became too time consuming to handle within the financial framework. Around September 1998 a board member suggested that production should be outsourced and forces focussed at sales and development of new products. The company realised that they were far better at designing and selling than at producing, and acted consequently. The company experienced immediate growth and efficiency as result of the change. The remaining core company is very small: there are only four people employed in the central office, one sales person placed in the UK and 3-4 freelancers living in other places in Denmark. All manufacturing is outsourced to a Danish supplier.

Activities took off in 1988 at the hobby level from a downtown apartment. Over the next 5 years, experiments gradually refined design ideas. The founder started seriously building equipment in 1992 and in 1993 the activity became full-time professional. From 1993 until the end of 1998 production grew out of the apartment and into a 1000 square metre production facility while the number of employees grew to 15. From the very beginning the company has worked with 3-4 external designers transforming the ideas of the founder into electronic circuits and boxes. These designers are freelancers and work around 15% on average for the company. Every designer has a special expertise. The designers work generally in other product areas such that competition issues are avoided.

Today, freelance designers are hired per task with an initial agreement about cost. The freelancers are essentially teleworkers living in different places, one living in the northern part of Jutland, the other in Flensburg, Germany, close to the Danish border. Distributor contacts are typically made at international audio equipment exhibitions and there are currently

representatives in some 30 countries. All distributors are renowned country level specialists in high-end equipment.

### **Creating a virtual organisation from scratch**

This company, based in a small-sized city in Germany, produces computer game software. Projects run from a few weeks to more than a year and involve a permanent staff of six (project management, accounting & controlling, marketing, etc.) together with a varying number of freelancers who are deployed from a pool of more than 100 specialists with whom the company has already co-operated since it began operation in the early 1990s. Today the production process takes place to a very large extent on the Internet. Specialists program specific parts of the software and send them to a central server that others can access. The location of project participants is almost irrelevant.

The company began operation when its founder set up an own company to market the software he produced together with some friends when he was still at school. It was never intended to create a virtual organisation, but this type of company naturally developed as the expertise needed was not available regionally but had to be sought among friends and acquaintances across the country and even internationally. For obvious reasons, all specialists involved are very comfortable working with computers, which meant that using computer networks for collaboration was practised from early on.

Today, the management of human resources is the biggest challenge for the company. The founder and CEO considers his main asset to be the pool of freelancers with whom trust relationships have been established and who can be called upon when new projects require their skills. Working with virtual teams instead of a permanent staff enables the company to react quickly and flexibly to market demand. The company is not restricted by the skills of its staff, but can make use of other skills that are available on the global freelance market. There is a clear hierarchy in the relationship between the management and freelancers. Project participants are handpicked to take responsibility for certain parts of a project.

Building up the pool of regular freelancers caused some pain in the first years as the temporary nature of the relationship made it hard to build trust between key staff and new freelancers. This situation led to unpleasant experiences with missed deadlines and insufficient quality. This problem has now disappeared because of measures taken to ensure that reliable workers are given high responsibility in projects: Most importantly, first time project participants are assigned only small, non-critical tasks where they cannot 'cause much trouble'. They are also screened by checking track records and talking to previous clients. When the co-operation is successful, freelancers gradually are assigned more important roles in larger projects.

The company has to be attractive for potential candidates to be competitive with other recruiters. It explicitly aims to be "the best of clients" by ensuring that payment is on time (the company also uses advance payments as a mark of confidence) and offering generous services to long-time co-operation partners. The founder has turned the company into a stock corporation (AG) and offers share options not only to its permanent staff but also to freelancers under the precondition that they have participated in a large number of projects. This can be seen as an attempt to increase the loyalty of highly valued freelance staff to the company, without undermining the flexibility of the operation.

## **4 Technology Profile**

Technology is not among the most critical success factors of virtual organisations, but organisations of this type can only function when participants are experienced users of information and communication technologies.

Some of the most important ICT tools to be used in virtual organisations are described below.

### e-mail

Messages transmitted between computer users through networks or via modems and telephone lines. Most email systems support standard multipurpose Internet mail extensions, which allow the sender to attach various file types in addition to ASCII text. Even more than the phone, e-mail is the basic communication tool for distributed teams of collaborators such as in virtual organisations.

### Intranets/Extranets

An intranet is a local area network (LAN) that uses a dedicated web server running TCP/IP to provide HTML documents and other files that staff can access through a web browser as interface. It is ideally suited for advanced collaboration of distributed teams of workers, e.g. across all locations of a multi-location organisation. An extranet is the wide area network version of an intranet. An extranet makes portions of a company's intranet available to third parties such as customers, vendors, and external collaborators to access the company's data with a web browser. Although such a facility requires high security, it is a valuable means of delivering services and communicating efficiently.

### File transfer

Moving a file between two networked computers using the FTP protocol (a client-server protocol that allows a user on one computer to transfer files to and from another computer over a TCP/IP network). Modern browser have integrated FTP interfaces for easy handling. FTP allows project participants to connect e.g. to the project website and retrieve files from there, as well as send files to the server. It is an important tool for exchanging work products and inputs.

### Messenger services

These are applications that inform persons who surf the web when collaborators are online too, and enables them to contact each other at will. The need to conduct a directory search each time a surfer wants to communicate with a specific person is eliminated. One example used heavily by electronic freelancers is ICQ by Israel-based ICQ Inc. It offers real-time chat and the sending of messages and files. It can also be used in a multiple-user mode, so groups can conduct conferences. The program runs in the background, alerting users when friends and associates log in. Messenger services make it possible for communities such as project participants to easily communicate in real-time and exchange work documents regardless of distance and time.

### Video-conferencing

Video-conferencing is a computer-supported way of exchanging moving images in real time between persons located at a distance. Of all ICTs, video-conferencing has the greatest 'media richness' because it allows for the exchange, not only of content, but also relational information (gestures, mimic) between human beings. This is important for building trust in virtual collaboration. It requires two or more locations to be linked by fast telecommunications lines (ISDN, better ADSL or broadband connections) and to be equipped with compatible video-conferencing systems (there are different standards in use). Video-conferencing has become much less complex and less expensive. Today, video-conferencing systems can be integrated into desktops and implemented for less than EURO 1,000. Although applications have benefited from advances in compression technology and bandwidth available to commercial users, the quality of the transmission is still often not sufficient for broader acceptance.

## **5 Deployment Issues**

A business outline for a virtual organisation should include an exploration of how the three main challenges to virtual collaboration are dealt with: control, trust, and knowledge management.

The problem of control results from the fact that virtual organisations have no legal structure that resembles that of a traditional company. All the same, companies need control over the factors of production to be able to plan ahead. For this reason, even virtual organisations need semi-stable structures that offer flexibility of labour deployment while binding workers to the organisation. One way to achieve this is through a "lead contractor" who acts as project manager. She or he distributes tasks to all parties involved, controls quality of work products, and gives incentives that increase the commitment of collaborators to the common goals of the project/organisation.

If direct control via directives/instructions is not possible, it is all the more important that strong trust relationships exist. Trust can act as a powerful substitute for control. It is fostered through communication and eased by a shared feeling of co-destiny (all benefit if it goes well, all lose when it goes wrong), a common organisational culture and the use of "rich" communication media. Virtual organisations that origin from networks of workers who have already collaborated extensively in the past are the most promising in this regard. On the other hand, collaborating relationships that are purely based on electronic communication are inferior to relationships in which there is also some room for face-to-face interaction.

In an increasing share of the economy, knowledge management plays an important role in determining the success of an organisation. Although there have been attempts to build computer-based knowledge management systems, there are no signs that they will diminish the value of experienced staff for the success of knowledge-intensive companies. Therefore, virtual organisations must have a strategy for how to bind experienced collaborators to themselves, even if they do not work as dependent employees under a permanent contract of employment.

## 6 Deployment advice

If advice is to be successful, it must be carefully targeted at the different types of virtual organisations, as described above: traditional companies that want to "make themselves virtual"; and start-ups that choose the virtual organisation form from the beginning. An other target group, not further mentioned in this Blueprint, would be business brokers (either individual persons or suppliers of venture capital such as local savings banks).

The first step towards turning a traditional into a virtual organisation must be the thorough analysis of the company's core business processes, focussing on two questions: which are the processes that create the most value, i.e. what are the things the company does best? And which are the ones that others could do better? If the analysis comes to the conclusion that a limited number of peripheral activities could be done by externals more efficiently, the logical step is to consider outsourcing these to specialised service providers or suppliers, without changing the basic structure of the company. If, however, the analysis shows that processes which were regarded core activities of the company do not create sufficient value added to ensure that the company can stay competitive, more drastic measures are necessary, including possibly the transformation into a virtual organisation. Usually, such decisions require a situation which makes wide-reaching restructuring possible, which is the case e.g. when companies are in danger of bankruptcy. In such a situation, companies that rely on the expertise of their staff (i.e. most companies) must develop a plan for change management. Many companies in this stage lack information, in particular, on legal issues regarding working with freelancers instead of permanent staff, and on feasible business models. These are areas where business advisors can play a strongly supportive role.

Entrepreneurs that want to set up a virtual organisation from scratch have to deal with the challenges typical for start-ups, including access to financing, scarcity of business management know-how, lack of collaborators and missing customer base. However, a number of specific problems result from the virtual organisation form. The need to collaborate with other specialists at a distance are a cause for uncertainty. In this stage, brokers such as venture capital providers may provide Internet start-ups with valuable advice, e.g. access to networks of proven experts. Anyway, most of the information and advice required can (and

must) be obtained through the Internet itself, which reduces the need for assistance by regional business advisors.

## 7 Related cases

The web site at <http://www.flexwork.eu.com> includes a wide set of cases, technical briefings, and advisory documents. A large number of these are relevant to the themes in this Blueprint. Items of specific interest include:

### **SME cases:**

- 02 – Rauser Advertainment AG, Germany
- 03 – A-Group, Finland
- 07 – BSL Industries, France
- 08 – NTD International A/S, Denmark
- 09 – Densen Audio Technologies, Denmark

### **Technology briefings:**

- B2 – ADSL communications technology
- B6 – Groupware
- B7 – Internet services
- B8 – Messaging and conferencing
- B17 – Security tools

### **Technology Cases:**

- c1 – BSCW shared workspace system
- c13 – Virtual enterprise product information
- c16 – Multimedia working for small companies
- c17 – Bringing broadband to SMEs
- c24 – Tools for distributed publishing
- c25 – SME collaborative working in car industry supply chains
- c26 – Distributed software production

## 8 Other information resources

Sources for information for entrepreneurs interested in setting up a networked or virtual organisation include:

- <http://www.entrepreneur.com>
- <http://www.entrepreneurs.about.com/>
- <http://www.fastcompany.com/homepage/>
- <http://www.freiberufler.de/> (in German)
- <http://www.flexible-unternehmen.de> (in German)
- <http://www.startupuniversity.com/>

Examples for websites that offer information on financing issues:

- <http://www.business-angels.de/>
- <http://www.wagniskapital.de/index.php3> (in German)

Freelance and project exchanges that support specialists in setting up virtual teams of collaborators, or finding teams in which to join in, include:

- <http://www.elance.com>
- <http://www.smarterwork.com/>

A very comprehensive independent resource provided by the European Commission, with information on online services targeted at electronic freelancers:

- <http://www.eto.org.uk/faq/worksvcs.htm>