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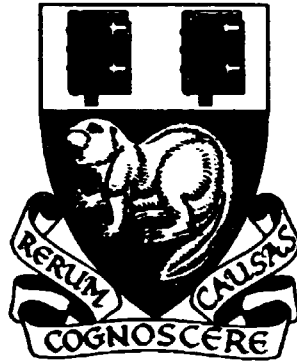
The London School of Economics and Political Science

REPORT

**on the LSE Contribution to
The Second UNIDO International Course
on
Research and Innovation Management**

DATES of attendance of LSE staff in MOSCOW

Before giving my considered report on the outcome of the LSE component of the UNIDO international course on innovation management, I shall put our role in context by outlining exactly what the LSE group did during their stay in Moscow. The LSE sent five individuals to Moscow to support the course. These were:

Professor Ian Angell	October 27th to November 8th.
Dr. Edgar Whitley	October 27th to November 3rd.
Dr. Miles Gietzmann	October 28th to November 1st.
Ms. Angeliki Poulymenakou	October 30th to November 3rd.
Mr. Dimitrios Tsoubelis	October 27th to November 3rd.

Because the LSE component was technical, on any single day each lecturer was covered by two backup personnel (in case of illness), who also acted as joint supervisors for the practical sessions. Dimitrios Tsoubelis played a major role in the arduous and time-consuming job of setting up the various software packages, when time permitted between practical sessions. He also acted as a supervisor during practical sessions. The other four acted as lecturers, backup lecturers, and practical session supervisors. The full timetable of the roles played by the team, excluding the preparation effort, are given below. The timetable was organized so as to minimise the time where personnel are not constructively occupied.

As well as the material covered in the lectures, other software packages were loaded on the machines, and we did hand out documentation on how to run these packages (WordPerfect, DrawPerfect, and the Cyrillic Version of Lotus 1-2-3).

As well as the formal presentation, the LSE team were directed to spend as much of the untimetabled time discussing a wide range of IT issues with the delegates. A wide range of topics were actually discussed in this way, including: scanning text and images, document management and desk-top publishing, grammar and writing-style checking, notebooks and organizers, market leader software, management of word-processing, data base management, network management, national IT policies, IT education, technology transfer, appropriate IT environment for a research laboratory, office automation, generic software types in business computing, scientific and business graphics, and many other topics.

TIMETABLE OF LSE CONTRIBUTION

IT Tools for the laboratory and office

Wednesday October 28th – Day 0

All day

Preparation.
Professor Ian Angell, Dr. Edgar A. Whitley and Mr. Dimitrios Tsoubelis

Setting up and checking the hardware in the computer laboratory, including 7 IBM PS/2's, 2 Hewlett Packard Laser Printers, and a Sharp DataShow projection system and overhead projector. Running checks - many of the machines delivered did not function properly and a great deal of work was necessary to cannibalise equipment before finally 7 machines were available. It was also necessary to organize secretarial support equipment and to give a crash course in software to the secretarial staff.

Loading DOS and Windows operating systems, as well as WordPerfect, DrawPerfect, Lotus 1-2-3 and Project-for-Windows, together with all the data files needed to support the first week of the course, onto all machines. There was not enough time to achieve this completely, and use was made of the coffee and lunch breaks during the week to finalise loading.

This day was highly problematical. Not all the computers were delivered, some were underpowered, or had too little memory, some had non-operational disk drives. Some computers were only delivered on day 1 of the course. Both the overhead projector and the television failed, and replacements had to be obtained, and were therefore late. Also no DataShow was delivered: we had expected this would be the case, and so we had the foresight to bring a portable version from London, which although not ideal, sufficed. It is obvious that the one day we allocated for this work is not enough time for the unknown supply conditions in a town such as Moscow. Perhaps in future we should consider bringing Notebook computers with us?

Thursday October 29th – Day 1

Morning

Presentation of Candidates
Professor Ian Angell
Presentation of an overview of the LSE contribution to the course during the opening session and introductory formalities.

Spreadsheets (LOTUS 1-2-3)
Dr. Edgar A. Whitley (backup: Angell and Tsoubelis)

- Brief overview of operating systems; DOS and Windows

- Basic spreadsheet capabilities of Lotus 1-2-3
  spreadsheet analysis, graphics

- Basic concepts
  Menus, navigation and the keyboard
  Cells, labels and values
  Formulae, ranges and results
  Relative and absolute references
  File saving and loading

- Practical session with Lotus 1-2-3, using prepared examples
  (supervised by Angell & Tsoubelis)

Afternoon

Further spreadsheet applications
Whitley (backup: Angell and Tsoubelis)

- Working concepts
  Formats
  @functions
      Statistical @ functions
  Graphs.
      Creating graphs
      Legends and titles
      Multiple graphs
      Printing graphs

- Advanced spreadsheet manipulation

- Practical session with Lotus 1-2-3, using prepared examples
  (supervised by Angell & Tsoubelis)

Friday October 30th - Day 2

Morning

The spreadsheet as a simulation tool for management
Dr. Miles Gietzmann (backup: Whitley, Tsoubelis, Angell)

- the need for simulation

- a simple budgeting case study ('House of Mark')

- sensitivity analysis

- 1 hour practical session (supervised by Angell, Tsoubelis & Whitley)

Afternoon

Structured analysis with a spreadsheet
Dr. Miles Gietzmann (backup Whitley, Tsoubelis, Angell)

- structured design

- exogenous and endogenous variable separation

- formula theoretic design of a spreadsheet

- Data table command; What-if? analysis

- revisit the 'House of Mark' case study

- other forms of sensitivity analysis

- 2 hour practical session (supervised by Angell, Tsoubelis & Whitley)

Saturday October 31st - Day 3

Morning

Producing a business plan with a spreadsheet
Dr. Miles Gietzmann (backup: Whitley, Tsoubelis, Angell)

- specifying the master budget

- coordinating and forecasting:
  Income statements
  Asset accounting
  Cash flow analysis

- practical case study

- 1 hour practical session (supervised by Angell, Tsoubelis & Whitley)

Afternoon

Using a spreadsheet in managing the business
Dr. Miles Gietzmann (backup: Whitley, Tsoubelis, Angell)

- using budgets to control the business

- costing analysis

- variance reports and their interpretation

- practical case study

- - 2 hour practical session (supervised by Angell, Tsoubelis & Whitley)

Monday November 2nd - Day 4

Morning

IT in Project Management
Ms. Angeliki Poulymenakou (backup: Tsoubelis and Whitley)

- Principles of project management.
  The staged approach - stages, activities and deliverables.
  Overview of MS-Project software.
  Introduction to case material.

- Starting to use Project with Windows.
  Using prepared example.

- Developing a new project.
  Planning, estimating, resource allocation.
  PERT and Gantt charts.

Afternoon

IT in Project Management
Ms. Angeliki Poulymenakou (backup: Tsoubelis and Whitley)

- Project monitoring and control.
  Communication and reporting.
  End of stage reviews.
  Failing projects and corrective action.

- Continuing use of Project with Windows.
  Using prepared example.

- Issues and trends in project management.
  Project failures.
  Communication and coordination.
  People management and motivation.
  Increasing formalization.

Tuesday November 3rd - Day 5

Morning

Issues in IT Management
Professor Ian Angell (backup: Poulymenakou)

- Rescuing failing projects

- Developing a new project.

- The concept of an information strategy.

- What is information? What are information systems?

- Creating an appropriate IT strategy

- Opportunities and risks of IT

Lecture and video demonstration:
"Low Cost/High Resolution Computer Graphics"
Professor Ian Angell & Dimitrios Tsoubelis

- Material from book by Angell and Tsoubelis
  "Advanced graphics on VGA and XGA cards using Borland C++"

- Computer generated video produced by a student of Professor Angell

Evening 20.30 - 22.30

Lecture, video presentation and discussion
"Computer Crime and other IT risks"
Professor Ian Angell

- Showing two videos :
- Practical issues and realities.
- The need for data maintenance.
- System protection strategies.
- Passive and active threats.
- Hackers and viruses.

- Informal discussion among delegates of 'Computer Security'
  Discussion of the video by the whole group, focusing on the role of consultants,
  and the real utility of I.T. strategies.

Friday November 6th - Day 8

Morning 10.00 - 12.30

Round Table
Professor Angell

Angell was one of the contributors to the round table chaired by Academician Scheindlin.

Saturday November 7th - Day 9

Afternoon 16.00 - 17.30

Living with commercial uncertainty
Professor Angell

- Management of uncertainty and complexity

- "Bureaucracy": how to manage it.

- Strategy of Research and Innovation

- Technology transfer and manufacture

- Managing Information Technology: controlling or coping?

Closing Session
At the closing of the conference Professor Angell was asked to make the presentations of certificates of attendance to the delegates.

HANDOUTS

(Copies of each handout are available on request.)

Each participant was given a copy of each of the following documents:

Substantial typed-handouts and copies of overhead transparencies concerning the introductory details of DOS, WordPerfect, DrawPerfect, Lotus 1-2-3, MS Windows, notes on Project Management with practical examples using Project for Windows, notes on the material of the accountancy case 'House of Mark', and the Project for Windows case, each written by the LSE lecturer who dealt with the corresponding part of the course.

Information Systems Management: Opportunity or Risk,
by Angell and Smithson, Macmillan Education, 1991.
This book, co-written by one of the course lecturers, introduces the opportunities and the risks of using modern information technology. It is meant to be read only after the completion of the course, with the intention of clarifying the management roles necessary in making sure that organizations makes the most of the technology, and avoid the hazards.

Advanced graphics on VGA and XGA cards using Borland C++
by Angell and Tsoubelis, Macmillan Education, 1992.
This book, written by two of the course lecturers, introduces low cost high quality computer graphics to the delegates. Six copies of this book were distributed to delegates particularly interested in the topic.

Graphics Software
There was plenty of good material for the delegates to discuss the low-cost potential of computer graphics. Free copies of the software package contained in the book "Low Cost/High Resolution Computer Graphics" by Professor Ian Angell & Dimitrios Tsoubelis were given to the delegates.

The following documents were posted to the delegates after the conference following discussions during the course:

Price Waterhouse Information Technology Review
This is an annual report published by a leading IT Consultancy Group. It includes an analysis of surveys of the questionnaires of over 700 Data Processing managers, in regard of the major issues facing them. It also contains predictions and commentaries about the IT industry in the UK and abroad.

Ives & Learmonth,
The Information System as a Competitive Weapon, Communications of the ACM.

VIDEO Case Material

The discussion groups used the following video material in their discussions:

Data Security: the facts
This video describes the facts about computer security. It demonstrates many of the common problems faced by organizations when dealing with the security of their Information Technology environment. These problems are interesting to debate, and the tape leads on to the second video.

The Survival Game
The sequel – how to deal with attacks on the IT resource, often by using more technology! Mostly from the persective of large companies, the video still has a lot that is useful for small to medium sized organizations.

Digital Arts Show Reel
This video is a collection of advertisements produced by Gareth Griffith, a previous student of Professor Angell, now a director of the Digital Arts Video Company. All the material has been transmitted on National Television around the world. The point of interest is that all very sophisticated material was generated of IBM personal computers.

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Full descriptions and details of the prepared examples and project material were given to the candidates. All the LSE material, including pre-prepared examples, documents and scanned images, was left on the hard-disks of the computers used in the course, so that delegates could make copies if they wished.

We also undertook individual interviews of the delegates from which we have collected information on their attitudes to the LSE part of the course, with the intention of identifying any problems and collecting new ideas, that would prove useful should we be invited to participate in any future UNIDO courses on Innovation and Management. Last year we distributed a formal **questionnaire**; we intended to experiment with the methods of evaluating our performance and so this year we decided to try informal interviews. On balance we believe the questionnaire approach gives a better picture, and so in future years we will resort to this type of evaluation.

Philosophy of LSE course component

The course organizers originally asked the staff from LSE to introduce the participants to the issues regarding the use of information technology in the management of their laboratories. At the same time we were requested to show the delegates that this introduces an extra management role, that of managing the technology – not an easy task for them. We were given less than six days to lead them from specific functionality through management of technology to strategic management.

As it turned out, the delegates were scientists of a far more senior level than we had been led to expect. Last year's experience had prepared us for this, and so we arrived with alternative material which enabled us to change the emphasis of our lectures. We therefore played down the functionality of IT and instead concentrated substantially on the accountancy, business planning, project management and strategic issues.

We had designed the practical work so that it would be of direct use to a manager, in his role of developing and promoting innovative products within a market economy. We used various 'market-leader' software packages, so that the delegates could learn the practical problems of managing IT, we were not primarily interested in the functionality of the packages. Issues such as the development of good practice, and of reasonable expectations of the IT were covered in detail, as these topics are seen as essential for good management.

We asked the delegates to consider a number of IT projects, that are typical of the requirements of an automated office in Western Europe or the USA. We deliberately led them into situations that demonstrated problems of file consistency and questions of style, when considering a multiple user base for a single document. This led on to various questions of the management of Office Automation.

At the same time, because of the scientific background of the delegates, the examples we chose were scientifically grounded. For example we discussed how IT can be used in the production of journals, books, conference proceedings, working paper series, as well as presentation material, not only for scientific conferences, but perhaps more importantly for business presentations where requests for funding of projects are made, and where the products of research have to be marketed. The main example in the project management section concerned a project to set up a new research centre.

The overriding intention was to lead the delegates into situations where they could discuss the subjects we introduced.

This necessitated major support for Group Question and Answer sessions, and perhaps more importantly one-to-one 'help sessions' covering specific technical problems. Given the new style lecture structure, these help sessions tended to be informal in the coffee bar. The informality was a bonus, however the coffee bar was far too public to make the most of these sessions.

Results of the Interviews

In general the comments from the delegates were very positive about the attitude, professionalism and commitment of the LSE staff. As you can imagine I was delighted by the response. But we also were very pleased with the feedback from the group in the talks – they were very easy to talk to. The attendance rate was excellent, given the substantial amount of material we covered, although perhaps the remoteness of the venue could account for some of this. I can speak for all five LSE staff, when I say it was a pleasure to talk to such a knowledgable group, and we learned much from our involvement in Moscow, and in Venice/Trieste.

How we implemented what we learned from the first course

1) The computer room we used had far more space than last year, and it coped well with the maximum of 30 delegates, although in some respects it was not ideal. If this same accommodation is used again, then the absolute maximum size of the group must remain at 30 delegates and something must be done to limit the external noise. We were lucky to have the photocopying, laser printing, video player, and all secretarial support in a room adjacent to the computer room, a recommendation we made last year.

2) Last year the course content was far too intensive, both in the amount of the teaching time and in the sheer volume of material. Being the first time this course was given, we were obviously nervous that the course should not appear lightweight, but we erred on the side of being heavyweight, or even super-heavyweight. In Moscow we ensured a more sensible load, fewer evening sessions and even the few were very informal. We avoided exhausting the delegates, and gave them plenty of time to recover from each session! Also the social program made the whole course very friendly, so that the delegates got much more individual advice out of the lecturers in informal sessions.

3) Although we were very technology driven, some of our material gained from the availability of flip charts. After last years requests for this facility these were made available to us. Although we would have preferred them placed in the rooms where the group sessions were undertaken.

4) The international mix of delegates was excellent, and as we recommended in Venice, this year there were a good proportion of women in the group.

5) The organization of coffee-breaks and lunch breaks was much more structured this year. Although perhaps there should be coffee and soft drinks on tap. Again on our advice from last year the mid-day meal was free to the students, so that they did not have to budget, balancing food against other purchases.

Ways of making the course better

Although we are delighted with how well our part of the course was received, we have a number of proposals for making the course even better.

1) Many of the delegates asked for fewer computers per delegate. In Venice the ration was 1 per two delegates, in Moscow it was more than one to three. Obviously a one to one ratio is quite impossible because of cost and space considerations. We will have to return to two delegates per computer, although perhaps we should have three laser printers for the group, rather than one in the laboratory and on: in the office. We did have performance problems with some machines. For future courses it is essential that the machines should be more powerful, at least 386 based machines, with a minimum of 2 Megabytes of RAM and 40 Megabytes of hard-disk space. One possibility, if we were to increase the number of courses we give, is to purchase notebook computers and take them with us on the courses. Another possibility is perhaps to identify EEC funding for donating Olivetti computers to participating institutions.

2) Having said this, it would be preferable for the discussions to be held in small private rooms, so that the groups of between six and eight delegates can hold their project meetings undisturbed. The video sessions were a great success, and in future we would plan to extend this part so that students could view much more video material in the evening sessions on a voluntary basis, in preparation for the discussion groups. This was not particularly successful in Moscow, because an 18" television only was made available and this was far from satisfactory. Next year there must be more and larger televisions.

3) Apart from viewing the videos in the evening, it would be of great benefit if the computer room be kept open until late, for the delegates to experiment with the packages, if they so wish. There were many requests for such supervised sessions with the present delegates. The LSE staff were more than happy to oblige, but the security system of the building made this impossible.

4) It is essential that we somehow find time to include more material on Computer Networks and Databases into the course content. Perhaps we should have a much more modular structure of the material, and then focus particular modules at more-homogenous sets of delegates. We must consider for example whether we use a whole day for teaching Lotus 1-2-3, or whether we insist that all delegates know the package so we can concentrate on the accountancy case material.

5) A problem similar to last year occurred again. We had to undertake a major rewrite of our lecture material when we found out the type of delegate on the course, and we sensed that our original material was aimed at a slightly different audience. We managed to achieve the changes, but only 'by burning the midnight oil'. Given more prior warning of the type of delegate, and perhaps by making the group more homogeneous, it will be possible for us and other speakers to focus the material more, and thereby make the course far more appropriate and useful for the delegates.

6) The course was held in Moscow, yet it may just as well have been Minsk. The hotel was so far outside the city that delegates had very little opportunity to enjoy this wonderful city. You must in future build in a social event on one afternoon per week, perhaps with organized tours of the towns, with visits to museums, churches and perhaps a theatre. Also some lectures on the history of Moscow, and the cities' present day economy would be an excellent way of helping the delegates appreciate and understand the wonderful environment of the course. Obtaining taxis was a major problem, so perhaps some form of shuttle transport should have been made available. Having said that, the social program that was organised was excellent, apart from a problem of not enough transport to take us all to the Bolshoi.

I cannot finish this report with a note of required changes; I must conclude on a very positive note. This course was extremely successful, probably far more successful that we had dared hope. But we have the opportunity of making it even better!

I would like to take the opportunity to thank Professor Forti and his team at ICS for asking us to take part in this second course on the Management of Innovation, and for being of such help during the preparation and presentation of our material. In particular I must single out Miss Claudia Maresia for particular praise for her unstinting efforts behind the scene in making the course a success. All the ICS team, and the local administrators under the direction of Dr. Aslanian made our task very much easier. On behalf of myself, and my colleagues Miles Gietzmann, Angeliki Poulymenakou, Dimitrios Tsoubelis and Edgar Whitley, I can say that times we were involved with the course were arduous, but we enjoyed every minute, and we hope that we will be asked to take part in future courses.