CANEVET, Sophie (1996)
*The Role of Information Systems Evaluation across an Extended System Life Cycle*

The role of evaluation across an extended system life cycle is explored, taking into account the importance of system maintenance and the need to replace systems. A role oriented classification of evaluation studies is proposed and mapped onto the extended system life cycle. Three categories, Predictive, Feed-back and Feed-forward are identified. The context, content, process framework is then used to analyse the nature of evaluation as it evolves along the extended life cycle. A pluralistic research method combining a case study and a field survey made up of a questionnaire and interviews is used to provide the necessary data. The results show that evaluation can bring a range of benefits across the extended life cycle, especially for maintenance management and system replacement and suggest the existence of an evaluation cycle evolving along the extended life cycle. This cycle is further explored through an analysis of the interrelationships of context, content and process at the various stages.

*Supervisor: Dr S Smithson*

CHAUVIDUL, Narisa (2002)
*Formality and Informality in Internal Control Systems: A Comparative Study of Control in Different Social and Cultural Environments in a Global Bank*

This thesis examined the relationship between formal systems and informal norms in internal control systems in a global bank. The thesis argues that the global policies and standardised manuals and procedures of multinational firms cannot be internalised and interpreted in the same way as anticipated by the management in every branch. This assumption confirms the importance of the need for this study to increase an understanding of the issues and concerns in the management of internal control systems among different organisations in different cultural and social environments. A broad range of literature has been reviewed and it was found that little research in information systems security had previously focused on the internal control systems. As such, this research presents a new area in information systems security study.

This research aimed to provide a qualitative approach to increase an understanding of the relationship between formal and informal systems. The main objective was to analyse in depth the interaction between these two systems. More focus was placed on the study of people who played a significant role in the control systems. In pursuing this aim, the interpretive case study of a global bank in two branches was conducted.

The findings from this research suggest that there are problems in implementing internal control systems globally across the bank. The internal control systems should be examined with respect to both formal and informal analysis. The considerations should be focused more at the informal level where pragmatic and semantic concerns should be addressed. The thesis concludes that qualitative approach is an appropriate way to conduct research in cross-cultural studies in information systems security, also that semiotics theory is an appropriate approach in this area of study.

*Supervisor: Dr J Backhouse*

*Program Generators for Discrete Event Digital Simulation ModeHing*

This thesis describes the development of an interactive simulation program generator (ISPG) called LANGEN. An ISPG is a software tool which requires the modeller to enter a formal specification of a simulation model. From such information, the ISPG produces a source program which is a computer executable version of the model specified. A review of existing work in this area suggests that current ISPGs are very limited. LANGEN is used to examine the reasons for this problem, and highlight alternative methods of approach. The choice of programming language and support systems are discussed in the context of a broader appreciation of the use of simulation as a decision making aid. Further experimental work has been carried out using the system in conjunction with an artificial intelligence problem formulator and with a suite of dynamic graphical displays.

*Supervisor: Prof R Paul*
This research examines the relationship between organisational change and information systems development in the case of an effort to implement flexible specialisation in Cyprus. In the centre of this research are the inter-organisational relationships developed in the flexible specialisation initiative and the role IT played in the formation of such relationships. Successively, the kind of organisational changes that take place as well as the driving force(s) of such changes are examined.

In order to study and analyse such a complicated socio-economic phenomenon an interpretive epistemology was adopted. Analysis of the empirical work draws mainly from theories concerning information systems while insights are drawn from disciplines that have studied organisational change and the concept of flexible specialisation in particular, such as industrial economics, geography and organisational theory.

The research method followed is a multiple case study analysis. One case study was conducted in Emilia-Romagna and provides a point for reference for the cases of flexible specialisation in Cyprus, which is the main focus of the research. The case study in Cyprus was conducted over a period of three years, while the case study in Emilia-Romagna was done at one particular point in time.

The key contribution of this research is the suggestion that the use of information and communication technologies depends on the complexity of the inter-organisational activities, rather than causing them, as the information systems literature tends to suggest. Furthermore, the case study demonstrates the significance of institutional and cultural factors for the non-emergence of inter-organisational complexity, and subsequent limited role attributed to IT in the flexible specialisation experiment.

Supervisor: Prof C Averou

CHU, Catherine (2004)

The Challenges in Assimilating E-business in Large Established Organizations: A Structurational Examination of the E-Business Development at an American Auto Manufacturer

Despite the bust of dot.coms, e-business still holds tremendous opportunity. The focus of large-scale e-business development has shifted to the large ‘blue-chip’ corporations, as profitability from this technology is mainly found where the online business is an extension of traditional strategies and capabilities. However, unlike the nimble dot.com competitors, large companies not only have to tackle a new technology that could permeate throughout the entire organization, and beyond to their customers and suppliers, but in many cases they have to deal with new business models, radically revised processes, a new channel for marketing and sales, new cost pressures, and a heightened service expectation from consumers. This is particularly difficult for large companies that span the globe with their rigid bureaucratic structures, complicated power structures, and ingrained cultural properties. Large corporations have to implement significant and complex organizational changes in order to integrate e-business into their existing structural, power, and cultural properties. Hence, the aim of this research is to address the challenges in assimilating e-business in large established organizations and how major new technologies with significant business potential change/reproduce their existing systems and structures.

In order to capture a more comprehensive and dynamic understanding of how organizations undergo change, this research applies Giddens’ (1984) structuration theory as this meta-theory explores the instantiation of systems and gives equal emphasis to agents and structure. Aligning to this theoretical perspective, and given little literature on organizational change associated with the assimilation of e-business, an interpretive qualitative paradigm is applied. As a methodology, a case study represents the pre-eminent means of understanding the “how” and “why” of a phenomenon. The in-depth case study considered examines the establishment, operation, and termination of a special purpose e-business staff unit at the European corporate headquarters of an American Auto Manufacturer (from June 2000 to December 2002).

This thesis demonstrates the potential of human agency to change institutional properties, but also the strength of these institutional properties in the face of change. It highlights the reasons for the difficulty in making an effective change, in this case, to create and integrate a local practice of e-business. It also draws attention to why this particular intervention of building e-business organizational capabilities was
unsustainable. Finally, on a more prescriptive/strategic level, it suggests ways in which top executives can design and improvise interventions and provides lessons for established organizations in implementing a new technology that could have very pervasive effects throughout the entire organization.

Supervisor: Dr S Smithson

CHUN, Ki Jeong (1992)
Analysis of Decision Conferencing: A UR/fj-SA Comparison

This is an investigation of decision makers’ activities in problem identification, information requirements, and problem formulating (model building) during decision conferencing. This work is intended to provide a theoretical basis of decision conferencing as a requisite for group decision support systems for top executives.

Supervisor: Prof L Phillips

Making Sense of Emergent Properties in IT Enabled Call Centre Operations: An Interpretive Systems Analysis Approach

A major focus of contemporary IS research is the emergent nature of organisational use of information technologies: its contextual, evolutionary, often unanticipated character. Most studies have approached this topic from the viewpoint of emergence in IT based practices as a process, led by social actors. However, the investigation of emergence as a property has been neglected. The systems thinking approach is particularly concerned with emergent properties, but has hitherto been poorly developed for the socio-technical analysis of IT use.

In redress, this research presents a new framework of interpretive systems thinking for performing such analysis. This framework permits a researcher or organisational analyst to form an understanding of emergent phenomena in IT based operations as constituted by the interaction of various elements or factors in relations of contrariety, contradiction or association. The emergent nature of an organisation’s activities may consequently be illuminated in terms of principle tensions or contradictions, that shape its trajectory of transformation, or form a persistent pattern in its functioning. This method of analysis is applied to two case studies of IT based call centre operations.

The case analyses demonstrate the utility of this inter-relational, integrative framework. It supports supra-individual analysis of the shaping of significance concerning IT based activities. The emergent dynamics of integration and transformation related to the use of IT capacities in call centre activities are revealed in multi-faceted, contextually specific forms, that transcend simple binary alternatives in the appraisal of IT usage (e.g. IT is rigid or flexible). The framework’s main benefit is its ability to highlight contradictions that are easy to miss, or difficult to pinpoint, in IT enabled work practices. This study’s third-person, property-focussed account of emergence in IT based operations provides a different but complementary emphasis to the micro agency-centred model of emergence that has dominated recent IS studies.

Supervisor: Prof C Averou

CORNFORD, Tony (1990)
Social Information Systems: A Study of Computers, Government and Society

This thesis examines the processes that underlie the increased use of information and information technology in the documentation, control and mediation of the lives of citizens. The thesis identifies various distinctive aspects of such use of information technology, and identifies the resulting structures as social information systems. In the first part the general nature of information systems is considered, and a variety of human and social analyses of computing are reviewed and related to the development of social information systems. Parallels are drawn between the adoption and use of computer technology in commercial organisations, and in processing transactions, building data resources and mediating the lives of individual citizens. In the second part, four loosely connected studies of distinctive contemporary aspects of the adoption and developments of computers and computer based social information systems are presented within the framework developed. These include the response of governments to developing society with information technology, the concept of privacy and of data protection, a case study of the
development of computerised support for the social security operations of the DHSS, and the development of the Community Charge.

*Supervisor: Prof F Land*

**CROCKER, Patricia (1983)**  
*Training for Systems Analysis in the Computer Industry Through Formal Education and Work Experience*

This research is based on information from institutions providing training in systems analysis, employers and ‘practising’ systems analysts, using postal questionnaires, published literature and the findings of earlier surveys. The most desirable level of qualification to employers is a first degree and graduates of computing programmes at polytechnics are particularly successful in gaining employment in systems analysis. I identify a basic set of skills for systems analysts in the computer industry and identify current work and system profiles, and then use the Nolan model to identify future work and system profiles. This shows the proportion of time spent on each stage of systems analysis and the functions performed. The system profile shows the basic characteristics of systems involving the work of systems analysts.

**CURET, Olivier (1996)**  
*Using Precedents to Identify Top Management Fraud: the Study of a Case-Based Learning and Reasoning Model*

This thesis discusses how best to design, implement and evaluate a Case-Based Learning and Reasoning (CB-LR) model to assist accountants in identifying Top Management Fraud (TMF). There is no structured knowledge about TMF in the form of rules, only cases encountered by experienced auditors. The changing economic, financial and social environment has produced more fraud which at the same time has become increasingly complex to identify and isolate. Previous research shows that fraud has evaded auditors, and highlights a need for new computer-based learning and reasoning paradigms in this domain.

Case-Based Reasoning (CBR) has been considered as an approach to building knowledge systems which involves reasoning about the current situation on the basis of pinpointing and resuscitating past instances. As with artificial intelligence in general, there is no standard ready-made CBR method suitable for any domain or application: "the challenge in CBR is to come up with methods that are suitable for problemsolving and learning in particular subject domains and for particular application environments. INCASE, a Top Management Fraud diagnostic application, has been designed with a specific methodology derived from Schank and Riesbeck's principles. INCASE works on the basis of the interviewees' concerns so that it can act as a 'stimulus agent' for decision support. The intention is for auditors to use it proactively in a conversational mode, focusing on learning and reasoning about the problem domain; hence the use of the CB-LR model".

Although evaluation methods relevant to traditional rule-based expert systems have been discussed in the literature, their emphasis on system issues was found to be inappropriate for this CB-LR application. Since there is no agreed and established method for evaluating a case-based tool, a new approach is discussed including verification (where the focus is on response accuracy of information retrieval) and validation (where user judgement and satisfaction are key issues). One important component in the evaluation was an in-house questionnaire based on total quality management ideas. Findings from the evaluation of the TMF diagnostic system suggest that case-based learning and reasoning has a valuable part to play in assisting auditing profession in the detection of fraud.

*Supervisor: Prof F Land*

**DARKING, Mary (2004)**  
*Integrating On-line Learning Technologies into Higher Education: A Case Study of Two UK Universities*

This dissertation presents in-depth, qualitative case studies that document the efforts of two UK universities to integrate on-line learning technologies into their teaching practices and course design. It has been claimed that on-line learning technologies have the capacity to transform the provision of higher education. In order to address such claims, ethnographic research techniques were used to collect data at two institutions, simultaneously, over a period of 18 months. Using ideas from the sociology of association, the
organisational, pedagogic and technological activities surrounding the case study institutions’ purchase and integration of two leading on-line learning technologies is described. Distinctions between different areas of activity both in and around the university are represented as they emerged ‘in practice’, allowing ostensive divisions between, for example, ‘the educational’, ‘the technological’ and ‘the organisational’ to be temporarily, placed to one side.

Building on these empirically grounded findings, this thesis considers the question of ‘educational values’. Powerful discourses relating to knowledge, learning and the ‘market for education’ currently compete for primacy over pedagogic, epistemic and educational interests. By rejecting normative ascriptions of value, in either economic or moral terms, this thesis considers ‘values-in-practice’, or ‘valence’ as the enacted priorities that are set as part of organisational work. Through this analysis, values are understood as the basis upon which lines of reason or ‘ways of reckoning’ are constructed. This analytical approach is shown to be particularly relevant to the study of complex, integration work, where totalising or dichotomous conceptions of knowledge prove insufficient to capture or inform processes of negotiation. Together, the concepts of valence and ways of reckoning serve to support critical reflection on how educational values are constructed in the case of on-line learning. It is argued that only by understanding education as a collective endeavour, capable of promoting and supporting substantive diversity, can educational priorities be properly assessed and asserted.

Supervisor: Dr E A Whitley

DESHPANDE, Yogesh Laxman (1984)
*Flow Shop Scheduling: Heuristic and Bounding Methods*

This thesis critically examines the areas covered by heuristic and bounding methods. There are two main problems associated with heuristic approaches: 1) difficulties in deriving and understanding such procedures, and 2) validating and judging their effectiveness. The effectiveness is typically established through numerical experiments. The thesis proposed that intuitive methods ought to be measured against current theoretical understanding and develops a framework of criteria based on the known analytical results and various characteristics of the flow shop for the purpose. A systematic examination of eight previously proposed heuristics helps to identify four groups or families among them. New heuristic methods are devised as an outcome of this identification of families and also from the criteria employed. Empirical work on all methods demonstrates that the framework is a powerful tool to deal with the first problem of deriving and understanding heuristic procedures. This thesis also analyses procedures to compute lower bounds to the makespan. The result conclusively proves that only a subset of the required computations in each method is sufficient to calculate the lower bounds. Empirical studies validate this observation. The new, simpler design of testing makes it possible to evaluate the bounding methods on very large flow shop problems without requiring much computing power. Finally, the thesis outlines two new, composite procedures to calculate lower bounds combining only the effective elements from the bounding schemes as part of the future work.