Developing a sustainable, student centred VLE: the OUNL case

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Abstract

The Open University of the Netherlands (OUNL) has adopted the concept of the personal learning and working environment (PLWE) as the future delivery platform of its educational services to students. This concept means that students should be able to shape their own personal virtual (learning) environment, based on individual tool and technology preferences .

To support this concept the OUNL faces the challenge of setting up an architecture and investing in the development of a set of educational services that can be integrated not only in the institutional learning environment, but that can also be merged with personal environments.

In this presentation we describe the first steps of a distance teaching university in its move towards this PLWE concept. This means reconsidering the role and position of the current, more traditional VLE, and developing new educational services that aim at getting students more committed and involved, inspired by the success of current web2.0 technology.

Introduction

How does a distance teaching university deal with the technological dilemma of supporting its students across an increasingly wide range of Internet technologies whilst continuing to offer a reliable and secure institutional platform? In answer to this dilemma, the Open University of the Netherlands (OUNL) in 2008 adopted the concept of the PLWE, the personal learning and working environment (Verjans et al., 2007). This concept describes the ideal situation in which users access the information and services that the OUNL offers through any number of different technologies that support (open) standards. Where does this technological dilemma come from? On the one hand, there is a group of not-so-technically-savvy students and staff for whom working with a traditional VLE (virtual learning environment) is quite a challenge. This group has grown used to the paper-based distance education supported by face-to-face coaching sessions, and is only gradually being coaxed into accepting web-based support and coaching. On the other hand, there is a group of knowledge workers who are using advanced web2.0-technology in everyday (working) life to fill their ever-growing need for up-to-date personalised information and knowledge. This group expects educational services to be delivered seamlessly to their personal (learning) environment.

In this contribution, we describe the path that the OUNL is following in order to solve this dilemma. In the first section, we zoom in on the concept of the personal (web) environment, also referred to as PE, as opposed to the managed learning environment (MLE) that we describe in the second section. In the third section then, we describe a number of possible approaches towards an environment that combines the best of both worlds. The fourth section then goes on to describe the case of the Open University of the Netherlands and the overall approach that was chosen, a concept that we have labelled the personal learning and working environment. We conclude the paper by describing some experimental pilots in more detail.

Personal (web) environment as an instrument to create order in the knowledge society

The modern knowledge worker is being confronted with a growing amount of knowledge and knowledge related services on the Internet. Museums, newspapers, universities, governments, all these institutions are in the process of making their information and archives available to the public on

the web, and are providing user services, often originating from new business models. Much information that has so far been stored in dusty archives and was hard to access is now simply becoming available from home, work, or on travel.
Next to organizations and institutions it has also become much easier for *individuals* to create and share information on the web and to broadcast themselves. Varying from full websites, wiki's and weblogs, over assets like pictures / slideshows, video's, bookmarks, or the recently popular microblogs. Also a variety of personal information is being shared on social networks like Facebook or the Dutch equivalent Hyves.

In addition, other (new) tools or services are responsible for generating a new and ever-growing type of information based on existing online information. If you look at a social bookmarking site like delicious for example, you see that all kinds of user generated (meta)data is being transformed to new information like bookmark counts, tag counters, and representations like tag clouds. Social networking tools make connections available that were hidden in real life. Customer behaviour, stored in CRM applications, make it possible to personalise recommendations for new products like books or CD's. The web is making all this information available through a variety of channels. The challenge we are facing now is how to create order in this chaos and how to manage this knowledge overflow?

A solution in this respect can be found in the current so-called mash-up tools, providing one with the opportunity to structure information and information services according to one's own preferences using key technologies like RSS-feeds and widgets. This type of tools is evolving more and more towards a personal desktop within the browser, providing knowledge workers with an environment to create an online, personal web of knowledge and services, that can be accessed independent of time, location and platform. We'll address these tools as *personal environments* (PE's). Typical for PE's is that the individual user is in control, and can shape his or her environment. Within the PE the user may distinguish between work, private and study related information and information services, or mix them up completely as this subdivision may not be a relevant organizing principle.
The educational equivalent of the PE is what Graham Attwell (Attwell, 2006), Scott Wilson (Johnson et al., 2007; Wilson, 2005; Wilson, Liber, Griffiths, & Johnson, 2007) and others have termed the *personal learning environment* or PLE. However, as learning – both formal and informal – and working are becoming more and more intertwined, which is especially the case for lifelong learners, the narrowing to learning is becoming irrelevant, which is why we prefer to use the term personal environment or PE. The left hand side of Figure 1 below illustrates the concept of a personal environment.
Good examples of these PE's are tools like Netvibes (http://www.netvibes.com/) or iGoogle (http://www.google.com/ig/). Within these tools one can easily create structure using tabs, and add feeds and widgets/gadgets that are shown as kind of portlets within these tabs. The look and feel can be customized according to personal preferences.

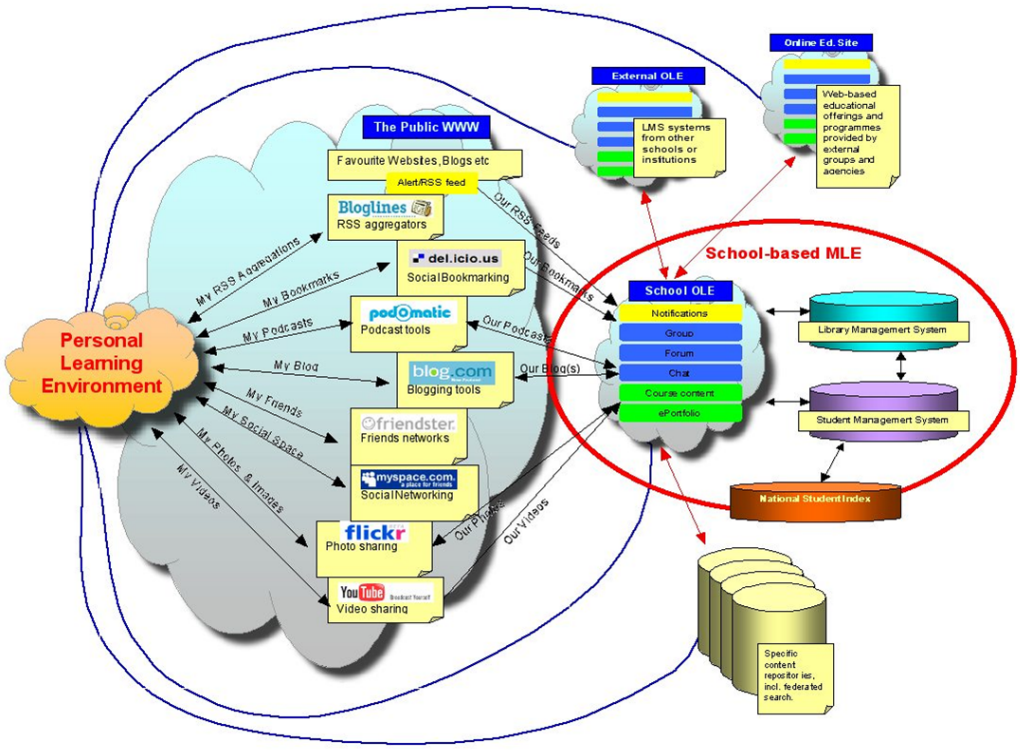

Figure 1: PLE versus MLE (from Wenmoth, 2006)

Managed (learning) environments offered by educational institutions

The opposite of PE's are so-called institutional environments. In relation to educational institutions, Derek Wenmoth (Wenmoth, 2006) refers to these environments as Managed Learning Environments (MLE's). The right-hand side of Figure 1 illustrates the concept of an MLE.

These MLE's are built around applications usually referred to as virtual or online learning environments (VLE's or OLE's) like Moodle or Blackboard, usually supplemented with a collection of applications for specific services. Through these VLE's educational institutions provide students and staff with a wide range of services supporting the primary process of education: instruction, tests, fora, news, monitoring et cetera. At the present moment many institutions deploy integrated, monolithic VLE solutions, like Blackboard.

Stereotypically, one can say that the institution is in control in an MLE and not the user. The educational institution has a supply-driven approach and decides which services are best for students and staff, where and how to deliver the services, and how much students are charged for usage. The functional design/setup/implementation of the environment often reflects the organizational structure of the institution. The institutional portal and MLE are separated environments, and are often poorly connected.

Web2.0 services are hardly offered and typically restricted to the features that the VLE applications (such as Blackboard or Moodle) offer. RSS feeds are scarcely present, there's a small set of pre-defined user profile fields, and online sharing of information between users is difficult and restricted to institutionalized applications like portfolio's. Commercial VLE's are almost always password-protected, and restricted to registered students

Bridging the gap between the personal and the managed learning environment?

But then of course there is the growing group of staff members and students who have already explored and adopted the benefits of new public domain tools, and who prefer including all their information and knowledge sources to be integrated. In this paragraph we describe a number of possible approaches for bridging the gap between the personal environment (PE) and the institutional MLE or managed learning environment. These approaches are indicated in Figure 2 below.

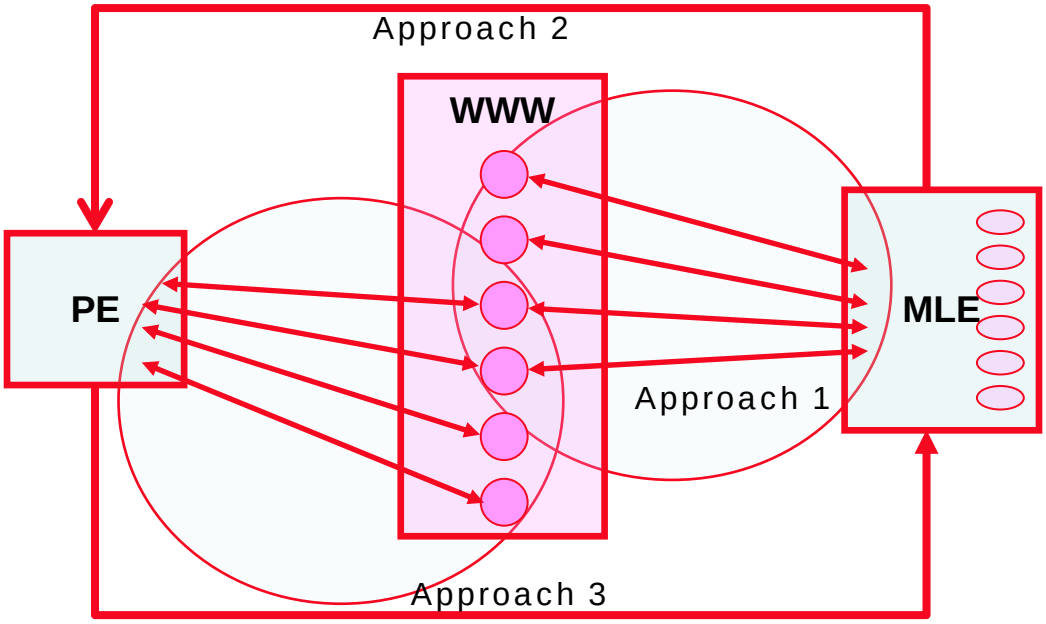

Figure 2: Stylised version of the relation between personal environment, managed learning environment and the World Wide Web (based on Wenmoth, 2006).

The main assumption underlying Figure 2 is that the institution knows about and recognises the importance of web-based applications and platforms (Web2.0) and of a personal environment. Raising the awareness of the growing potential of personal (learning) environments for the lifelong learner (and for the professional or academic staff member) is a major issue when an institution wants to move towards a more student-centred digital environment.

1. When this awareness is present in the institution, a first possible approach to bridging the gap between the personal and institutional environments is to open up institutional borders for Web2.0, and thus for personal environments.
    a. A first possible set of actions in this approach is to use Web2.0 for distributing public domain content and services. For instance, (a) public domain video materials can be published on YouTube, Vimeo, iTunesU or TeacherTube, (b) public educational and research bookmarks can be shared on delicious, furl or diigo, (c) audio and video materials can be distributed as podcasts on iTunesU, podcaster or podomatic, (d) presentations can be made available through Slideshare or Slideboom, (e) public news and blogs can be made available by providing RSS-functionality so they can be included in personal (learning) environments.
    b. A second set of actions that can be taken as part of this approach is to establish an institutional presence in the relevant (or most popular) social networking sites. For instance, (a) set up a company profile within LinkedIn to assist the institution in its hiring processes, and to provide employees with a ‘home’, (b) set up an official presence in the most popular informal social networking sites, such as Hyves, Facebook or Netlog,

in order to provide passers-by with correct information and somewhat balance the increasing number of informal student or staff groups or pages.

c. A third set of actions in this approach is to encourage staff and faculty to incorporate links to external streams of information (e.g. relevant blogs, relevant people to follow on Twitter / Delicious) into their courses, or to encourage students to co-create a knowledge stream by allowing them to suggest additional materials, sources or relevant blogs to a particular course.

2. A second approach is to offer users not only public information and services, but also more personalised information through private RSS or other standards. For example, course announcements, contributions to closed discussion forums, or specific internal institutional information can be made available through private RSS-feeds. Another example consists of an alerting and registration service for specific events, tutorial sessions, lectures or conferences related to one's field of study. Such event data could be made available through a Google calendar widget or a private feed with iCal or vCal data.
   The institution might also choose to collect thematic information streams (both personalised and public) into a number of pre-set clusters of feeds / knowledge streams. For instance, the department of finance and accounting can bring several relevant feeds related to public auditing together in a single cluster and offer it as a public Netvibes tab, an iGoogle tab, or an OPML file. Such a cluster would then contain knowledge materials produced, selected or filtered by Open University staff, such as recorded lectures, textual or multimedia open educational resources, blogposts, shared bookmarks, but also event-related information about workshops or study sessions. This offering can then simply be included in a user's personal environment and tailored to their needs.

3. A third possible approach is to allow users to tailor their personal workspace within the managed learning environment, allowing students to add relevant personal feeds or knowledge sources to their personal space in the institution's virtual learning environment, even to include external widgets. This customisation can be situated at the individual level (a student adds personal feeds), but also at the group level (study groups, regional groups), the course level, the programme level, the faculty level or even campus wide. Students could for instance choose to share their calendar within their working group or their course colleagues to make it easier to arrange virtual study sessions. Another option could be to support students in using the managed learning environment as an e-portfolio platform, where they can bring together their learning products, process and achievements. The aim of this approach would be to make the institutional environment their central knowledge hub as far as their field of interest is concerned.

The next paragraphs describes the case of the Open University of the Netherlands, and the steps it is taking towards establishing a personal learning and working environment.

Towards a personal learning and working environment at the OUNL

At the end of 2007 the OUNL had an extended institution-wide strategic discussion concerning the future VLE-approach (Verjans et al., 2007) and it was decided to draw up a new roadmap for electronic servicing of students and staff for the next period of seven years. Key starting points in this new approach is that we should take into account that (1) people/students have different aims, needs and preferences and (2) people/students have different learning and working environments.
The latter of these principles has been addressed through the emerging concept of the Personal Learning and Working Environment (PLWE). The PLWE is centred on the idea that students – as adults – (should) take responsibility for their own learning and their own learning environment. In other words, the student is in control and both wants to and is able to largely determine for himself/herself how he/she wants learning materials to be provided and with which degree of quality, which supervision and assessment services he/she wants to utilise – at both programme and course level –

and which technological environment/environments and applications he/she wishes to use for organisation, communication, and information. The large majority of OUNL students also have a job, with the associated ICT-based working environment, and want to be able to integrate what the OUNL offers into that working environment.

For the OUNL, the adoption of the PLWE concept presents a challenge that involves the study programmes, the OUNL organisation, logistics and technology. From the technology point of view, the institution needs to reorganise its ICT services and content in such a way that they may be provided as flexible, "pluggable objects" that can be included in various technological environments. This implies shifting from thinking in applications towards thinking in services.
It also means rethinking the ICT architecture and moving towards a more open model. In fact, it involves operating on the basis of a properly thought-out design and not on the basis of ad hoc decisions and facilities. The aim is sustainability and the ability to keep pace with new developments, for example in educational theory or technology.
It also means maximally sticking to *open* standards, as our content and educational services have to be interoperable to have them integrated or running outside the institutional environment.
Content and *presentation* need to be separated as much as possible in order to allow for flexible delivery through different communication channels. The student that is in control can decide himself /herself whether to read a text online, either on a computer screen or a Smartphone, to download it as a PDF and read from an eReader or have it printed in the copy shop around the corner and read from the printed version. This implies completely new workflows and tooling for content production and management.

The OUNL is tackling the process towards a PLWE on a number of organisational levels in parallel, following the 2007-2008 institution-wide discussion.

- At the institutional level, a central decision board has recently been installed, the so-called Program Board for Service Development. This board will keep track of ongoing ICT development projects in the different departments, projects and programmes and will prioritise the central support for these development projects.
- Workshops and other dissemination activities are being organised to raise awareness about the potential of Web2.0 and personal environments for the academic community (e.g. Hermans & Verjans, 2008).
- A list of student-centred services was drafted and discussed at different levels within the institution.
- A roadmap was agreed upon for a two-tier approach regarding the further development of the MLE platform: (a) upgrading / streamlining of the current MLE application, in parallel to (b) experimental piloting with new services. As for (a), the current MLE will undergo streamlining in the sense that redundant applications will be faded out. Software upgrades of the central MLE applications will be benchmarked as to their compatibility with the PLWE principles. Those upgrades that support either of the approaches outlined above will be prioritised. For example, an RSS building block for the current MLE has been installed, and other Web2.0-related building blocks are being investigated. As for (b), the experimental pilots being undertaken will be discussed in more detail in the next paragraph of this paper.

It is our contention that the move from an institutionally oriented MLE to a student-centred PLWE is such an all-encompassing change that it requires parallel actions at a number of fronts.

The OUNL's first steps towards a PLWE

In this section we will sketch the first experimental steps of the OUNL towards the new PLWE concept. One of the OUNL projects investigating new student centred services is called 'MyEducationalServices' (MOD). The MOD project members – coming from different departments within the OUNL – work closely together in order to pilot new concepts and services and subsequently advise the internal decision making authority, the so-called Program Board for Service Development.

Before discussing the pilots that are being undertaken within MOD we want to briefly describe the current MLE, which is known within the institution as Studienet. The main application within Studienet is the Blackboard system, which serves as a student portal as well as course management system. Recently, Moodle has been added to Studienet as an alternative course delivery system, specifically for more interactive course tasks. Certified testing and examinations are to be handled by Question Mark Perception. Finally, Studienet also contains a variety of dedicated tools and utilities that are being used throughout the organization.
Next to Studienet – which is a closed environment – the digital environment consists of the corporate website of the OUNL (www.ou.nl). Studienet and the corporate website are separate web environments, only connected through a series of hyperlinks.

Pilot 1: Towards a personal workspace with social networking services

In the long run, Studienet will evolve towards an integral part of the corporate website and no longer exist as a separate environment. The corporate website will serve as the institutional portal with personal workspaces for registered users, giving access to all relevant information and information services with maximal personalisation. These personal workspaces will be designed from the perspective of the user. Following the Web2.0 paradigm, the user will be in control to organize his/her own OUNL working space, plug in and share personal data and widgets, or – the other way around – plug OUNL data and services in their own mash-up tool.
As personal interaction, communication and collaboration are key for improving learning processes in face-to-face education as well as distance education, social networking services should be an important part of this workspace. In pilot 1, the OUNL is investigating the requirements for online social networking in an academic environment through pilots and surveys amongst students. The results will provide the institution with useful insights and the functional requirements for designing and implementing the personal workspace. Figure 3 shows a screenshot of the environment that was developed for this first pilot.

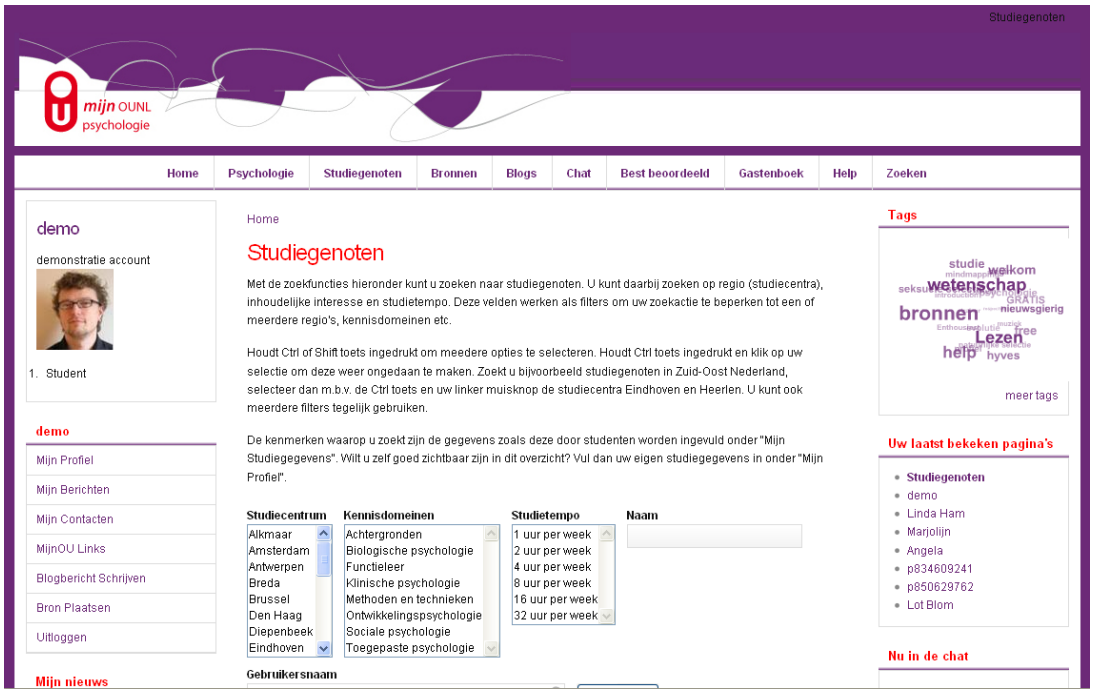

Figure 3: Prototype of student personal workspace (myOUNL)

Pilot 2: Google Apps

Since 2008, the OUNL has its own Google Apps domain. Google Apps is a collection of web based applications (email, calendar, chat, collaborative document authoring, sitebuilding) that work closely together and that can be well integrated in iGoogle, Google's personalized environment or dashboard. Up to the time of writing, only the mail application has been made available for students as it was not clear what the added value of the other applications might be. After all, the Google Apps are available for free within the public domain, so why offer the same services from the institutional domain?
In Spring 2009 two pilots will be carried out to investigate the added value of Google Apps. One pilot will focus on collaboration, the other will focus on making institutional event data available in a more flexible way using Google calendar services. This pilot can be situated within the previously described 'approach 1 – opening up the MLE to Web2.0'

Pilot 3: Stars and comments

At the start of 2009, several pilots were started that provide students with online rating and comment services throughout the course material. Rating, annotating en tagging services are becoming more and more common services on the Web, giving consumers the possibility to provide feedback about their experiences and appreciations. As such they provide valuable information for other consumers and on the other hand it may help OUNL staff to improve their services. Within current VLE's such as Blackboard, this type of functionality is hardly available.

Pilot 4: personalised delivery (e.g. for eReaders)

In 2007 the OUNL made Dutch national headlines by being the first university in the Netherlands to offer parts of their course materials on electronic paper for a numbers of students of the Faculty of Management.
In the long run, the OUNL as a distance education institution wants to shift from delivering course materials in paper form to web-based distribution where the student decides in which format he/she wants to receive the study materials. Printing-on-demand, e-book readers and computers that make reading of electronic documents comfortable, are key technologies that will help us to realise this vision.
In pilot 4, we are investigating the delivery for e-books of our own courses together with materials from publishers. The aim is to deliver a complete study program electronically, be it interactive materials in our electronic learning environment or by delivering more static materials on e-book readers.

Conclusion

This paper states that for modern knowledge workers the trend towards and the need for personal (web) environments (PE's) is growing and cannot be ignored. Web2.0 puts the user at the centre, and it is the user who decides how he or she wants to shape the process of knowledge sharing and creation and what services to use to support this. The challenge for educational institutions, especially distance teaching institutions that serve the market of lifelong learners, is to find a way to keep up with these demanding users and interesting new web2.0 applications. In many cases they are faced with monolithic VLE's, that can hardly compete with the speed of new developments.
We have indicated three possible approaches that may be combined into an institutional strategy towards a more user centred virtual learning environment. These approaches are: (1) using the public domain for distribution of public content and services, (2) making personalized content and services available and 'pluggable', e.g. through private RSS feeds and (3) opening up the VLE and allowing students to add relevant information to their personal workspaces and to contribute knowledge to their learning communities. The Open University of the Netherlands recently adopted such a student centred approach and is preparing to move towards a situation where each individual student can shape his or her personal learning and working environment (PLWE). It is obvious that the implementation of such a strategy will affect business processes, architecture and technology choices and therefore requires a high-level orchestration of the change process.

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