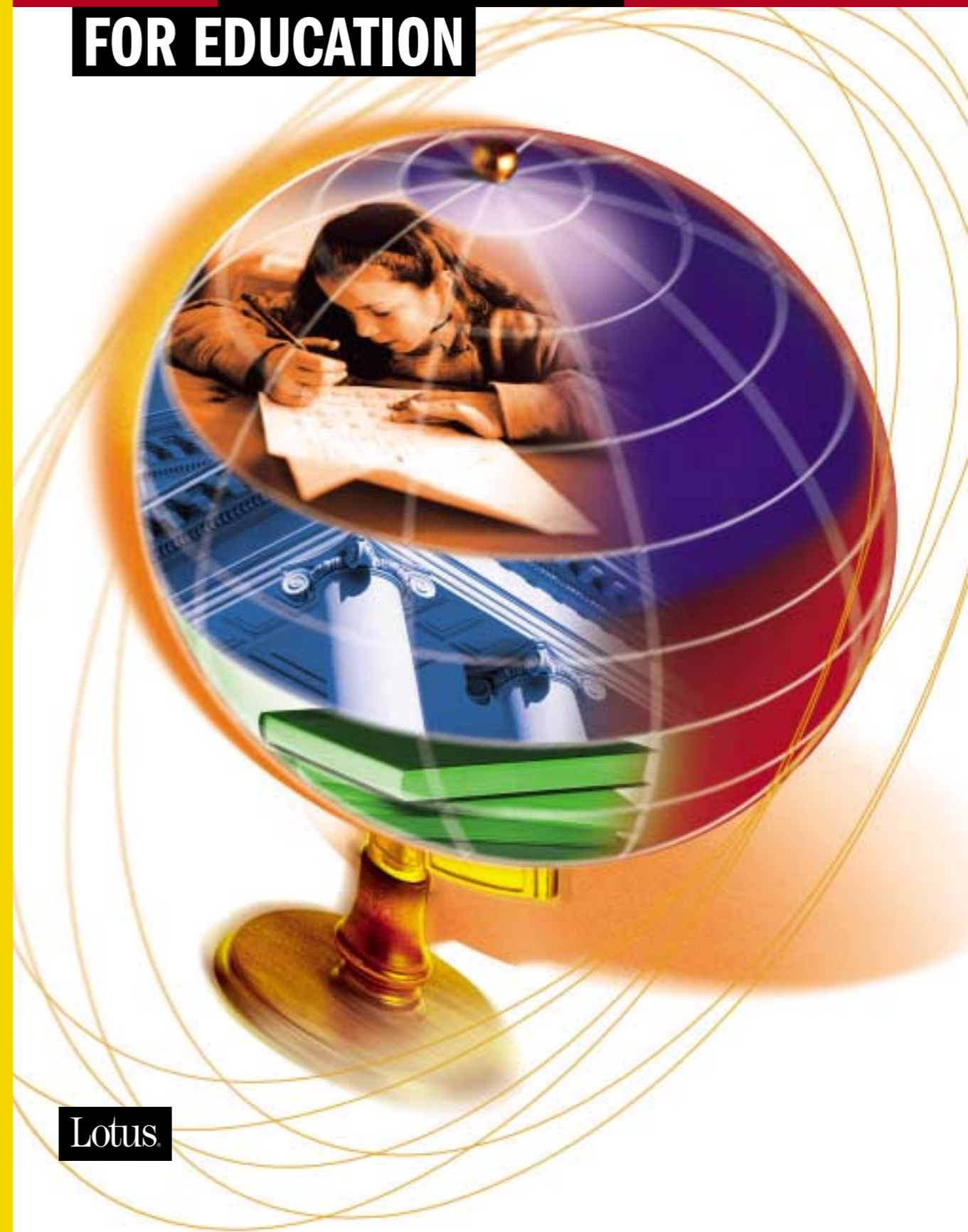


LOTUS SOLUTIONS FOR EDUCATION



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Part No. E1101P

Lotus

LOTUS SOLUTIONS FOR EDUCATION

In all areas of education we are beginning to see the effects of information technology. Not only is it a lesson to be learned, but increasingly it is forming the basis of how we deliver education, from pre-school right up to higher education, and then into the processes of research and collaboration with industry.

Educational establishments cannot afford to ignore the changes that technology is bringing to the educational system. Schools, colleges, universities are no longer isolated by location or reputation. The Internet is widening the audience for learning, while providing new ways of delivering education. Students are becoming more demanding in where, how and what education they receive. Particularly at the upper end of the education process, students are keen to learn skills required by the industries in which they will work, and for many this includes awareness of collaborative IT systems.


Educators and Government continue to recognise the wider role that institutions play in integrating people within society. At the same time they are being forced to take account of the growing view of the public that education is a consumer service, to be selected on criteria such as value for money. Institutions must evaluate their curriculum, their culture and their processes to ensure they are fit to take part in the increasingly competitive education system of the future.

In this paper, we will set out how Lotus solutions provide the tools with which education can go forward. Better collaboration, improved communication, more efficient processes and a more flexible approach to learning are all realisable goals.

The Internet has increased the amount of information available and the speed with which this information is found and shared. Every day I meet company executives that are looking for people able to activate and manage the best of the Internet for their business. Educational institutions are no exception. Knowledge Management is becoming a must for a citizen to live in the information society, where the school system is the source of fundamental knowledge.

I encourage you to read on to discover how Lotus is helping the education community today to achieve this goal of making the best use of the Internet in the future.

Yours sincerely



Fritz Fleischmann

General Manager and Vice President
Lotus Development Europe, Middle East and Asia

“The economic stake is evident. The multimedia industry, where computer technologies, telecommunications and audiovisual are, now constitute one of the growth engines and a source of employment.”

Lionel Jospin, French Prime Minister

A COMMUNITY OF SCHOOLS IN THE EDUCATIONAL SYSTEM

A world of change and challenge

The world of education continues to evolve rapidly. Even in those establishments with the highest reputation for quality education, there has to be constant re-evaluation of content and delivery, especially as the “new economy” uncovers a new perspective on education. “Customers” in education are now just as demanding as consumers in any other industry, and will choose their supplier on the basis of value for money as they perceive it.

This leaves Governments with the task of balancing the key role that the educational system plays as an integrator of people and cultures within society against trying to meet the expectations of students and their parents or employers. It is important that the education system continues to provide a reference source of knowledge. Facing challenges from a growing range of educational offerings appearing worldwide, institutions too must change to fulfil these demands. Good technology can provide the momentum and flexibility to manage rapid change, and Lotus is supporting educational institutions in their efforts to build new models.

This is a serious challenge for national and local authorities, the directors of educational establishments, their administrators, teachers and even students.

Information technologies clearly play a role in challenging traditional structures, casting new light on learning methods, on learner/teacher relations and on everyday campus life. Governments and educational bodies have recognised the potential revolutionary effects of IT in education, and have provided much encouragement and some funding to bring institutions into the Internet age.

Social and political motivation

In addition, European countries are politically motivated to improve not just the delivery of education, but also the educational system. Using the Internet is often a real advantage for a student, and political executives have to build global programmes to avoid a new social gap and re-establish, quickly, the chance for all children to succeed at school. Countries have set in motion initiatives to make education available to all, because the performance of the economy of a country is often linked to the effectiveness of its education system. This is reflected in the predictions for the numbers of students in education within the European Union, which are expected to rise to 100 million by the end of the year 2002, representing a 20 million increase in just five years.

Political desire is not the only factor increasing the numbers of students in higher education. Many young people have realised social

leverage can no longer be found in a good degree alone. Students are finding they need even higher levels of education to achieve the same leverage, and are consequently choosing their education more carefully, and staying in the education system longer to obtain higher qualifications.

Sharpening competition

In higher education, institutions are being faced with sharpening competition in terms of the value of their diplomas and degrees, recruiting staff and students, and financial resources. We will soon be witnessing the establishment of stronger associations of schools, or indeed universities, into “Cyber Universities”, where more learning is carried out over the Internet. From a vocational point of view the traditional educational world is also increasingly confronted with “Corporate Universities” set up by major worldwide companies. Potential students will be concerned with what is of greater value: a sales degree delivered by a reputed School of Commerce or the same degree delivered by an IBM professional development programme?

In addition, competition is becoming globalised, with students willing to cross national boundaries for their education. In US higher education institutions, there are now 560,000 foreign students; the UK has approximately 200,000 foreign students, and France 130,000.

“Education is the Government’s number one priority. It is key to helping our businesses to compete and giving opportunities to all. That is why we intend to lift educational standards in Britain to the level of the best in the world. This will mean making the most of technological change. Technology has revolutionised the way we work, and is now set to transform education.”

Tony Blair, British Prime Minister

Growth of life-long learning

There are also challenges to be met in developing education to meet the needs of a wide range of “learners”. These may be individuals updating their skills later in life; students still in full-time general education; or those embarking on vocational courses. In future we will see a move away from the traditional path of education-work-retirement into a model of life-long learning, where people will regularly return to education to refresh their skills during the course of their working and leisure lives. To help all these learners meet their individual objectives, educational institutions need to provide “learning comfort”, adapted to their level, their age, their expectations and their financial limitations.

At the same time, the growing range of learners means large numbers of people entering or re-entering the educational system, and educational bodies at all levels must be able to manage not just high numbers of students, but the cost of deploying the technologies to deliver the learning.

Governments want to see a system that produces graduates who are ready for business life, supports regional and national cultures, and cuts costs – all at the same time. There have been many projects and initiatives in this area, but they tend to depend too much on the creativity or subjectivity of individuals. Those institutions that do innovate are geographically scattered and have few opportunities to exchange their skills and expertise and even less opportunity to work together on global and harmonised cost-sharing solutions. Results are often frustrating, resources are difficult to muster and their circulation is often very limited. These cultural, sociological and technological barriers impede the sharing of good practices, their acknowledgement, their circulation and their reproduction or adaptation.

Breaking down barriers

What is needed is an approach to the education model that will allow teachers to share specialised knowledge and best practice across school, authority and even country boundaries. At the same time it would provide the mechanism

for teachers to increase their knowledge and continue life-long learning. Such a system would also allow institutions to collate information about resources which could then be shared effectively. This would be just one of many processes that would contribute to cost-savings across institutions.

Lotus and IBM are working with the education system to re-model the institution in ways that leverage the benefits of new technologies and meet the demands of the modern economy. Lotus provides the framework within which collaboration can take place across barriers, linking teachers with teachers, learners with learners, specialists with specialists... to share experience and best practice. Lotus technologies provide the space for distance and traditional learning to co-exist for maximum effectiveness. And they offer the possibility of automating repetitive, time-consuming processes as a key step in the drive towards lower costs.

SUPPORTING THE PEOPLE WHO MEET THE CHALLENGE

Many educational institutions have begun to make efforts to meet all these challenges, harnessing new technologies to support them in the task.

Results so far have been mixed. In many cases, a low return on IT investment has been the result of insufficient planning, which in turn can be traced back to insufficient communication between those with the expertise and knowledge to deliver results. That includes the provider of the information technology, whose role is to support the educational experts in meeting their challenges, not tell them how to do so.

Lotus offers the framework for collaborative working, knowledge management, e-learning and much more, without attempting to deliver course content. This is the province of the education expert, and Lotus focuses instead on providing the software innovations to facilitate the education experts to achieve their goals.

New information and communication technologies are powerful tools to help facilitate change. They help educational institutions to focus on their new priorities, such as:

- new roles to be defined
- the motivation and participation of all learners or users
- and the coordination and follow-up of projects which have been decided upon

The Internet provides a communication medium across the world, while its technologies can be used locally or within limited groups to form intranets for communication to a limited set of people and extranets link the intranet to other groups.

With Lotus technology, educational institutions will find the basis on which to build such activity networks so they can provide better and faster communications and share information with other institutions, colleagues and students.

Lotus Notes and Domino, for example, build on the power of Internet technology to provide key tools for educators. It allows them to collect and share documents, and more importantly, knowledge. It gives them the environment to work together regardless of location or establishment.

It can automate many administrative tasks through workflow applications. And it provides learners with access to a wealth of material on intranets or the Internet, to online e-learning, and to self-study capabilities through Lotus LearningSpace, a development based on Lotus Domino.

Lotus has been supporting initiatives to introduce new technologies into schools. The Lotus Institute is a laboratory entirely dedicated to educational solutions. Partnerships have also been signed with Ministries of Education in Russia, France and Latvia to experiment and share best practices using Lotus technology or with Local Government as the program.

IBM has already invested over \$40 million worldwide through its “Re-inventing Education” programme. In the UK there will be one thousand Beacon schools, supported by IBM and the UK Government, which share ideas and expertise with others using Lotus technology in areas such as school management, pupil monitoring, provision for the more able, special educational needs and anti-bullying strategies. IBM has established similar initiatives in Italy and Ireland.

At the launch of the programme in the UK, Prime Minister Tony Blair said: “This is an exciting initiative which will help to modernise education through the innovative use of technology. It is clear that the partnership will help to advance the systematic change in our education system, contributing to our drive to raise standards and leading the effective dissemination of good practice”.

Knowledge Management is key, especially in the business school sector, which is being strongly challenged by corporate universities. Institutions need to be able to unlock the knowledge of teachers and other experts and deposit it in a system such that it can be validated and shared. With the growing challenge from corporate universities, business schools need to teach relevant IT courses, while proving the value of that technology in the way they leverage IT in disseminating knowledge amongst themselves and to students.

A FRAMEWORK FOR EDUCATIONAL SOLUTIONS

The Lotus Solutions Framework for Education demonstrates Lotus' philosophy in approaching the needs of education.

The Lotus Solutions Framework for Education shows how organisations can move from relatively simple but valuable innovations such as departmental e-mail, database reference systems and calendaring in the lower-left corner, to much more advanced solutions such as student enrolment, public or private partnerships, and electronic business at the top right.

The framework embraces working collaboratively – within departments or workgroups, across the campus, and with other partners in education, Government and industry. Groups can meet and talk electronically, share information, and gather and disseminate knowledge – the prime objective of the educational institution. The day-to-day processes without which an institution could not operate, such as student enrolment and curriculum management, are supported through workflow automation, relieving administrative burdens and lowering costs. The framework provides the basis upon which institutions can

build a set of integrated solutions that encompass every area of their operation on the same platform to lower the costs of administration and development with all applications presenting a familiar, and therefore easy to learn, interface to staff and student users.

Solutions step-by-step

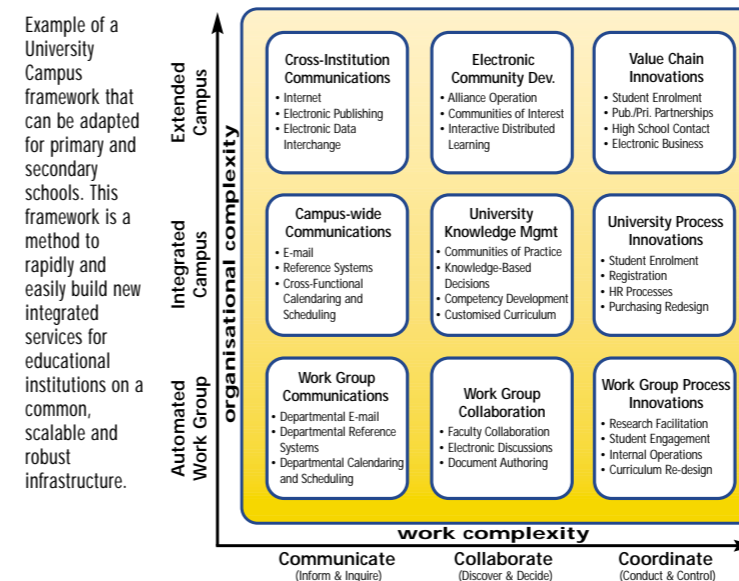
The Lotus Solutions Framework diagram shows the nine steps you can take to make the most of these capabilities.

- The x-axis shows how organisations make the transition from improving information flows (for example through e-mail), to improving knowledge flows (through shared knowledge) to improving workflows (through automation of processes, achieved through shared knowledge).
- Moving upwards along the y-axis expands the reach of the institution from small beginnings (in the department or workgroup), through the organisation (the integrated institution), and outwards into the “supply chain” (the extended institution).

At Paderborn University, Lotus Notes is delivering productivity benefits in areas such as registration for examinations, lecture-theatre planning, telephone directories and credit-point management. Lotus SmartSuite office applications and LearningSpace for e-learning are also in use in the Economics and Information Science faculties to deliver training to students.

Not only does the university use Lotus products, but it trains its students in their use and value. The range of courses in Information Science encompasses a one-semester compulsory course focusing on database development and office systems. Crash courses in basic functions are organised for freshers, with cross-subject seminars handling collaborative software, multimedia and the collaborative working environment Lotus Domino. Particularly useful has been the licensing agreement, which allows students to install the Notes client and SmartSuite on their own PCs, so they can dial into the university's servers to access teaching materials.

Experience so far is very positive. Graduates with Notes skills are highly demanded by head hunters, and the training documents supplied by Lotus provide optimum support for courses. While teaching capacities have reached their limit for the time being, other faculties could join the scheme if interested in the future.



Moving upwards expands the reach of your organisation from small beginnings, through the organisation, and outwards into relationships with other organisations.

A first step into e-mail

There are no rules as to where you begin. Many organisations will begin with the implementation of e-mail in a single department. That's the box at the bottom left-hand corner.

From there, you can move in two directions, one at a time, or both together.

Moving right across the framework takes you into the realms of Knowledge Management and workflows.

Moving upwards expands the reach of your organisation from small beginnings, through the organisation, and outwards into relationships with other organisations.

Let's start at the bottom, and move to the right first. In the early days, you may implement e-mail as your first steps. That's on the left of the framework. e-mail is a fast, effective way of communicating. But it's once-only. Once an e-mail has been received and deleted, it no longer exists. It does not become part of an individual's information store, let alone part of the group's.

Onwards to Knowledge Management

So the next step is to collect, organise and share information, through Knowledge Management. Here you start to gather up the knowledge that exists in the minds of employees, and the experience they have gained through their roles. All this knowledge is input into applications, categorised and shared amongst colleagues, so that they can learn by other people's

experiences. Most problems facing people in work have been met and solved somewhere else in an organisation in the past, and Knowledge Management lets people find that experience and use it again for their own needs. People knowledge can be combined with electronically stored information to give a complete picture of the way your organisation operates. This can have huge benefits in areas such as special needs, where teachers and curriculum managers can look back at previous work to find a similar starting point to resolve a new issue. Not only are they saving time, but they are re-using techniques that have been previously proven.

Managing workflows

Moving right again takes you on to workflow management. Many processes in an organisation are reasonably standardised, possibly with many steps. Purchase order authorisation is a good, simple example, where many people may have to sign off a form. Workflow automates this process, ensuring that the right people see requests at the right time, and deal with them promptly. Users don't even need to know who has to authorise a request, because that knowledge is stored and used by the workflow application.

Starting small and extending through and beyond the institution

On the vertical axis of the diagram is the scale of the solutions implementation. From departmental applications, solutions can extend throughout the

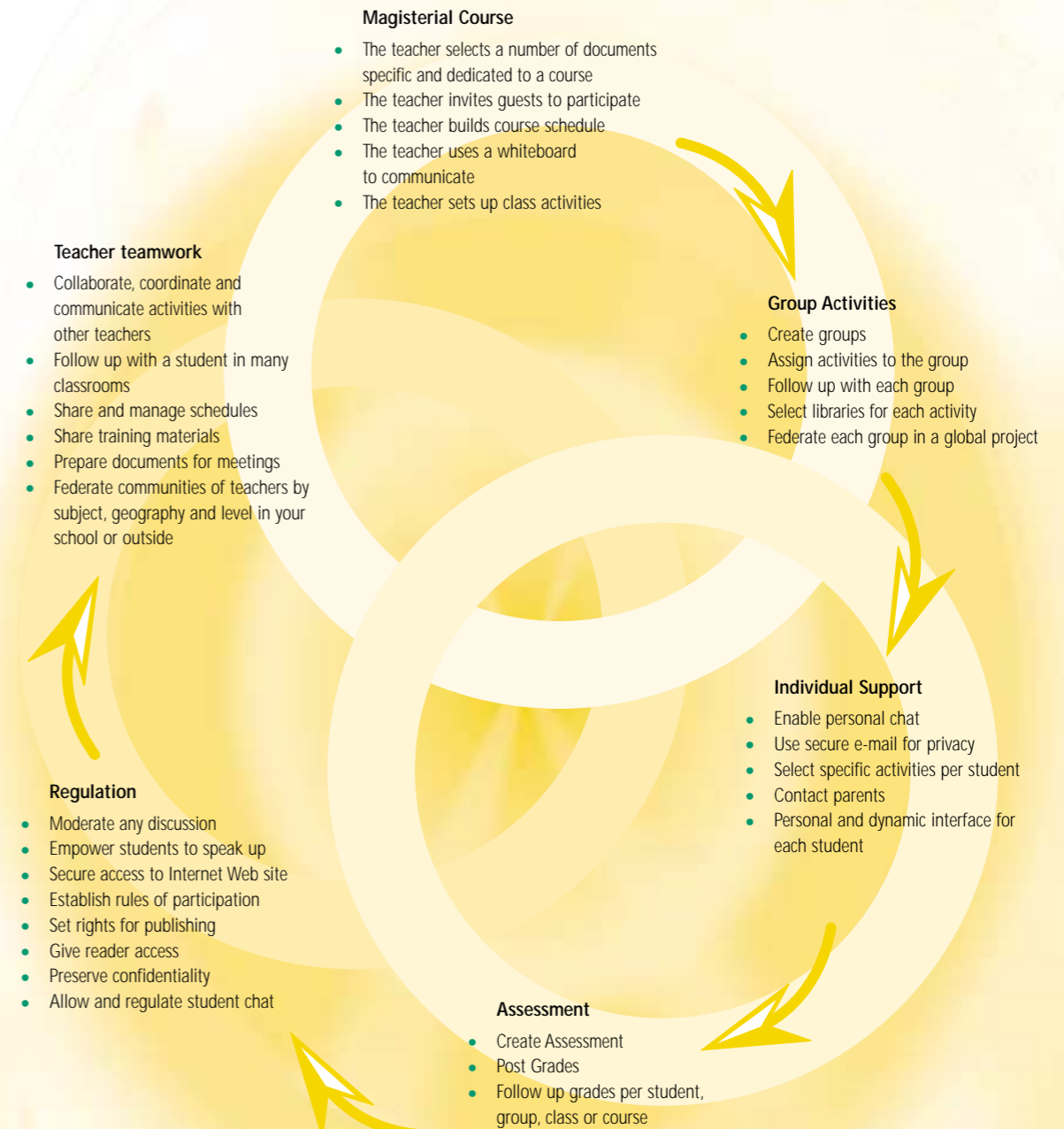
institution, in the second stage, and then outwards to link in suppliers, students and partners.

The purchase of a new PC can serve as a simple example of how this works. Individuals need to know what they are allowed to buy, and how to go about it. All this knowledge can be found at the touch of a button. Once the user has made a choice, the complete process can be set off automatically, probably by simply filling in a form on screen. The manager may be asked to sign off the purchase. The purchasing department may fulfil it. Accounts will be warned of a forthcoming bill, and of a change to the company's asset holdings. Facilities management may get notice that cabling will be needed when the PC arrives. And as the application extends beyond the company, the supplier will receive the purchase request and deal with it promptly and efficiently.

By the time you have reached the top right-hand box of the model, you will be using Knowledge Management and workflow management throughout your organisation and beyond, and extracting maximum benefit.

University Campus framework

An example is a University Campus framework that can be adapted for primary and secondary schools. This framework is a method to rapidly and easily build new integrated services for educational institutions on a common, scalable and robust infrastructure.



FROM AN OPEN CAMPUS STRATEGY TO e-LEARNING

At the Domino University Web site you can act out various roles within an educational establishment to discover how Domino can help in teaching, learning, administering and managing education. Select whether you would like to be a student, faculty member, administrative staff, alumni or employer. The demo shows you how sharing information, facilitating collaboration and automating work processes – all made possible by Domino – can greatly improve efficiency and “customer service”. For example, as a student, you can carry out diverse activities such as signing up for classes, checking for research posts, and receiving online tuition. Take the Domino University tour at: <http://www.du.lotus98.com>

The concept of an open campus is taken by many to mean remote learning using online courses. However, remote learning has often been considered as a makeshift, lower quality teaching method, that is still expensive enough to be reserved for the more financially able students. It has met with only average success because of its structure, and because it is felt that without face-to-face contact, teachers have much less control over the learning process.

For a high-quality and effective e-learning capability, establishments must be prepared to implement a global campus intranet. In the first



place this can provide internal services, such as easier publishing, discussion, access to information and administration processes, which all contribute to meeting the challenge of providing greater course quality and user comfort. With LearningSpace, Lotus offers an excellent route to opening up the campus.

While remote learning is carried out by isolated, distant students working to a large extent on their own, Lotus LearningSpace provides a virtual classroom for a teacher and learners – distant and local – to interact together.

LearningSpace offers institutions the opportunity to deliver education to larger numbers of students by optimising the use of its teachers and resources. Yet at the same time students benefit from tuition that is tuned to their needs, providing additional support whatever the students' ability. This is particularly valuable at a time when there is both growing demand for higher education, and greater competition amongst institutions as education becomes globalised. Lotus LearningSpace offers the basis for flexible, high-quality tuition to large numbers of local and distant students, and adds higher levels of comfort for students and teachers that improve the institution's reach and competitive standing.

There is tremendous flexibility in how courses are delivered. Lotus LearningSpace allows instruction with or without the teacher's presence. For

example, there are active situations where all participants are available online at the same time, but there is also the capability for the learner to self-study, with readily-accessible content. This enables learners as well as teachers to manage learning time as they wish.

With Lotus LearningSpace, a university can take on students who live far away. It can also offer “after-school” remedial classes, and access to additional documents to support the slower learner. The more able can just as easily be catered for, through extension work. Every facet of the education process is fundamentally supported with this technology.

However, setting up an e-learning programme does not automatically provide a solution to the problems related to the open campus approach. It is necessary to register a great number of students, to design programmes, to create and edit many lectures or curricula, and, last of all, to offer students a service which is accessible twenty four hours a day and seven days a week. This suggests that educational establishments set up online registration procedures, and institute pedagogical engineering for lecture-writing. This forces traditional methods to embrace technology and be reshaped. All these steps can only be taken with the active involvement of all members of the educational unit concerned.



Networked learning environments at the **University of St Gallen** in Switzerland use Lotus Domino and Lotus LearningSpace to provide students with flexible, self-paced learning, which addresses their needs and provides access to comprehensive learning resources.

LearningSpace is used for regular studies which require intensive team work as well as active interaction with a variety of knowledge resources. In addition, LearningSpace is used for international collaboration with other business schools, and by student teams working on geographically dispersed projects. St Gallen has worked with the University of Cologne to implement Lotus Sametime, allowing synchronous communication on top of LearningSpace. This widens the choice for communication tools between the various groups.

LearningSpace allows students to study a topic more closely at a time that suits each individually. This gives course designers greater flexibility in using the optimum media mix for course delivery. Additionally, LearningSpace fosters the development of communities, where people of similar interests can exchange knowledge, encouraging informal learning processes. The space can hold participant profiles, which offer an instant overview of an individual's background and interests. Instructors also benefit from being able to use a professional tool for course administration and delivery, where they can, for example, easily prepare questionnaires and tests. This fits with the trend for teachers to work beyond the mere delivery of knowledge through lectures in a classroom environment. Instead, by building on knowledge and access to resources, solution-oriented forms of learning will become increasingly prevalent. In addition, such learning environments encourage further development of knowledge and expertise bases, both individually and as team exercises. New forms of communication have emerged, such as asynchronous discussion forums that allow participants to write and validate scientific texts, make comments, state opinions and defend viewpoints.

Leeds county in the UK has purchased Notes and Domino for 120,000 pupils in all schools

NEW EDUCATIONAL BENEFITS

Controlling investments and cutting costs

New technology is giving greater credence to the charter taken by many countries that there must be access to education for all. At the same time it is seen as a powerful tool for reducing costs. Somehow it must be possible to finance locally, regionally and nationally a growing demand for education. The question then has to be asked, whether it is better financially to build a new establishment or to set up a virtual campus where the number of hosted students can be multiplied significantly at a reduced cost to the institutions.

Faced with this type of issue, the University of Wisconsin, in the United States, chose to set up an on-line learning infrastructure for 16,000 students, rather than build a college facility to support 800 students. The initial investment was the same – to train teachers and develop online classes. Operating expenses are slightly lower, and considerably reduced in terms of per student costs.

Lotus Domino delivers many benefits to institutions who need to focus more carefully on finances. It allows administrators to make informed decisions and to coordinate investments more efficiently, to share a

resource inside as well as outside the establishment using Internet technology, and to carry out tasks such as creating applications to monitor vacant positions, facilitate space planning for a classroom, and create a multimedia unit or a library.

Lotus Domino also allows establishments to cut operating expenses; duplicated lectures can be managed more efficiently, multimedia lecture-writing can be amortised more swiftly by sharing resources. Over time, the sharing of information, ideas and best practices among the teaching staff means the quality of teaching can be improved, like any other business process.

Improving the quality of teaching

The Internet provides tremendous opportunities for teachers to explore the latest information and continue life-long learning. Education portals provide content that is regularly updated to reflect latest thinking and changing situations. With current, quality information easily available, teachers can more readily address issues as they arise. For example, if a teacher discovers a student is dyslexic, the teacher can research latest guidance on dealing with the issue.

A portal can provide advice to teachers dealing with children with difficulties – including problems such as drug abuse or broken homes.

While teachers are still required to teach subjects, they can develop social skills to address

situations such as those mentioned. Learning such skills contribute to raising the quality of their teaching, but is a continuing process if teachers are to maintain a current level of knowledge.

In the bid to improve teaching quality, it is recognised that a wealth of knowledge resides in individuals and establishments that lies mainly untapped. Experience and innovative approaches to issues are both invaluable to teachers and their establishments seeking to expand their understanding of their areas of expertise and raise the level of service provision. Not only do teachers need to keep up-to-date on their particular curriculum subject, but they need to constantly re-evaluate and improve their skills. Specialists in learning difficulties, for example, need to keep abreast of developments in this field, and every teacher can benefit from an understanding of current strategies in this area. The information has always been there, but is only now being marshalled into a coherent, accessible format. National education organisations are setting up education portals on Government Web sites where teachers can research indexed information, and meet with people with similar interests. At the same time, community links are being set up among educational establishments and research organisations to further develop ideas and encourage collaboration.



Lotus Domino plays a very important role here, providing a framework in which people and organisations can collaborate, share information, and access Web portals. Domino allows:

- more frequent and more direct communication between teachers in the same field
- collaboration in order to design lessons including consultation of remote teachers or specialists
- the capacity to provide as many people as possible with adequate pedagogical practices, which help create a “success drive” in the educational system

Improving service to learners

The entire learning cycle can be facilitated. Lotus Domino provides the opportunity to allow learners to manage their training, their programmes, diplomas and degrees and the choice of the school they will attend, perhaps through a Web site run by the educational institution. Students can also be given easy access to registration services and their examination results, as well as to social welfare services in charge of scholarship allocations, housing grants and student restaurants, for example.

In the current educational environment, it is difficult for students to meet a teacher face to face outside the classroom or to find the time to attend a consultation adapted to their specific learning. With Lotus LearningSpace, each teacher is able to follow the acquisition of knowledge by each one of their students through application tracking mechanisms that are built into the system. With this tracking support, teachers can provide students with the online support, assistance and advice they are entitled to expect. Learning activities can be personalised for each member of a given group and each teacher can follow their progress and results for each subject matter.

Because educational institutions can manage their human and material resources more effectively, they can improve the comfort of daily life, raising the motivation of all those who take part in education. By combining classroom-based and (synchronised and asynchronous) e-learning, so that not all students need be present at the same time, institutions can relieve the pressure on space – especially in areas such as language laboratories – and make learning a more comfortable process. This is becoming increasingly valuable as universities and other institutions seek to embrace as many learners as they can.

A “student bonding” project has been established at ten technical universities in Germany, providing the largest students’ initiative catering for students of engineering and natural science. The major projects are a company-contact fair at all of the “bonding” sites, seminars and workshops, as well as international workshops lasting several days. The project communicates annually with some 100,000 students throughout Europe.

To improve the efficiency of the project, a Lotus Notes and Domino network has been implemented to embrace the six university groups affiliated with the organisation. The most important application is the company-contact database, which overnight collates its data via the Internet with all the initiative’s branch offices, creating a shared-access, transparent basis for co-ordinating communication with firms that might participate in “bonding” events. Also important are the Internet integration capabilities provided by Domino. The project has since witnessed an explosion of association-internal users, valuable custom databases, data transfers, and replication frequency. In addition, the service offers members Web-based e-mail addresses, password-accessible databases via the Internet, a job vacancy exchange, company profiles, and mailing lists. Using the Notes client software, modification to the Web site is very easy. New members and mailing lists can be created within seconds. And the group saves on costs because data is collated without the expense of long-distance phone calls.

e-mail is the lifeline of communication for many. Students of any age, entering into an educational programme of any kind, are no different in terms of understanding the importance of remaining connected to the world through e-mail.

Implementing global e-mail and information management

e-mail is the life line of communication for many. Students of any age, entering into an educational programme of any kind, are no different in terms of understanding the importance of remaining connected to the world through e-mail. One of the greatest challenges for educational facilities around the world is to implement an infrastructure flexible enough to provide each student with their own e-mail account. This task is made more difficult by the need to re-create many e-mail accounts on an annual basis, as students leave and new learners join.

Out of 10,000 students, up to a third will leave at the end of a year, up to another third will be new students, and most of the rest will change their year group. Deleting and setting up e-mail accounts to track the changing student population is a logistical nightmare for administrators. At the same time administrators must ensure sufficient security levels for young students. There are two main areas that administrators need to address:

- **New and departing students**

Administrators need efficient databases that can manage change, and the flexibility to make adjustments on a one-off basis

- **Secured accounts for those under 18 years old**

Monitoring of e-mails sent out, and unsolicited e-mails received, is absolutely essential for this age group

These tasks can be simplified if e-mail administration is linked to the administration database which already holds details of students.

Once students, teaching and administrative staff are all on e-mail, organisations can go further by grouping people according to their interests and ages, so that mailings and access to information can be tailored to their needs.

e-mail is the core infrastructure bringing new technology into schools. Using e-mail profiles, organisations can easily distinguish first-year students of a high school, for example. Leaders can set up teams of people with similar interests and a mix of expertise. Learners and trainers can share databases and learning information.

With global leadership in the area of electronic messaging, Lotus Domino is ideally suited to

provide this service, offering ease of set-up and administration as well as support for a wide range of computer operating systems and hardware platforms. Educational institutions using Lotus Domino as a messaging infrastructure are well placed to add to the Domino platform and deploy e-learning and other services to learners with ease and at low cost.

Administrative tasks are addressed by Lotus Domino, which uses a directory architecture rather than telephone address book for e-mail management. Such an architecture offers the opportunity to hold a wealth of information about individuals that can be used when defining role rights and groups of people.

Lotus Domino uses a sophisticated model of access control that allows institutions a much easier way to manage multitudes of users than other mail servers. For example, each student, teacher and administrative employee can be identified not just by their role within the educational unit, but also by their subject and geographical location. At the same time, security features inherent within Lotus Domino ensure that sensitive information, such as school reports or medical data, are accessible only by those with the relevant authorisations.

Facilitating interaction with other educators and researchers

Attending conferences, taking part in discussion groups, and keeping track of what is happening in the world of education are time-consuming and expensive activities. Not only must the cost of travel and hotels come out of limited budgets, but the time taken out from day-to-day work must also be considered.

Building on the collaborative working capabilities of Lotus Domino, Lotus e-Community software (QuickPlace) provides a powerful, large-scale, secure system for educational institutions to work with industry and other partners over the Internet, collaborating on education, research and business topics.

Researchers use Lotus e-Community to develop understanding, progress activities, find new partners, and even market products. Educators and administrators can share new ideas and best practices, and keep up with developments in curriculum and managerial requirements. Together heads of business and educators can use the information they share to influence decisions in business and curricula development in learning institutions.

In areas of research where information is particularly sensitive, and could perhaps have serious effects on the economy and public expectations if released before completed, security of communication is a key issue. Lotus Domino can be adapted for the needs of the highest levels of security – including defence, health care and genetic research.



The **AEA Alliance** is a cross-regional business school, which seeks to pool the professional and technological resources of the world's leading management schools, and then sell the combined training solutions to regional businesses wanting to internationalise their activities. The alliance pre-supposes commitment to a stronger partnership than traditional business school exchange networks. It aims to provide worldwide joint research programmes, faculty member exchanges, the sharing and development of pedagogical material, conferences, and shared marketing and alumni services. The founding members of the Alliance are in EM Lyon in France, HEC Montreal in Canada, Universidad de Belgrano in Argentina, and the Lingnan College in China. Further partners are actively being sought. Underpinning the alliance is a partnership with IBM and Lotus that sees Lotus QuickPlace being utilised for collaboration and sharing of materials. The Alliance reports on its Web site that "This new system of distance working and collaboration accelerates the creation of projects and strengthens the AEA Alliance?"

More information can be found on:

www.em-lyon.com/alliance

The **University of Staffordshire** in the UK needed to deliver high-quality teaching and a dynamic system for learning to over 16,000 students on campus and more in partner colleges worldwide. All students, many of them working part-time, or with disabilities, needed equal access to a versatile system of learning that let them study at times and in ways convenient to them. The university also wanted to help academic staff shift emphasis from information delivery to closer involvement in students' active learning. These requirements are being met by the implementation of LearningSpace throughout the university. Without having to become experts, academics are feeding their own choice of course material into the system and finding more time to give personal help to students. At the same time, Staffordshire has resisted the urge to become a "virtual university", and has adopted the technology only within the broader context of cultural change, where learning is student-centred and resource-based, whatever the delivery medium. By 2001 the university expects to have 20,000 learners connected to the system on its four main sites and in partner organisations worldwide. Each will be able to learn in their own time and in their own way as the capabilities of LearningSpace are fully realised.

Managing the classroom

Too often, people believe that learning is easy with the Internet. Yet the reality is that learning can be improved with new technologies, but the role of the teacher still doesn't disappear. Automating the teaching function will not work even if CDs or videotapes are sufficient for individuals. Rhythms of learning, group work and social behaviours, all support the need for the role of a teacher. Lotus Domino offers a whole range of capabilities to let the teacher play this role, anytime, anywhere – through computers – at school as well as at home.

Creating new teaching materials

Lotus provides a wide set of tools to create effective documents, exercises, multimedia presentations and of course HTML documents for the best of Web sites and classroom usage.

The Internet-enabled office productivity suite Lotus Smartsuite includes:

- WordPro for document production including the ability to write directly for the Web
- Freelance Graphics for developing presentations

- 1-2-3 spreadsheets
- Organiser diary
- Approach user-friendly database
- Fastsite Web site creation
- Screencam for capturing mouse and keyboard actions as part of a tutorial.

LearningSpace 4.0 provides support for the creation, management and delivery of all modes of online learning using a variety of tools, or integrating existing materials from a variety of resources. Because LearningSpace is open and compatible, almost any existing content and many authoring tools from third parties can be used with it. Lotus resells Authoring Tool Suites based on Macromedia Web design (multimedia and authoring tools), as they are particularly well suited to creating content for LearningSpace courses.

With Lotus' support a UK teacher has set-up a Web site dedicated to sharing resources and best practices. The Teachers' Library site is intended to provide ideas and inspiration, and to enable teachers to communicate better with each other. It provides a repository for resources contributed by teachers, ranging

from lesson plans and worksheets to curriculum planning and school policy documents. These are displayed by subject, key stage and topic, allowing visitors to find the resources they need quickly. Some 10,000 teachers are currently using the site. Mike Shamash, the geography teacher who initiated the project, set up the site after he returned to teaching following three years in industry, and was struck by the lack of collaboration between teachers in neighbouring schools. He explains that he had approached many of the IT companies who claim to focus on education for help in setting up the project, but it was Lotus that was persuaded of its value. The results of these efforts can be found at:

<http://www.teacherslibrary.org.uk>

Adding Lotus training to the curriculum

Through Lotus' Education Academic Partner (LEAP) programme, educational institutions can broaden their course offerings to include Lotus technology. Further information on this programme can be found on the Web, at: www.lotus.com/home.nsf/welcome/education

WHAT ARE LOTUS DOMINO AND LOTUS NOTES?

Lotus Domino

Lotus Domino is designed to be the server platform of choice for organisations of any size that need end-to-end messaging systems and application servers for the Internet or an intranet. To achieve that aim, Lotus has focused its latest development efforts on building a solid, scalable messaging and collaborative infrastructure, and providing the flexibility and openness that people need to develop and deploy Web applications. Lotus Domino supports all existing open communication standards such as HTTP, POP3, IMAP, SMTP and SSL, as well as LDAP for directory-based e-business applications.

The Domino Server Family comprises a Domino Mail Server, a Domino Application Server and a Domino Enterprise Server. Together they provide an integrated messaging and Web application software platform for growing companies that need to improve responsiveness and streamline business processes.

Lotus Notes

Lotus Notes provides an easy-to-use, customisable interface that enables people to work the way that suits them. Lotus Notes sets the pace for innovative messaging products, offering an integrated collaborative and messaging client for the Internet. With Internet standards support, messages from various e-mail accounts can be delivered to one inbox. Users can create links to Web pages, to newsgroup discussions, to Lotus Notes documents, and more – all in one location – personalised to suit the interests of the user. And this powerful interface retains the familiarity of a simple browser.

For remote users, Lotus Notes offers quick and easy replication of updated information only, reducing the time spent on telephone lines. And Lotus Notes works with any Internet mail server, not just Lotus Domino.

Lotus Domino Designer

Lotus Domino Designer is an integrated development environment for creating secure business applications, using Java, LotusScript, C++, etc.

Together these three Lotus products comprise the most widely deployed messaging/Web/groupware infrastructure worldwide, and reflect the growing acceptance of integrated communications products designed to provide a greater return on investment with low overall cost of ownership and a single entry of the whole infrastructure administration process.

The "Campus-Wide Information System" at **Witten-Herdecke University** Germany, connects the Economics, Medicine, Dentistry, Oral Surgery and Natural Science facilities, using Lotus Domino. It also links up other areas, including the university's commercial subsidiaries and 17 co-operating clinics.

The university administration uses Notes and Domino to manage communications and provide facilities such as notice boards, contacts with former students, registration for exams, start of semester registrations and a "Virtual Room". Lecture notes and syllabuses have already been implemented and are accessible to students.

THE LOTUS PRODUCT FAMILY

Building upon the strengths of the Lotus Notes and Domino infrastructure, Lotus has developed a family of tools to facilitate collaboration, knowledge sharing and information management while cutting costs.

Extending your reach with Lotus Sametime

The concept of real-time conferencing has been long sought after by geographically dispersed organisations and has become a reality with Lotus Sametime. Using Lotus Sametime, teachers, researchers, students and other professionals can take part in online conferences with associates around the globe, sharing applications and documents at the same time. Participants can easily implement changes to documents and produce action plans while online. With the ability to organise on-line meetings, it is an effective way to decrease travelling expenses.

e-Learning and competence sharing across the organisation

Lotus LearningSpace is a distributed learning tool that enables an organisation's teachers to reach students electronically, providing an opportunity for all to participate in online classes and work independently at times to suit them.

e-learning greatly reduces the costs of traditional centre-based training and the associated costs of travel and time away from the workplace or home. At the same time it delivers relevant information using the latest technologies that aid the sharing of knowledge and best practices

amongst geographically dispersed students. LearningSpace 4.0 combines the robust self-directed delivery and industry-leading tracking and management capabilities of Pathware (acquired by Lotus from Macromedia in 1999) with collaborative learning experiences refined in the three previous versions of LearningSpace. No other e-learning system has the breadth and flexibility of the LearningSpace platform.

Managing document intensive processes using Domino.Doc

Using Domino.Doc and Lotus workflow applications, it is easier than ever to set up document tracking applications. Thanks to the replication features of Lotus Domino, Domino.Doc enables dispersed teams to collaborate on document creation. The secure filing cabinets in Domino.Doc allow virtual

project teams to have access to documents related to particular projects. Domino.Doc files can be accessed using full-text searches, and the results automatically presented in a consistent, pre-ordained style. Domino.Doc supports the whole knowledge management life cycle, where authoring, discovering, reviewing, distributing and archiving documents is a seamless, secure, and efficiently managed process.

In the academic world, Domino.Doc can provide an electronic repository for an institution's accumulated know-how, saving users time and cutting the cost of handling, storing and retrieving documents. In any department that handles a variety of documents, the ability to scan in documents and manage them centrally offers huge benefits in terms of efficiency and traceability, as well as for auditing and checking for accuracy.

Parklands College is a new private college in Cape Town with a very progressive IT strategy. The College has signed up for Lotus Complete Enterprise licensing agreement with a LearningSpace option that will allow it to put any of Lotus' products on the 1000 PCs on campus without further recourse to Lotus. This delivers content to students as well as providing access to resources and Web-enabled collaborative communications. Students can use browsers to access information, and the College is intending to introduce wireless functionality to classrooms. The College believes that the implementation of multiple learning platforms will enable it to assess student performance, and to give them highly specialised tutoring based on their individual strengths and weaknesses. The College is also looking at ways to make the most of the multimedia capabilities of its Lotus applications for its online environment.

Domino continues to maintain its position as the leading collaborative solution in Europe.

LOTUS NOTES AND DOMINO SOLUTIONS



There are currently 57 million users of Domino-based solutions worldwide, and Domino continues to maintain its position as the leading collaborative solution in Europe. Amongst our customers are 80% of all management consulting firms, and 78 of the Fortune 100 companies. Students gaining experience of Domino and its family within the learning environment will be well placed to quickly exploit similar opportunities in the businesses that employ them.

We have forged alliances with many of the leading IT and management companies to enhance our solutions, while our comprehensive network of Business Partners deliver industry-specific as well as general solutions that build on the benefits of Domino and Notes. In the education sector, where the focus on IT continues to grow and much investment is being made, Domino is recognised as the leading collaborative solution.

Co-operation with other suppliers ensures that Domino maintains its platform-independence and can be integrated with other IT infrastructures. It allows critical data held in other databases to be shared, enriched and enhanced. New processes can be constructed that extend the value of this

information and enable data to be captured closer to the point of creation. For example, when a student fills out a registration form, they may wish to see a visualisation of the filing status of the class or the curriculum requirements to attend a course before completing the necessary details. This can be done with a Lotus Domino application, and the critical registration information can then be pulled directly into the registration request entry system, whilst at the same time the IT Help Desk system can create the student mail account. To achieve these benefits, Lotus Notes and Lotus Domino support a variety of connectors to systems and databases including SAP, JD Edwards, Baan, Oracle, IBM DB2 and CICS.

Lotus technology integrates unstructured information from multiple sources in multiple formats, including text, graphics and pictures, and presents it to the user in a way the user can access and interact with easily. The unique replication feature of Lotus Domino ensures that the same version of information is available across servers in the organisation, so that all users are accessing and using the most-up-to-date and complete information possible.

Using Enterprise Connectors, organisations can release the data and applications already held in ERP (Enterprise Resource Planning) systems onto intranets and the Internet. Corporate information can be accessed through standard browsers. Enterprise Connectors help maximise investments made by organisations in enterprise information technology.

Lotus Notes and Domino provide the ability to work in remote locations without the need for constant connection to a host computer or Web server. Conference speakers, external teachers and researchers who spend much time away from the school or university need access to information and the ability to update information when it is often difficult to get connected. Lotus Notes offers this flexibility with its unique mobile applications support.

Lotus Notes and Domino provide a unique and flexible development environment that enables prototype applications to be constructed with users. This speeds the time to develop and deploy applications and significantly improves user acceptance.

Lotus Notes and Domino provide a wide range of security features throughout the organisation.

LOTUS NOTES AND DOMINO SOLUTIONS

Lotus Professional Services

The Professional Services organisation of Lotus Development Corporation has a single mission – “To accelerate the value customers derive from the use of Lotus technology”.

To drive high value, Lotus Professional Services (LPS) provides a unique combination of vision, practical hands-on experience and a proven methodology – the Accelerated Value Method. This unique methodology is an in-house Lotus solution development process that brings the key benefits of the solution ‘forward’ as quickly as possible, helping to ensure that customers can enjoy the advantages from the beginning of the project, rather than waiting for final deployment.

As Lotus customers demand more value from their Lotus infrastructure investment they often struggle to reconcile the sheer scale of opportunities that the technology makes available to them with the actual tasks of performing the necessary transformation.

Innovating new internal/external processes and linking students and partners up and down the educational chain is key to customers’ future success plus gives opportunities to reap the benefits of high returns.

Within the education sector, LPS provides advice, implementation services, training and support for Domino-based infrastructures. Whether

institutions want to build structures to manage large and volatile mailing lists, develop LearningSpace applications, set up Internet or intranet portals, build e-communities, or take advantage of any of Domino’s collaborative and workflow functionality, LPS can provide knowledge and services to support the process.

To address these drivers Lotus Professional Services has created a range of Solution Portfolios addressing key areas such as wireless intranet, easyWeb, Domino Release 4 to R5 migration, e-business, e-communities, knowledge management, infrastructure and unified messaging.

Institutions can choose from a full range of training programmes and take advantage of Lotus Field Support Services, telephone and Web support, for complete planned, integrated and managed solutions.

Thousands of organisations, large and small, across the spectrum of industries and markets trust Lotus Professional Services to lead them to success in the e-enabled era.

The power of Lotus partnerships

There are thousands of Lotus Business Partners throughout the world. They combine expert knowledge of your industry with specialised understanding of Lotus products to offer you powerful solutions and services that are second to none.

Lotus Business Partners work with Lotus platforms within government and across every business function, from human resources to sales and marketing. Building on award-winning technology, they transform applications into solutions that help you solve the issues that education faces.

Every Lotus Partner has been accredited by Lotus for their high degree of competency and their technical expertise.

We can help you reach new markets, create new opportunities and offer new levels of service – because our partners are your partners.

Partnerships with government and education

Lotus is working in Partnership with Ministries of Education and the European Commission at a very high level. Examples include:

- The French Ministry of Education
- Latvia and Lithuania
- The Turkish government
- Leeds county in the UK

And many more...



Lotus at the heart of Russian education modernisation. At the Moscow State Technical University, students may not turn up to classes. That’s because they’re working individually but using the Internet to attend classes, discuss assignments with other students, send in coursework, and get feedback from teachers.

A Web site links the 12 Russian regions of the Support Centre for Science and Technical Activities in Higher Education. The geographically dispersed Centre shares information with the public about its services and innovation projects, and relies on e-mail for communication.

Electronic magazines are available on the Novgorod State University’s intranet, which is also being used to provide information for the human resources department, and the economics and planning department, and the Scientific Council.

The common factor in these projects, and around 70 other universities around the country, is the use of Lotus software to build intranets and Web sites, sharing information through Lotus Notes and Domino collaborative working software applications, and delivering e-learning using Lotus LearningSpace. Now the Russian Ministry of Education has signed an agreement that will see the use of Lotus software spread across the country, playing a key role in building a national educational IT infrastructure. The aim of the government is to give all pupils and students across the state-funded educational system the opportunity to use IT tools that are relevant to their lives at work and play. At the same time the infrastructure that will be set-up will help institutions to open up their services to more people, and share information amongst themselves and with the world at large.

Up to half a million licences for Lotus Notes and Domino and Lotus LearningSpace are destined for state-financed primary, secondary and tertiary education institutions across the country.

The partnership comes soon after similar agreements were signed with the French Ministry of Education and Research and the Ministry of Education in Latvia. It underlines Lotus’ commitment to help government organisations implement truly collaborative working environments across their countries. For the Russian Ministry of Education, Lotus Domino and Lotus LearningSpace will help it achieve a number of goals: to give pupils the opportunity to develop their abilities in IT and learn to use tools relevant to their private and professional lives; to contribute to the modernisation of the education system by providing access to technology and promoting information-sharing between educational establishments both nationally and internationally; and to encourage equal opportunities for all state-funded educational institutions by giving them equal access to the same resources.

CONCLUSION

Lotus Domino, and the applications built upon it, such as Lotus LearningSpace, support the changes that educational institutions must make to remain viable and competitive in the Internet age.

Using Lotus' key technologies, educational establishments in every area will find the support they need to deliver higher quality of education to a wider range of students. Schools can share best practices across nations and even globally, saving costs in the process. Higher education can widen their prospects to become Open Campuses or Cyber-Universities, delivering e-learning while increasing the comfort of learners and teachers. Researchers can

collaborate with industry across secure networks, helping them to manage economic and media risks inherent in leaked information. At the same time administration costs across all organisations can be lowered through the automation of standard processes.

Together, these are the solutions that will help educational institutions meet the challenges of today – to attract more students with better learning environments, fight off competition by differentiating their offerings from others, implement information technology successfully according to government requirements, and manage finances and resources more effectively.