OHKnet 2008

Exploring IT in a global perspective

The future of international cooperation in business education

The Hong Kong Net education program took place in Second Life at the Alpine Executive Center during September, October and November. Ninety (90) graduate and undergraduate students from four universities experienced working in multicultural distributed teams collaborating with team members from other continents and cultures on joint assignments. These virtual teams did research on current IT developments and software related fields, and produced reports that integrate an Asian, American and European perspective of their subjects.

Student educational objectives include:

- Gain insight into the current situation of IT-developments in Europe, Asia and America on a certain subject.
- Increase understanding of the global differences and similarities of the subject.
- Experience using remote group support systems for collaboration and decision making as an invaluable support for study and (future) professions.
- Experience co-operating with team members at large distances from different cultures and different time zones.
- Evaluate working in virtual teams and how IT changes the world.
- Become more sensitive to the cultural richness of international co-operation.

As we prepare for the world of the future, it becomes imperative that students be given the experience of working in multicultural distributed teams. Students will discover that finding a structured approach to assignments and reaching consensus in teams will turn out to be quite a challenge. The ever increasing need to working in virtual teams adds to the complexity of common tasks, sharing responsibilities, and producing results.

Hong Kong – The Netherlands – Florida USA

The Hong Kong Participants

The Hong Kong participants are part-time students and full-time working professionals taking a course in Analysis and Design of e-Commerce Systems as part of a Masters of Science in the Electronic Commerce program. The Department of Computer Science of the Faculty of Science and Engineering and the Department of Information Systems of the Faculty of Business jointly offer this program, with support from the School of Law and other academic departments within the University. The program aims to produce a new generation of information technology (IT) professionals that will be competent in evaluating and developing electronic commerce systems and services within a business context. Students gain knowledge of core business and technical related subjects, together with an in-depth understanding of the specific business, legal, and technical issues involved in the exploitation of e-Commerce, and the necessary knowledge and skills to analyse, plan, design, develop, implement and maintain electronic commerce application systems.

City University of Hong Kong (CityU)

City University is one of Hong Kong's leading universities funded by the Government through the University Grants Committee. It aspires to be internationally recognised as a leading university in the Asia-Pacific region. The University was established in January 1984, as the then second polytechnic in Hong Kong, to meet the government's plan for the expansion of tertiary education. The formal conferment of university status and title in November 1994 signified a new chapter in the history of the institution. The University offers over 70 taught courses ranging from associate degrees to doctoral degree levels with top graduate programs. The student population has grown to approximately 17,000, with present expansion for more degree and higher-level work.

For more information about the CityU: http://www.cityu.edu.hk

The Eindhoven Participants

The Eindhoven participants are a mix of fulltime Masters of Science students of Industrial Engineering and Management Science, exchange students of IE&MS and full time Masters of Science students of Business Information Systems. The training for an Industrial Engineer is aimed at analyzing, designing, organizing and managing processes in organizations. The curriculum includes mathematics, statistics, physics, information science and various technical subjects. For this purpose the institute specializes in subjects such as:

- Specifying and designing of information systems.

- The connection between product design, production process and control systems.

- Strategic, commercial, organizational, legal, personal, social and economical aspects of organizations and the environment in which they operate.

The Master's degree program in Business Information Systems combines computer science and business management. The program places the emphasis on the development of high-quality information systems based on a business perspective. This program combines a scientific attitude with a model-driven engineering approach. Students will be able to understand the demands that are placed on information systems, and to initiate and implement new applications.

Most of the Dutch students are in the first year of their Masters studies. The average age is about 22 years. This project is part of the "Software Management Experience" course, taught by Prof. Michiel van Genuchten.

Eindhoven University of Technology (TU/e)

Eindhoven University of Technology, founded in 1956, is one of the three technical universities in the Netherlands. The compact campus is situated in the centre of Eindhoven, which is the origin of the worldwide company, Philips Electronics. Approximately 7000 students study here with about 1200 students at the faculty for Technology Management, the faculty you will be working with.

The TU/e houses eight faculties that provide several engineering study programs, postgraduate study programs and various postgraduate courses. The TU/e also leads the way in nine specialized research schools that focus on fundamental and strategic technological research that is relevant for industrial or other application.

The main objective is to strengthen the position companies hold internationally and, where possible, to contribute to solving other social problems. The university endeavours to provide an optimal transfer of knowledge and technology to trade, industry and other organisations.

For more information about the TU/e: http://w3.tm.tue.nl/en/

The Tilburg participants

The participants of Tilburg University are students of Information Systems and Management (Bestuurlijke Informatiekunde). Information Systems and Management as an academic discipline is part of the Economics Faculty and focuses on the relationship between (the management of) business processes and information systems. The educational program in Tilburg places emphasis on control and is concerned primarily with information- and communication processes in and between organisations. The main "building blocks" of the four-year programme that in the third year the student may choose a concentration in are:

- Business Administration
- Information Systems
- Applied Computer Science

Tilburg University (UvT)

Tilburg University (University van Tilburg), was founded in 1927 as a School of Economics. Nowadays it is a fully accredited, government financed university with almost 10,000 students. Tilburg University specialises in the social sciences and humanities and has five faculties: Economics and Business Administration, Law, Social and Behavioural Sciences, Philosophy, and Arts. Within these faculties 19 master degree programmes are offered, some of which have an interdisciplinary character.

Tilburg University is a dynamic university with top-level research and an excellent education programme developed according to a special educational model called 'Student Centred Instruction' (SCI) (Student Gericht Onderwijs). This model is characterised by instruction in study groups, the organisation of existing courses as a series of study tasks, and room for individual responsibility and independence. Each study task is concluded with an academic assignment related to the discipline. The emphasis of SCI is on the independent, self-disciplined work of students. SCI has been implemented in all of the faculties of the university.

For more information about the UvT: http://www.tilburguniversity.nl/

University of Central Florida Students

The participants of the University of Central Florida are students enrolled in a Seminar in Management Information Systems, Working in a Virtual World which focuses on new developments in management information systems in a business environment. The course explores virtuality at three different levels: the individual, the group and the organization. Students explore the implications when work is no longer performed in the traditional office. At the individual level, they explore telecommuting and the issues related to managing virtual workers who are completing their work at home or at a remote location. Students also explore issues associated with managing virtual teams, or groups of people with a common purpose who carry out tasks across locations and time using technology. In addition the students, consider work being performed outside the company by outsourcers, especially offshore outsourcers.

The University of Central Florida

The University is the fifth largest university in the USA. The University has an undergraduate program for MIS majors and curriculums for information technology in organizations. The management information systems program is designed to educate graduates for jobs of Business Analyst (Software Implementation) and Software Designer/Developer, and jobs such as Systems Administrator or Database Administrator. The MIS degree program focuses on the business processes of organizations and the information technology utilized in those organizations. MIS students learn to design, implement, and maintain effective information systems in organizations. MIS students are encouraged to utilize internships and the cooperative education program to gain valuable work experience before they graduate to enhance their employment prospects.

The Process and Supporting Tools

There are no strict rules as to which tools the students should use. However, Blackboard is offered as a tool to carry out their teamwork in a structured fashion and SecondLife is provided as an interaction domain in conjunction with the Alpine Executive Center. If the students prefer to use other tools, they are free to do so. The project management is very interested in all the positive and negative experiences the students may have while using these tools, so during the project they will be approached regularly to ask how things are going.

The last thing we want to do is to blow away the students with as much technology as possible. What's more important is to carry out their group work in a pleasant way to complete this project successfully. IT tools are supporting means to achieve this and should only be used if they think these tools will make a positive contribution.

Because of the new technology we will be using, particularly Second Life, some technical problems may rise during the project. The students are asked to be patient if anything goes wrong, and the project management will do their best to solve any problem as soon as possible.

Below is an overview of the supplied GroupWare tools, the structure of the report writing process, and a description of how the tools support each step of the process.

Using GroupWare tools

GroupWare is a set of software tools using computers and communications technologies to increase the productivity and effectiveness for team and group related work or processes. For this project, Blackboard, e-mail and other tools can be used.

Blackboard is a course delivery system with group support capabilities that enables groups to enter information simultaneously in a structured manner, using a variety of specially designed tools. This will be the main tool for creating your joint report and discussing relevant issues regarding the set-up, planning and progress of the project. Most of the time the team members from different parts of the world won't be using the system at the same time (asynchronous communication).

With **electronic mail** you can send and receive mail from the other team members. Use e-mail for personal discussions or to remind your group members of deadlines and other pressing issues. For all team discussions, Blackboard is the tool to use.

It is possible for students to use **alternatives** other than the two tools mentioned above. They may use any tool that they think will make a valuable contribution to their collaborative work. As stated before, the students should inform the project management about the alternative tools they might use and describe them in their report.

Assigned Topics for Hong Kong Net-11 - 2008

1 Software beyond the computer industry

Software and software companies have been dominating the computer industry since the 1990's. The amount of software in many products such as cars, mobile phones and medical equipment is increasing rapidly. As a result it is no longer economically desirable for a supplier to provide all the software embedded in the electronics product with the hardware. The forces that changed the computer industry between 1985 and 1995 are at work in the consumer electronics, car electrics and medical electronics industry among others. The question is whether these industries will also become dominated by software.

Reference:

Van Genuchten, The impact of software on the electronics industry, IEEE Computer, January 2007

1.1 Open source software in mobile phones; Android and Symbian

The last six months have shown radical developments in software for mobile phones. Google announced the Android platform and Nokia announced that Symbian will become available as open source. The question is to what extend software for mobile phones will become open source and to what extend it will remain closed source. The impact on phone OEM's and operators and consumers is unclear. Interesting challenge for this group is to understand the current hectic developments and predict the potential outcomes.

Reference:

Charrette, Why software fails, IEEE Spectrum, September 2005.

Websites: www.symbian.org www.openhandsetalliance.com

1.2 Software in the car industry

The amount of software in cars is exploding. The prediction is that there will be 100M lines of software in a car in 2010. That is twice the size of the Vista operating system. Question is who will provide that software. It is unlikely that the car companies will do it by themselves. It is also unclear what the effect on the car industry will be if software gets such a dominant role in cars. Will the car industry follow the computer industry and will software companies be in the lead soon? Or will consortiums such as autosar allow the car industry to standardise and, as a result, limit software demand? Challenge for this group is to analyse the development and understand how the car industry is different from industries such as mobile phones and computers. Based on this understanding, they can describe a vision on the future of the car industry.

Reference:

Charrette, Why software fails, IEEE Spectrum, September 2005.

Broy, M. (2006), "Challenges in Automotive Software Engineering", ICSE May, pp.33-42

Websites: Bohknet 2007, section 1.2 http://bohknet.tm.tue.nl/BOHKNET2007/index.htm

http://economictimes.indiatimes.com/articleshow/3041462.cms

www.autosar.org

1.3 Software in medical equipment

The software efforts in the medical equipment industry have been estimated by ITEA ("Software intensive systems in the future", ITEA 2005): it is expected that the software R&D will grow from 7 billion dollar in 2002 to 28 billion dollar in 2015. The software R&D will grow to one third of the total R&D and the software staff can reach up to 60 percent of the R&D staff for major providers. The software related employment should more than triple over that period.

The second cause is the growing insights in the human DNA that has led many to pursue personalised healthcare; i.e. different therapies for different people with the same disease. This assumes that detailed information about one's DNA and healthcare history is available when the patient arrives for a treatment.

Question for this group is how the demand for software will change the medical equipment industry. Will the dominant equipment suppliers of today remain in control or will software companies take over?

References:

"Software intensive systems in the future", ITEA 2005

1.4 Software in the travel industry

By some estimation, travel is the biggest industry in the world. Software is having a major impact for both suppliers and consumers and fundamentally changing the nature of the industry. Travel agents are having to work harder to provide tailored services as airlines, for example, promote their online services (and increasingly and cut travel agency commissions accordingly). Customers also have additional degrees of freedom courtesy of online services and the ability to use mobile devices to support their travels, e.g., with GPS combined with maps and site specific information e.g., knowledge mobilization. But horror stories also abound e.g., the opening of the new international terminal at Heathrow in the UK. The challenge for the team is to look to the future and envision how the travel industry will continue to evolve and what the implications are for software suppliers.

Reference: http://seattletimes.nwsource.com/html/travel/2003829133_heathrow120.html

2 Doing real work in virtual worlds

Virtual worlds have gotten a lot of attention over the past years in non-gaming applications. Second Life, Google Lively and HiPiHi are but a few of the over 200 products and environments. At the same time, it looks like while many people try out some of these applications, few avatars return regularly. This chapter tries to build an understanding of successful applications of virtual worlds, critical success factors and how these products and environments might evolve.

2.1 Virtual team support in virtual worlds

How can distributed teams be better supported in virtual worlds? This can include decision making as well as socializing. It might also address aspects of systems support and interface design as well as navigation within virtual worlds. Additional issues could include team

dynamics such as tracking contribution and monitoring attitudes and aspects of potential misunderstanding. The challenge for this team is to sort out the myriad of technical and behavior issues that are entangled in virtual worlds with a view towards the future.

2.2 Customer interaction in virtual worlds

Interacting with customers in an efficient and effective fashion is a constant challenge for which virtual worlds may (or may not) help. Interaction would include initiating contact and getting early customer feedback as well as ongoing service and support. The challenge for this team is to look beyond the hype towards sustainable examples and success (or failure) factors of applications to date as well as a look forwards the future.

Reference: http://searchcrm.techtarget.com/news/article/0,289142,sid11_gci1255404,00.html

2.3 Education in virtual worlds

Education is one of the really promising applications for virtual worlds, at least in the minds of some. Needless to say, students, instructors and institutions have different perspectives, needs and issues. What is happening today? What is successful and what are limitations? The challenge for this team is to look beyond traditional ways of educating towards creative new opportunities to engage virtual worlds in education.

Reference: http://trumpy.sc.elon.edu/metaverse

2.4 Challenged populations

Challenged populations (e.g., paraplegic and some mental disabilities) may find virtual worlds a way of real world compensation, coping and blending that transcends traditional approaches. What creative applications have been demonstrated to date? What remains to be learned? What opportunities are there for the future? These are some of the challenges posed for this team.

2.5 Offshoring: Cultural perspective

Offshoring has emerged over the years as a potent component in provision of products and services. Working across cultures and managing offshore development are a few of the challenges.   What are some of the differences in culture that impact virtual teams involved in offshoring? What are some of the effective management approaches in dealing with these challenges.

References: http://www.itweek.co.uk/itweek/news/2204838/indian-providers-fit-mould

http://www.cio.com/article/28492/Secrets_of_Offshoring_Success

Erran Carmel and Paul Tjia *Offshoring: Information Technology*, 2005, University Press: Cambridge, UK

2.6 Offshoring: Government perspective

Governments have become with initiatives to make their country a more appealing offshoring site. Though much is discussed about the dangers of offshoring to US citizens and the legal actions that can be taken to protect them, the US is actually one of the world's largest exporter of software and its development. In another direction, governmental actions helped India become the offshoring giant that it is. What are governments doing to increase their offshoring industries? Should the number of "guest workers" to a country be limited? To find this out is the challenge for this team.

References:

http://www.pr-usa.net/index.php?option=com_content&task=view&id=111258&Itemid=31

http://www.cio.com/article/166108

http://www.networkworld.com/news/2008/022008-virtual-call-centers.html

http://www.cio.com/article/386313/Congress_Gets_New_H_B_Visa_Pressure

http://www.cio.com/article/389263/H_B_Visas_Don_t_Need_to_Be_Capped_They_Need_to_Be_Eliminated

Thomas Friedman, *The World is Flat*, 2005, Farrar, Straus and Giroux: New York.

The Deliverable Creation Process

On the next page is a schematic overview of the process of creating the deliverables. During the entire project students can use e-mail for individual discussions and messages as well as group support areas in Blackboard. In Blackboard we have prepared an agenda with activities to support the deliverable creation process.
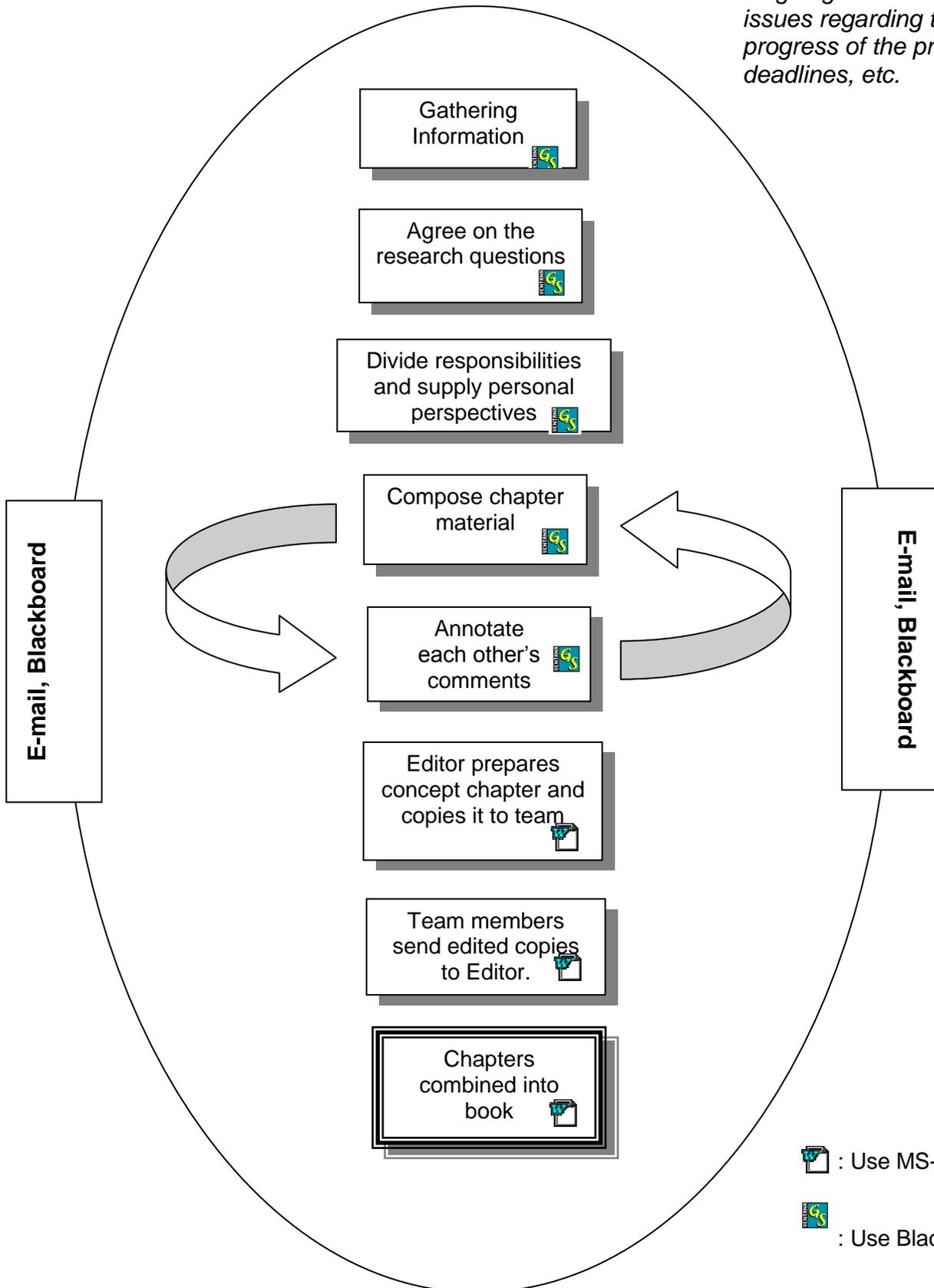
Creating the deliverable

The main activity will be the creation of a joint deliverable. A general outline of topics to be addressed is presented in the **Deliverable** forum. All team members can write the plain text of the deliverable here, as well as add attachments. Editing of comments has been enabled to give more flexibility, but make backups. Individuals can also delete their own comments. This activity will result in a draft of the contents of the report. Adding pictures or graphs and editing the layout require processing and will be carried out by a group editor. During the creation of the deliverable, it is important that students to keep the following in mind:

- While creating a part of the deliverable, regularly check the contributions of the team members to see how they are doing. If something should be changed, students should notify their team leader. He/she will discuss the changes with the other team leader.

- Students shall notify their team members that they have finished a paragraph by placing an asterisk at the end of the heading (e.g., introduction*). This will encourage others to red their new text and comment on it.

- If students want to illustrate their own part of the deliverable with graphs, pictures, etc., they can attach these files to messages or put them into the file exchange section. The editor will put the pictures in the concept and final deliverable.

Ongoing discussion of issues regarding the progress of the project, deadlines, etc.

Gathering Information

Agree on the research questions

Divide responsibilities and supply personal perspectives

Compose chapter material

Annotate each other's comments

Editor prepares concept chapter and copies it to team

Team members send edited copies to Editor.

Chapters combined into book

E-mail, Blackboard

E-mail, Blackboard

: Use MS-Word

: Use Blackboard

Deliverables Information

Apart from the deliverables mentioned below, there are also some surveys/quizzes that will be announced in the announcement-folder in Blackboard.

Deliverable one: Plan, risk assessment and description of research questions

Deadline   September 24
Responsible: Project team
Hand in: Group folder on blackboard
Description: • Three research questions per team
                     • A plan consisting of:
                        o Estimate of the size
                        o Estimate of the effort
                        o Work Breakdown (who does what)
                     • Risks assessment (a top five with estimate of likelihood x impact)

Deliverable two: Separate section finished

Deadline   October 29
Responsible: Project team
Hand in: Group folder on blackboard
Description: The chapter of the e-book should be ready and loaded onto the website so other students can review it.

Here are some suggested elements to be included in the second deliverable (depending on the nationalities available in your project team).

- General Introduction on the subject
- Description of the situation in Hong Kong
  (Written by the CityU team members)
- Description of the situation in the Netherlands / Europe
  (Written by the Dutch team members)
- Analysis of similarities and differences
  The analysis of similarities and differences must be a joint activity.
- Evaluation of joint project in terms of co-operation and technologies applied
- Appendices with background information (no page limit)

Deliverable three: Integrated section finished

Deadline   November 5
Responsible: Project team
Hand in: Group folder on blackboard
Description: The chapter should be integrated with other chapters and loaded onto the website to complete the integrated e-book.

Deliverable four: Individual evaluation of the project

Deadline   November 12
Responsible: Individual member
Hand in: E-mail to your instructor
Description: • Individual evaluation: A two-paged A4 document with the lessons you learned and feedback on the project
                     • Peer evaluation (format will be available in November)
                     • Fill in two (on-line) surveys

Rules of play
Some roles and responsibilities and netiquette in communicating efficiently with team members are set because time is short (like always) and it shouldn't be wasted.

Netiquette

- Because of the lack of direct face-to-face communication, it is very important to keep in mind that comments should be formulated in a sound manner. Team members won't be able to see or hear each other, so comments must be formulated in a clear, unmistakable, and constructive way. Second Life could have a positive effect on this.

- While working on the virtual report, students never edit another person's comment. Always use annotations to give personal opinion. This is essential or else the author of the comment will not know what has been changed in his/her comment.

- Never delete a comment of another team member; rather, suggest deletion by using an annotation.

- If there is no consensus on a certain matter, use the opinion meter. Always identify yourself by your first name when your author tag is requested.

- Name all documents in a structured way so that team members know which document is the most recent one.

- Share experiences, both positive and negative, with other teams.

Roles and Responsibilities
All team members are equally responsible for the progress and the final result of this project. A special task is the final editing of the deliverable. The final editor is responsible for modifying the last corrections and the final layout. He/she will compose a concept report from the Blackboard text and will submit this to all team members. The final editor will take care of collecting all the modifications of the concept report on time in order to supply the final version of the deliverable to the instructors and the other team members before the deadline.

Warning on Plagiarism -
No plagiarism (copying a source, including the Internet) under any circumstances.
Copying without using references will be considered as stealing / plagiarism, which is more serious than cheating. Every member of the group is accountable for this, and must be sure that their team does not plagiarize.

HKNet Projects
There are e-books from 2003-2006 on www.bohknet.com. In addition to the e-books you can also find a lot of other information about the HKNet project, like the history and papers that have been written about the project.

Instructors

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Doug Vogel was formerly from the University of Arizona and is currently a Professor (Chair) of Information Systems at City University of Hong Kong as well as an AIS Fellow. Prior to entering academia, he worked as a systems analyst and developer for large companies and also created and managed his own 50-employee company. Professor Vogel is widely published and is especially active in integrating technology into educational contexts. His particular focus emphasizes integration of audio, video, and data in interactive distributed education. Additionally, he has been particularly active in the development, facilitation, and evaluation of Group Support Systems.

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Michiel van Genuchten is a part-time professor at the Eindhoven University of Technology and product-marketing director of Philips Software. He was previously manager of Groupsupport.com, a company that focuses on the application and further development of Group Support Systems. Michiel has previously had his own software company (1993-1998), worked for Philips Electronics (1988-1993) and received a Ph.D. from the Eindhoven University of Technology (1991). His professional interests include software management (SPI, software metrics), Group Support Systems and software as a business. Results of his research have been published in journals such as IEEE Transactions on Software Engineering, IEEE Software, Journal of MIS and International Journal on Technology Management.

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The Alpine Executive Center

The Alpine Executive Center is located on the MeetingSupport sim in Second Life. Within this quaint alpine ski village, surrounded by snow-covered mountains, tucked away deep inside the mountain lies the most advanced meeting facility you will find anywhere within the extraordinary 3D world called Second Life. It may even rival any meeting facility you will find in the "real-world" too, if you can imagine that. At the heart of the Alpine Executive Center is a place where important real-world activities take place in a virtual environment, supported by expert facilitation and state-of-the-art technologies.

MeetingSupport in Second Life at the Alpine Executive Center is an extension of the "real-life" services of groupVision (Switzerland) AG to provide a unique professional work environment where freedom of expression, creativity and innovation are encouraged. Where the "normal" boundaries are removed and delegates can explore in ways they cannot do in real-life, taking EMS, electronic meeting support, for virtual teams to the next level. It is a place where a sense of fun and adventure is created at the same time as building team spirit and a sense of community within the visiting groups. All this while real work is being done.

MeetingSupport is operated in-world by TonyEMS Heying, who in real life is Tony Adams, a fifteen year veteran of electronic meeting support, (EMS) services for face-to-face and distance events. He is supported in-world by a cadre of experienced facilitators who know how to incorporate the latest meeting support technologies for groups, insuring maximum effectiveness and results.