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A formalised organisational model for the TENCompetence associate partners

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TENCompetence

Building the European Network for Lifelong Competence Development

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**D10.1 A Formalised Organisational Model for the TENCompence**

**Associate Partners**

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Project Deliverable Report

D10.1 – A Formalised Organisational Model for the TENCompetence Associate Partners

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Abstract (for dissemination) This report describes the TENCompetence project, present and future, in terms of goals and processes, activities and resources and investigates what organisational models are most appropriate to achieve the transformation specified for the organisation. It provides a descriptive model of the structures and control processes to be used in the TENCompetence organisation and identifies three different membership roles: subscribers, associate partners and full members. Finally a Memorandum of Understanding regulating the relationship between the organisation and the associate partner, is presented.
Keywords List TENCompetence, Organisational model, Transformation, Personal Competence Manager, Membership, Associate Partners, Memorandum of Understanding

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1. Introduction

This deliverable is informed by two observations. Firstly, in most projects with similar goals to TENCompetence a deliverable is produced at the end of the project which seeks to sustain the project effort beyond the period of funding. These sustainability plans are rarely successful.

Secondly, there are particular problems in the sustainability of Open Source software. When closed source software is produced by a project, sustainability is a matter of identifying revenue flows and establishing a business model. In many cases this is very challenging, but with Open Source software it is still more difficult, because

a) a revenue flow based on licensing is not available
b) a community of developers is required to maintain and extend the software.

This is problematic because

- the partners who developed the software are often not in a position to continue working on it when funding stops
- the fact that funding is available often discourages the development of a community of developers. If someone is being paid to work on the code, why should someone else do it for free?

Thus this deliverable seeks to analyse the organisational requirements for the sustainability of the core project activities at a very early stage in the project. The aspiration is to use this understanding to establish an organisational model of structures and processes which will both

a) facilitate the development of the project during its funded period
b) establish the necessary conditions for the viability of the core activities of the project after the funded period.

The term *model* is open to a number of different interpretations, as has also been experienced by the project in its engagement with pedagogic models. It is often understood to be simply a way of referring to an approach, as in the ”Fordist model” or the “democratic model”. In this document, however, we understand it to be an analysis which reveals some key features of the way in which the system analysed works. The ways in which this analysis is represented include mathematical, graphical and textual. In the present case the model which we present is inevitably hypothetical, because the system which we seek to model does not yet exist.

Consequently the first part of the modelling process is to establish the characteristics of the organisation which is to be represented, on the basis of the plans DOW and the expertise of the partners who have been involved in discussions. We are aware that this is not a simple task, and that, moreover, the requirements of the funded period and the post-funded period may be conflicting. In order to deal with this conflict we need to be very explicit about the organisational requirements for sustainability, so that their integration into the project structure can be planned from an early stage.

This is carried out in the following sections of this document

2. Goals and Processes
   This section follows the VIPLAN methodology established by Espejo, Bowling & Hoverstadt (1999).

3. Activities
   This section is the result of discussions in the working group which produced this deliverable.
4. Resources

This section follows the methodology described by Stoner, Freeman & Gilbert (1995).

We then move on to look at a number of organisational structures identified in existing Open Source organisations, and look for lessons which we can apply to our own organisation.

Finally we provide a descriptive model of the structures and control processes to be used in the TENCompetence organisation. This model is strongly informed by the Viable System Model (VSM) developed by Beer (1988).

2. Goals and processes

In this section we follow the VIPLAN methodology established by Raul Espejo, which "offers an approach to diagnose and design an organisation's structure based on its vision, mission and strategy. It takes into account the varied viewpoints of the people involved in organisations and uses the Viable System Model to make structural issues apparent." The methodology is set out in (Espejo, Bowling, Hoverstadt. 1999) (See also: http://www.phrontis.com/ViPlan.htm).

2.1 What transformation does the organisation effect?

In formulating this organisational model we cannot assume that the objective is to sustain the TENCompetence project as it is defined in the Description of Work (DOW), because the range of activities is so wide. The aim of TENCompetence is to "support individuals, groups and organisations in Europe in lifelong competence development by establishing the most appropriate technical and organisational infrastructure, using open-source, standards-based, sustainable and innovative technology". In doing this, however, a wide range of interventions is made beyond the development of software. For example, the project and its associates are involved in developing specifications, organising competence development programmes, developing learning activities and materials, organising conferences, carrying out awareness raising, etc., as set out in the Description of Work.

In order to provide criteria for deciding which activities are to be sustained it is necessary to develop a clear statement of the transformation to be effected by the future organisation. In simple terms the issue is "What difference will this organisation make to the world"?

Following discussion among the project partners it has been decided that the association cannot take on all the functions of the project, but should rather focus on a technology intervention. This intervention, however, has to anticipate and respond to developments in the other areas which are detailed in the DOW, because this is the context within in which the technology has to operate. So we propose here that the transformation statement adopted by TENCompetence for the Association is "Facilitate the adoption of a competence based approach to education and training by developing and maintaining open source software". This statement is very similar to the project aim, with the minor adjustments that

- the term facilitate is preferred to support because the latter has associations with both activism (taking part, for example, in pressure groups which support the competence based approach) and the wide range of interventions
carried out in TENCompetence (such as supporting the implementation of competence based approaches).

- *Establishing* becomes *developing and maintaining* to reflect the longer-term commitment of the organisation, and also the clear focus on software.
- *Standards* are seen as instrumental, and are not mentioned in the transformation statement. It is assumed that the maximum possible use of interoperability specifications will maximise the effectiveness of the facilitation provided by the software produced. In the DOW, however, it is recognised that there are some aspects of project work where TENCompetence should develop its own specifications. This will remain true for the organisation in the long term, and so it is not appropriate to include the word *standards* in the transformation statement. On the other hand all project software is released as *Open Source*, and it is considered that this is part of the core transformation to be carried out by the organisation.

A key to understanding what the transformation statement means is the term *competence* which is open to many different interpretations. The way this is interpreted in the project, and the implications which this has for the nature of the facilitation to be provided by the organisation, are set out in an appendix to this document, together with an indication of the functionality of the *Personal Competence Manager* (PCM) which is currently under development as the first version of the software to be provided.

The transformation statement adopted means that the organisation will be concerned with the development, maintenance and making available of software systems, within the broader medium of on the one hand competence based learning in institutions but also within a constantly developing technological environment. The analysis set out in the following sections flows logically from this transformation statement. Thus any change in the transformation statement should be reflected in a change in the organisational model, and also vice versa (unless an argument can be presented to demonstrate that the logical flow is faulty).

### 2.2 Which actors will effect this transformation

In this section we discuss which people would actually do the work of facilitating competence based learning through the development and maintenance of open source software.

Given the specialist nature of the software system it is likely that the organisation will start with a small development community, with the capability of carrying out all software development and maintenance tasks. This will probably need some employed people to manage and steer the development process. It will also need people to guide the organisation in the domain, and they would include academics, Human Resources experts, teachers, technologists etc.

- People involved in the software development process
  - Software developers
  - User requirements gathering to inform software development
  - Open source managers who manage the development process
  - User group or focus group managers
  - “Marketing” people who engage with and understand the market (not sales people).

- Vision guides
People who can provide a vision which can guide the design of the software

2.3 Who supplies the inputs needed to make the transformation?

The organisation will exist in a changing world. It is likely that in the coming decade there will continue to be rapid developments in pedagogical ideas, the nature of institutions, economic processes, technology, and politics. Not all of these changes will be relevant to the organisation, but some of it certainly will be. In this section we distinguish which parts of this changing environment are relevant to the organisation. While not all may directly be required to carry out the transformation, all are required in order for the organisation to be viable in the medium term.

<table>
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| Knowledge inputs                           | a) Teachers, trainers and Human Resources experts  
   a) User needs  
   b) Success stories  
   c) New technologies  
   b) People who deploy the system  
   c) Academics, researchers, technology experts |
| New ways of facilitating competence based learning | Academics, Human Resources theorists, teachers, technologists ... |
| Funding                                    | - European funding agencies (such as the IST programme)  
   - National funding agencies (such as JISC)  
   - Individual philanthropists (such as Mark Shuttleworth).  
   - Foundations (such as the Mellon foundation)  
   - Subscribers to services provided by the organisation (if such a service were established) |
| Open source code (which can be adapted and extended by the organisation) | - Open source foundations (such as the Eclipse and Apache foundations)  
   - Developer communities (Such as the Java developers community). |
| Specifications and standards               | - Learning technology specifications bodies (such as IMS)  
   - General specifications and standards making bodies (such as W3 and IEEE) |
| Knowledge and learning resources           | - Academic institutions (Open University, MIT, individual teachers...)  
   - Publishers  
   - State education and training departments |
| Competency descriptions and statements     | - HR bodies and professional associations |
| Legislative and accreditation frameworks (e.g. privacy, qualifications requirements...) | - National governments  
   - Multinational entities (e.g. EC, UNESCO...)  
   - Corporations (e.g. CISCO accreditation...) |

2.4 Who will benefit from the transformation?

There is a sense in which the answer is “everyone”, because more effective competence development will improve many aspects of society. Unfortunately this observation is of little help in establishing an organisational model. Narrowing this
down a little, the beneficiaries may be seen to include, for example, learners, the developers of open source code which is used in applications developed by the organisation, the education system as a whole, and government agencies. This answer, however, is of no practical help in designing the organisation. In organisational terms people who directly benefit from the transformation, and who will be in a position to recognise this, are the people to whom the organisation gives the software. This means that we are dealing with those who are engaged in providing competence based education. There is, of course, a knock on effect to learners (which is what makes the whole enterprise worth doing), but they are not the direct beneficiaries who need to be represented in this analysis. It is to these people that the organisation should address itself, rather than engaging directly with end users or the other actors. These actors do, however, have a role as the providers of inputs (see previous section).

Thus the beneficiaries of the organisation may be defined as:
- Organisations, groups and individuals which provide or seek to adapt their practices to encompass competence based learning
- State agencies who are concerned with the promotion of competence based approaches
- Individuals and organisations who add value by using the organisation’s software to provide services which enable the provision of competence based learning.

2.5 Who owns the transformation?
Ownership here is understood in terms of control, so the question can be reformulated in terms of “who could stop the transformation from being carried out?”.

a) At the present stage of project development the European Commission, who could turn off the funding essential for establishing the system and its use.

b) The TENCompetence board could decide that they no longer wish to continue the project, and at a later stage the competent body could disband the association. Once the TENCompetence technical infrastructure is established, however, the power retained by the contributing parties needs to be defined. For example, if an open source software project becomes a member of the organisation, does this mean that some or all of control over their policy and code base is ceded to the organisation? Or are all the contributing projects at liberty to take decisions which act against the best interests of the organisation as defined by the organisation? In the organisational model proposed here the organisation exercises control of these factors through the memoranda of understanding which are established with the associate partners.

c) Legislative bodies could pass patent law which would make the transformation impossible.

The implications of this ownership, and the analysis which follows in later sections of this document, indicate that the organisation will need to have a management board. The precise legal status of the organisation will need to be considered at start up, but presumably this will be a non-profit organisation, and this will have implications for the duties of board members.

The function of the board is described in the section of this document describing the organisational model itself, but two practical considerations are noted here.
a) **Managing the transition from funded project to independent organisation.** It is proposed that in establishing this process all project partners should be invited to nominate a board member, and that at least three key competency based user organisations will be invited to nominate a full board member. The OUNL, as project coordinator has a special role in the present project as “first among equals”, with regard to the European Commission, which is funding the project. It also has additional responsibilities for financial management. It is therefore proposed that the chair of the board should be a representative of OUNL during the lifetime of the funded TENCompetence project. Thereafter the board of the organisation will rule on whether this arrangement continues after the end of the present funding regime, or if all members of the board participate on an equal basis.

b) **Obtaining wider representation on the board.** If we want the organisation to succeed in making a difference in facilitating competence development, then it should be steered by people who have a strong interest in the transformation continuing, and who are committed to its future viability. This indicates that the beneficiaries should be represented at board level. The board should also have representatives of the developer groups (at present the participating institutions). It is therefore also proposed that 25% of the board should be replaced every year after the first three years of its existence, to ensure renewal of ideas and vision.

### 2.6 What other entities intervene in the transformation

This question is strongly related to the identification of suppliers of inputs, in that both aspects describe the context within which the organisation will function. In this section, however, we discuss not inputs, but rather those parts of the wider context which the organisation should be aware of in order to steer its strategy. The interventions made by the actors identified in the list below may be positive or negative in terms of the viability of the organisation. The direct beneficiaries are not included in this list.

In terms of the VSM model which informs this analysis the relationship can be represented in the following diagram:
Among the groups who are included within the category of *interveners* are:

- People with competence development needs
- Learners
- People and institutions who engage with the system at a technical level
- Competitors (such as VLE producers, both open and closed source)
- Educational and training content providers
- Employers
- Hardware manufacturers
- Human Resources managers
- Major software corporations who define the technological environment (Microsoft / Apple / Oracle etc.)
- Patent and IPR lawyers
- Pedagogues and learning designers
- Policy decision makers
- Professional organisations (architects, vets,...), who can facilitate or obstruct the process
- Specifications and standards organisations
- Trade unions

### 3. Activities

In defining these activities it is our intention to facilitate and encourage self organisation. The interventions outlined below are designed to provide support and facilitation where needed.

#### 3.1 Facilitating and managing the developers network

The *developers’ network carries out the principal activities which realise the transformation*, as without them there can be no software. This role will require someone with a strong technical background, whose tasks will include aspects of
Special Interest Group facilitation, and also those of a funded coordinator or open source manager. The tasks would include:

- Coordination of development work
- Management of coding contributions
- Management of software releases and versions
- Monitoring what people do with the code
- Monitoring developments in other applications
- Organising coding sprints and plug fests
- Providing training
- Running services which are necessary for the PCM to function, and gather together the urls which are involved

3.2 Facilitating the deployers network

In this activity the organisation facilitates the network of actors who deploy the system. These are the beneficiaries of the system, and the relationship of the organisation to this stakeholder group is critical to viability. Activity in this area ensures access to essential inputs on user requirements, system performance, success stories, ideas, as well as promoting adoption and use of the system.

- Bridging deployers of the system and the organisational vision
- Supporting and training
- Gather feedback from LLL on their experiences with the system, evaluate
- Monitoring new requirements
- Run our own Competence Development Network for training.
- Host showcase Competence Development Networks
- Provide information about TENC and benefits
- Coordinate and publicise the services which are provided through TENC

3.3 Facilitating vision definition

In this activity the organisation promotes and manages the definition of the vision which informs its future development. In doing this it facilitates the activities of an invited high-level focus group which have the expertise and vision to steer the organisation. These actors are referred to in this document as vision guides.

The activities which the organisation will carry out in relation to vision guides include the following:

- Organise events which bring them together, with external expertise if appropriate
- Renew the vision group
- Motivate vision group
- Facilitate discussions
- Document interactions
- Publish outcomes (internally and/or externally)

4. The resources to be used to effect the transformation

The identification of resources to be used to effect the transformation is often carried out in terms of “men, money, materials and machinery”. This methodology is described by Stoner, Freeman & Gilbert (1995). These categories will be adapted for
the current purpose to Personnel, Money, Materials and Resources, and Support Systems.

4.1 Personnel who will carry out the transformation

In this section we consider the options for personnel who could carry out the activities defined above. Possible options are

- salaried staff working for the organisation
- staff employed by Associate Member organisations
- open source developers who work on the code base as part of their work funded by third parties
- students and researchers working in higher education (either for members, associate partners or independently)
- open source developers who contribute their work because of their commitment to the system.
- actors who can obtain payment for implementing and adapting the system (such as consultants and SMEs developing applications)

The staffing requirements of the three activity areas defined above is likely to vary over time. There are likely to be periods when the focus is strongly on development, such as the present, and others where, for example, an over-riding need is identified to renew the vision which informs the organisation. In any event the activities of the developers network are of critical importance to the viability of the organisation, and it also seems from initial inspection that the load of activities described above is greater for the developers. It is also possible that developers will be contracted directly by the organisation, which would add to this task, whereas it is unlikely that a deployer or vision guide would be contracted by the organisation. Although it is clearly to early to make a decision on staffing it might be, for example, that three people would be required to work on the developers network, while one person would suffice for the other two.

4.2 Sources of money required in the transformation

The case of the present organisational model is rather special, because the TENCompetence project is funded by the European Commission during its lifetime. Consequently this document limits itself to identifying some of the options for obtaining funding, and the board will establish the strategy in this respect once it has been constituted.

- Members subscriptions
- Sponsors
- Voluntary contributions in kind by institutions or individuals (e.g. programming or management effort)
- State funding
- Investors

4.3 Materials and resources needed to carry out the transformation

- Repositories. In the first instance it is intended to carry on using the SourceForge which currently host the releases of TENCompetence software
- The code base of the software is an essential resource for carrying out the transformation. This is in principal freely available, but the IPR arrangements between the partners and associates and their relationship with the code base
need to be clearly defined. The licensing arrangements for the software are being defined by Work Package 3.

- **Documentation** on the Eclipse platform and on the TENCompetence code base

### 4.4 Support systems required to carry out the transformation

- **An office** (one or more)
- **Hardware** for management and facilitation tasks
- **Servers** to carry out dissemination and coordination activities. These may also be required if the board decides to provide some of the online services required for successfully running the software.
- **Organisational services**, such as accounting and legal advice
- **Personnel** to organise face to face meetings

### 5. Open Source foundation models

A number of open source organisational models have been investigated. Appendix 2 describes a variety of models in more detail, including patronage, charismatic leadership, democratic community, consortium, partnership with the user-group.

Key characteristics of the models involve:

a) Ways in which they are funded

b) Development process: who contribute under which conditions/regulations

c) Ways in which long-term strategic planning evolves

As to a) funding, the models show many different ways in which a project/software development is being sustained: through patrons, funding bodies or companies who invest money initially or on an ongoing base, member institutions that pay contributions or make investments through allocation of personnel or through commercial activities “on the side”.

Regarding b), the development processes are similarly diverse in terms of who contributes and who decide(s) what contributions will be integrated. Participants can be classified ranging from volunteers to hired personnel, and are distinguished using a variety of labels: contributors and committers, strategic developers, strategic consumers, Add-in Providers, Open Source project leaders etc. In some cases a single person (usually the founder), or a group of selected persons, seem to decide on the development process, in other cases this is governed by democratic rules and voting systems or a board representing different contributors and stakeholders.

Related to c) it is not always clear from the description of the organisational models, how long term strategic planning evolves. Sometimes it seems to emerge from the activities of individual developers which are either ‘taken on’ or abandoned, sometimes it depends on the vision of a single visionary or a small group of visionaries, in other cases it is assigned to a board.

Interestingly the majority of these projects adapt their organisational models over time, due to changes in scope, funding or growing numbers of contributors. Likewise, for the TENCompetence project we envisage different stages: at least a project phase and the phase of consolidation and sustainability of the Personal Competence Manager.
6. Structures and processes

6.1 Association or foundation

In the Description of Work the future organisation is referred to as an “association”, but does not discuss its nature or specify any of its characteristics. The term association suggests a particular kind of organisation, often one which brings together a wide range of actors to exchange experiences and to guide the future of a sector. A good example is the Prometheus project funded by the EC. It is easy to see that such an organisation would be valuable in the area of competence based lifelong learning. It does not, however, correspond to the goals and processes, resources and activities which are defined in the first sections of this document. These are more consistent with the establishment of a foundation. As can be seen from section 5 and the examples in the appendix, the function of a foundation in the context of developing and maintaining open source software is to guide and regulate the development process and manage releases. This is indeed the core transformation to be carried out by the organisation under discussion here. If the transformation statement had said “to bring together all the interested parties to develop the competence development space” then the situation would have been different, and an association would be more appropriate than a foundation. Consequently we treat the word association in the DOW as a synonym for organisation, and we are not constrained by it in our analysis.

It is possible to combine the functions of an association and a foundation in a single organisation, but the goals and processes of the two aspects are so different that this can create problems. It is perhaps significant that Moodle has found it necessary to separate the functions of software development and maintenance from the network of users, and to establish two linked but separate organisations. The model which we propose takes the position that this organisational separation should be anticipated for TENCompetence. This does not mean that the foundation could not be a member of the association, with the software company being a member of the association, indeed this would be entirely appropriate.

During the lifetime of the TENCompetence project the majority of the software developers will be employed by project partners, at least in the first instance, although it is intended to involve other researchers in this aspect of activity. Clearly there will be an increasing need to increase the number of developers, and also to increase the range of institutions within which they operate. It is worth bearing in mind that experience from the Reload project (which is a component of the TENCompetence system) suggests that development from beyond the core consortium may well initially consist mainly of customisation to local needs, rather than contributions to core code. This suggests that a large proportion of developers will be working for the full members of the organisation (both the existing partners and those who join subsequently). This is in line with the practice in the Apache Foundation, in which most developers are employed by organisations which recognise that maintenance and extension of the Apache code base is in their own interest, and who are consequently willing to donate their employees’ time (although this is a mature application, and the range of institutions contributing code is wider). It is also important to bear in mind the diversity of the code base, which includes the client, LD tools, learning network tools, knowledge management tools, and SOA services. This means that it is likely that the number of developers working on each part of the code base will be smaller than the total number of developers involved. It
will also make the task of maintaining and developing the code base significantly more complex than that of a single application.

Given the focus on development and maintenance of software in the transformation statement, and the likely dynamics of the developer network, it seems that a Foundation would be more appropriate than an association (at least as defined at the beginning of this section). This structure is more in line with a focus on development and maintenance of software, and enables those members who are providing most resources to guide the activity through representation on the board. In contrast, an association typically has a large number of members, and the governing body is usually the general assembly. Given the complexity of the issues concerned in steering the development and maintenance of a software application it would not be reasonable to expect a broad mass of members to be able to decide on such matters.

6.2 Operation and Regulation

According to the VSM methodology (Beer, 1988) which informs this analysis we divided the activities of the organisational system into operation and regulation. The operation of the organisation is defined in section 3. Activities and 4.1 Personnel above. We do not describe these again here, but remind the reader that there are three primary operational activities:

- Facilitating and managing the developers network
- Facilitating the deployers network
- Facilitating vision definition

The regulatory framework is the system which controls these operational activities, and we now distinguish its principal functions.

Resource bargaining (operational channel)

A mechanism is required to manage the resources available to each of the three operational activities. These need to be balanced according to the state of the environment in which the organisation is operating at any given time, and according to the organisations internal dynamics. There may be times when it is necessary to put most or even all the available resources into development, but more generally resources will be directed at all three in varying proportions. In principal this activity could be regulated in a number of different ways. For example, it could be achieved through highly sophisticated software, or voting at a general assembly following extended debate and argument. In our case, however, we assume that this operational channel will be handled by a person or team who will take on responsibility for this function of operational management.

Coordination

The three primary activities also need to be coordinated. This coordination should not be understood in terms of resources (described in the previous paragraphs), but rather in terms of orchestrating their interventions. There are many aspects of the organisation which contribute to this coordination. Software can make a valuable contribution, with groupware providing a channel of communication between the primary activities. But many less obvious factors also make a contribution, such as selection procedures and the terms of employment and grades. Similarly the use of the same-headed paper, room bookings system, staff training, etc, may be significant.
In the first instance the principal coordination challenges are those of harmonious working, and orchestration activities. Orchestration means ensuring that, for example, when the developers network is about to publish a major new software release, the vision guides are providing input on who might find this valuable, and in suggesting opportunities for implementation, rather than in engaging in open ended discussion of new features (which will be entirely appropriate at other times in the cycle).

**Monitoring**

There is a need to monitor the primary activities. This is not a matter of auditing or evaluating, but rather involves checking the health of the operations on an on-going basis. It is often a question of checking that everything is going well, and that all the actors involved know what they should be doing, are not being blocked in carrying out their activities, and are making progress towards their stated objectives. This function requires a communication channel between the people running the primary operational activities and the operational management team. In a traditional organisation it may be fulfilled by a combination of regular working group meetings, managers dropping in to the office for a chat, and discussions in the canteen and around the coffee machine. In a distributed organisation (which is likely to be the case for the organisation under discussion) it will be necessary to provide software support for this communication channel, and for the operations management team to clearly identify the need to carry out this function (which is in some cases implicit and undocumented in traditional organisations).

**Supporting self organisation**

It is important that the primary activities can self organise outside of management control. This is true both within each primary activity (if there is more than one person involved) and between the three primary activities. This will enable the three groups of facilitators with the opportunities to inter-work and to share their experiences informally.

In the case of the organisation under discussion this will mean

- a) Ensuring that opportunities are provided for the members of the three primary activity groups to meet face to face on a regular basis
- b) Ensuring that effective communications systems are available to these actors
- c) Providing a clear message from management to ensure that the people involved understand that participation in these communication channels is part of their working tasks.

**Strategy definition and communication**

In the long term it is absolutely essential that the association has a means of establishing a strategy for adaptation and sustainability in a changing world. This needs to be carried out at a global level for the whole operation, with a strong focus on the mission which it is to fulfil. Strategy activities might involve, for example, working with senior European operatives, HR executives, Vice Chancellors, Professors and people in similar roles. At the same time each of the individual primary activity groups will be looking at their own strategy, within the context of the goals which they have been set. This is a quite different type of strategic activity, but it is essential that the global and lower level strategies are orchestrated through the coordination channel.

The strategy established for the organisation must be based on a realistic understanding of what it can achieve, so those responsible for strategy formation
need to be clear about the nature of the organisation, and the limits of its capability. There is no point, for example, in deciding that the organisation under discussion here will have the strategy of ensuring that all competence-based training is delivered using the system which it has developed. This knowledge of the limits of what can be achieved needs to be combined with the knowledge of the operational needs of the organisation, and the ways in which they can be met.

One of the key communication challenges in this respect is to ensure that operational management understands the need for adaptation and strategy. One of the temptations for a software development organisation is to be continually moving on to the next version, before the customers have got to grips with what the software is and how to use it. This is unsurprising, because the purpose of the development team is to develop new versions. Consequently there is a need to avoid being too development oriented and insufficiently delivery oriented.

More particularly for the case under discussion, the definition of strategy is a particular problem with university products, which are produced by teams who do not have expertise in marketing and production. No one in a research team wants to write the manuals and get the software out into organisations, because activities of a software house are not part of the mission of such a group. At present TENCompetence is a research project, even if a number of its members are commercial organisations. In simple terms, the strategic control required by a research project such as TENCompetence is quite different from that required by a software house. Consequently, if it is to succeed, the future organisation will not be simply based on research, and this suggests that some different people will probably need to be involved.
6.3 Organisational structure
The structure of the future TENCompetence organisation may be represented as follows.

These roles will need to carry out the regulatory processes defined earlier in this section. Thus we see that:

- **There will be a board** whose job will be to balance present and future needs and activities of the business. The board referees the discussion between strategy and operations management. The danger with the board is that it may forget that its function is to regulate this process, and start intervening directly in strategy definition and operations management (ignoring their status as *non-executive* officers). This collapses the structure of the organisation, and leaves it without proper care and attention being given to the functioning of the system as a whole. To avoid this it is important that there is a proper distribution of power, and that the functions of Chair of the Board and Chief Executive Officer are distinguished.

- **There will be a manager or management team** that deals with the following matters
  - Strategy definition and adaptation as regards new developments in
    - Technology
    - Activities
    - Funding
    - Etc.
  - Operational management (i.e. putting the system into place and running it)
    - Resource management
A Formalised Organisational Model for the TENCompetence Associate Partners

- Monitoring
- Coordination
- Etc.

These two functions could be carried out by one person, as is suggested in the role of CEO in the organigram above. Alternatively this could be expanded out to include a management team (should the volume of work justify this, and funding allow it).

- **There will be three facilitators or groups of facilitators.** These will carry out the primary activities defined in section three. As noted above, the function of the developers group may need to be extended to include direct intervention in the development of software by staff contracted by the organisation. In this case the group could consist of, for example, an open source manager, two developers and a facilitator.

### 6.4 Membership roles

#### 6.4.1 Subscribers

The simplest form of engagement with the organisation is to subscribe by filling in a standard form. This enables participants to:

- follow developments through regular mailings, which could take the form of a newsletter
- participate in forums and public events, SIG’s communities
- access to certain areas of the partner website

This light level of commitment enables the organisation to build a community, and get a critical mass of people who may later take on a more active role. In return the organisation provides members with privileged information and knowledge, and networking opportunities. It is anticipated that during the first two project cycles of the project the majority of organisation participants will take on this level of engagement. It is possible for both individuals and institutions to become subscribers. The benefits of institutional membership are largely those of mutual recognition, which can be attested by use of logos on the web site. Individual membership is automatic on completion of a form, but institutional membership needs to be approved by the organisation.

#### 6.4.2 Associate partners

The direction and nature of the activities of Associate partners of the TENCompetence project will change over time. Concurrent with the project period the emphasis will be on acquiring insight in the potential of TENCompetence for LLCD for the own organisation. Knowledge exchange, defining opportunities for LLCD, use cases, specific implementations and pilot testing concepts and their instrumentation as well as prototyping possible business’ models are relevant in this period. This includes bridging the LLL learning needs by customizing the TENCompetence vision to the branch’s business’s needs, and providing feedback to TENCompetence. Thus validating the concepts of TENCompetence in educational practices. It also includes participation in training running of pilots, and developing one’s own business case. After the project’s end, activities will evolve from piloting to operational
implementation of TENCompetence concepts and its instrumentation in the daily practices of partners.

Those members who wish to have a more active engagement with the project will be required to sign a Memorandum of Understanding regulating the relationship between the organisation and the associate partner. Different organisations or individuals may have different relationships with TENCompetence. Organizations may benefit from TENCompetence according to their scope of interest:

1. when looking at their **future**
2. when looking at their **present**
3. when looking at their **past**

The following scheme presents the idea on the mutual benefits of various partners from the TENCompetence associate relationship. In the following schemata the contributions and benefits for various types of associates are presented. These initial indications of the mutual benefits of various association types, presented in this paragraph will be specified following the agreement on the basic principles proposed in this document.

The TENCompetence project offers 'a look into the future'. This may be beneficial as a blueprint describing developments, as guidelines for investment decisions or as planning.

The TENCompetence project offers 'immediate benefits'. This may be beneficial as knowledge, outcomes, instruments.

The TENCompetence project offers factual information and 'lessons learned'. This may be beneficial as a wrap up of what was done, what the project did come up with.

Typical partners would be:
- Conventional training organisations
- Organisations that have a large 'knowledge' turnover

Typical partners would be:
- Pioneering training organisations
- Innovative Learning technology centres
- Universities and academies

Typical partners would be:
- Governments (Local/European)
- Follow up projects projects
- Universities
- Innovative Learning technology centres
Associate partners can contribute to the organisation in a number of ways. They may, for example,

- work on the code base, run a service which is needed to make the software effective, or contribute money or personnel
- maintain software which is used by the organisation, and where coordination may lead to benefits for both parties
- have an interest in disseminating the work of the organisation (for example organisations such as EUCEN and EDEN)
- use the software in significant activities with institutions or user groups which help to inform future development of the system, for example by providing detailed feedback from learners.
- Contribute to development of guidelines for future investments and decision making
- Develop dedicated services based on the TENCompetence infrastructure for specific educational niches
- and examples indicated in the following schemata.

1. Partners looking for benefits of TENCompetence when looking at their future.
2. Partners looking for benefits of TENCompetence when looking at the present.

- **TENCompetence is** 4 – 8 years ‘ahead’ of average associated partner.
- **Partnership Output**
  - Architectures
  - Tools/Instruments
  - Gatherings
- **Specific TENCompetence benefits**
  - Validation of products
  - Validation van ‘direction
  - Meeting the projects objective: dissemination
  - Meeting the projects objective: Associated partner network
- **Specific Associated Partner benefits**
  - Insight and competence build up around technological, pedagogical and organisational developments
  - Guidelines on long term decisions (investments)
- **General TENCompetence needs**
  - Validation
  - User network (Believers / Sponsors)
- **General (related) needs associated partner**
  - Future proof investments;
  - Expert knowledge learning technology;
- **Regular Education / Learning**
- **Volume Validation**
- **Validation**
3. Partners looking for benefits of TENCompetence when looking at the past.

In return organisations will define the benefits which the associate partners expect to receive. These are exemplified in the official MoU, and may for example, include access to pre-release code, expertise or services, collaborate on inter-organisational and interdisciplinary competence development projects. The regulation of this relationship is addressed in the official MoU included in paragraph 6.7 of this document.

6.4.3 Full members

Full members have voting rights on the organisation board. In the first instance the members will be the project partners, but it may be anticipated that as time goes on some associate partners will become full members, while some members may leave after the end of the funded period of the project. Full membership is recognition of input provided to the organisation by the member, be it in terms of employee time or financial contribution. The regulations of the organisation, to be established by the board, will specify the minimum contribution to be made by members, and should a members contribution fall below this level their membership will lapse (although the board can choose to reinstate them following review that is in the interests of the organisation).
6.5 The memorandum of understanding

The organisation will enter into agreements with associate partners formalised through a memorandum of understanding (MoU). A MoU can regulate any kind of relationship between an associate partner and the organisation. For example, there might be a need to formalise a relationship between an open source software foundation and the organisation, in order to manage the joint development of a software package used by both entities. The negotiation of the terms of the MoU is a decision which needs to be approved at the strategic level. Entities who have signed a MoU are not full members of the organisation, and do not have voting rights on the board.

This instrument is of particular importance in relation to the formation of Competence Development Networks. It was proposed at one stage in the development of this deliverable that one of the core activities of the organisation should be to facilitate the formation of Competence Development Networks. It was felt, however, that this would take activities too far beyond the core beneficiaries of the organisation, who are the providers of competence development programmes.

The need to engage with Competence Development Networks is addressed in two ways.

a) Through a MoU the organisation can promote the development of competence development networks. It is envisaged that the MoU will specify how the organisation will provide expertise and services in exchange for demonstration, dissemination and feedback from the Associate Partner. This will offer the organisation the opportunity to reach agreements which enable it to obtain information which is not normally available from the deployers’ network. For example, direct contact with end users, validation evaluation and testing opportunities, and feedback on the effectiveness of the competence development networks which are created using the software.

b) It is envisaged that the organisation will create a competence development network for its own members and the associate partners. This would be used for training actors in competence development in general and in the use of the system in particular.

c) It is envisaged that the organisation will create new services competence development networks based on the TENCompetence infrastructure for its own members and/or specific other target groups.

The second and third points suggest that it would be possible to offer a commercial service which hosts competence development networks. This is, however, problematic, as it moves too far from the transformation to be effected by the organisation. It might be worth considering setting up a separate but closely linked organisation which carried out this function (following the precedent established by Moodle).
6.6 Becoming an associate partner: information for prospective associate partners

Associate Partner Network

Roles and benefits to Associate Partners
As a TENCompetence Associate Partner you will become part of an initiative which is at the forefront of competence development in Europe. The TENCompetence Associate Partner Network comprises private and public organizations, projects and networks, whether small or large. SMEs are particularly welcome.

TENCompetence firmly believes in an open source and open content approach, and all the consortium outcomes will therefore become publicly available. As an Associate Partner you will enjoy the following additional benefits:

- have immediate access to the latest project documentation like any full partner
- be invited to participate in on-line and real-life project discussions and events
- participate in test beds, pilots and demonstrators
- have access to specialised training
- be provided with links to other professional communities in the life-long learning domain

Depending on your organization’s profile and ambitions, you can opt for different roles in the Consortium:

<table>
<thead>
<tr>
<th>You are a:</th>
<th>How you can participate</th>
<th>Your benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>User organization</td>
<td>You are a potential user of the TENCompetence infrastructure. In this role you could contribute Use Cases, scenarios and user requirements (Work Package 2), and participate in pilots (Work Package 4).</td>
<td>You will be able to help to shape the TENCompetence infrastructure to better fit your needs, and be assisted in implementing early versions of the TENCompetence infrastructure in your organization.</td>
</tr>
<tr>
<td>Technology provider</td>
<td>You are developing open source components (Work Packages 5-8) or service implementations (Work Package 3) - or intending to do so - that fit the TENCompetence architecture.</td>
<td>You will get full access to technical documentation, discussions, testing sessions etc. just like a full TENCompetence partner.</td>
</tr>
<tr>
<td>Service provider in life-long competence development</td>
<td>You are - or intend to become - a materials developer, training provider, assessment center, HRM service provider, etc. You could contribute Use Cases (Work Package 2), influence business model development (Work Package 10), and participate in pilots and demonstrators (Work Package 4).</td>
<td>You will get full access to functional requirements definition, business models, discussions, training sessions etc. just like a full TENCompetence partner.</td>
</tr>
<tr>
<td>Project or network in the field of life-long competence development</td>
<td>You are a project, consortium, or network that wants to harmonize RTD and dissemination activities with TENCompetence.</td>
<td>You will get full access to documentation, discussions, testing sessions etc. just like a full TENCompetence partner.</td>
</tr>
</tbody>
</table>
As an Associate Partner you will support the TENCompetence objective of supporting individuals, groups and organisations in Europe in lifelong competence development by establishing the most appropriate technical and organizational infrastructure, and you subscribe to the TENCompetence strategy of releasing all outcomes under open source and open content licences.

**Application procedure**

All types of organizations can apply for membership as an Associate Partner. This explicitly includes SMEs! Individuals are also invited to participate in TENCompetence activities and should contact Marlies.Bitter@ou.nl for further details.

Prospective Associate Partners are invited to fill in and submit the Application Form available as an attachment below to Marlies.Bitter@ou.nl. Applications will be assessed against the following criteria:

- Agreement with the TENCompetence objective and open source and open content strategies
- The fit and added value of your organisation to the TENCompetence activities
- The availability of your organisation's resources to participate in Consortium activities

The TENCompetence Executive Committee will assess the applications, and based on your profile you will receive a proposal for a Memorandum of Understanding (MoU). Such a MoU will specify:

- Your formal agreement with the TENCompetence objectives.
- Your organization’s aims for the participation and the TENCompetence work area you are most interested in.
- The activities, their timing, and the expected outcomes you would like to contribute to.
- The resources required from the Consortium and from you.
- Your formal agreement with the fact that all deliverables created by you as an Associate Partner relating to the TENCompetence infrastructure will be release under open source (OSI certified Open Source licenses) and open content (Creative Commons license) licenses.
- Your formal agreement with the fact that your organization can be named as a TENCompetence Associate Partner in public communications.
6.7 The official MoU - format

Format for
Memorandum of Understanding
between
the TENCompetence Consortium
and
<name Associate Partner>

1. Agreement with the TENCompetence objective

By signing this Memorandum of Understanding (MoU) <name Associate Partner>, further on referred to as Associate Partner, confirms its agreement with the TENCompetence objective to support individuals, groups and organisations in Europe in lifelong competence development by establishing the most appropriate technical and organizational infrastructure, using open-source, standards-based, sustainable and innovative technology.

2. Public commitment to TENCompetence

The Associate Partner agrees that its name and activities in TENCompetence can be used in external project communication.

3. Open content and open source

The Associate Partner agrees that:

3.1: All **information in** the form of documents, audio recordings, electronic content, etc. produced as part of the activities listed below under section 5 will become available as open content under the Creative Commons license, attribution 2.5 Netherlands, which specifies the freedom:

- to copy, distribute, display, and perform the work
- to make derivative works (optional condition can be removed by the Parties if and where required)
- to make commercial use of the work

under the following conditions:

- They attribute the work in the manner specified by the author or licensor;
- For any reuse or distribution, you must make clear to others the license terms of this work.
- Any of these conditions can be waived if you get permission from the copyright holder.

This excludes any confidential information not directly related to establishing the TENCompetence infrastructure, and indicated under section 7.

3.2 All software products, including code fragments, prototypes, etc. produced as part of the activities listed below under section 5 will become available as open source under the Open Source Software license. Which in TENCompetence means software licensed and distributed under an OSI
A formalised organisational model for the TENCompetence Associate Partners certified Open Source agreement which guarantees the right to read, redistribute, modify, and use the software freely. (Examples of OSI certified agreements are the GNU GPL and the GNU LGPL)

3.3 As far as necessary, the Associate Partner shall hold the TENCompetence Consortium harmless from any claims filed by third parties in connection with the form and substance of the work referred to in this Section.

4. Role in TENCompetence

The Associate Partner will be involved in TENCompetence in the role of:
- User organization
- Technology provider
- Service provider
- Project or network
- Other: <specify role>

The Associate Partner will specifically contribute to, and participate in activities, of the TENCompetence workpackage:
- WP2: Requirements & Analysis of the Integrated System
- WP3: Technical Design & Implementation of the Integrated System
- WP4: Pilots with the Integrated System & Validation of the Project
- WP5: Knowledge Resource Sharing & Management
- WP6: Learning Activities & Units of Learning
- WP7: Competence Development Programmes
- WP8: Networks for Lifelong Competence Development
- WP9: Training
- WP10: Dissemination & Exploitation

5. Activities

The following activities, outcomes and related time plan specify the participation of the Associate Partner in TENCompetence:

5.1: Activities: <specify activities>
5.2: Outcomes: <specify outcomes>
5.3: Time plan: <specify time plan>

6. Resources

6.1: In carrying out the activities described under 5, the Associate Partner will make the following resources available: <specify human, financial and other resources>
6.2: In carrying out the activities described under 5, TENCompetence will make the following resources available: <specify human, financial and other resources>

7. Confidentiality

7.1: The Associate Partner will keep all information gathered about Full Partners and Associate Partners through participation in TENCompetence confidential, with the exception of the type of information indicated under section 3.1.
7.2: The following information will be used in TENCompetence activities by the Associate Partner, but will be exempt from the Creative Commons license specified under section 3.1.: <specify type of information>,

8. Termination of MoU

This MoU will come into effect on <enter date> and will terminate on <enter date>. Either of the signatories may terminate this MoU at any moment with immediate effect. Termination cannot lead to any liability claims.

9. Law and jurisdiction

This MoU is governed by Dutch law. Any and all disputes ensuring from this Agreement will be submitted in the first instance to the Maastricht District Court. In departure from the previous sentence, the Associate Partner may at all times apply to the court which, apart from the Maastricht District Court, is competent to hear the dispute in question.
References


Appendices

Appendix 1. Definition of competence used in this organisational model, and software to be developed and maintained

To operationalise this transformation statement established in this deliverable it is necessary to clarify the nature of a Personal Competence Manager. The detailed analysis is available elsewhere, in the deliverables of WPs 2 and 3, and the scope of the tool is formally represented in the Domain Model (Koper, 2006) A necessary first step is to clarify the concepts *competence* and *competency* are often unclear and confusing.

*Competency* is sometimes used as a synonym for *skill*. This is considered to be an attribute of an individual which is stored in some way in their cognitive system. Because of this competencies are bound to persons and not to teams or organisations.

*Competence*, in contrast, is situational in nature. Competences need to be defined in the context of a specific profession, occupation or knowledge domain (for example the competences of a journalist, a scientist, a stamp collector, etc.). Thus competence is a construct which is attributed to the relationship between an individual, team or organisation, and the events in their environment (in our terminology, their ecological niche).

It would, at least in principal, be possible to devise a scientific test for a *competency* (understood as a skill) by using the techniques of cognitive psychology. The identification of a *competence*, on the other hand, always has a social component, because the phenomenon can only exist within a social context. Thus the person or institution responsible for ascribing competence has to define the ecological niche, engage with it to observe the actors interactions with the ecological niche, and defining the significant aspects of the interactions.

In order to pin down the definition of *competence* the TENCompetence project has adopted the definition established in Cheetham and Chivers (2005) as *effective performance in a domain at different levels of proficiency*. We also adapt Cheetham and Chivers distinction between five different competences:

a) cognitive competence (knowledge)
b) functional competence (skills or competencies)
c) personal competence (e.g. intelligence, flexibility)
d) ethical competence (attitudes)
e) trans-/metacompetences (e.g. communication skills)

On the basis of this definition the domain of “Life Long Competence Development” includes both formal education and skills acquisition.
Competences are managed at many different levels in formal definitions, profiles, needs and development plans.

- a person
- a job
- an organisation
- a profession
- a sector
- a state

The descriptions of these competences may be complex and extensive, and a person who wants to make sense of the overall picture at any given level of granularity is confronted with a demanding task. This task is even more complex if it involves more than one level, for example a human resources manager may have to look up to a higher level to analyse the position of her company in the sector, and then explain the resulting competence development strategy to the employees in her organisation.

Taking a simpler example which does not involve multiple levels the tasks which are involved are still complex. Someone seeking to improve her competence profile has to:

- Find a place which defines the competence profile and competences which will enable her to meet her personal development goals
- Map her present competence profile onto the competences that she has identified
- Identify competence development opportunities which will enable her to acquire the additional competences which she needs.
- Select and carry out a set of competence development programmes
- Present her competence profile to prospective employers

Valuable work has been done to provide methodologies and tools which support these processes, and they can help a great deal. They are limited, however, by being oriented to institutions which are responsible for generating and managing the information, rather than to the learner. These institutions include examining bodies, professional organisations, education systems, human resources departments, employment agencies, and so on. As a result the user is given the responsibility for keeping track of and coordinating all the sources, documents and activities which enable her to move this process forward.

This is not a satisfactory solution, because

- The way in which competence profiles, descriptions and development opportunities are presented varies greatly, and may cause confusion
- The user has to use a number of different applications to carry out the various different activities. These will involve managing a number of different identities, and perhaps using a number of different applications.
- Formally described competence acquisition is separated from informal competence development, participation in communities of practice, etc.
- Competence acquisition becomes something which is done when the learner remembers to go to one of a series of locations, rather than being a coordinating framework for daily activities
In dealing with this variety the user is at best confronted with a high cognitive load which may discourage her from pursuing a competence oriented approach, or, at worst, an impossibly complex task. We may reasonably ask why this problem remains unresolved. There are two powerful factors which sustain the current situation.

a) It would be an enormous undertaking to create a single application or integrated suite of applications which could provide a single solution for the whole range of competence development tasks. This would have to have all the functionality of a traditional Learning Management System, plus a great deal of additional specifically related to defining, exchanging and meeting competence development needs.

b) A unified system would inevitably impose a more restricted representation of competences than those available in currently available isolated applications, and this would in all probability be unacceptable to many user groups.

The Personal Competence Manager uses a service based architecture to create a system which can addresses the above points by:

a) gathering together competence related information drawn from sources at multiple levels. This means that there is no longer any need to create a single integrated system.

b) presenting and editing the information in a context, structure and format which is determined by the user.

It should be noted that the word “personal” here does not mean that the system is primarily focused on the representation and manipulation of competence information at the level of the individual person who has a competence development need. Rather it indicates that the different levels of competence related information (profiles, competence development networks, competence development plans) are presented in a way which is consistent with the individual users’ personal view of the domain. Thus the system is personal for the author of competence development programmes as much as it is personal for the participant in those programmes. Similarly use of the term “competence development” does not mean that the system is focused only on the development of competences. Indeed the PCM can be seen as an environment which unifies the processes of representing competences, planning competence development programmes, and coordinating competence development networks, as well as facilitating competence development activities.

The system consists of servers which manage the competence development information (profiles, paths, development activities...) and an aggregator which brings together the information from the various servers, adds a presentation layer, and provides tools which the user can use to manipulate it.

The motivation for building this system is not simply technical satisfaction, but rather a vision of society in which people are empowered to take control of their own personal development and Life Long Competence Development. The purpose of the system (and the association) is, in the final analysis, to enable this attitude and practice by providing appropriate tooling.
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Supported by all Competence based systems
- Competence information remains on isolated institutional servers
- Competence development plans created and managed “top down”
- Institutional context represented
- Institutionally driven competence development plans are strongly linked to the needs of individual organisations. This leads to an inflexible workforce.
- Users find it convenient to work with a single provider of competence development programmes

Additional features added in a Personal Competence Manager
- Competence information aggregated and presented to the user
- Personal management of competence development plans
- Institutional, social and personal space represented
- Personally driven competence development maximises flexibility in the workforce. It also contributes to personal enrichment & personal fulfilment.
- Users are supported in working with a variety of competence development programmes from different sources.
Appendix 2: Open Source Models

1. Patronage

*Open Source Applications Foundation*
Mitch Kapor provided the initial commitment of $5 million for the foundation of the Open Source Applications foundation (OSAF). OSAF is responsible for the development of Chandler, an Open Source personal information manager for email, calendars, contacts, tasks and general information management.
Subsequent funding from the Andrew W. Mellon Foundation and 25 universities supplemented this initial funding, enabling the development of a higher education version of Chandler.
http://www.osafoundation.org/OSAF_Corporate_FAQ.htm

*Ubuntu*
Mark Shuttleworth made $575m (£327m) selling his Internet company, Thawte Consulting, in 1999, and invests about $10m a year in Ubuntu. Although the business model is quite risky he feels shaping the digital platform for the future is an interesting position to be in. Following the reasoning of the founder, in a coming future, the Open Source will be a main force to develop real solutions for final users where these users take part of a big part, when not all, of the development.
https://wiki.edubuntu.org/MarkShuttleworth

2. A charismatic leader

Development of the Linux OS and front end is managed by Linus Torvalds, and carried out by volunteer programmers attracted in part by the possibility of contributing to the project led by a high profile and influential leader. The system has a very large number of users, many of whom are developers. It also has a number of businesses which bring it to market, (e.g. redhat add value), consultants, and user organisations.

Linux organisational structure works based on mutual trust and reciprocity, where each developer could act as a provider and a tester at the same time, working as a bug fixer or a patch coder, for instance. After this first round of work an influential group of members select a subset of cycles out of the pool of all possible cycles. Selection always works backward and is behind because the only thing which can be selected is an enacted environment that is already there. Three key concepts are used in the playground: Selection, Relevance and Enhancement. Selection can be viewed as applying a certain set of rules to assemble a subset of cycles out of the pool of all possible cycles. Such rules, to be labelled as assembly rules, are procedures, instructions or guides being used by influential organisational members to create the process.

Relevance refers to the fact that the founder (Torvalds) and the main developers are used to selecting patches (i.e. feedback loops) against a specific development and/or production tree. Enhancement, otherwise, refers to the fact that Torvalds and the other official tree maintainers automatically accept bug fixes (i.e. interacts) that enhance their latest releases.
http://firstmonday.org/issues/issue8_12/iannacci/index.html
3. A democratic community

The Apache web server has a large number of users, many of whom are developers and who build extensions for the system as part of their work. According to the Apache website the project is jointly managed by a group of volunteers located around the world, using the Internet and the Web to communicate, plan, and develop the server and its related documentation. In addition, hundreds of users have contributed ideas, code, and documentation to the project.

There is a core group of contributors, formed initially of the project founders, and augmented from time to time by other outstanding contributors. There are 'committers', who are granted access to the source code control repositories to help maintain the project or docs, and the core group now managing the project, which is called the Apache HTTP Project Management Committee (PMC, for short). In fact, each Apache Software Foundation project has its own PMC, to determine committers, project direction and overall management. The terms "The Apache Group" or "Apache Core" are no longer used.

The project is a meritocracy - the more work you have done, the more you will be allowed to do. The group founders set the original rules, but they can be changed by vote of the active PMC members. There is a group of people who have logins on the server and access to the source code repositories. Everyone has read-only access to the repositories. Changes to the code are proposed on the mailing list and usually voted on by active members; docs are usually committed first and then changed as needed, with conflicts resolved by majority vote.

Primary method of communication is a mailing list. Approximately 40 messages a day flow over the list discussing new features to add, bug fixes, user problems, developments in the web server community, release dates, etc. The actual code development takes place on the developers' local machines, with proposed changes communicated using a patch, and then applied to the source code control repositories by one of the committers. Anyone on the mailing list can vote on a particular issue, but only those made by active members or people who are known to be experts on that part of the server are counted towards the requirements for committing. Vetoes must be accompanied by a convincing technical justification.

New members of the Apache HTTP Project Management Committee (PMC) are added when a frequent contributor is nominated by one member and unanimously approved by the voting members. In most cases, this "new" member has been actively contributing to the group’s work for over six months. The project guidelines continuously evolve under the oversight of the PMC, as the membership of the group changes and development/coordination tools improve.
http://httpd.apache.org/ABOUT_APACHE.html

4. A foundation building on a system developed by a corporation: Eclipse foundation (IDE and RCP)

The Eclipse platform was built by IBM, and many developers are actively involved. Code which they develop using Eclipse can be incorporated as part of the Eclipse platform itself. A foundation has been established to maintain the platform, whose purpose is set out in the bylaws as being to advance the creation, evolution, promotion, and support of the Eclipse Platform and to cultivate both an open source community and an ecosystem of complementary products, capabilities, and services.
Originally a consortium that was formed when IBM released the Eclipse Platform into Open Source, Eclipse became an independent body that will drive the platform’s evolution to benefit the providers of software development offerings and end-users. All technology and source code provided to and developed by this fast-growing community is made available royalty-free via the Eclipse Public License.

With the change to an independent not-for-profit corporation, a full-time Eclipse management organisation has been established to engage with commercial developers and consumers, academic and research institutions, standards bodies, tool interoperability groups and individual developers, plus coordinate the open source projects. To maintain a reliable and accessible development roadmap, a set of councils (Requirements, Architecture and Planning) will guide the development done by Eclipse Open Source projects. With the support of over 115 member companies, Eclipse already hosts 9 major Open Source projects that include a total of over 50 subprojects.

To oversee and staff this new management organisation, Eclipse has established a Board of Directors drawn from four classes of membership: Strategic Developers, Strategic Consumers, Add-in Providers and Open Source project leaders. In the Eclipse Platform, code access and use is controlled through the Eclipse Public License, which allows individuals to create derivative works with worldwide re-distribution rights that are royalty free.

http://www.eclipse.org/org/

5. Building on a University funded development project: DSpace

DSpace structure has been evolving since its launch in November 2000. In the beginning, MIT Libraries and HP Labs developed a software system with the capability of preserving, indexing and redistributing scholarly research materials, particularly those in electronic form. The purpose of the initiative was to provide stable URLs and indexing of electronic documents according to community-developed standards, allowing researchers access to an institutional repository of materials that might otherwise be lost.

Though it was expected that the software would eventually be distributed in an open source fashion, the project development, itself, was to be private. During its first two years, DSpace was developed solely within HP and MIT. At that time, there was no formal governance structure, with project developers reporting to the funding institutions rather than to an official Board for the project. There was no direct community engagement.

After the release of DSpace 1.0 in 2002, HP Labs and MIT Libraries sought ways of involving the community in the project. Forums for users and subsets of those users were launched. In addition to soliciting community feedback on the software, a study examining implementations on eight different campuses was executed. This ultimately resulted in the creation of the DSpace Federation User Group, a set of institutions using DSpace and contributing to its future development. DSpace then began trying to determine what governance model would be suitable in the long term, balancing an interest in community involvement, sustainability and mission. Having gone through two phases, DSpace is now on the verge of entering a third.

DSpace version 1.2, released in spring 2004, reflected the broader involvement, including code and testing contributed by other institutions. Still without a formal
A Formalised Organisational Model for the TENCompetence Associate Partners
governance structure, DSpace had in some respects swung its pendulum in the other
direction. It was now a community-moderated community, with few requirements for
participation. The first DSpace User Group meeting in 2004 refined the federation
model and a “committer” group primarily composed of representatives of institutional
users was established. Over time, selection for this committer group became merit-
based, with choices made from a large pool of contributors by other committers.
Subject-based listservs and Special Interest Groups were also valued parts of the
organisation. It now has 50-60 volunteers, while a core group of 7-8 people control
the code.

In 2005 DSpace entered a third phase that is concluding now. It sought to set some
parameters for community involvement, allowing for the creation of a more focused,
streamlined and quality-oriented product. A Governance Advisory Board was created
to determine which governance model would best serve DSpace, and decided in
March that DSpace should pursue the creation of an independent non-profit
organisation. Meanwhile, a more formal system of contributors and committers was
established that considered merit as a qualification for advancement. Commercial
service providers were more seriously courted and DSpace began to consider other
applications for its software outside of higher education. In this way, DSpace began
to concern itself much more with sustainability, trying to reach a medium between
the extremes of complete institutional or community control.

MIT and HP have supplied the vast majority of funding for DSpace, both through
monetary contributions and through contributions of personnel. Users typically
receive funding from their own universities or grants to cover for installation and
maintenance of DSpace. Commercial affiliates of DSpace are presumed to provide
some revenue, but the amount is unknown. As DSpace considers alternate
governance models, obtaining financial support for the project will be a critical factor
in any decision that is made.

http://www.ithaka.org/strategic-services/ooss-project-wiki/DSpace

6. Partnership with the user group: Moodle

Unlike a number of the Open Source foundations mentioned above, Moodle has many
users who are not developers. Consequently it has developed a strategy of associate
partners which provide funding for the development and maintenance of Moodle in
exchange for support in their own consultancy services. Originating from the idea of
one single developer, Martin Dougiamas, Moodle was produced aiming to get the
right balance between pedagogical approaches focusing on social constructivism and
the technical support of a digital platform easy to be installed and used. Social
constructivism not only treats learning as a social activity, but focuses attention on
the learning that occurs while actively constructing artefacts (such as texts) for
others to see or use. Dougiamas commits to creating software that is easy to use,
recognizing that many users will be students and university professors unversed in
technology.

Upon its release in 2002, word spread and developers began contributing ideas and
code. Originally envisioned as a course management solution for universities, Moodle
was widely embraced by secondary schools. In 2003, the for-profit Moodle.com was
formed to help sustain the non-profit Moodle.org. While the former supports the
virtual user community (more than 160,000 users up to date) the latter provides
funds to support the development and structural efforts. The Moodle software
remains as free and open source. In Moodle.com, upon meeting specific
requirements, commercial entities are listed as official providers of Moodle support,
hosting, consulting, etc. In exchange, these commercial groups would share a percentage of their Moodle-related income with Moodle. This arrangement seems to preserve the open source aspect of the development of the Moodle product while allowing for further innovation as money can be poured back into the product and a core of staff developing it.

Moodle is a highly centralized organisation, with Moodle founder Martin Dougiamas appearing to be the primary locus of activity. Dougiamas often initiates threads, announces developments, and writes code. There are seven “key Moodle roles”, but these are all technical rather than organisational. There are around 20 main developers, but the requirements for ascending from just a regular contributor to a main developer are unclear. There are around 40 contributors who are said to aid by engaging in “constructive discussions, support, testing and various chunks of code and documentation.” Nearly two hundred people assist in translation, which seems to be a position obtained through an expression of interest. Unlike other open source projects, there is no formal Board or voting system in place. It seems that users and contributors discuss features they would like to have implemented and the developers work on producing them. It is a decentralized approach. Even conferences are generally planned by users who are enthusiastic about Moodle and take place without official endorsement by Moodle.

http://www.ithaka.org/strategic-services/ooss-project-wiki/Moodle

7. Development by a consortium: SAKAI

Open Source applications can also be developed and maintained by a consortium which pays subscriptions. This is the case of the Sakai project, which is developing an infrastructure for higher education which has some parallels with the TENCompetence project.

The Sakai Project was officially launched in December 2003 with a goal of creating open source learning management software through a collaborative process. It originated at the University of Michigan and Indiana University who had each developed a course management system. These institutions were joined by MIT and Stanford, which also had produced CMSs. The Open Knowledge Initiative (OKI) at MIT and uPortal consortium also joined the effort. With a grant from the Mellon Foundation, this group of entities formed the Sakai Project and agreed to deploy the product of their collaboration on their own campuses. In 2004 Foothill-De Anza Community College was awarded $600,000 from the Hewlett Foundation to adopt and extend the Sakai software tailored for the needs of community colleges.

The Sakai project has been supported by the Mellon and Hewlett Foundations and by the core institutions, each of which was expected to contribute both financial and human resources. In order to develop a long term source of funding, in February 2004 Sakai announced the creation of the Sakai Educational Partner's Program (SEPP). The launch of SEPP was supported with a $300,000 grant from the William and Flora Hewlett Foundation. Funding raised through SEPP was intended to support the staff and services required to develop a long-term community for sustaining and evolving Sakai-based software. SEPP, since renamed Sakai Partners Program (SPP), has 97 participating institutions as of August 2006. It offers partners early information on the direction of the Sakai Project, strategic briefings to help plan for Sakai implementation, discussions of the project roadmap, early access to Sakai documents, and some pre-release software as well as technical support staff.
In 2004 Sakai launched the Sakai Commercial Affiliates (SCA), which consists of commercial firms that offer support and expertise for the Sakai Project's community source software. Commercial Affiliates usually offer some combination hosting, consulting, installation, integration, and support services.

During the early stages Sakai’s software development was overseen and conducted primarily at core institutions, particularly Michigan and Indiana. Following the production release of Sakai at a number of institutions, Sakai began seeking to attract broader engagement from the programmer community. According to Sakai’s website, the QA team for the Sakai 2.2 release (in July 2006) consisted of 82 volunteers from 28 institutions and seven countries. The Sakai community operates on the basic principle of "meritocracy," modelled after Apache, whereby “a self-governing leadership team is responsible for each major aspect of Sakai. A new member is invited to join the leadership team when they demonstrate sufficient interest, commitment and proficiency to the project's leadership.” Sakai has also sought to build interest and participation by hosting a series of conferences, which aim to provide information and networking opportunities for developers, instructional designers, implementers, faculty, and administrators.

In 2005 the Sakai Project entered a new phase of its evolution with the decision to create a new not-for-profit entity to act as a license holder, provide ongoing oversight for the software’s development, and continue to build the community of users and developers. The Sakai Foundation was launched in October 2005 and elections for a board of directors were held in November. The Foundation aims to employ minimal staff, and instead to rely upon contributions from the developer community for ongoing development of the software code.

http://www.ithaka.org/strategic-services/ooss-project-wiki/Sakai

8. A consortium which hires software developers: uPortal

uPortal was established in 1999-2000 with the goal of creating a web-based single point of access for the information technology services offered by colleges and universities. In the late 1990s, several commercial portal products were being marketed to higher education. In many cases vendors offered their products to schools free of charge and collected revenues from advertising (a business model not unlike that of such mass-media portals as Yahoo). The founding group of uPortal saw an opportunity to develop an alternative, non-commercial portal product that would be “by education and for education.” Unlike the portals offered by the commercial providers, the software they would create would be based on standards, and it would be written in Java, a programming language that the core group sought to promote. The project would be led by a “project liaison” (initially Carl Jacobson of the University of Delaware) and would be governed by JA-SIG, a new organisation of higher education technology professionals that sought a shared activity to bring the group together.

For an open source software project, JA-SIG took a somewhat unusual approach. Hired software vendors would do the initial software development. JA-SIG thought this would jumpstart development and increase the likelihood that there would be a market for commercial support for the uPortal software later on. University staff would volunteer their time to uPortal, especially in the design and architecture, but would not be paid to work on it. uPortal was able to pay for commercial software development with grant funds provided by the Mellon Foundation. Later, once the
grant money was spent, volunteer software engineers would take over the development of the software.

One measure of uPortal’s success is that it was adopted by commercial vendors as the basis for their portal products, such as Campus Pipeline and later SunGard SCT Luminis (when that company acquired Campus Pipeline). uPortal is implemented or in production at approximately 150 institutions of higher education, including Yale, Wisconsin, and Michigan. Luminis is used by at least 400 more. In addition, several IT firms have built service businesses supporting uPortal.

http://www.ithaka.org/strategic-services/ooss-project-wiki/UPortal

9. Leveraging the economic value of the product: Mozilla

August 2005 the Mozilla Foundation, a non-profit public benefit software development organisation, launched a wholly owned subsidiary, the Mozilla Corporation. The Mozilla Corporation is a taxable subsidiary which serves the non-profit, public benefit goals of its parent, the Mozilla Foundation, and is responsible for product development, marketing and distribution of Mozilla products. Somehow, it follows the same pattern than the Moodle Foundation and the Moodle Corporation, where one financially supports the community and activities of the other.

The Mozilla Foundation decided to create a corporation in order to leverage the economic value of Firefox which resulted from its growing market share. This provides funds to support development, testing, and productization of the various Mozilla open source technologies.

“This benefits both end-users of Firefox and Thunderbird, and developers and others who want to use the Mozilla open source code in various ways. Having the Mozilla Corporation handle revenue-generating activities associated with these products also allows the Mozilla Foundation to achieve its goals while still itself remaining a tax-exempt organisation.

However, the Mozilla Corporation is not a typical commercial entity and will only pursue revenue-generating activities that are consistent with offering end-users with the best experience possible.”

Nowadays, Mozilla is one of the main initiatives providing free solutions for Internet, focused on Firefox as one of the main competitors of the well-established Microsoft Internet Explorer.

http://www.mozilla.org/reorganization/#q2a