Organisation Development and Successful Information Systems Development

Markos Goulielmos

A thesis submitted in partial fulfilment of the requirements of Sheffield Hallam University for the degree of Doctor of Philosophy

March 1998
This thesis represents a qualitative study of the Information Systems Development (ISD) process and puts forward the argument that IS development leads to Organisation Development (OD). The thesis argues that an OD perspective should be incorporated into the main ISD paradigm and provide the basis for transformation in the field which is plagued by failure.

The thesis reviews both the IS development and Organisation Development literature and makes connections between the two fields, as in practice they are both comparable activities. With the qualitative framework, Grounded Theory Methodology was used to guide research and analytical activities. We conducted research in 6 large and large-medium sized consultancy firms and in 5 large organisations that utilised non-traditional approaches to ISD.

Fieldwork and analysis resulted in the emergence of an ISD process theory that explains how information systems are developed within the organisational context. The theory provided the basis from which we could more rigorously understand the true nature of IS development and determine the nature of a suitable OD contribution.

In this thesis, the superiority of an OD-informed solution is argued in detail and contrasted to other proposals from the ISD field. The OD contribution is distinguished in: a) formulating an OD-informed ISD approach, we have termed the Total Systems Development Approach (TSD), b) defining a diagnostic model of ISD practice, c) and providing an extensive collection of OD improvement programmes and techniques that have direct application to ISD.

The contribution the thesis makes is also multi-level. At one level we have contributed in rectifying the lack of research in the area of "process" in IS development. In doing so we have provided the basis from which the aspects of the ISD process can be explored in detail. The emergent ISD process theory itself confirms arguments that ISD is a complex socio-technical and organisational process. It highlights aspects of development that have been traditionally outside the ISD paradigm. Our theory helps readdress and challenge a number of elements in the ISD process. The notion of Approach emerges as much more suitable for solving ISD problems than methodology. The role of the ISD consultant also emerges as requiring a range of appropriate consultation modes to deal with intervention complexity. Our results also show that the role of the client is much more involving and demanding than previously assumed.

Another area of contribution is the formulation of the TSD approach which focuses on the development of the total system: the organisation, through IS or system development activities. It is holistic, iterative, it allows flexible problem-solving, collaboration and focuses on change, intervention and reflection.

A final area of contribution is in establishing a link between OD content and IS development. With the advent of new types of development, OD "interventions" have an increasing applicability to ISD situations. The diagnostic model of ISD practice also utilizes an OD-perspective to facilitate diagnosis of organisational failure that leads to IS failure.
TABLE OF CONTENTS

ABSTRACT .................................................................................................................. I
ACKNOWLEDGEMENTS .......................................................................................... II
TABLE OF CONTENTS ............................................................................................ III
LIST OF FIGURES .................................................................................................... VII
LIST OF TABLES ....................................................................................................... VII
INTRODUCTION ....................................................................................................... 1

1 - INFORMATION SYSTEMS DEVELOPMENT ....................................................... 6
1.1 INTRODUCTION ............................................................................................... 6
1.2 IS DEVELOPMENT PRACTICE ....................................................................... 6
1.3 THE NATURE OF ISD THINKING .................................................................. 11
1.4 ORGANISATION & IS DEVELOPMENT ........................................................... 19
   1.4.1 Power & Politics ..................................................................................... 20
   1.4.2 Conflict .................................................................................................... 21
   1.4.3 Culture ..................................................................................................... 21
   1.4.4 Organisational Structure & Design ......................................................... 22
   1.4.5 Organisational Change .......................................................................... 24
   1.4.6 Business Environment .......................................................................... 25
   1.4.7 Technological Changes .......................................................................... 26
   1.4.8 Consultant-Client Relationship .............................................................. 27
   1.4.9 Socio-Technical Systems ....................................................................... 28
1.5 CONCLUSIONS ................................................................................................. 28

2 - ORGANISATION DEVELOPMENT ..................................................................... 31
2.1 INTRODUCTION ............................................................................................... 31
2.2 DEFINITION OF OD ...................................................................................... 31
2.3 THE OD APPROACH .................................................................................... 34
   2.3.1 OD Values ............................................................................................... 34
   2.3.2 OD philosophy ....................................................................................... 37
   2.3.3 OD Interventions .................................................................................... 44
   2.3.4 Consultation Modes .............................................................................. 44
   2.3.5 The OD consultant ............................................................................... 47
   2.3.6 Limitations ............................................................................................. 47
5 - CRITICAL ANALYSIS

5.1 INTRODUCTION

5.2 ANALYTICAL OBSERVATIONS

5.2.1 Absence of a “middle” period

5.2.2 Differences in Approach

5.2.3 Diagnostic Scheme

5.2.4 Approach versus Methods

5.2.5 The Client’s Role

5.2.6 Emerging ISD Limitations

5.3 THEORETICAL CONNECTIONS

5.3.1 Structuration Theory

5.3.2 Archetypes

5.3.3 Gestalt Theory

5.3.4 Other Studies

5.4 ORGANISATION DEVELOPMENT

5.4.1 Values

5.4.2 OD Approach and ISD

5.4.3 Skills

5.4.4 Intervention, Consultation & the role of the Consultant

5.5 DISCUSSION

5.5.1 Approach, Methodology & ISD

5.5.2 Rethinking ISD Complexity

5.5.3 A different SDLC?

5.5.4 Key ISD factors

5.5.5 Implications for ISD Values

5.5.6 Implications for the ISD Consultant

5.5.7 Implications for Clients

5.5.8 Similarities between OD & ISD

5.6 CONCLUSIONS

6 - HOW CAN OD ENSURE SUCCESSFUL IS DEVELOPMENT?

6.1 INTRODUCTION

6.2 THE OD CONTRIBUTION IN THE LITERATURE

6.3 TOWARDS TOTAL SYSTEMS DEVELOPMENT

6.3.1 Values & Principles

6.3.2 Key Diagnostic scheme

6.3.3 Frameworks

6.3.4 A TSD Framework

6.3.5 Key processes
List of Figures

FIGURE 1.1: LEAVITT'S ORGANISATIONAL INTERACTING VARIABLES MODEL ........................................... 23
FIGURE 2.1: ACTION RESEARCH ........................................................................................................ 40
FIGURE 3.1: CONCEPTUAL MODEL ................................................................................................. 71
FIGURE 3.2: OVERVIEW OF THE RESEARCH PROCESS ............................................................... 87
FIGURE 3.3: KOLB'S EXPERIENTIAL CYCLE ............................................................................. 89
FIGURE 4.1: THE ISD PROCESS AS GROUNDLED IN RESEARCH DATA ....................................... 108
FIGURE 5.1: STRUCTURE AND ELEMENTS OF APPROACH ......................................................... 178
FIGURE 5.2: CONCEPTUAL ABSTRACTION LEVELS ................................................................. 180
FIGURE 6.1: ISD AND TOTAL SYSTEMS DEVELOPMENT PROCESSES ......................................... 198
FIGURE 6.2: CAPACITY FOR SYSTEMS DEVELOPMENT MODEL .................................................... 202
FIGURE 6.3: FRAMEWORKS AND CLASSIFICATION SCHEMATA - A CONCEPTUAL MAP ............. 206
FIGURE 6.4: TSD FRAMEWORK .................................................................................................... 208
FIGURE 6.5: THE TSD MODEL BASED ON ACTION RESEARCH ................................................... 213
FIGURE 6.6: ISSUE AND ACTION PATHS ....................................................................................... 214
FIGURE 6.7: ACTION RESEARCH & TRADITIONAL SDLC ............................................................ 216
FIGURE 6.8: ACTION RESEARCH & EVOLUTIONARY SDLC ....................................................... 216
FIGURE 6.9: OD AS A DIAGNOSTIC MODEL ................................................................................ 227
FIGURE 6.10: OVERVIEW OF THE TSD APPROACH .................................................................. 230

List of Tables

TABLE 3.1: SUMMARY OF THE METHODOLOGICAL FRAMEWORK ............................................. 70
TABLE 3.2: UNRESOLVED COMPLEXITIES IN ISD ........................................................................ 74
TABLE 3.3: OUTLINE OF RESEARCH ACTIVITIES ....................................................................... 91
TABLE 3.4: FIELDWORK SUMMARY .......................................................................................... 92

TABLE 4.2: FRAMEWORK DIMENSIONS & INDICATIVE CHOICES .................................................. 112
TABLE 4.3: METHODOLOGICAL COMPONENTS IN APPROACHES ................................................ 113
TABLE 4.4: PROJECTS THAT REQUIRE TAILORING .................................................................... 115
TABLE 4.5: COMPONENTS IN REPOSITORY ................................................................................ 114
TABLE 4.7: OUT-OF-SCOPE PROBLEMS ..................................................................................... 125

TABLE 5.1: CRITERIA FOR EXPLORING DIFFERENCES IN APPROACH ......................................... 142
TABLE 5.2: DIMENSIONS OF CONTINUUM AND RELATIVE POSITIONS ......................................... 142
TABLE 5.3: COMPARISON OF FACTORS ..................................................................................... 167
TABLE 5.4: DIFFERENCES BETWEEN OD AND ISD MODEL CHARACTERISTICS ......................... 174

TABLE 6.1: SUMMARY OF TSD VALUES & PRINCIPLES ............................................................... 201
TABLE 6.2: OUTCOMES OF THE CHOICE PROCESS ..................................................................... 211
TABLE 6.3: TYPES OF STORED COMPONENTS ............................................................................. 219
TABLE 6.4: SHARED COMPONENTS BETWEEN DIMENSIONS ....................................................... 226
INTRODUCTION

The efficacy of Information Systems Development (ISD) has been seriously challenged following a series of Information Systems (IS) failures, which have concerned many in the field. Most notable in the UK have been the London Ambulance Service (LAS) and the London Stock Exchange's TAURUS systems failures have revealed the field's difficulties in dealing with issues in the organisation arena. This thesis is a result of our interest to explore this phenomenon. The main aims of our thesis are:

1. To argue for the need of incorporating an Organisational Development perspective into the current Information Systems paradigm of theory and practice,

2. To use an OD-informed perspective for developing a sophisticated model of the IS development process, by understanding how Information Systems are actually developed within organisations.

As it is has been argued in the literature, the mainstream IS paradigm focuses strongly on providing methodological and technological solutions to problems which although have enjoyed success in the past are proving increasingly limited, (Bostrom & Heinen, 1977a; Kumar & Welke, 1984; Kling 1977; Couger et al, 1979; Hedberg & Mumford, 1975). An Organisation Development (OD) perspective focuses on the organisation as a system to be developed in its own right. Within this viewpoint, IS development can be examined in terms of its contribution to organisational improvement. Like Dos Santos & Hawk, (1988) we do not argue that the current IS paradigm should be completely abandoned — clearly methodologies and technical expertise are still very useful. The solution however cannot, in our opinion, follow the usual critique in the field, which is still raised very much from within the ISD paradigm. Instead, an external OD-informed paradigm shift can transform ISD practice. Such transformation has not been achieved, despite the fact organisational issues are gaining recognition in ISD theory and research, (Lederer & Nath, 1991; Land et al, 1992; Willcocks et al, 1994; Maglitta, 1995; Cannon, 1994), and a number of alternative paradigms have been raised, (Hirschheim & Klein, 1989). Through OD, the way these issues are treated today within the ISD paradigm can be also transformed. Although these issues reveal the complexity of developing systems
way. This we felt, would allow us to understand the true nature of the ISD process and contrast our observations to OD, which is a holistic process itself.

Such a study was needed as there is a lack of literature that treats the ISD process from such a viewpoint. Work covering smaller aspects of the wider picture exists but is fragmented. We also found little work outside ISD's paradigm of assumptions and practices. Furthermore, while the role of OD has been noted before, (Desanctis & Courtney, 1983; Willcocks & Mason, 1987), its full potential for transforming ISD has not been examined.

Methodology
Our viewpoint required a holistic evaluation of a process within the organisational context, and given that there were a few previous accounts to guide us, the most suitable methodological approach was a qualitative one. Within the qualitative framework we further identified Glaser & Strauss's (1967), Grounded Theory Methodology as a rigorous, iterative, flexible, comparative method that is strongly suited to the study of process and context.

Thesis Outline
In Chapter 1 observations are made about the nature of the field's difficulties. We examine evidence of IS failure and models offering explanations. At another level, we look at the role of dominant and alternative ISD paradigms in guiding effective and ineffective action. We also examine literature on the role of organisational issues in ISD. The chapter concludes with a presentation of key observations about the nature of ISD and OD's plausibility as arising from the literature.

In Chapter 2 we look closer at the Organisation Development literature to highlight the field's unique approach and present areas of relevance to IS development. We examine a number of elements such as values, philosophy, models and consultation modes. The chapter concludes with the identification of the areas of OD's potential suitability to ISD.
Chapter 1

Information Systems Development
1 - INFORMATION SYSTEMS DEVELOPMENT

1.1 Introduction
In this chapter we aim to develop a sophisticated problem definition capable of guiding research activities. To understand IS Development's difficulties we examine the relevant literature at a number of levels. At the level of practice, IS failure cases and models of understanding reveal the extent of the field's problems and reveal the nature of ISD itself. At a theoretical level, the functional and pragmatic paradigms dominate ISD practice and are criticized for their assumptions. Various alternative paradigms have emerged to challenge them, but without acknowledging the reasons behind the strength of their legacy. At the level of ISD research, a growing argument has raised awareness of organisational issues and emphasized the point that ISD is a social as much as a technical process. The picture that emerges indicates that IS development is a form of organisational development. This realization supports the plausibility of an OD perspective in ISD and helps argue that effective paradigmatic change can proceed from such perspective.

1.2 IS Development Practice
Despite cases of very successful IS development projects, it is widely accepted in the field that an unacceptable number of projects experience failure. While some estimates show that half of all systems fail, (Lyytinen & Hirschheim, 1987; Galloway & Whyte, 1989), others argue that more systems fail than succeed, (DeMarco, 1982; Gladden, 1982; Hunt, 1992; Whyte & Bytheway, 1996). The phenomenon is also experienced at an international scale, (Oz, 1994a; Bowman, 1992; Bozman, 1994; Raheb, 1992). In the UK the failures of the London Ambulance Service's dispatch system and the London's Stock Exchange's TAURUS, (Flowers, 1996), were highly publicized as they involved mission-safety critical systems and huge investments. A number of internal failures, however, go largely unnoticed since there is often no public legal action involved, OZ (1994b). While not all projects are a priori destined to fail, ISD finds increasingly difficult to ensure the success of its projects using its traditional paradigm of thinking and means of developing information systems.
involvement, (Bray, 1993). Ironically when system development was introduced it caused additional problems well before the system was delivered. Management appeared to overlook them in a mixture of defensive behaviour and hoped that once the system was installed these would go away as well, (Page et al, 1993).

It can be argued that LAS was an organisational failure that was ultimately responsible for IS failure. LAS seems to have found itself in a vicious circle of self-fulfilling prophecy: everything management did was not trusted, and everything staff did was seen as an attempt to sabotage development. However, we feel that the organisation as a whole was responsible, not simply its management or the users. While management, (Flowers, 1996), and the developer, (Bray, 1993), have been blamed, responsibility should also be attributed to the authority managing the service that decided autocratic leadership was needed in the first place. One cannot blame the developers completely either, as they were selected although it was obvious their size and inexperience was an issue, (Page et al, 1993).

Interestingly, methodologies and technology could not ensure the success of the project, but also clearly did not contribute to its failure. We believe that an OD perspective adopted by either management or the developers could have helped avoid failure by considering organisational issues rather than development issues.

London Stock Exchange (SE)

In the failure of SE’s Taurus system the role of the organisation in IS development overshadowed the role of ISD professionals. It showed that the nature of the organisation influenced directly how systems are developed —even when external professionals are involved. The very same principles used in running the organisation seemed to be applied to running the project creating a legacy of “development by committee”, (Flowers, 1996). The project run with little feedback on its progress. The context in which the SE was operating became too the context of Taurus as IS development had to deal with conflicting interests, numerous external stakeholders and a politically sensitive environment exactly as the SE as an organisation had to do, (Duffy, 1993; Anonymous, 1993c). The organisational context seemed to be never peripheral and ‘out there’, but constantly centre-stage. The ISD effort demanded
problem areas and the systemic nature of failure which views the IS, the project organisation, and its supporters as forming a cycle. All three models recognize organizational stakeholders as important in determining what constitutes success or failure. Stakeholders are organisational members or groups that have an interest in the outcome of development. As a consequence, these models implicitly view IS development as socio-technical in nature.

The socio-technical viewpoint recognizes that problematic situations exist within the organisational context. This renders failure as multi-dimensional because problematic situations have many different aspects by which stakeholders formulate expectations about systems development, (Lyytinen & Hirschheim, 1987). In their framework, Poulymenakou & Holmes (1996), identify a number of contingent variables at a macro (organisational context) and a micro level (project processes) that represent different areas of problems. However, as these problems can be even more varied, the study of failure, and ultimately of systems development, requires a systems approach which adopts a holistic perspective taking into account the emergent properties and partiality of understanding the problematic situation.

The “failures method”, formulated by Spear (1976) and revised by Bignel & Fortune, (1984) and Fortune & Peters (1993; 1995), is such a meta-method for the study of systemic failure. Failure itself is a system that is compared to a purposeful formal systems model and with other failure paradigms operating without failure. The method works in a creative, interpretative and iterative fashion as the analyst uses systems concepts and techniques to analyse the wealth of information around failure.

Implicit support for the notion of a failure system can be found in Turner (1994) who argues that pre-failure signals accumulate until a crisis turns them into a failure. The factors responsible for failure are significantly social, administrative and managerial, rather than technical. Preconditions for failure, also termed ‘pathogens’ involve a multiplicity of minor causes, misinterpretations and miscommunications that are not resolved until they emerge as failure.
• the role of humans in information systems and their development.

Through these assumptions ISD paradigms represent different ways of answering the question: what is an information system and how to develop one. Paradigms guide practical action whenever the above question is posed and therefore ineffective IS development is also linked to certain paradigms and their weaknesses. The discussion that follows explores ISD paradigms and identifies the ineffective assumptions of ISD thinking and practice.

The distinguishing feature of paradigms is an unequivocal belief concerning the nature of information systems. Towards such a distinction the traditional social sciences debate between objectivism versus subjectivism permeates ISD paradigms. Wood-Harper & Fitzgerald (1982), identify the Science and Systems paradigms, similar to, Chekland’s (1981), distinction between “hard” and “soft” systems. This dichotomy is important in IS development as the Science paradigm is the field’s main tradition and largely responsible for ISD’s character. The Systems paradigm has emerged to challenge such legacy.

In the Science paradigm, information systems are seen to be structurally complex entities with a large number of interacting parts. While these parts may be structurally complex themselves, they are ultimately made up of simple elements and interact through simple identifiable relationships. Information systems can be observed independently by the analyst, without disturbing them or changing irreversibly the nature of their elements or their relationships. Successful information systems in the Science paradigm, are those systems that perform required tasks in the most efficient and economic fashion. These systems optimize their performance and operation under various constraints imposed on them. They are also characterized by structural soundness and reliability.

Checkland metaphorically terms these systems as “hard”, because they are based on the belief that real-world problems can be expressed in terms of a “gap” between a present state and a ideal state, with an availability of alternative ways of reducing it. As such the Science paradigm is an expression of functionalism under which systems development is seen as instrumental reasoning, (Hirschheim & Klein, 1989). This paradigm adheres
In the Systems paradigm, the analyst and other entities exist in constant interaction, where one entity influences and is influenced by others. The analyst has to systemically assess whether he and the various entities involved interact effectively with each other. This is determined by examining assumptions, outcomes of actions and behaviours. The analyst identifies various principles and processes of effective interaction. These may take the form of a methodology such as: Soft Systems Methods and true Evolutionary Development Methods. Systems paradigm approaches regard information systems as being many things at the same time and IS development as a “hermeneutic” process, i.e. a process of interpretation and explication of meaning.

As we noted, the Systems paradigm has emerged as a critique of the Science paradigm. Viewing information systems as machines ignores important human factors. As Murray & Willmott (1992) argue:

“Analysing systems development as if it were equivalent to a mechanical, or even an organic, process is seen to exclude an appreciation of key, constitutive elements; namely meaning and power.” (87).

In traditional ISD, meaning and power are considered management’s responsibility. In contrast, methods in the Systems paradigm these issues can be dealt with by involving human actors directly in the development process.

A second observation is that the Science paradigm is the tradition in IS development and the most dominating of the two. The assumptions of the Science paradigm are deeply rooted in ISD thinking and practice:

“One seemingly common assumption ..., is that ISD can be thought of as a largely rational and mostly technical process, undertaken with the help of certain well-tried and proven tools and techniques, which is founded on the tenets of classical science.” (Hirschheim & Klein, 1992:235).

Its legacy has its origins in the beginnings of the field when ISD was an elaborate technical task that only highly skillful technicians could handle, (Crinnion, 1991). Technological improvements, experience, education and standardization have reduced the complexity of IT increasing both its applicability and its use by non-technical people. One only has to think of the progression from early mainframes to personal computers. The first required a number of technical personnel for their operation and maintenance. The latter can be operated and maintained by an informed or even interested end-user. Despite however the technological progress, the legacy of
Meta-paradigms highlight the distinction between isolationist and pluralist thinking. Science and Systems paradigms are isolationist or essentialist because they argue that their single perspective of thinking should prevail, (Jackson & Keys, 1984; Alvesson & Willmott, 1992). Other thinking may be considered, but in a less favourable manner. For example hard systems are seen as a special case of soft systems. On the other hand, pluralism regards all points of view as making a contribution to understanding reality because no single theory or viewpoint is seen capable of fully understanding complex reality, (Flood & Jackson, 1991a). Pluralistic paradigms, like Rational Discourse, utilize a number of different perspectives in egalitarian terms. Depending on how paradigms utilize these perspectives we can distinguish between Complementarism and Pragmatism.

In Complementarism, theoretical and philosophical assumptions must be well understood before deciding the appropriateness of various paradigms and their effective combination, (Flood & Jackson, 1991a; Deetz, 1996). In doing so, one paradigm can complement another, since strengths and weaknesses are recognised and understood. For example, Hirschheim & Klein (1989), argue that while all paradigms have their weaknesses they only way to overcome them is to understand their alternatives and study their philosophical underpinnings. The analyst may mix methods, techniques and tools but he does so in a theoretically consistent manner. The mix is carefully put together to build on the emergent strengths of the combined elements as no single approach is always appropriate, (Watson & Wood-Harper, 1995). This theoretical orientation enables and forms the basis of validation, reflection and learning. Methodologies in this area provide a theoretically consistent framework for building on the strengths of a number of individual methods. Examples are: Sociotechnical Design, Multiview, and Total System Intervention.

Complementarism views information systems too as being many things at the same time, but with the possibility of being partly a complex machine and partly a web of social interactions. Developing such a system, IS development must include elements that deal with both metaphors by becoming a flexible problem-solving process. It is interesting to note that OD can be placed within this paradigm.
strategy offering short term gain for general IS development. Without consistent theoretical underpinnings, interpretation, communication, analysis and learning can become problematic. The organisation and ISD professionals do not learn from mistakes and there is nothing to prevent errors from happening again. Pragmatism is successful in delivering the quick fix but misses the wider picture. As organisations grow and mature they introduce formality in order to build on what has been learned in the past and in order to plan for the future. Science approaches in IS development are introduced which are compatible with the functionalist-economic approaches to organisational functioning and development. This defines a cycle between the Science-Functionalist paradigm and Pragmatism. Alternative paradigms have been caught up in this cycle and aim to challenge it. However, they fail to recognize that the strength of both paradigms' domination comes from their compatibility and appeal on organisations and their management. Simply resolving the objective-subjective dilemma is not enough, but may have also been somewhat misleading, (Deetz, 1996). Challengers may have to accept the possibility that all current and new paradigms are useful and have their place within ISD. The ISD field has long ignored the role of organisations in influencing its destiny. Today it is changes in the business environment and organisations themselves that determine priorities in both the areas of technology and ISD —rather than technologists. Characteristically, many businesses have discovered that technology alone cannot ensure the success of information systems, (Allen, 1982), and many valid ISD approaches are met with reluctance by organisations, (e.g. SSM, Ethics, Full Evolutionary Methods). By contrast, apparently less theoretically convincing approaches enjoy a phenomenal success (e.g. Business Process Redesign, Downsizing/Client-Server). The organisation should be the focus in understanding the complexity of the fundamental ISD problems, as it creates most of it. Information systems cause the total organisation to develop through the organisation as medium of development.

An OD viewpoint in ISD would enable the field to deal with such complexity. In a complementary fashion and in alignment with organisational reality, this would allow the identification of both what is structurally complex in the organisation, (e.g. structure, production process), and what is interactionally complex, (e.g. group performance, culture), and facilitate choice of the most appropriate approach.
relying on IT for their function, (Land & Hirschheim, 1983). This is important as the organisation too is a socio-technical system. As such information systems need to be contingent to very nature of the organisation, (Hedberg & Jonsson, 1978; Markus & Robey, 1983). The study of organisational issues is a result of the problems evident in failures and of the types of problems arising during implementations of systems in organisations, (Wood-Harper & Corder, 1988). The following research areas explore aspects of the socio-technical nature of IS development and together show how IS development relates to organisational development:

- Power & Politics
- Conflict
- Culture
- Organisational Structure & Design
- Organisational Change
- Business Environment
- Technological Changes
- Consultant-Client relationship
- Socio-Technical Systems

1.4.1 Power & Politics

The social system provides a number of mediums and resources of development through which IS development takes place. One such medium is power, (Murray & Willmott, 1992). The recognition of power has drawn attention to the political nature of IS development, (Davenport et al, 1992; Keen, 1981; Markus, 1983; Markus & Bjorn-Andersen, 1987; Newman & Rosenberg, 1985; Markus & Pfeffer, 1983; Turner, 1982). IS development takes place within the context of a political arena where various parties have vested interests and are willing to influence the outcome of development according to those interests and the power they maintain. In the organisational context, individuals and groups may compete for sparse resources or for maintenance of their status, (Bjorn-Andersen & Hedberg, 1977). In the IS development process, users may resist development that is seen to threaten their jobs, the status quo or familiar methods of working, (Hirschheim & Newman, 1988). ISD professionals may exercise power over users during development, (Markus & Bjorn-Andersen, 1987). Information itself also
organisation. However, the ISD paradigm ignores the medium of culture. Cultural diagnostic information needs to be acquired through traditional information requirements determination activities, (Leifer et al, 1994). Leifer terms this as “deep structure” information, which includes values, norms, beliefs, value-judgments and theories-in-use. Traditional methodologies are not designed to elicit the class of information revealed by exploring deep structure. This important in ISD as users may reject a system that does not take into account the unobtrusive aspects of the organisation by focusing only on the expressed and formal rules and procedures. Culture is also important when facilitating organisational reengineering through IT implementations, Cooper (1994). Change can be inhibited by organisational inertia rooted in cultural conflict. IT implementations need to take into account cultural issues to adapt IT implementations and avoid failure.

Cultural issues bring forward the realization that there is another deeper level of issues of importance. These issues require a more facilitative, group based, and loosely structured approach which would allow flexibility and discovery. Leifer (1994) proposes a technique called focus group which has its origins in group therapy methods. This technique stems also from organisational theory and is within OD’s expertise.

1.4.4 Organisational Structure & Design

The impact technology has on the organisation has been first acknowledged in ISD research and theory mostly through Leavitt’s (1965) diamond model. Through this systems model technology interrelates with tasks, people and structure. Organisational structure may be changed in response to IT-related change and vice versa.
IT), processes, (Hammer, 1990; Davenport & Stoddard, 1994; Davenport & Short, 1990; Davenport, 1993). It is also possible for effective information systems to achieve a fit with the organisational context, (Markus, & Robey, 1983). However, such is a fit is also necessary in some cases to achieve increased competitive advantage that transforms they way a firm operates in its market, (McFarlan, 1984).

So far we see a number of organisational aspects affected by IS development and we see the disruptive potential it has on the organisation at a number of levels: power, the political arena, conflict, culture, structure and organisational design. These areas are essential in all forms of organisational development and consulting. In all of them ISD exhibits weaknesses that an OD viewpoint could eliminate.

1.4.5 Organisational Change

For a number of theorists and researchers IT and ISD-related change is considered a special case of organisational change, (Eason, 1988; Alter & Ginzberg, 1978; Hirschheim & Newman, 1988; Keen, 1981; Lederer & Nath, 1991). Social change is seen introduced to an organisation as a result of technical change, (Robey & Farrow, 1982). This is quite important as the particular social system on the whole may not be prepared for the system-wide ramifications of IS change. In some cases information systems have delayed necessary organisational changes, (Hedberg & Jonsson, 1978). As Keen (1981) argues, many technically successful information systems are actually organisational failures. For the author, organisations are not as rational as they appear to be or considered by ISD professionals and their methodologies. Organisations are political arenas where negotiations, rules of thumb and “muddling through” are exhibited. Managerial decision making processes are multifaceted, emotive, conservative and only partially cognitive. Human information processing is simple, experiential and non-analytic. Furthermore, information and data are for many organisations a central political resource around which conflict of interests occur. Dramatic change will be avoided in favour of incremental, facilitative and remedial decision making processes. ISD assumptions about change may come into direct contrast with organisational values about change. The above picture renders ISD an intensely political process which needs to be examined in terms of organisational
business environment changes faster than before. RAD methods have emerged to deal with this situation. IT will become a strategic competitive advantage:

"The new challenge is to harness IT to tap the core competencies of the corporation, creating new information and knowledge... If firms can build similar platforms and access the same data, the competitive advantage related to IT can only come from cognitive and organisational capabilities for converting such data into practical knowledge for action.", Ciborra (1992:289).

This quote shows that IT and ISD will not simply be technical installations of systems. For an IT-based competitive advantage, the development of systems will have to be closer to the organisation’s core capabilities. The complexity of the business environment shows the importance of the organisation as the focus for understanding requirements posed on ISD. New ways of developing systems will be needed in the future as traditional methodologies are unable to get close to the organisation.

One such attempt is BPR which has provided a specific context of IT development within the organisation. BRP provides organisations with a business road-map to IT. It has managed to place IT in a suitable business-organisational “wrapping” that makes it very popular to organisations. However, due to its panacea status and its rather simplistic theoretical framework, it has recently run into some difficulty, (Mumford, 1994; Davenport & Stoddard, 1994; Cafasso, 1993; Moad, 1994). As with any solution, we feel the key issue is that IT/ISD within BPR must be:

"...used for the right reasons: to increase flexibility, to improve communication, and to integrate different functions and organisations. It is deployed to provide specific capabilities, not just because it exists. But skills like process analysis and teamwork seemed more critical for the design and implementation of radically different business processes than the power of information technology itself.", (Dixon et al, 1994:105)

We note the importance of approaches providing a business-organisation context to IS development. OD can be utilised to provide such context as it is already responding to changes by offering to organisations development processes that suit challenges from the business environment.

1.4.7 Technological Changes

Improvements in technology have resulted in hiding the structural complexity of information systems. As technical expertise is encapsulated in technological solutions,
into the client system and deal with organisational issues. OD’s strength lies in recognising process issues and managing the dynamics of working relationships.

1.4.9 Socio-Technical Systems

Socio-technical design methodologies recognize explicitly the nature of organisational systems as socio-technical systems, (Mumford, 1981;1983; Mumford & Hensal, 1983). They have originated in research showing that when a technical system is created at the expense of the social system results will be sub-optimal, (Mumford, 1994). This means that the optimization of technology is dependent on the optimization of the social system. Improved quality of work life and enhanced job satisfaction must be a major objective of the systems design, along with consideration for technical excellence. Mumford (1983) defines a socio-technical approach as:

"one which recognises the interaction of technology and people and produces work systems which are both technically efficient and have social characteristics which lead to high job satisfaction.", (10).

The main delivery vehicle for socio-technical approaches is participation. IS development is seen as a change process and as such conflicts of interest will arise between the involved actors. Success is ensured through a process of negotiation between affected and interested parties. Participation allows issues to be brought in the open and facilitates the process of negotiation. Interestingly socio-technical systems and participation are found in OD where they are applied in work design with a particular focus on self-regulating work groups, (Cummings, 1975; 1978; Pearce & Ravlin, 1987; Zobrist & Enggist, 1984).

1.5 Conclusions

We have examined the situation that confronts IS development at a number of levels and we have formulated a number of observations about the nature of ISD, the roots of its ineffectiveness. Adopting an OD perspective has allowed us to define organisational failure leading to IS failure and the plausibility of OD as an approach that can contribute towards effective IS development.

ISD is a complex, socio-technical processes in which the organisation plays an important role. Organisational issues show that IS development is a form of
• **Problematic Situation Ignored**

We see that IS development occurs in a issue-rich situation where various interrelated problems exist at different levels. The analyst is confronted not with a single ISD problem, but with a multitude of problems: an organisational change problem, an attitude change problem, a motivational problem, a communication problem, a planning problem, a consultant-client relationship problem, which may require prior or concurrent solution.

• **No Intervention Assumption**

Organisations do not develop ISs as part of their normal everyday business. The systemic nature of the problematic situation and organisation indicates that ISD can have a disruptive effect that neither management or developers recognize. The assumption is that IS development is not an intervention that can cause organisational change—positive or negative.

• **Dominant Paradigms**

The Functionalist and Pragmatist paradigms form a cycle and both dominate the practice of IS development. This cycle lies at the basis of the field’s ineffectiveness. Their strength of domination is due to the fact they guide and organise ways of working that are favourable to organisations. Any paradigm-shift must be able to address such dominance.
2 - ORGANISATION DEVELOPMENT

2.1 Introduction

From the preceding review, IS development and organisation development emerge as comparable exercises. In this chapter, we examine how OD deals with systems development in order to advance our argument for the plausibility of an OD-informed ISD perspective.

OD itself is undergoing significant change in almost every aspect, (Katz, & Marshak, 1995). The field's literature reflects this dynamism through a diversity of views surrounding the field's past, present and future. We explore the nature and character of the field and assess its potential as a paradigm of thinking in IS development.

2.2 Definition of OD

In essence OD aims to create productive work places characterized by dignity and meaning, (Sorensen, 1993; Weisboard, 1987). Our working definition shows how this is achieved:

“In the behavioural science, and perhaps ideal, sense of the term, organisation development is a top-management-supported, long range effort to improve an organisation’s problem solving and renewal processes, particularly through a more effective and collaborative diagnosis and management of organisational culture —with special emphasis on formal work team, temporary team, and intergroup culture— with the assistance of a consultant-facilitator and the use of the theory and technology of applied behavioural science, including action research”, (French & Bell, 1990:17).

Departing from this view of OD there are a number of points that make the field unique and relevant to IS development. OD is a generic change methodology which uses behavioural science knowledge for diagnosing problems, increasing readiness to change, managing culture and planning remedial interventions to change norms and reeducate the client-system, (Beckhard, 1969; Eubanks et al, 1990; Fagenson & Burke, 1990a; French & Bell, 1990). IS development has been seen as a special case of organisational change, (Keen, 1981; Lederer & Nath, 1991). Additionally, IT-related change and change in the business environment extensively influence IS development. Therefore OD can facilitate a sophisticated approach towards change issues in ISD. For example in
Evolutionary development, as well as the recognition of power and politics have challenged this assumption. Dominant paradigms assume that IS requirements can be frozen and can provide the basis for systems development. Even when structured or pragmatic development are appropriate, an OD perspective can introduce an appreciation of the on-going nature of organisational activities. For the ISD consultant this is important for the management of the intervention process. Any form of development intervenes into an ongoing system of relationships, comes between people and groups for the purpose of helping them, (Argyris, 1970). In OD the process of intervention is as important as the content of intervention. Process has the potential of interfering in the delivery of content.

As a meta-methodology OD is open and pluralistic, providing access and guidance for using a range of theories, techniques and tools for understanding and bringing about change, (Edmonstone & Havergal, 1995). This has allowed the field to continuously remain relevant and follow changes in organisations. IS development on the contrary struggles to expand its conceptual boundaries and as we have seen many valid alternative paradigms are not taken up in practice. OD could help ISD open up to other disciplines and approaches.

OD is also an action oriented, data-based approach where action forms a continuous cycle with data collection. Action may also generate data about the client-system itself and the areas of concern. IS development may appear too as action oriented and based on data, however its focus is on the information system. From an OD perspective a number of related areas could become the focus for data collection and action —like culture, (Leifer et al, 1994).

An important discipline in OD is Applied Behavioural Science which provided the basis from which OD emerged as a scientific and practical field, (Eubanks, et al, 1990; Fagenson & Burke, 1990a). Behavioural Science is also important in ISD as it can provide sensitivity to “people” issues and the appropriate tools for understanding the complexity of human actors and their interactions.

OD values reflection on process. Assumptions, values, metaphors, theories, interventions, actions are rigorously examined, (Alderfer, 1977). The aim is to elicit the double loop learning that leads to meaningful improvement of beliefs, skills and practices. The field itself is also scrutinized by its own members who ask continuously
organisations but society as well, (Alvesson & Willmott, 1992). In fact this interest is still expressed through “Big OD” which involves system-wide change with second order transformations of organisational strategy, structure, with no beginning and no end, (Woodman, 1993). Michaels (1993) too identifies the “groupists” camp who prefer dealing with culture change, large systems change, quality initiatives and complex systems. In these viewpoints change is always large-scale, all-encompassing and never ending —overcoming emancipation’s danger of replacing one dogma with another one, (Alvesson & Willmott, 1992).

With the changes in the business environment occurring in the 1980’s such idealism was seriously challenged, (Sanzgiri & Gotlieb, 1992; Fagenson & Burke, 1990a). Organisations would only use OD to improve their productivity and profitability. As Nielsen et al (1992) argue, while OD implied top-down and organisation-wide change, very few organisations implemented efforts that in fact achieved such “lofty goals”. Practice showed that few organisations have actually fully completed or were engaged in system wide OD programmes like Grid OD, Likert System 4 and Socio-technical approaches. This situation introduced organisational effectiveness values in the field which emphasised productivity, efficiency and bottom-line results, (Van Eynde et al 1992). These were pursued at the expense of humanistic values, but not however in an exclusive manner.

The change in values shows that OD was forced to depart from Critical Theory’s ideal all encompassing form towards Alvesson & Willmott’s (1992) “compromised” version, which nevertheless takes into account criticism of the theory and the particularities of human and organisational complexity. Through the attack led by organisational effectiveness concerns on OD’s humanistic values, OD’s expression of critical theory has followed this position towards micro-emancipation. OD is no longer a panacea, it is open and pluralistic examining a range of alternative interventions and theories. OD’s understanding of change in organisations has shifted to include smaller scale projects, as many organisations experience the flow of change which requires incremental and focused interventions, rather than top-down, system-wide transformations, (Kobrak, 1993; Katz & Marshak, 1995; Kyle, 1993). In Alvesson & Willmott’s (1992) terms, this shift represents micro-emancipation:  

35
between work and interaction. As in OD, the latter is characterized by awareness of the
wider context which is used to make choices between alternative courses of action —
either work-oriented or interaction-oriented.

From OD's perspective, organisations require help with market survival,
transformational interventions and multicultural integration, issues which require both
value sets, (Marguilies & Raia, 1990). The integration is already taking place, (Clement,
1992; Kobrak, 1993; Woodman, 1993), maintaining the core values, (Sorensen, 1993),
while dealing increasingly with task issues and organisational effectiveness, (Van
Eynde et al 1990; 1992). Some inconsistency noted in the field has been attributed to a
discrepancy between particular practitioners' espoused and actual values, (Raia &
Marguiles, 1985; Brown-Hinckley, 1989). In the future OD values will require an
explicit statement, (Sanzgiri & Gotlieb, 1992), and will need to satisfy many diverse
values at different levels, (Van Eynde et al 1992).

In IS development there has been an argument for realizing emancipatory principles in
ISD, (Avison et al, 1993; Lyytinen & Klein, 1985), and in ISD methodologies,
(Hirschheim & Klein, 1994). However, these emancipatory claims do not escape from
intellectualism and essentialist tendencies, (Alvesson & Willmott, 1992). As such these
arguments may have difficulties being accepted in organisations pursuing effectiveness
interests as well. Similarly to OD, Total Systems Intervention has recognised the need
for complementarism, (Flood & Jackson, 1991a). ISD could benefit from a more modest
emancipatory framework that would allow the development of richer complementarist
meta-methodologies.

2.3.2 OD philosophy

For Schein OD "is a philosophy of how you do things, not a technology of what you
do", (Luthans, 1989). He along with others, (French & Bell, 1990; Armstrong, 1993a;
Woodman, 1993), warn of the danger of emphasizing techniques and interventions at
the expense of process. Unavoidably some in the field are using OD to provide a front
cover for their own consultancy practices. Others too have used process interventions as
ends rather than means, (Woodman, 1993). In any case, OD should not be judged by the
argue, OD becomes “similar” to other approaches if the situation requires it or as Larsen (1993) characteristically puts it, OD takes “colour from situational factors”. What this shows is that OD may utilize a certain technology which is appropriate to a particular situation, but does not fade away when the content changes, and so it can still be identified as OD. As the authors further illustrate in the case of Strategic Planning (SP):

“If an OD consultant suggests SP to the client, then SP is an OD intervention. If there is no OD consultant or program involved, then SP is not an OD intervention...The setting up, design, and work through (of SP) is an important learning process itself, and how these activities are done is as important as the content of the activities themselves.”, (Hanson & Lubin, 1995:62).

In this case OD philosophy guides the content activity rendering the SP program an OD program. Through this property OD evolves as a field even when new technologies are discovered. This also allows the proliferation of new techniques, interventions and concepts that still flood the field. OD philosophical stance still views every problematic situation as unique where no pre-determined solutions should be introduced. As Levin & Gottlieb (1993) note:

“The OD field has recognised that not all approaches for improvement are equally effective with all client systems at all points in time. This core belief has been a distinguishing feature of OD work”, (302).

OD practitioners, match interventions to diagnosed problems and utilize a combination of approaches to resolve problems, (Case et al, 1990). This exhibits the dynamic and open-minded nature of the OD approach which deals with change, (Armstrong, 1993a).

OD will continue to inspire new developments as “The work that OD consultants are asked to become involved with today is so varied that few practitioners have designs of the shelf to cover them.”, (Van Eynde & Bledsoe, 1990), without ever producing a singular-universal OD approach:

“...the holy Grail of OD will never be found, and for the very best reason. Simply, it does not exist. The dominant view of OD praxis should feature a growing aggregation, not a newly-revealed singleton — an expanding network of theory and experience, a building-upon that retains the proven foundations but only to build above and beyond them.”, (Golembiewski, 1993:20).

The above properties of OD have important implications for IS development. In the ISD field the effort is to discover the “holy grail”, the single technology or methodology that encompasses everything needed to develop information systems. This has proven to be a futile exercise as the requirements for technology and methodology continuously
Action research is an iterative, collaborative, data based approach that aims at achieving increased understanding of a situation and improving the client problem-solving skills, (Hult & Lennung, 1980).

"Action Research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework", (Rapoport, 1970:499).

Action research is considered the “cornerstone of OD practice”, (Bushe, 1995), “at the heart of the open and pluralistic OD world-view”, (Edmonstone & Havergal, 1995), and “the primary methodology for the practice of OD”, (Van Eynde & Bledsoe, 1990). OD itself has been described as the fruit of action research: “…a philosophy of how to be helpful to client systems by working with them to understand what is going on and how to help change happen.”, (Coghlan, 1994). Lewin’s intention was for an approach that would guide solutions to social problems while simultaneously providing knowledge and understanding of social phenomena, or more elaborately, that would be:

“...simultaneously concerned with producing empirically disconfirmable propositions that could be organised in a theory for use in everyday life”, (Argyris, 1983:115).

However, change models founded on the tenets of Action Research have focused more on planned change, (Cummings & Huse, 1989). French & Bell (1990) and earlier Shepard (1960), supported the idea that action research is at the same time: a process, a practitioner’s tool and an approach to planned change. Bryant (1979) notes action research’s commitment to finding and implementing solutions to problems. Sherwood (1976) emphasizes the action-oriented or rather action-forcing nature of action research that contributes to the capacity of an organisation to learn and develop.

Action research may be Participant, when activities are carried out collaboratively between client and consultant, and Experimental, where client and consultant collaborate to discover the best action technique, (French & Bell, 1990). The experimental model, although harder to implement, is at the very heart of OD practice since interventions that are found to be successful are added to the repertoire of the practitioner and unsuccessful ones are dropped.

The elements found in action research are also found in most OD models of change:
various conceptual constructs which are examined in terms of metaphors, (Morgan, 1986).

- **Diagnosis**
  Diagnosis is the process by which metaphors, conceptual frameworks and diagnostic models are used to read a problematic situation. They guide the analyst by indicating where to look, what to look for and how to look for diagnostic data. OD relies on diagnostic information about the client system itself, its processes, its culture and its functioning, (French & Bell, 1990; Cummings & Huse, 1989).

- **Choice**
  The choice of an appropriate construct from a range of alternative options is a diagnostic process itself. The consultant conceptually positions the various options available within his personal conceptual classification schema. Such schema is maintained through experimental action research. Useful metaphors are kept and metaphors that failed repeatedly to produce improvements are dropped. This even applies to technical methods, techniques and tools.

- **Action**
  Injunction is metaphor's ability to command action as a natural consequence of its use, (Morgan, 1986). This action can take two forms: gaining understanding and guiding praxis. The analytical cycle continues with further diagnosis aimed to evaluate the effectiveness of action.

Analysis moves from the conceptual level to gradually provide access to the practical level were specific actions are taken to improve a situation of concern. The arbitrary nature of dividing the three processes is evident. Indeed, diagnosis can be carried out to discover the strengths and limitations of metaphors, but also a metaphor can be used in diagnosis. Application of a metaphor can influence subsequent metaphorical choices.

Action research has been noted in the ISD literature, (Warmington, 1980), it has been used by some theorists in their effort to develop and refine methodologies, (Checkland,
managing the process agenda becomes the top priority for both consultant and organisation, (Buchanan & Boddy, 1992). Schein (1988) differentiates between the Content Expert and Process Facilitator modes of consultation where the consultant’s role ranges from telling others what to do, to facilitating a better problem-solving process so others can solve the problem for themselves, Margulies & Raia, (1978).

The Content Expert mode can be take two forms, (Schein, 1988):

- **Purchase of Expertise or Information**, where the consultant offers his specialized expertise. The client has made correct diagnosis of his own problem and has correctly identified the consultant’s capabilities in solving the specific problem.

- **Doctor-Patient**, where the consultant visits the organisation, diagnoses the problem and prescribes a solution. The client has correctly interpreted the symptoms and identified the “sick” area accepting and implementing whatever prescription he is given.

The Process Consultation mode can also take the following forms:

- **Catalyst**, where the consultant does not know the solution but has skills in helping the client to figure out his or her own solution.

- **Facilitator**, where the consultant might be aware of a possible solution but decides that a better solution can be achieved if the client system is assisted in solving their own problem.

Both versions of process consultation assume that the nature of the problem is such that the client needs help in making an initial diagnosis, and would benefit from participating in making that diagnosis. The client must have a constructive intent, (not being destructive or dependent on the consultant), and some problem-solving ability. He is ultimately the one who knows what form of solution will work or be accepted in his situation. Finally, his problem-solving skills for future problems will increase if the client selects and implements his own solution. It is important to note that each consultation mode is suitable for a certain organisational situation and certain underlying assumptions need to be fulfilled for each model to be effective.
2.3.5 The OD consultant

For the consultant OD is a helping profession. He helps the organisation define and clarify its own issues, values, problems and make the most of its resources. While he may be an expert in certain areas, overall he is an expert on process issues, as OD consultation is not prescriptive, (Hanson & Lubin, 1995). Unlike other forms of consultancy, the OD consultant maintains no preconceptions as to the possible courses of action in a particular situation. It is his collaboration with the client that determines the choice of solution.

A number of other professionals may be also practicing OD or aspects of it. They are usually termed OD practitioners and may include people specializing in fields related to OD, (e.g. reward systems), but managers may also apply OD in their work, (Cummings & Huse, 1989). OD practitioners may be internal or external to the client-organisation.

OD consultants has developed from being non-directive and primarily process oriented, (Van Eynde et al 1992), to being authoritative specialists, (Burke, 1995), in the areas of strategy, structure, corporate culture, technology, and human resource development, (Fagenson & Burke, 1990a). OD consultants today have an extensive range of skills, (Appendix 4).

2.3.6 Limitations

OD has enjoyed a period of popularity with management and organisations that have given the field a ‘panacea’ status. The early idealistic definitions of the field reflected an optimism that OD could be used to deal with most organisational problems, (Gill & Whittle, 1993). While OD is a powerful approach to change and improvement of organisations it is not a panacea anymore and the realization is that there are situations where alternative approaches should be employed. For example, OD requires readiness from the client organisation towards change and a willingness to participate in the change process. If these conditions are not present change may not be possible creating little use for OD. A more traditional management consultancy or training programme may be more suitable instead. OD is considered to be inappropriate in societies with "highly autocratic cultures and in which social position is governed by caste or class",
complexity in practice. As indeed chaos theory argues, simple systems are capable of complex behaviour, (Gleick, 1987).

Action Research has also been criticized as focusing narrowly on detecting errors and correcting them, (Cummings & Huse, 1989). Action research has also been used under logical-positivist assumptions in most projects, (Sussman & Evered, 1978). Extended models of action research have been proposed like Appreciative Inquiry, (Cooperrider & Srivastva, 1987), which argues for an action research model that starts with appreciating what is best in a situation, understanding what creates the best, and amplifying people and processes that exemplify it, (Bushe, 1995).

OD approaches and techniques have also been accused as for limited ability to deal with power relations in the organisational change process, (Willcocks & Mason, 1987), as have OD values, (McLean, 1981). Edmonstone & Havergal (1995) attributes this to the OD expectation that personal development would lead to organisational effectiveness rather than direct structured, technological and political change approaches. The authors point out that consultants have not been always “up-front” or clear about their humanistic values possibly becoming servants of powerful individuals and groups. Elsewhere it is argued that OD consultants are unlikely to play the role of the political activist or manipulator, but would rather rely on positive politics, recognizing the political realities in an organization and helping managers deal with them, (Clement, 1992). This view is consistent with attributing a certain conservatism and caution to OD consultants in dealing with political realities, (Kumar & Thibodeaux, 1990). However, we need to keep in mind that:

"Because OD is sanctioned by those in power it rarely involves an invitation to change the essential nature of the system or the distribution of power within the system", (Pasmore & Fagans, 1992:375).

In other words, a more radical political or power managing approach would be out of place in the types of situations OD is used. Despite previous criticism OD has indeed come to grips with the issues of power and the political nature of change and organisations, (Clement, 1992). The willingness to deal with the issues of power and influence in organisations was noted as early as the 80’s (Raia & Marguilies 1985).
methodologies. SSM has been accused as imperialist, treating hard approaches as a special case of soft, (Flood & Jackson, 1991a).

SSM seems aware of the importance of the organisation and organisational change, however is vague about their role in ensuring the success of a project. This is also critical since SSM views problems and solutions being in a flux where problems do not stay 'solved'.

SSM is oriented towards the content of intervention through its effort to achieve mutual understanding between actors. However, in a situation where the greatest of care needs to be taken in order to avoid setting into action a wrongly structured informal system, the analyst may need to conceal his problem solving (content) approach until working relationships have been successfully established and necessary diagnostic data collected. In other words the analyst may carefully adopt a process intervention that is compatible with the current functioning of the organisation, until he is in a position to facilitate the appropriate content approach —something we saw in our research effort in the process of matching client needs and wants. Unquestioned application of SSM risks introducing unexpected and undesirable changes by intensifying the issues with its highly visible and highly involving nature. If for any reasons involvement of all actors is not immediately appropriate or politically permissible, use of SSM becomes problematic.

Client environments and actors that value hard approaches may find SSM inappropriate and oppose to it, irrespective of the analyst's belief in SSM's superiority for the particular problems that need solving. Furthermore, SSM may be redundant in situations where the organisational members are already in agreement as to what the problems are, but are not aware of the best solution, and in coercive environments where consensus is influenced by power struggles. Concerning the latter SSM has been accused for enabling powerful organisational members retain their power status and ideological hegemony, (Flood & Jackson, 1991a). SSM may be also inappropriate in situations where clients genuinely require expert consultation by the analyst, as a costly and time consuming way of delivering such expertise.

SSM relies on the analyst's skills to focus his analysis from very abstract use of systems concepts to very pragmatic problem solving activities. It is not clear also how 'hard' approaches are incorporated in such modeling. A great deal is invested in the analyst's skills in making choices of appropriate constructs, models, techniques and methods.
development of systems. As there is no emphasis on practical results, once a system proposition is accepted, SSM requires another ISD methodology to deliver the system.

2.4.2 Total Systems Intervention (TSI)

As a meta-methodology TSI is placed within the paradigm of Critical Systems Theory, (Flood & Jackson, 1991b). TSI is based on an iterative process and thus consistent with the requirements of a flexible problem solving approach which confronts complex problematic situations where a single solution is not obvious from the outset. TSI acknowledges the complex and diverse nature of organisational situations recognising that an equally rich and diverse range of problem solving approaches need to be employed for their resolution. Such variety is provided in TSI through the use of systems metaphors which can be related to systems methodologies. The use of metaphors in guiding choice of methodologies is a crucial process in TSI, but may also present a contradiction with TSI’s principles. The system of systems methodologies is only one way of informing and guiding choice; other continua or dimension or sets of criteria also exist. As a framework for informing choice the System of Systems Metaphors (SoSMs) is a valid construct. The authors emphasize that the SoSMs is one useful way of classifying, what they regard, as the “most important” methodologies. However, they do not offer any alternative classification schemata, neither do they explain how TSI could relate to them. In terms therefore of frameworks and components repository, TSI offers a single path for accessing only one type of component: systems methodologies. There is no indication how TSI would encourage highly creative thinking with classification schemata not based on SoSMs. In the ISD field there is a vast number of developed methodologies and techniques, and a number of alternative classifications for the analyst to use. TSI offers no explanation as to what happens when the SoSMs is contrasted with a situation too rich or too ill structured to define the values of the problem complexity and problem context dimensions adequately. This may happen during the initial stages of an intervention when the analyst is trying to make sense of the situation and his position. Without adequate diagnostic data choice of systems methodology may be impossible.

The Creativity phase relies heavily on using metaphors to encourage creative thinking about the organisation. This could prove a limitation at the meta-methodological level.
the analysts to manage issues at the process level. In the ISD arena however, even fewer methodologies handle naturally process issues let alone not take organisational assistance for granted. It is apparent in the case study that much process activity did take place, but the authors-analysts present it as methodology led and not as their genuine personal "backstage" process activity. Indication of a process level intervention were the analysts' adoption of a "hidden" cybernetic agenda for defining minimum specifications for the success of agreed changes and their need for "side-stepping and managing political problems". The choice of the cybernetic metaphor per se is not criticized here and it is adequately explained in TSI in terms of a dependent metaphor and methodology. What is not clear from the case study, is why such agenda had to be hidden, given that cybernetic thinking was introduced with success earlier in the organisation. Furthermore, what reasons, events, observations made the analysts think it should remain hidden and what insights such realizations provided into the functioning of the organisation and its processes, again are not clarified. Clearly what emerges is the skill of the analyst than the role of TSI.

We must note that TSI was never intended as an ISD approach, although its advocates make claims of its meta-methodological nature. TSI may have more success with organisations and professionals as it offers a simple and powerful approach to creative problem solving. It needs to be understood, however, that people in organisations have also developed personal tool-kits which include techniques, tools, models and theories not organized in complete methodologies as TSI requires. This may require a reframing process from the point of view of organisational users of TSI which they might not be willing to undertake.

Another obstacle to the adoption of TSI into businesses is that it is a problem solving methodology and not a systems development approach. TSI is in many ways similar to IT itself —both requiring their appropriate business context to be determined first.

2.4.3 The NIMSAD framework

NIMSAD offers independent support for the process of choice of methodologies. Currently, the sheer number of methodologies available pose a significant choice problem. Furthermore, creators of methodologies do not always express the methodological suitability, strengths and weaknesses, and applicability of their products.
gaining understanding are of limited variety since they are 'human-information processor' bound and not 'real world' bound. Thus capturing the true richness of the situation is not easy unless the analyst is able to operate at a meta-level of awareness and be able to examine the effects of his own values, models, assumptions and preferences. Only if the analyst operates at this kind of level will he be in a position to receive a greater range of information messages from the organisational context of development. As Jayaratna (1994) indicates, in most ISD methodologies, problem formulations are largely taken for granted and as determined by clients.

The NIMSAD framework aims to provide the necessary language for communicating and expressing choice by translating methodological issues and their aspects into their ‘real world’ bound expressions-interpretations. It is a model for diagnosing methodological applicability for specific ‘real-world’ situations. It is useful for highlighting inadequacies of methodologies, especially when it comes to the context of development.

The framework has been successful in indicating the paradigm shift needed in ISD methodologies concerning their technical rationality and orientation. It recognizes the distinction between the implicit and unconscious selection based on feelings, assumptions and hunches, and explicit selection based on models, concepts and methodologies. NIMSAD has been designed as a framework and as its creator emphasizes, it is not a methodology since it answers the "what to" and not the "how to" question.

NIMSAD does not make an explicit distinction between process and content of intervention. Perhaps this is due to the static nature of the framework construct. However, this means that methodologies are not evaluated according to their intervention process management merits.

Organisational change and disruption to development are not considered in NIMSAD. The possibility therefore exists for NIMSAD to indicate an 'appropriate' methodology that will fail because the organisation is not ready for the changes involved. Although the organisational context is considered in the NIMSAD framework, change may require a dynamic process of diagnosis. To diagnose issues of change the analyst needs to
approach which copes with changes in the market. Another assumption at the basis of Multiview is that:

"different ranges of 'solutions' will be appropriate to different companies, different departments within the same company, different users, operators, and so on. A more flexible approach is likely to be appropriate under these circumstances.", (Avison & Fitzgerald, 1988:6).

Despite the above belief the five methodological options have been already made by the creators, although variation is allowed between them. Multiview by design does not cover the whole ISD life cycle and sets out to cover the analysis and conceptual design of information systems. As such implementation issues are excluded.

The five stages of Multiview can be emphasised, reduced in scale, or even omitted according to the particular circumstances. This is consistent with the realization that:

"...information systems development theories should be contingent rather than prescriptive because the skills of different analysts and the situations in which they are constrained to work has always to be taken into account in any project.," (ibid).

Multiview is a contingent approach which aims at achieving the right balance between the five elements of the methodology. Multiview exhibits an understanding of the complexity of problems during ISD but not a clear understanding of organisations and how they change. This is evident in the way Stage 3, Analysis and Design of the Socio-Technical system is a distinguished activity and not a concurrently pursued process from the start of the project. This is perhaps because the main emphasis is to match technical designs with social designs in order to ensure acceptance and minimise the impact of technology, rather than improving the way the organisation develops through ISD. It is about fitting the system in the users working lives, not about changing their working lives.

A simple matching of a social setup to a technical solution, as required in Stage 3, can only be done at a superficial level, possibly missing critical deep rooted issues. It is assumed that within the boundaries of this stage the analysts will be in a position to diagnose the social impacts of the IS on the working lives of the users, and that users will be readily in a position to adequately assist in such a process. Furthermore, this stage is expected to be completed without any consideration to interpersonal working relationships between the analyst and the organisational members, without attention to process issues and without a proper assessment of the readiness and the ability of the organisation to develop the IS and its related social system.

Ethics is not open to other metaphors or views or processes which may be equally useful or even necessary in certain situations. Every system is considered a socio-technical system and has to be developed through participation. However, participation may not be an option, for example in autocratic environments or in organisations undergoing crises. Additionally, other views of systems may be important, for example a critical view of systems. Ethics has no frameworks for evaluating alternative viewpoints. Even, if it did alternative methods would have to be categorized either as social or technical.

The social metaphor expresses a narrow emphasis on job satisfaction and quality of work life. Indeed socio-technical systems design is a methodology used in OD for this purpose. However, the complexity of the organisation means that the social aspect includes a larger variety of organisational issues such as politics, culture, management style, decision making and problem solving processes, and structure, which should be included in the analysis.

Ethics provides no guidance in the area of organisational change although again the flexibility of the approach and its social element could potentially be stretched to address such issues. Ethics, like any other approach, intervenes into an organisation in order to bring about change. The organisation, its groups or members may not be prepared for such changes (either social or technical). In other cases, they might be willing to undergo change but may not have the capacity to sustain change. Ethics provides no guidance that will help move the client-system towards a position where change can be facilitated. This indicates that Ethics does not see organisational reality as systemic and the overall approach taken is rather static. The dynamic change issues are left to be considered by the design groups. What also contributes to the static approach to change is that Ethics is surprisingly not an iterative problem solving approach. It assumes that the optimization of the socio-technical system can be delivered in one go and that the introduction of the new socio-technical solution will not create new unforeseen problems that would extend the intervention. One serious problem with structured-traditional methodologies is that the business and the organisation genuinely change during development. Ethics has no way of monitoring change other than through the understanding participants might have.
One could use alternative social and technical methods when examining the social and technical systems objectives separately in Ethics. Of course this has not been the intention of the method and there are no ways of facilitating this apart from relying on the analyst's intuition and knowledge. For the key joint optimization of the social and technical systems again there is no way of linking alternative methods, models and techniques. Ethics is also seen as weak in implementation and as lacking techniques and tools to translate objectives into design, (Jayaratna, 1994). This means that the technical side of the methodology may appear unclear to the design teams which try to deal with the structural complexities of development and they may require the use of a more traditional technical methodology after all.

Ethics can not facilitate a paradigm-shift in IS development. It has strong alliance with a particular socio-technical framework which is not open to contingent choice of appropriate methods. As such existing approaches would need to be replaced. Ethics also requires participation which not all organisations regard as appropriate or may view as costly. It is also not clear on guiding organisational change in relation to IS development. Organisational complexity may require a more extensive view of both the social and technical aspects of the methodology. As an ISD methodology Ethics remains a powerful way to develop socio-technical systems whenever this is appropriate.

2.4.6 Methodology Engineering (ME)
Methodology engineering aims to provide a formal, efficient methodology for developing ISD methodologies which satisfy requirements for being situation-specific, complete, and relying on the accumulated past experience, (Kumar & Welke, 1992). ME has a much wider scope than most of the approaches we reviewed so far. It does not focus on a small number of methodologies, neither it employs a narrow framework for facilitating methodological choice, like Multiview or TSI. The methodology's framework is open to all methodologies and their components.

With ME the end-result is the design and production of a customized ISD methodology, but never the less an ISD methodology. As we have seen in our research, methodologies
ME also aims to populate its components repository with pre-tested methodological components, derived from methodologies. As we have seen in our research a greater variety of components is required for successful development, not only methodological in nature.

ME includes some powerful notions that can be a great contribution to approach development in ISD. Especially as a methodology is considered a system of information systems development. This relates to our notion of the action system, which we however apply to a wider range of systems improvement. ME also introduces a strong model for automated component repositories and for appropriate organisational support for methodology construction.

We conclude the discussion of alternative approaches with the observation that overall they too seem to ignore the role of organisations and their influence on IS development. In contrast with OD they appear to lack the sophistication and comprehensive viewpoint that OD applies to the study of organisations and their change.

2.5 Conclusions

In the preceding analysis we have explored OD’s fundamental elements and how it uniquely approaches systems development. OD, as a practical field, follows what happens to organisations and their business environments. The field’s continuous theoretical and practical expansion into new areas, and a strong self-reflection process are instrumental in producing the uniqueness of the OD approach to other apparently similar consultancy fields. As a consultancy field, ISD is comparable to OD making the latter a plausible option for improvement. Due to OD’s nature, existing ISD methodologies do not need to be replaced, as OD can provide the missing meta-methodological layer that can help determine the appropriate use of ISD methodologies and tools for organisational situations. ISD can benefit from OD’s popularity and compatibility with organisations in challenging dominant paradigms. OD can help provide the business interface between organisations and technical systems development.
organisational change. OD can start with solving one problem, but ending up solving others not previously considered, but equally or more important. The context of ISD is not recognised to the degree it should. Jelinek & Litterer (1988) argue change will become more important as increased computerisation means that change in one part is multiplied and reproduced much more quickly within the organisation. An OD perspective could help ISD focus more on what happens to organisations.

Problem definitions are taken for granted in ISD: the client might be “saying” very different things —the need for system development may be merely an excuse from the client’s point of view to be seen as doing something about the problem. In such cases OD’s technologies, such as behavioural science, can be useful in enhancing the ISD analyst’s diagnostic abilities.

As Willcocks & Mason (1987) argue, attention to the process of change has been lacking from ISD and behavioural change is not seen as starting from the beginning of the project. This is important as behaviour change is required to occur long before the implementation of the system.

ISD lacks a wide discussion on classification schemata of alternative ISD metaphors and ISD values. The ISD analyst in the future will need to understand the strengths and limitations and suitability of such constructs in practical situations and be able to make choices.

In the ISD paradigm the analyst will always develop a computerized system as a solution, even if everything has showed him that organisational change is needed before hand. In the OD paradigm the consultant deals with the client-system first and then helps them decide what further change is required.

The OD approach and values are favourable ways of solving problems in organisational settings. By design OD deals with change, intervention, process, organisational issues, people issues and organisational effectiveness. It does so using flexible, collaborative, action-oriented, evolutionary approach which matches the way most organisations themselves deal with problems. OD intervention ensures that client-system concerns are not overlooked but taken into account as diagnostic information. OD guides intervention in a way appropriate to the client-system by means of collaboration. Client-organisations find OD an empowering way of solving problems.
for choosing the methodology is appropriateness to the research problem, the analyst and the research subjects. Our overall objectives for this study are:

- To gain an insight and understanding into the total IS development process.
- To assess the potential contribution of Organisation Development (OD) in defining a solution to ISD problems.

The first objective expresses our wish to approach our subject holistically and systemically, rather than in a piecemeal and fragmented way. The second objective is our ultimate aim to determine whether OD can be useful in determining a solution to ISD’s problems. The criteria that would help us do so are linked with determining the role of organisational issues within the total system development process. By organisational issues meaning the entirety of issues relating to the processes of bringing about change and intervention within a client-system. OD differs from ISD along this dimension, but I believe the need is common in both fields.

In the discussion that follows we will examine the methodological approach chosen and the rational behind the various choices made. The table summarizes our approach:

**Table 3.1: Summary of the Methodological Framework**

<table>
<thead>
<tr>
<th>Problem Definition</th>
<th>Research Method</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported by the Conceptual Model</td>
<td>Grounded Theory</td>
<td>Generation of data and lack of theory</td>
</tr>
<tr>
<td></td>
<td>Studying a Process</td>
<td>Complexities of Organisational Situation and Context</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site Selection</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Consultancy firms</td>
<td>Experts in ISD process</td>
</tr>
<tr>
<td>Client-Organisations</td>
<td>Overview and depth of the ISD process</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Data Collection</th>
<th>Data Analysis</th>
<th>Evaluation</th>
<th>Analyst Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualitative interviews</td>
<td>Phase 1 - Consultants</td>
<td>Development of categories, links, and theory</td>
<td>Research achievements &amp; constraints</td>
<td>Reflection on process and bias</td>
</tr>
<tr>
<td>Documentation &amp; Internet</td>
<td>Phase 2 - Organisations &amp; Follow-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observation &amp; Critical Reflection</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• **ISD Methodology**

An ISD methodology is a way of resolving the ISD problem. It expresses a philosophical stance towards ISD and a series of phases, steps and activities consistent with that philosophy. Accumulating experience in using this way of developing systems is incorporated in the methodology itself, through its revisions.

• **ISD Problem**

The motivation for every ISD effort is the identification and resolution of the ISD problem. Such a problem is concerned with what information system to build and how.

• **Client**

The client initiates the ISD process and provides the contact point between the organisation and (external or internal) assistance in the form of consultants. Clarity is needed in defining who is really the client and what is his role and responsibilities, amongst the various stakeholders that can be confused to be clients.

• **Organisation**

ISD is an organisational activity to which the organisation provides the wider context and media of development. It provides resources and the use of established rules and procedures, management structures, and culture. Also in the organisation exist a number of interrelated stakeholders such as management, users, and internal ISD staff. The organisation may have other influencing systems (not necessarily computerized) that interface with the IS under development. ISs are expected to (directly or indirectly) solve the organisation's inability to achieve certain desired goals or levels of efficiency and effectiveness.

• **Problematic Situation**

Due to the systemic nature of organisations every problem does not exist in isolation, but it is perceived within its wider context. The ISD problem is only one in a multitude of interrelated problems. This context is important as it may either be the locus of root causes and where some of the effects of the problem are experienced.
organisation context. IS development can not deal with inherent complexity along a number of dimensions:

Table 3.2: Unresolved Complexities in ISD

| • Organisational context |
| • Problematic situation encapsulating ISD problems |
| • Consultant Intervention into the Client-System |
| • IT-related organisational change |

3.2.4 Research Questions

The starting question for us was: What is the nature of the process of developing an information system and how this process unfolds within an organisational situation and context? What is the sequence of events, activities and decisions that lead towards successful IS development? How sub-processes and elements interact to make up the overall process of developing an IS? What conditions influence this process?

By nature of the process we want to examine how the process structured: is it a long sequence of identifiable events or is it a series of parallel sub-events? Additionally, what is the nature of these events or activities? Are they elaborate prescriptions or key ISD processes? The ISD process can not be separated from its context and can not be understood in isolation of the situations it encounters. Therefore both organisational situation and context create conditions that influence events and their sequence within organisational reality. We aim to understand this influence and see how ISD professionals and other actors cope under such conditions. From the start we have regarded all actors (consultants, clients, users, management) as part of the total systems development process and we will be looking at their particular role.

Given our problem definition, the particular viewpoint in this study and our main research question, it is clear that further questions are raised. These are summarized below with the aim of mapping conceptually the problem and research area:

- *The Role of ISD Methodology.* Wynekoop & Russo, (1997), argue the area of ISD methodology utility organizes research issues and questions that are essential for
• **The Role of the Client.** The client is an important part of the ISD process and the consultant relies on his assistance or collaboration.

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the role of the client in assisting or hindering, consciously or unconsciously, the work of the consultant, of the users, of project or system development teams and the development process?</td>
</tr>
<tr>
<td>What do consultants require from clients and vice versa?</td>
</tr>
<tr>
<td>Do clients approach IS development differently than consultants and how?</td>
</tr>
</tbody>
</table>

• **The Organisational Context.** This set of questions examine the role of organisational issues interfering and influencing the ISD process and its actors.

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is ISD an organisational activity? If so what are the implications for the consultant's intervention?</td>
</tr>
<tr>
<td>How does the organisation assist or hinder or influence ISD?</td>
</tr>
<tr>
<td>Does the organisation create or sustain the problematic situation or concerns that must be resolved?</td>
</tr>
<tr>
<td>What sources and types of problems in ISD can be attributed to the organisation's functioning and capacity to change?</td>
</tr>
</tbody>
</table>

• **The potential of OD.** This set of questions are needed to make sure data are collected that will allow us to assess the potential role of OD in IS Development

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are current ISD approaches, models and methodologies providing effective solutions to client-organisations?</td>
</tr>
<tr>
<td>Do current ISD approaches, models and methodologies solve most of the problems that arise in the course of an ISD project?</td>
</tr>
<tr>
<td>Are current ISD values and beliefs appropriate for the purpose of the field?</td>
</tr>
<tr>
<td>Are the following necessary for a successful ISD outcome:</td>
</tr>
<tr>
<td>- Diagnosing and resolving organisational issues</td>
</tr>
<tr>
<td>- Managing organisational change</td>
</tr>
<tr>
<td>- Intervening into processes</td>
</tr>
<tr>
<td>- Collaboration</td>
</tr>
<tr>
<td>- Improving organisational effectiveness</td>
</tr>
</tbody>
</table>

• **Conceptual Model.** These questions stem from the elements of our conceptual model and their relationships.

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does success in dealing with the Problematic Situation lead to a successful ISD outcome (process and content)?</td>
</tr>
<tr>
<td>How do the conceptual model's elements interact to produce the synergy of the ISD process?</td>
</tr>
<tr>
<td>What is the role of each element and what are their relationships in practice?</td>
</tr>
<tr>
<td>Which elements are most important and why?</td>
</tr>
<tr>
<td>Can we identify any new elements or relationships?</td>
</tr>
</tbody>
</table>
worked intensely up-front enjoys a less demanding process of statistical analysis, which in most cases nowadays is supported by computers. This contrast is reflected in the characteristics between the two approaches:

"... qualitative research can be said to have a number of defining characteristics which include: a focus on interpretation rather than quantification; an emphasis on subjectivity rather than objectivity; flexibility in the process of conducting research; an orientation towards process rather than outcome; a concern with context —regarding behaviour and situation as inextricably linked in forming experience; and finally, an explicit recognition of the impact of the research process on the research situation."; (ibid,7).

Qualitative research is becoming increasingly accepted and used in ISD research. The main reason is a shift in IS research towards managerial and organisational issues that have fueled interest in qualitative methods in the field, (Myers, 1997).

Within the qualitative framework we adopted grounded theory as our main methodology, (Glaser and Strauss, 1967; Martin and Turner, 1986; Turner, 1983).

"The grounded theory perspective reflects a naturalistic approach to ethnography and interpretation, stressing naturalistic observations, open-ended interviewing, the sensitising use of concepts, and a grounded (inductive) approach to theorising, which can be both formal and substantive", (Altheide & Johnson, 1994:508).

Grounded theory was found appropriate for a number of reasons discussed below. While these can be thought to be relevant to any qualitative methodology, they are considered grounded theory's specialty.

• **Studying a Process**

The prime focus of the study is a process —the process of developing an Information System. The study of process is best suited to grounded theory:

"If the question concerns experience and the phenomenon is a process, the method of choice for addressing the question is grounded theory."; (Morse, 1994, 223).

Through the notion of process, grounded theory facilitates the study of organisational change, the sequence of events and social interaction, (Glaser & Strauss, 1967). Characteristic of the study of process is the use of the gerund to define the research subject, (ibid). In our case this is expressed by the phrase: "developing an information system".
example, grounded theory has been used in IS research because it is useful in developing context-based, process-oriented descriptions and explanations of the phenomenon under study, (Myers, 1997; Orlikowski, 1993). Application of grounded theory is also increasing in the IS literature, (Bowker et al, 1995; Elsbach and Sutton, 1992; PriesHeje, 1992; Ancona, 1990; Isabella, 1990; Kahn, 1990; Pettigrew, 1990,1985; Sutton, 1987).

3.4 Research Design

The primary design implication of grounded theory is a case by case study of the research subject as multiple instances of the studied process are displayed in many different cases, (Janesick, 1994). Grounded theory is a constant comparative approach that picks up fragments from one case to the next. This way, the interplay between data and analysis is facilitated and emergent theory becomes densely grounded in data from different cases.

3.4.1 Site Selection

We identified large and large-medium sized consultancy firms as our research sites with an aim to maximize the effectiveness of theoretical sampling and create conditions that would enhance our theoretical sensitivity, (Strauss & Corbin, 1990). Due to their size these consultancy firms could provide us with access to experts in the ISD process, possessing many years of experience. Our sites also included a key number of large client-organisations that have developed systems on their own. The reason for such selection was to place ourselves in a position to research the complexity of the organisational context within which ISD takes place.

Given the identification of our research sites we recognised the potential issue of gaining access. It is a common realization that studies of consultants and their firms is somewhat lacking, not only in ISD, but in management consultancy as well, which is the main business for many of these firms, (Berry & Oakley, 1993;1994). The studies that exist are usually produced by employees and usually refer to in-house methodologies, (e.g. Wallmuller, 1991). Our strategy to overcome any issues of access was to address high-powered people in the organisations that would invite us in to do research, rather than approaching consultants directly.
• Observation & Reflection
Within the area of observation our strategy was to observe the contextual and cultural aspects such as the organisational settings and artifacts, symbols, jargon, rituals, and probe for company documentation were applicable. Observation, in the hermeneutic sense, is not only directed to the research setting, but to the researcher as well. The analyst himself can become another source of data through the reflection on his personal feelings and sensitivity to impressions:

“If, as a consultant, I find I am becoming anxious, embarrassed, hurt, or pleased, I can ask myself why I am feeling what I am feeling and attempt to sort out what comes from within myself and what from the consultant-client relationship. So far as I am sure that some of the feeling arises in the situation and not as a result of idiosyncrasies of my own personality, I can use myself as a measuring instrument—however rough and ready—to give me information about the underlying difficulties and their strength.”, (Rice, 1963:6).

Adopting these different sources was not specifically done for purposes of triangulation as suggested in other studies, (Orlikowski, 1993). Our aim was to maximize data collection due to the potential issue of gaining high levels of access. Throughout our research effort, we treated all data the same irrespective of their source. In the constant comparative process of grounded theory an implicit triangulation is unavoidable, as a fragment from a document is compared with something said in an interview or contrasted to a ritual observed while interviewing. In such a fashion triangulation is built-in grounded theory when different data sources are adopted. At the methodological level we did not adopt another methodology for the purposes of triangulation as we did not see the need to do so. Grounded theory provided us with a suitably rigorous inductive process.

• Data Management
One characteristic of qualitative research and a potential problem, is the large amounts of generated data. A related criticism concerns the lack of rigour associated with doing qualitative research. While grounded theory provides a rigorous methodology for theory generation we felt it was necessary to adopt a data management framework that would ensure the following:
was the development of categories or open coding which took more than one iterations to produce the maximum of categories possible from the data. In the beginning this was a daunting task as there were too many categories with too many possible links to begin to see a clearer pattern emerging. However, after revisiting Strauss & Corbin (1990) and continuing fieldwork a clearer pattern begun to emerge. One analytical process that was extremely useful was to identify not only the categories, but their properties, dimensions and their values:

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Tailoring of Methodology</td>
</tr>
<tr>
<td>Property</td>
<td>Choice of Methodology</td>
</tr>
<tr>
<td>Dimension</td>
<td>Locus of the choice decision</td>
</tr>
<tr>
<td>Value Range</td>
<td>FROM: Client choice — TO: Consultant Choice</td>
</tr>
</tbody>
</table>

Using this analytical scheme what are identified initially as categories are reorganized according to their different types and so categories become denser, more saturated and more robust. The next phase was to carry out axial coding where links between categories are considered. A link represents a form of causality between an initiating category and a resultant category or phenomenon. This entails looking at the context of the specific link and examining the conditions under which the link holds.

The following table presents an example:

<table>
<thead>
<tr>
<th>Link</th>
<th>Method: Tailoring may involve Method Streamlining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category</td>
<td>Tailoring of Methodology</td>
</tr>
<tr>
<td>Property</td>
<td>Choice of Methodology</td>
</tr>
<tr>
<td>Dimension</td>
<td>Locus of the choice decision</td>
</tr>
<tr>
<td>Value Range</td>
<td>FROM: Client choice — TO: Consultant Choice</td>
</tr>
</tbody>
</table>

**Causal Condition**

- Client has already made a choice of method

<table>
<thead>
<tr>
<th>Category</th>
<th>Methodology Streamlining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property</td>
<td>Removing unnecessary phases from the Methodology</td>
</tr>
<tr>
<td>Dimension</td>
<td>Degree of method rigour</td>
</tr>
<tr>
<td>Value Range</td>
<td>FROM: Too rigorous — TO: Not at all rigorous</td>
</tr>
</tbody>
</table>

**Context of Streamlining**

- A small-sized client has chosen a very structured, time-consuming and resource-hungry method for a small/medium-sized project.

**Strategies for Streamlining**

- Examine requirements for documentation
- Examine duplicate tasks
- Examine activities that relate specifically to managing a large project with many teams

**Intervening Conditions**

- Client dogma and preconceptions about method use
- Lack of trust in the consultant
- Client-organisation overtly formal
detail. The story line for us was inextricably linked with the notion of process. Process for Strauss & Corbin (1990) captures the changing action relating to the phenomenon which achieves a desired goal under changing conditions and over a period of time. Process addresses the issue of change in a dynamic setting and results in developing a process rather than a variance theory of change that explains the phenomenon, (Markus & Robey, 1988). In our case, the process that emerged was how an information system is developed from the point in time were it relates to a client-concern to the point of its integration into the client-organisation. Our emerging theory explains the detailed unfolding of the ISD process within the changing conditions of the organisational and situational context. In our effort, we also did not impose any process related constructs from the outset in determining our resultant model, as in other studies of process, (Newman & Robey, 1992), but remained faithful in grounding our categories in the data.

However, to make our theory useful we needed to explore the wider implications and relationships of our theory to the general field of IS development and the world of science in general. Strauss & Corbin (1990) propose the use of the conditional matrix a model for exploring gradually wider contexts to the study. We did not use the matrix as rigorously, but opted for Turner's (1981) scheme of exploring links to existing theory and examining the implications of our theory to the discipline of IS development. We did so because our study was focused on the action and interaction levels, in terms of the matrix, rather than on wider societal levels of phenomena. Figure 2 below provides an overview of the research process depicting the interplay between data raised from the comparison of different cases and the analysis that itself is raised gradually to more abstract levels:
"squeeze" an analytical observation is down to unfamiliarity with the data the analyst already has collected, but in the effort to attend the administrative side of researching the data may become "alien" and difficult to work with. If data accumulate without analysis, analysis itself ends up being a tedious rather than a creative-enjoyable task.

Another area of intervening conditions to our research process has been conceptual. We believe that no research methodology is free from weaknesses and limitations. The main weakness of any qualitative study is analyst bias. We were concerned initially with our OD background and familiarity that could cloud our judgment on the genuine role OD can play in ISD. As it turned out this did not became an issue as we strove to explore literature on OD weaknesses and OD failure. We also modified our viewpoint from examining directly what OD can do for ISD to what ISD really needs. This way OD is examined as one of the possible options for ISD improvement. Finally, we did not set out to confirm elements of our conceptual model and our understanding, although we could. We allowed our analysis to emerge as "purely" as possible in the style of grounded theory. For this reason our current discussion lacks the presentation of hypotheses and a detailed conceptual schema. Of course, there is no theory-free or theory-neutral discovery, (Turner, 1981; Bryman, 1988; Gill & Johnson, 1991), and to an extent our theory of the ISD process is a result of our particular OD-informed viewpoint. However, this viewpoint was used in a diagnostic rather than prescriptive way. As Kolb et al (1979) has argued, we need to be aware of the experiential learning cycle that shows that theory is not developed not out of nothing, but proceeds from some previous pre-understanding:
A related criticism of grounded theory has been that while the theory generated is empirically valid, novel and testable, it may lack the thrust of grand theory remaining modest and idiosyncratic, (Eisenhardt, 1989). If this is the case with our process theory, we feel this is acceptable as our theory can become the starting point of other studies. While we noted the lack of relevant literature and personal experience in the domain of study, future studies may not experience the same difficulty. However, we believe that our study has produced important implications for the whole IS development discipline that give it qualities of a grand theory. Our instinct indicated from the beginning that a paradigm shift is required in ISD and our theory contributes towards such a shift.

While it was not intended, our theory has avoided an idiosyncratic character due to the fact that the professionals we contacted were all very experienced and very senior in their fields of expertise. This meant that within the data a number of concepts and categories were already formulated by them. Once their accounts were accepted as genuine, after cross-examination within a case and with other cases, it was obvious they too had performed a form of open and axial coding. This raised our level of analysis from observing and noting words, phrases and actions of actors to considering already formulated, albeit rough, “theoretical” fragments.

Another criticism of grounded theory is that it is unable to “analyse situations in which the phenomena do not occur”, (Gill & Johnson, 1991). If a phenomenon does not take place there are little if any data to support analytical observations. However, as we said earlier no analysis is theory-free. In our case, we noted a lack of data in the area of methodologies. We noted this because we expected to gather data in that area. We did not “miss” this because of our pre-understanding. Although the data were lacking the lack of data itself was quite revealing in its own right. In other areas with lack of phenomena we directed our analysis to what appeared to be missing using our conceptual model as a guide.
Table 3.4: Fieldwork Summary

<table>
<thead>
<tr>
<th>Sample &amp; Firms</th>
<th>Size</th>
<th>Personal Interviews</th>
<th>No of People</th>
<th>Telephone Interviews</th>
<th>Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultancies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WS Atkins</td>
<td>Very Large</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>IT dept. Manager</td>
</tr>
<tr>
<td>E&amp;Y</td>
<td>Very Large</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>IT dept. Manager, Executive Consultant</td>
</tr>
<tr>
<td>Olsy</td>
<td>Very Large</td>
<td>1</td>
<td>1</td>
<td></td>
<td>Manager, Methods and Tools</td>
</tr>
<tr>
<td>Link</td>
<td>Medium</td>
<td>1</td>
<td>1</td>
<td></td>
<td>IT dept. manager</td>
</tr>
<tr>
<td>ACL</td>
<td>Large</td>
<td>1</td>
<td>1</td>
<td></td>
<td>Director</td>
</tr>
<tr>
<td>JHorwood</td>
<td>Medium</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>Director, Practicing Manager</td>
</tr>
<tr>
<td>Organisations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA</td>
<td>Very Large</td>
<td>1</td>
<td>2</td>
<td></td>
<td>IT manager, Senior Developer</td>
</tr>
<tr>
<td>AC</td>
<td>Large</td>
<td>1</td>
<td>1</td>
<td></td>
<td>Programme Manager</td>
</tr>
<tr>
<td>Lubrizol</td>
<td>Large</td>
<td>1</td>
<td>1</td>
<td></td>
<td>Communications Manager</td>
</tr>
<tr>
<td>IC</td>
<td>Large</td>
<td>1</td>
<td>2</td>
<td></td>
<td>Business Manager</td>
</tr>
<tr>
<td>VM</td>
<td>Large</td>
<td>1</td>
<td>1</td>
<td></td>
<td>IT Development Manager</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
<td>14</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

A significant level of secondary data in the form of documentation was also collected. An interesting source was the internet as these firms present themselves and their ISD philosophy in a way that appeals to clients.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>WS Atkins</td>
<td>Internet</td>
</tr>
<tr>
<td>E&amp;Y</td>
<td>Brochure, Internet, Literature</td>
</tr>
<tr>
<td>Olsy</td>
<td>Brochures, Internet, Literature</td>
</tr>
<tr>
<td>Link</td>
<td>Literature</td>
</tr>
<tr>
<td>ACL</td>
<td>Internet</td>
</tr>
<tr>
<td>JHorwood</td>
<td>Brochure, Internet</td>
</tr>
<tr>
<td>AC</td>
<td>Project Report</td>
</tr>
<tr>
<td>Lubrizol</td>
<td>Project Reports</td>
</tr>
<tr>
<td>VM</td>
<td>2 Project Reports</td>
</tr>
</tbody>
</table>

One of our initial aims for a third phase was to identify OD consultancy firms that are involved in ISD projects. We included a request for help in our research in the UK branch of the OD-network’s newsletter. However, no interest was generated and we were not able to identify any consultancies. We did contact a couple of freelance OD consultants that were involved in some ISD development and utilised their experience as domain experts rather than research cases.

In our efforts we found it very time consuming to gain access into consultancy firms and consultants. This is indicative of the business pressures that organisations are facing in
Despite these difficulties, however, the data collected were more than enough in supporting the case based structure we wanted in our research. Firstly this was possible due to the high level of seniority of people interviewed. As we have seen this ensured an automatically high level of saturation of emerging categories. All of the people interviewed in our consultancy sample have worked as consultants themselves for more than 15 years, have monitored numerous projects and consultants, and are responsible for determining the direction of their firms on issues concerning methodologies, approach and consultation frameworks. Achieving similar quality of data would have required a significantly higher number of (junior) consultants to be interviewed over a longer period of time.
4 - ANALYSIS & RESEARCH FINDINGS

4.1 Introduction

In the previous chapter we outlined the research methodology adopted for collecting data about the problem definition and research questions we identified from the body of ISD practice and literature seen from an OD-informed perspective. In this chapter we discuss the results of applying our research methodology to the field. The following figure shows how this discussion relates to the previous one:

Our problem definition and hypotheses were expressed in the researchable form of a conceptual model, (pg.71), which we used as a guide to research and analytical activities. Due to our grounded theory methodological approach, these activities produced a substantive IS development Process Theory grounded in our research data. In this chapter we contrast the emerging process theory with our initial problem definition and hypotheses, as well as the theory's novel elements. The ISD process theory replaces our original limited understanding of the research problem.

As we saw in chapter 3, we created case studies from two samples involving respectively: consultancies, (Appendix 5, A-VII), and organisations developing systems in-house, (Appendix 6, A-XVI). From data collected using interviews, observation, secondary sources and critical reflection various categories began to emerge. As data collection and comparative analysis proceeded these categories were strengthened and their links to other categories were developed and explored. From categories, properties, and links that "endured" the analytical rigour of grounded theory methodology, a substantive process theory emerged. This theory is extensive, explanatory and provides us with a basis from which to explore the desirability and suitability of an OD perspective in IS development. In the discussion that follows we present the key elements of the theory that address our problem definition.
In most cases we had to do little in generating conversation, which showed that our "student" strategy was working well. Our role then was to direct the discussion towards the areas that we felt useful data could be collected. Throughout a discussion we would be sensitive as to when the interviewee “threaded” on areas relating to our underlying conceptual model. The sensitizing effect of the conceptual model was very important in determining when to explore something said further. Strategies we also employed were to note the subject’s espoused values, in all cases expressed very early on in the interview, and contrast them with the various subsequent accounts of practices. Any ambiguities, contradictions or inconsistencies gave additional “warnings” for exploring further and revealing values-in-use.

Observation and reflection were also used in data collection. Observation was mostly directed to cultural elements and reflection was focused on changes in personal feelings. In doing the latter, the effort was to distinguish feelings generated from the analyst-subject relationship, the particular site and from me personally. A significant amount of additional data were collected this way, as long as one was prepared to observe both others and himself. In almost all cases I entered an organisation, observed its working environment and talked briefly with various people before doing an interview. In a few cases, the office layout was such that I was able to observe the rest of the employees working and in some cases I could both see them and listen to their conversations. While all this was happening in the background, in relation to the interview, it did provide with valuable data in terms of “getting a feeling for a place”.

A useful strategy for assessing differences between cultures was to consider myself both a potential client and a potential employee and assess whether I could employ or work for each organisation respectively. All firms came across differently and projected quite diverse cultural images to me, as an outsider, irrespective of their particular IS development practices and values. Additionally, being presented as a student, there was little reason for them to put up any elaborate pretenses or create artificial cultural elements, specially in the cases where I was allowed direct access in their offices rather than an isolated meeting room. If I was indeed a client or a researcher they could have felt obliged to present their ‘best’ possible image.
initially Turner’s (1981) guidelines and tried to apply them, (see Appendix I). This involved examining our data and identifying everything that could be coded as we felt we should not impose any assumptions as to what should or should not be relevant to the ISD process. This way we were also able to examine the data with a minimal pre-determined agenda. For example, we were not looking for data patterns that could help us prove OD’s suitability. However, the problem was that we ended up with too many coded data fragments and it seemed impossible to make any sense out of them. Initially a further contributing factor was also unfamiliarity with the data. I felt that I had to be “saturated” myself with data before I was able to engage in any serious analytical effort which involves discovery of often hidden or obstructed patterns. We thus decided to complete the collection of data first and familiarise ourselves with the data. In the process Strauss & Corbin’s (1990) framework proved to be far more useful in coping with large volumes of data. Its main strength is the identification of various types of analyses and clarity about the structure and conceptual elements of categories, (ch.3, pg.83). Having gathered almost the entirety of the data, we proceeded with open coding. The case-by-case constant comparative structure was preserved by starting the analysis from the first case, exhausting data fragment generation before moving on to the next case. This slowly begun to produce a list of unrelated categories with some of their properties and properties with some of their dimensions. As we moved from one case to the next we were able to either saturate existing categories with more supportive data fragments, discover an additional property of a category or identify a completely new category. In many cases a new category emerged in a latter case which could exist in a different form in earlier cases. To cater for this we revisited every case from the beginning forming many analytical cycles and completely exploring support for each category in every case. A parallel activity that also took place was the generation of numerous memos which recorded analytical notes and data fragments that did not necessarily fit into the structure of a category or within the remit of open coding. We kept these memos in accordance to Miles and Huberman (1994), and Glaser & Strauss (1967). Almost immediately these memos provided material for axial coding, where we had to switch analytical “filters” to look for links between categories. Such links also have to be supported by data fragments and as such our memos with unmatched data made better sense when looking for links. Axial coding also required a few iterations to identify completely as many links as possibly supported by our data. At this point we
density of the already developed categories and links. This meant that our assumptions and formulation of categories, as well as the core category, were very close to the data—an important validity criterion in grounded theory, (Strauss & Corbin, 1990).

With selective coding analysis utilised another few iterations of revisiting and refining categories and links. At the end of this process we ended up with both categories with very high saturation levels and categories which were poorly supported: having either with data fragments from a small number of cases or being not very dense with dimensionalized properties. In contrast, well supported cases organised data fragments from almost every case and had a long list of well supported properties with their respective dimensions. Similarly, we also ended up with well saturated links and poorly supported ones. All poorly supported categories and links were put aside and the key categories and links were identified as the basis for an emerging process theory of IS development.

To turn our key categories and links into a process theory we proceeded to the analysis of process, (Strauss & Corbin, 1990). This involved looking at the surviving categories and links and assessing their role, order and placement in an overall sequence of changing events, actions and conditions. The development of links, mini-frameworks and paradigms, (ch.3, pg.84-85), already from axial coding made the task easier. Links were fully traced and mapped out as parts of an overall sequence rather than a simple action-interaction sequence between two categories. In the end we were able to easily explicate the main story line that expressed the essence of the emerged process theory.

Once process was considered we decided to explore links to existing theory, OD and the implications of our findings for IS development. In doing so we did not use Strauss & Corbin’s (1990) conditional matrix, but revisited Turner’s (1981) guidelines for making connections to existing theory. Structuration Theory, Gestalt Theory and Archetypes, were found to be particularly relevant theoretical perspectives. Structuration theory was selected because it fitted well with the dynamic and static elements of the ISD process. Gestalt theory and Archetypes were selected due to their conceptual closeness with the core category of Approach.

101
organisation of IT departments and the provision of training in ISD methods and tools —rather than improving the whole organisation’s effectiveness.

The existence of a problematic situation was supported by the emergent ISD process theory agreeing with the literature that views ISD as a primarily social process. Consultancies and projects face a series of problems which are not necessarily technical. A number of ISD Outcome Factors represent a series of issues that are so important that have to be addressed in every project and irrespective of any methodology used. Before IS development can even begin as series of issues are resolved by the consultant and his client. Two novel key categories, *Client Assessment* and *Project-Start* emerged from our data to describe the effort of creating the best conditions possible for IS development. Throughout the duration of IS development, *Project Management* and the consultant-client working *Relationship* takes the additional role of dealing with issues that do not arise directly from development. All these as well as the practice of *Tailoring*, reveal the uniqueness, extent and complexity of the problematic situation in every project.

Another change in our understanding was achieved in clarifying the nature of the ISD problem. Contrary to our initial hypothesis, certain types of projects do deal with a well-defined ISD problem that may not involve system-wide change or may not impact directly the working life of users. Such an example is the development of an internal technical application which interfaces with other applications rather than with users. Furthermore, as shown by the *Project Range* category, the ISD problem is not always “what system to build and how”, but it may also be “how to develop the organisation’s ISD capability.” For the latter type of problems methodologies are only one element of the consultant’s overall delivery. While we expected ISD problems to be very narrow in focus, our research results showed that they too can be intrinsically complex and diverse. This leads to the paradoxical realization that ISD methodologies are not always suitable for solving ISD problems! Clarifying the nature of the ISD problem consolidated the role and primacy of approach for solving ISD problems as well as problems of methodological choice. Another important finding was that ISD problems may be solved without the use of ISD methodologies. Therefore, our initial expectation that the ISD methodology’s role is to solve ISD problems has weakened significantly. In terms of our post-research understanding, the role of ISD methodology emerges to be
parts of the organisation are involved in ISD and that all visions are communicated among them. Furthermore, the capability of the client organisation is assessed by the consultant at the beginning of every project to determine the viability of the project and the capacity of the client to support it successfully. Additionally, the way organisations approach project management is important as the client may lack the necessary skills and standards. The importance of understanding the particular organisation in ISD was further reflected in our analysis of the client-organisations’ data. There, we saw clearly the significance of the internal political and cultural environment and the fact the ISD initiated organisational change in almost every case.

The significance of the Client element was noted in our research data. Our initial expectation of the importance of clarifying who is the client out of many potential clients-stakeholders was confirmed. Consultancies make sure they identify who are the important stakeholders, who are the main supporters and who is responsible in the organisation for taking things forward. Another important aspect was also the establishment and maintenance of a working relationship between the identified client and consultant.

The ISD outcome was defined initially in terms of process and content. Our data confirm this, although we noted that consultancies may define a completed project as successful irrespective of whether it is used / accepted or not. Identified ISD factors represent fundamental issues that must be resolved along with the particular ISD concerns to ensure a successful outcome.

Our expectations on the role of the consultant have not changed. Our research results confirm that the consultant needs to operate not only at a technical-content level but also at a process level. The skills reported as necessary to do this reveal that ISD and OD consultants differ in their particular domain areas, while they share the remaining skills. This was another interesting result that shows that ISD and OD are comparable exercises in terms of process complexity. Another aspect we did not cater for initially was the fact that ISD consultants specialize in different areas, meaning that business-process consultants may head an intervention into the client-system while technical-training ones are invited on a need-to basis. As such, a consultant with a business
categories.
The diagram shows four main areas: Client-Organisation, Consultancy, Situation and ISD project. Following the sequence of events, IS development starts as a response to certain organisational concerns that have been identified as requiring resolution. How the client starts the project depends on his organisational tradition in IS development, the rationalities that prevail between business and ISD staff and his particular approach towards systems development. Having decided to do something about the identified concerns the client invites a consultant to undertake an ISD project. As our research data showed, consultancies are market oriented-commercial organisations with recruitment schemes that enforce their unique cultures. As such their approach towards IS development and client-management is also unique. Before the consultant commits to the project, he assesses the client-organisation and the nature of the concerns at hand. If he finds them satisfactory he enters the situation-organisation to understand in more depth the identified concerns and define requirements for a project. At that point Project-Start takes place which indicates a number of iterative-collaborative activities between client and consultant that aim to prepare and setup the ISD project in such a way as to maximize success. A subsequent step is for the consultant to adapt his approach and methodological components to the particular situation before launching the ISD project formally. The ISD project starts with considering project management as well as facilitation for evolutionary projects. A number of ISD Outcome Factors are examined that relate to the success of the project and must be observed in every project. These factors represent the actual IS development activities that take place, which when completed lead to the project's end. As our firms report every project is capable of producing organisational change and leads to a project outcome. Finally, depending on the project experience and consultant-client relationship, the project may lead to repeat business which lead to another start of this process. In some cases the client may wish to undertake a small project on his own with minimal external help. In such case the consultancy area events do not take place.
4.4.1.2 Framework

Our data showed that approach utilizes a framework for making methodological choices. The framework is consistent with the overall values and employs a number of criteria for providing different paths to development. In E&Y's terms, it guides a "...process that filters out inappropriate components while focusing on the specific needs of a project." and provides "...context-sensitive guidance throughout the project". Apart from explicit frameworks, like ACL’s and E&Y’s, (Appendix 5, pg. ix, xiv), several framework dimensions emerge in our data:

1. The type of project which determines the applicability of methodologies and components, (ALL firms). For example, safety or mission critical systems tend to be developed using structured methodologies while application development is not, (WS, LINK).

2. The *stage of systems development* at which the consultant joins the project poses different choice. For example, an implementation phase is different than an investigation one, (LINK).

3. The *relationship* between consultant and client determines whether the client will impose his own methodological choice or will accept the consultant’s proposal, (LINK, HI, ACL). This dimension depends on the client’s culture and the situation, (OLSY), as certain organisations have a strong preference towards particular methods.

4. *Methodological applicability*, (ALL). WS would never use SSADM for very small projects or clients. Additionally, certain RAD projects may pose additional requirements for documentation and tighter project management.

5. *Level of stakeholder involvement*, (ALL). If a project has low user involvement, consultants find ways to involve the user and stakeholder community.

6. A final dimension depends on the *skills of the consultant*, (ALL), as they may determine choice of methods. For example, a technical consultant will be less predisposed in running group facilitation workshops.
Table 4.2: Methodological Components in Approaches

<table>
<thead>
<tr>
<th>Component</th>
<th>WS</th>
<th>E&amp;Y</th>
<th>LINK</th>
<th>ACL</th>
<th>OLSY</th>
<th>HI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evolutionary Methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAD Methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Mgmt Methods</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BPR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitation / Catalyst</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Consultation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house Method</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house Framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-house Tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development Tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stand Alone Techniques</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instruments / Analyses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Models / Standards</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Components Repository</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table above highlights the diversity of components as well as the fact that the same components are found in more than one approach. An approach may utilize a project management and an IS development methodology in the same project. For example, it is common practice in WS to use PRINCE for project management and SSADM for systems development both at the same project. Similarly, E&Y’s methodologies integrate project management with quality management, and OLSY use their evolutionary method under the DSDM framework. We also witnessed a similar combination of different components in our organisational sample. For example, IC utilised DSDM under a BPR methodology which in turn was part of an overall change management programme. Within the DSDM RAD framework waterfall was also used, (Appendix 6, pg. A-XVI).

4.4.1.4 Components Repository

As a result of the diversity of components, consultancies may create central libraries or knowledge bases of methodological, project support and process components.
4.4.1.5 Tailoring

Another characteristic feature of approach is tailoring of the various components in order to match situational and project requirements. The reported percentage of projects undertaken that require tailoring is extremely high:

Table 4.4: Projects that require tailoring

<table>
<thead>
<tr>
<th></th>
<th>WS</th>
<th>E&amp;Y</th>
<th>LINK</th>
<th>ACL</th>
<th>OLSY</th>
<th>HI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>90%</td>
</tr>
</tbody>
</table>

Very low or no tailoring would indicate that methods covered most of the requirements and characteristics of projects. The high percentage of tailoring indicates that methods should not be regarded as stable and comprehensive, as assumed by their creators. Tailoring reveals that every project is unique presenting its own challenges to consultants and clients. Through tailoring consultancies manage to meet the unique needs of a project with the most appropriate way. ACL characteristically note "we have a framework to be tailored — no two solutions are the same". Within the framework, methods are also "streamlined" so that requirements for rigour, communication and documentation are met. In E&Y’s case, a form of tailoring is built-in the methodology which allows the consultant to make a choice from a range of components to just the right ones for his project in order to:

"...provide creative and innovative solutions which not only meet the immediate needs but also enhance the client's ability to manage future change and growth. Such solutions are always individual, based on a particular situation and a specific response..."

This form of tailoring, called "Project Support", is the normal operation of the methodology. However, beyond it, the consultant may decide to omit or modify steps within the chosen components if he sees the need for it. For example, if a process requires a certain deliverable to be produced before moving to the next process, the consultant could perform a risk analysis to determine whether to capture the related information or not. When tailoring the methodology the consultant may consider:
jeopardized when specialized consultants carry on from business consultants. E&Y has developed a methodology aiming at addressing the above issues."

As we see characteristically in the above quote, the reason behind methodology development was not a requirement for improving the essential elements of the method, but to ensure a common communication scheme. For similar reasons, ACL review a method for its documentation merits and may even tailor its communication scheme if needed. This realization has important implications for the role of methodologies in ISD given their high profile. In a later discussion we explore how approach emerges as ultimately more important that methodology.

The utilization of an Approach is also evident in our organisational sample. In AC’s and LB’s cases no particular method was adopted, (Appendix 6, pg. A-XXI, A-XXV). In the rest of the projects DSDM was used, but not in isolation from other methods, principles, techniques and tools, (Appendix 6, pg. A-XVI).

4.4.2 Project Range

Due to approach and their market orientation, consultancies undertake a range of different projects. For all six consultancies projects range from being consultant-intensive to client-intensive. In E&Y executive consultant’s words:

"the nature of work with clients ranges between: doing something for the client, i.e. setting something up, producing a report, implementing something, in short delivering something to be handed over to the client to helping the client create or achieve something himself. The consultants for example may build the client’s capability to develop information systems themselves. E&Y recognize there are elements of both ends of the continuum in every project."

There are also projects that do not fall clearly into either ends of this continuum. These are training projects, package selection and improving organisational performance which may delivered either prescriptively or facilitatively. It is important to note that the range of projects was witnessed in all 6 consultancies, even the ones expected to be more “structured” like E&Y. The firm’s IT director noted:
and diagnostic abilities. As a catalyst, consultancies help clients become better in ISD by selling their in-house or marketed methodology:

"Up till recently clients expressed requests such as 'can we buy your methodology?'. What they really meant was 'can you help us become better at Information Systems Development?'. In such cases E&Y would not simply sell a product, but help clients build their capabilities and self sufficiency, train them, develop their skills, coach them, develop their infrastructure, help them think about standards, procedures, project management and issue resolution. Within this context the E&Y method could be offered as one possible approach as the infrastructure to deploy the method would be in place."

Similarly, WS and Olsy market specific tools and methods which again become part of a client improvement solution. ACL are similarly proud of a "number of companies up and down the country that use the ACL approach". The exception to this are HI who carry out a significant portion of pure process consultation projects, although they specialize in the quality standards area which is very prescriptive.

Project range ties in with the diversity expressed by the consultant’s specialization and role, as well as with the richness of approach. Due to their market orientation all firms specialize in the same markets and have expertise in the same methods. What ultimately differentiates them and helps the client select a firm is the overall approach, which also allows a number of different consultation styles.

4.4.3 "Diagnostic" Activities

An important cluster of research findings relates to our discussion about diagnosis as in the OD approach. Specifically, the two key categories of Client Assessment and ISD Outcome Factors could be seen to be forms of diagnosis. Indeed both categories along with their properties resemble diagnostic models which are applied by consultants in every project and situation. Both categories operate outside the context of a methodology, but are guided by the overall Approach. The two categories are closely aligned with values as they are the practical expression of what is considered the essence of best practice.
For both WS and E&Y sick projects are a result of an organisation’s inability to manage projects successfully. Client assessment is important because, (WS):

“If the project is seen not to follow a good track a decision should be made to “axe” it”

*Vision and Leadership*, these are important for assessing how the project may develop in the future and how problems are likely to be solved. For E&Y the consultant has to “drill to the bottom” in order to assess the depth of the vision related to the project and the system. The quality of leadership behind the project, its vision and level of commitment are also important indicators. For WS, it is also important to assess who has the power to shut down the development process and who will be affected or victimized by it. All firms recognize that in many cases visions are not properly communicated around the client-organisation and may cause unexpected resistance later on. In some cases it is important to assess the leadership’s actual agenda behind development. Management may see IS development as an opportunity to enforce their own objectives. HI experience shows that consultants may find themselves caught up in conflict and pressure to participate into an unethical intervention.

*Formal Project Characteristics*, projects and clients may also be rejected due to the project’s characteristics like the type of development (Link), the tools needed, the time scales posed (Olsy), and whether third parties are imposed.

Client assessment continues even after the project has started as consultants may walk out of a project if they realize the client’s attitude towards working with consultants is not the appropriate one after all, (WS). This category explores a significant range of factors, not of an economic or technical nature. The consultant not only examines the feasibility of the project but the ability of the client-organisation to undertake the project. While client assessment determines whether the consultant will accept a project the next set of factors determines whether it will be successful.
ACL recognize the importance of using clear and unambiguous language in their communication with the client. Similarly, Link note the importance of interpretation of what is communicated between consultant and client:

"IS failures occur because people are unable to state exactly what it is they want done or can't interpret what the system should be".

e. **Understanding Technology**

For WS, ACL and Link projects sometimes fail due to technology not being understood properly, or in some cases a piece of technology does not meet the expectations of consultants and clients.

f. **Vision**

It is Link's experience that:

"Systems fail due to no vision and as a result subsequently delivered systems do not satisfy the client".

E&Y and WS also place great emphasis on vision, the vision of leadership and visions shared in the organisation. It is also HI 's experience that visions about a project may differ throughout the organisation and management may be ignorant that such differences exist.

g. **Top Management Support**

For most consultancies, and the client organisations, "across the board" top management support is seen as a necessary factor for success. It relates to the level of project sponsorship and support. As a project may require organisational resources and may involve hard decisions that incur changes, top management support ensures the project moves forward overcoming difficulties.

h. **Management of Changes**

A number of changes are imposed to the project's scope that are not planned initially, but are to an extent unavoidable. In all cases, pressures on the project for changes to its scope must be managed in order for IS development to stay on track.
and clients for that matter, may consider these to be outside the scope of ISD, they are important in determining a successful ISD outcome. The existence of the situation was noted by ACL, WS and HI, who argued that ISD is part of a larger problematic situation in two thirds of the projects they undertake. Similarly in our organisational all projects were part or were disrupted by the wider organisational situation. Both samples reveal the richness and complexity of the situation. This is evident in the nature of the reported out-of-scope (non-IS) problems:

### Table 4.5: Out-of-scope problems

<table>
<thead>
<tr>
<th>Organisational Structure</th>
<th>Organisational Culture</th>
<th>Organisational Politics</th>
<th>Other business influences and plans</th>
<th>Inability of top management to recognize current and expected problems</th>
<th>Inability to fund project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inability of top management to recognize current and expected problems</td>
<td>Inability to fund project</td>
<td>Scope too narrowly defined to allow changes to procedures and other change management</td>
<td>Poor team structures</td>
<td>System dependency on other systems or on other people making decisions.</td>
<td></td>
</tr>
</tbody>
</table>

As the most common sources of problems in ISD, ACL, WS and HI consistently identify management and the organisation as the most important sources, followed by an equal position for users and development staff. Important sources are also the organisational environment, external pressures and technology. Surprisingly methodologies account for a very small number of problems revealing that IS related sources are the minority. This also reveals the difficulty consultancies face when confronting the organisation and shows the limited role of methodologies. For HI unexpected problems are unavoidable:

"In every project consultants identify issues that need attention that were not part of the initial requirements of the client. Often such issues have the potential to influence the overall success of the project."
failure. This raises the number of projects facing serious problems and failure closer to 50%.

The firms in our organisational sample are closest to the effects of the situation than external consultants can be. As evident in their cases, (Appendix 6, pg. xvi), the decision to deal with a particular issue emerges as dissatisfaction grows within the organisation over a period of time. Assessment of its importance and the particular approach that needs to be followed is influenced by the organisation’s tradition, history and internal rationalities-cultures. In other words the organisational situation begins to influence ISD effort long before a consultant or the project take place. Failure can not be seen at this point. However, as we saw in chapter 1, various pathogens are unnoticeable but are cultivated to emerge as failure latter on when suitable conditions occur, (Turner, 1994; Fortune & Peters, 1995). At this point we can see the importance of client assessment and ISD outcome factors as within the situation the presence of non-ISD problems / pathogens may need to be addressed concurrently with the IS concern. In AC’s case the project could not get of the ground without resolving the issue of top management support and communication with the divisions, (Appendix 6, pg. A-XXI). An external consultant having performed his assessments could have noted factors that clients themselves take for granted when commissioning ISD.

The situation is characterized by volatility as the future of a project may be put into question at any time. This relates to consultants assessing the future of the project and its pressures. In AC and LB cases, (Appendix 6, pg. A-XXI, A-XXV), both projects were affected by larger organisational efforts that appeared suddenly to overshadow any other effort. In AC the rationale behind RAD was to deliver parts of the system as rapidly as possible as it was threatened to be put on hold. In LB the project has actually been put on hold as the new CEO introduced company-wide change.

As in our consultancy sample, IS development was for the organisations in our sample part of a larger concern. In AC’s and LB’s cases the systems developed aimed to provide information where it is needed most in the organisation. In IC’s case the project was part of a much wider BPR effort which was in turn a part of a wider organisational change program aimed to improve organisational effectiveness. In LA’s and VM cases,
Our research findings from both samples, confirm the importance of viewing ISD as a complex socio-technical process. The novel angle here is that we do not only have the existence of a complex organisational situation which provides the context of ISD, but the realization is that often such situation becomes centre-stage and must be dealt with in its own right. As such, the consultant may assess the client and the ISD outcome factors and may demand resolution of key issues before getting involved in the project or before development starts. The particular factor helps identify a disruptive issue that needs prior resolution.

4.4.5 Consultation Complexity

Our research findings reveal the complexity of ISD consultation. The consultant is not only concerned with developing a system or the client's ISD capability, but with a number of process issues that determine how he manages activities, relationships and his own intervention into the client-system. Our findings suggest we should extend the boundaries of the traditional SDLC to include new phases that represent significant consultation, rather than purely developmental activities. Without these phases development activities are problematic and their success or failure cannot be easily explained.

4.4.5.1 Approach Life Cycle

The approach follows the consultant's intervention into the client-system. It starts working the minute consultant and client make contact. The values, expectations and understanding of IS development are communicated in the pre-project period where expectations are clarified and when consultants present their approach to the client. Before a methodology is actually used, what guides initial activities is the set of values that is communicated to the client. The approach remains active during the project providing the context of use of the methods, techniques and problem solving. When the project is over approach ensures evaluation and learning are carried out and that the relationship with the client reaches an appropriate closure without jeopardizing future work. The approach's "life cycle" is therefore wider than the methodology's which means that the traditional SDLCs may be limited to represent what activities actually take place during a project. As such methodology designers may design methods that do not cater for significant periods of a project. Indeed during these early stages there are
Another important activity during project-start is the establishment of a good working relationship between consultant and client. HI referred to this in terms of a “personal chemistry” developing between the two parties. Such chemistry appears to develop naturally as both parties find out more about each other. The client expresses his concerns while the consultant presents his understanding of these concerns. The client also has the opportunity to counter-assess the consultant and experience his approach towards IS development.

As evident in our data, the client largely controls the initiation of the project as he will not proceed with the project until he is convinced that (his) priority issues will be resolved at an acceptable cost. The consultant may have different ideas about what these priorities are and the project cannot start until there is a match between the client’s wants and his actual needs. As HI’s practicing manager put it:

“Clients wish consultants satisfied their wants rather than their needs. Consultants may wish the opposite but it depends on their skills to achieve a match of wants and needs. This differentiation creates a lot of conflict.”

The differentiation indicates the adamancy of the client’s views and difficulty in changing perceptions formed about the nature of the IS concern. The client may not be willing to let the intervention go at the deeper level the consultant is pushing for — i.e. by examining why the actual needs are not identified by the client in the first place. Despite potential conflict at this stage, the consultant’s market orientation means he will always help the client achieve his wants. However, if success may be jeopardized consultants have to employ a number of strategies to match client wants and needs:

- The consultant may “test the water” by suggesting what is really needed but may not try to change the client’s mind initially, (ACL, HI). As the project develops the consultant is in a better prepared to change the direction of the project. Another variation to this strategy is sensitizing the client at every opportunity possible, but without raising the issues directly. This requires that the consultant keeps the important issues in mind throughout his intervention.

- Another strategy is to “put a flag on the problem” by openly raising awareness about the actual problem, (HI). It is expected that by challenging the client’s perceptions
4.4.5.3 Project Management

Another category that emerged to highlight the importance of the context of IS development is *Project Management*. All consultancies in our sample talked about ISD in terms of project management, which follows a successful project-start. Project management issues are resolved before any ISD methodologies are utilised. The focus is placed on managing the project rather than IS development. The concept "project" is more abstract and wider than the concept "information system". For WS project management helps balance changes, focus on a good project-start, manage inherent risks, and, like ACL, manage expectations and keeping the project under control. Project management helps consider change management issues pertaining to the project by considering from the outset how the project will be structured and resourced. While this property of the category reveals the need for controlling project activities, it indicated that projects become difficult to manage if focused narrowly on IS development. A distinction noted characteristically by ACL's director:

"The way success and effective client managed are ensured is by means of project management, not by using methodologies, and risk management, by reviewing the risks constantly and by having independent reviews of a project. Methodologies do not make Admiral's overall framework which expresses a continuous process improvement cycle."

While project management issues are considered as "reasonably basic" they are important because they have extensive IS development implications. They provide a high level overview of the issues involved in a project and are the focal point of the various parties involved in a development. Project management allows the project to interface with the organisation and the development effort.

Along with the categories discussed previously in this section, project management again points to the complexity of consultation activity involved in a project. Resolution of project management issues with the client also involve an element of political intervention, negotiation and potentially conflict that the consultant has to deal with before ISD starts, throughout the project and even after its completion. In the context of these activities the centrality of ISD methodologies and the ISD paradigm's assumptions noted in chapter 1 are seriously challenged.
and domain-specific, but only in situations were they undertake the whole project without the involvement of business or process consultants. We saw this in our organisational sample cases were technical staff were involved in the projects. Issues in the IC case study were only resolved when an external (process) facilitator was invited to consultant to the mixed development group, (Appendix 6, A-XVII).

Another area which confirms the above observations was the skills all ISD consultant must share:

A Fundamental Knowledge of ISD, To use any methodology, even a structured one, the consultant must have a fundamental knowledge and understanding of how information systems are developed. This is necessary to interpret and communicate the requirements of development in a consistent manner. Additionally, fundamental knowledge of ISD ensures that issues concerning the challenges of change, sharing of visions, understanding culture, pursuing learning and assuming responsibility, are also addressed. This fundamental knowledge acts as an implicit frame of reference. Without it the consultant is unable to interpret what is going on and what he is required to do.

Political / Interpersonal skills, These involve an “ability to influence customers” and a willingness on behalf of the consultant to “upset people” if needed. This also requires negotiating skills. The consultant must be able to “access and involve parts of the organisation that have been shut-out of the process of development”. He must not take for granted how the client has setup the project as clients may not involve all of the organisation from the outset. The consultant assesses who needs to be involved and use his political-interpersonal skills to ensure their involvement. Towards this he also needs to understand different types of clients and markets. Additionally, effective communication skills enable consultants to visualize and communicate visually, to make abstractions and use clear and unambiguous language.

Technical skills, According to WS and ACL, failures occur in certain projects due to technology not being properly understood. The consultant needs to be up-to-date with the latest technological developments and use his skills to assess the capabilities of the technology involved in his project.

135
Technical expertise and the doctor role are second rated, behind coaching, advising, facilitative and problem solving roles. Advanced roles more characteristic of OD, however, are not that common as organisational expertise and psychoanalytical roles are less frequently adopted.

Consultancies build the expertise of their consultants by moving them to different positions or assigning them to different projects over a period of time. In ACL directors too change positions to keep in touch with practice. In HI new consultants are placed first in a sales position before undertaking projects. This shows an implicit experimental Action Research model of operation where consultants build their experience and expertise in practice. Of course external consultants have the ability to encounter a variety of projects, clients and problematic situations, while internal ones become very close to their host organisation. Even for technical consultants such experiential learning can be beneficial and may encourage an open-mind needed to collaborate effectively with business people.

Although our initial expectations about consultant efficacy were only partially met, the message is optimistic as it shows that it will not be impossible for at least business, training and process consultants to challenge their assumptions that originate in the traditional ISD paradigm.

4.5 Conclusions

Our discussion in this chapter was structured around our key research findings. A number of novel areas arise as insightful and provide the basis for an informed discussion of OD suitability. In conclusion we have identified the following points:

Approach is a meta-methodological concept that matches the problematic situation’s complexity and guides the entirety of activities and phases of a systems development effort. It also helps the consultant deal with the consultation and intervention complexity of his work.
their ranks emerge to communicate effectively with business staff. In consultancies a number of consultants are not considered technical at all as they specialize in the business, process or training areas. These consultants provide the interface between the organisation and more technical consultants, and may also be suitable for opening up to an OD perspective.

Our research findings have implications for our argument concerning the necessity of an OD perspective in ISD, for ISD itself, for consultants and clients. In the next chapter these implications are examined in detail.
5 - CRITICAL ANALYSIS

5.1 Introduction

In the previous chapter our analysis focused on the key elements of our research findings that are part of the grounded ISD process theory. In the current analysis we adopt a critical stance to discuss the wider implications our research findings have for ISD and for developing our argument further. As the following diagram shows, the chapter explores a number of analyses determined by our grounded theory framework, that are progressively wider in scope. Our first point of departure are a number of analytical observations about the emerged theory. The analysis focus lies not on what our data fragments show directly, but on what is revealed in the context of the whole process theory.

At the next level we explore links to relevant theory which help us critically review and strengthen our research findings further. Relevant theory is invaluable in exploring a range of potential consequences our theory may have as it allows us to review it from a number of different perspectives. Another critical discussion compares our research findings with the OD approach and develops a number of observations that show that a number of deficiencies of the ISD model as they emerge from our data. Finally, we conclude this chapter with a discussion of the wider implications our emergent theory of ISD has on the field itself and its fundamental paradigm.
Table 5.1: Criteria for Exploring Differences in Approach

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Functional</th>
<th>Interpretive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of Systems</td>
<td>Technical Systems</td>
<td>Human Activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Systems</td>
</tr>
<tr>
<td>Acquisition of Knowledge</td>
<td>Scientific Method</td>
<td>Interpretation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Methods</td>
</tr>
<tr>
<td>Analyst Viewpoint</td>
<td>Outside System</td>
<td>Inside System</td>
</tr>
<tr>
<td>Methodology</td>
<td>Procedures</td>
<td>Key Processes</td>
</tr>
</tbody>
</table>

Ontological assumptions in ISD concern the nature of systems which either considered techno-structural or human activity. Epistemological assumptions are reflected in how an approach ensures the acquiring of valid knowledge about a system and its operation. The expression of assumptions concerning human nature are whether the analyst is considered part of the system developed or not. Methodological assumptions are revealed when an approach relies on a number of extensive procedures or the identification of few key processes.

The following table outlines the relative positions of the six approaches along the various dimension pairs. This positioning has been based on the assessment of each approach and from the gathered and analyzed. The dimension positioning remains relatively consistent and thus supports well the overall positioning along the Functional-Interpretive continuum.

Table 5.2: Dimensions of Continuum and Relative Positions

<table>
<thead>
<tr>
<th>Techno-structural</th>
<th>WS</th>
<th>EY</th>
<th>LN</th>
<th>AC</th>
<th>OL</th>
<th>HI</th>
<th>Human Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>EY</td>
<td>WS</td>
<td>LN</td>
<td>AC</td>
<td>OL</td>
<td>HI</td>
<td>Interpretation</td>
</tr>
<tr>
<td>Analyst Outside</td>
<td>WS</td>
<td>EY</td>
<td>LN</td>
<td>AC</td>
<td>OL</td>
<td>HI</td>
<td>Analyst Inside</td>
</tr>
<tr>
<td>Procedures</td>
<td>EY</td>
<td>WS</td>
<td>LN</td>
<td>AC</td>
<td>OL</td>
<td>HI</td>
<td>Processes</td>
</tr>
<tr>
<td>FUNCTIONAL</td>
<td>WS</td>
<td>EY</td>
<td>LN</td>
<td>AC</td>
<td>OL</td>
<td>HI</td>
<td>INTERPRETIVE</td>
</tr>
</tbody>
</table>

- **Techno-structural vs Human Activity**

WS do not regard themselves as too technical, but a number of factors indicate their assumptions about systems are strongly techno-structural. Structured methods are by far the preferred way of developing systems and managing projects. PRINCE is considered a solution to IS failure. Method tailoring focuses on refinements with minimum waste of
which can not be interpreted once and for all. Every project is unique and information systems are seen as human activity systems which have both technical and human elements. Their dynamic character imposes continuous change to the project and development. However, Olsy cannot be placed completely at the right hand side due to a significant portion of its business being structured systems projects.

For HI every situation, client and system is regarded as unique even though prescriptions may exist. HI manage project complexity by diagnosing for themselves the issues and problems experienced by the client. HI’s approach to ISD shows an understanding of the political and symbolic-cultural nature of organisations within which projects undertaken. HI’s holistic approach views an IS to be part of the larger organisation. HI utilizes strategies for understanding and dealing with issues of organisational change.

• Science vs Interpretation
Both WS and E&Y are closely aligned with scientific epistemological assumptions. E&Y’s approach development is characteristically “scientific”. Latest knowledge refutes existing knowledge and is adopted until refuted itself. Engagement teams monitor large projects without being part of any of the project teams. A methodology development centre collects all the information from around the world and decides which changes will be made to the methods. Interpretation plays a much smaller part in this process which is very efficient. Additionally, structured methodologies to both organisations are by far considered superior.

Link and ACL are again placed in the middle of the range as their pragmatic ontological values cascade to the epistemological level. In both organisations scientism is reflected in the existence of central libraries and interpretation is reflected in the non-prescriptive in-house methods and frameworks.

Olsy’s epistemological assumptions are a direct consequence for viewing ISD problems as evolutionary development problems. Valid information comes from people who are at the heart of the situation and of the ISD concern. Olsy, discards information produced solely by the analyst, relying solely on his technical expertise. In ED useful and valid
involvement in making SSADM a more tailorble methodology indicate that some key processes exist, but are loosely organized as guidelines of best practice.

E&Y’s approach is comprehensive, well structured, and focused on content even when identifying processes. The fundamental metaphor behind the approach is that of a software product: when the content changes so does the methodology. E&Y roll-out an improved version of their methodologies every 6 months in order to keep up with competition which eventually catches on. Any interpretive qualities in the approach depend wholly on consultant values and expertise.

In the cases of Link and ACL we see pragmatic values creating a good mix of processes and procedures. The central libraries in both firms include a mixture of process guidelines with technical components, like skeleton code. Both firms place importance in the correct interpretation of requirements, expectations and visions. Methods are refined, customized and optimized. User involvement is highly valued and pursued in every project. Both firms have developed non-prescriptive in-house methods/frameworks and they are also confident in the use of structured methods. ACL is more to the right due to the fact that there isn’t a preferred methodological approach, but a well defined set of key processes like method choice and optimization. There is also a key framework and the establishment of mixed development and project teams. Adding value to the customer is ACL’s favourite metaphor that links values, framework and methods. The client’s capability may be developed along side the completion of technical tasks. Link’s approach is oriented towards the technical / expert delivery of software and services, which is the central metaphor.

The core metaphor at the basis of Olsy’s approach is evolutionary development. At the methodological level Olsy’s core metaphor is expressed by an implicit framework which focuses on a set of key processes and principles. These ED principles make even structured methods successful by overcoming their weaknesses. ED methodologies are naturally aligned with the interpretive paradigm. For example, the in-house ED method and DSDM, by design focus on a small set of key activities.
effectiveness. Approach can also guide development in projects where no methodology is used.

Not all diagnostic schemes are the same, but there is one in every approach. The differences lie in the nature of the issues interpreted in every situation. Clearly firms like HI have a more extensive diagnostic scheme than WS and E&Y. HI aim to interpret almost everything in a situation and do not have any predetermined "interpretations".

Supporting the diagnostic scheme are fundamental ISD outcome factors. These are seen to determine the outcome of the project and IS development and do not exclusively "belong" to a particular methodology as they transcend ISD paradigms. ISD factors are fundamental expressions of the problematic situation that consultants confront. Consultants come across requirements for involving users and parts of the organisation in every project, not just the occasional evolutionary project. Similarly, issues of vision and communication are significant factors in every project engagement. An approach deals with these fundamental issues which in their entirety are not addressed by any single methodology. The approach helps produce a synergistic methodology which is made up by various components which handle different issues at different levels. For example, client assessment and project start deals with client management and setting up the project, project management components ensure management of change and resources and tailored methodological components ensure efficient IS development. At another level, political strategies ensure support for the project and facilitative skills ensure a good process is maintained throughout.

While the diagnostic scheme reveals pragmatic values it also shows that consultancies test any theoretical "solution" in practice and improve it by complemented it with the necessary custom features. In this fashion, structured development is complemented with prototyping and JAD workshops. Ineffective solutions mean loss of clientele and revenue. Even if structured development is the favourite approach a consultancy must still be able to produce results with it. The key diagnostic scheme allows the optimization of the effectiveness of various components used in an approach.
Despite the great number of outcomes, approach ensures consistency in delivery of service to the client. Values and fundamental assumptions determine the "character" of each approach and no matter what methodologies are used clients deal with a particular consultancy firm. As we have seen each consultancy adopts a different core metaphor at the basis of their approach. Each metaphor shows where the emphasis is placed in ISD. For example, in WS's case the core metaphor of Project Management means that the client will not be "allowed" to address project management too lightly — a phenomenon typical of many client-organisations. For another firm, HI, this may be still an important issue, but not as critical as flexibility in problem solving and diagnosis. To take our example further, WS and HI may both use SSADM, but WS will capitalize on the project management features of the methodology while HI will use SSADM as a starting point for diagnosis into the client system. Formally both would be using the same methodology, but in reality methodology use would be diametrically different. This is the main function of approach, which based on the fundamental values, determines the content and process of action.

Characteristic of the functioning of an approach is client assessment. Again no methodology is used, but expectations about the client's contribution, functioning and intentions are contrasted against an actual assessment of the client. Approach ensures consistency as this is a "step" that is carried out in every project and for every client. Similarly, an individualized character is also given by the overall approach to methodology tailoring. Two different approaches place different emphasis when tailoring. For ACL the emphasis is on "streamlining", i.e. achieving the right degree of rigour. For E&Y the emphasis is on offering just the right amount of features for the characteristics of a particular situation.

As we have seen throughout the analysis of categories and the emergent ISD process, approach determines the particular quality of every aspect of the consultant's engagement with the client. I personally realized this point when confronting each consultancy firm for the purposes of my research. In an effort to assess differences between cultures I decided on a mental game: to consider myself both a potential client and a potential consultant seeking work. As it turned out, every firm came across differently and as I expected projected different cultural images to the outsider. What I did not expect was to be "attracted" to a particular firm towards which my personal
methodology creator has to think of all possible situations and therefore tailoring of components removes the methodology's universal applicability. Tailoring may be also based on more than one methodology. For example, certain procedures may be left out from SSDAM, but may be provided by less rigorous ones from another structured methodology. Alternatively, SSADM procedures may be used with custom made procedures for documentation.

Where components repositories are utilised, we see that project and process support components framed methodological ones. Additionally, within methodological collections items included not only methods, but also a series of individual techniques, tools, aspects of methods, lessons and tips. This supports the point that there is no pure method use, but the actual method used emerges synergistically by carefully selected components that are chosen to address a series of issues. This process takes place even in projects where the client has already determine the adoption of an ISD methodology. In such cases the consultant reviews the specified method and optimizes its use. The fact is that no one could ever design a methodology that would match the complexity of all ISD situations. This means that existing methodologies, even with an in-built degree of tailoring, will always include or suggest things that are not needed in every project and will lack things that are really needed. Consultants' market orientation is also important as methodologies may specify activities for theoretical consistency and robustness that have little impact on the delivery of value.

As it emerges from the ISD process, every single project requires tailoring. This means that tailoring does not occur in the odd project that falls outside the frame methodologies, but in "normal" ISD projects. Given that there are so few tailorable methodologies, if any, the question is why develop methodologies that are not? ISD methodologies appear to be the focus of significant investment, effort and theoretical discussion. For the consultancies in our sample methodologies are surprisingly low key, even in cases where millions have been spent to develop them. The fundamental point is that ISD methodologies assist in ISD, but alone can not ensure success or directly lead to failure. WS characteristically noted that systems do not fail due to some part of SSADM, while E&Y's IT manager argued that systems fail because of the way people use them rather than methodologies themselves. Additionally, none of the firms argued
have been addressed properly. As the client sees himself as a commissioner of a piece of work, he may also place pressures on the project that are not realistic.

The client also represents the organisation which influences the client's approach towards ISD. As we saw project management tradition in an organisation determines how ISD projects themselves are carried out. As such the organisational context is important. For example, a proposed system may be commissioned by the client as a discrete piece of work, but within the organisational context it may be extensively dependent on other systems or on a variety of people. The client may not recognize how this increases the complexity of both the ISD process and the IS itself considerably. Another aspect of the organisational context, is the fact that in many organisations availability of resources to the project may suddenly decrease as production takes precedence over development.

It seems surprising that consultancies themselves attribute and require a much more important role to their clients and characteristically dismiss that the client is simply the "person who pays the money". He may be considered as such only when all other conditions are met. In most cases, consultancies will even consider working with clients that face financial difficulty. When problems arise consultants expect to work together with the client for their resolution, even if these problems are of a business nature.

Throughout our data, consultancies also expressed desired client characteristics. For HI, clients must recognize the value of IS, understand what is possible to achieve through ISD and have a willingness to accept and work within realistic constraints. For ACL, clients must have a good understanding of their capabilities, put effort in understanding requirements and specifications, be prepared to accept responsibility and have adequate skills. For E&Y, projects should enjoy an adequate level of commitment and an appropriate vision throughout the organisation and leadership. For all the consultancies, the list of ISD factors and client assessment factors are a reflection of the importance of the client's contribution:
always identify needs that the client has not thought about and only a very small percentage of projects proceed with a match between actual and perceived needs. Although the rest of the firms did not appear to be as pessimistic this shows that HI's investigative and holistic intervention model can not operate effectively in pursuing inappropriate needs. For the rest of the firms the same phenomenon is not as critical for their approaches to work. For all firms, this type of complexity can only be resolved through an effective consultant-client relationship. The consultant appears unable to carry out an effective political intervention that will take advantage of the consultant's own power and address the client's power. The strategies followed by our consultants may show the need for process/political intervention and skills, but there are all largely simplistic and not guarantied to work.

While process, intervention, and change elements exist in ISD they are seen as unnecessary side-effect or out-of-scope activities and phenomena. This means that the level of intervention is rather "shallow" and its main function is not to manage organisational and behavioural change, but to remove problems from projects. As ISD emerges as a complex and deeply social process a more sophisticated level of understanding and analysis is needed. Especially, while it appears that clients too lack such expertise as they almost impel consultants to operate in a "get-in do work and get out" mode.

5.3 Theoretical Connections
While consultants in our firms appear up-to-date with methodological advances, it seems ISD professionals within large organisations still operate under the traditional ISD (functionalist) rationality. In characteristic fashion we saw how ISD staff lacked initiative and facilititative skills. For ISD to respond to the pressures for a more participative-collaborative approach to development, a more in-depth intervention and process management model will need to emerge. This is not enabled by the fact that ISD is not an open field, but is rather esoteric in terms of using theories and techniques from other specialized disciplines. We saw how, not only OD, but Gestalt theory, Archetype theory and Structuration theory are key theoretical fields that directly explain some of
consultant, while communicating with the client and in his effort to understand the client system and situation, utilizes an diagnostic scheme embodied in his approach. This scheme is consistent with a structure of values and guides the consultant in making interpretations of key aspects of the client, his situation and of the project's process. This diagnostic scheme has emerged out of years of evaluating outcomes and the interaction between consultants and clients. The diagnostic scheme links consultant-client interaction with structures of signification which consultants further draw upon to make sense of what occurs during their relationship with the client and during the project experience. The structures of signification and the diagnostic scheme in the approach may change if they become repeatedly inappropriate in guiding interpretation in practical situations. Consultant feedback and monitoring allows for new structures and schemes to be produced.

In the domination / power dimension we see the interplay of power between the consultant and the client. As we have seen in project start, the client is in control of the project's initiation and ultimately has the last word in the handling of every issue. We also saw how consultants are constrained by this reality when attempting to do what they think is best for the client. The strategies employed by consultants are varied but, to their admission, of questionable effectiveness. The client's power emanates from the facility of resources and financial support of the project. This means the consultant will always do what the client wishes him to do. This typical interaction reproduces the structure of the client's domination over the project's activities and decisions. The consultant may occasionally challenge this domination by using considerable interpersonal skills and charisma to convince the client. This challenging however does not challenge the domination structure, but it reinforces it because not all consultants have such skills.

We can also identify support for the legitimation / sanction dimension in our analysis. One area of support is the question of the consultant's process or backstage activity. Given the domination of the client and the consultant's intent to help the client, we identify a legitimation structure which create a norm allowing consultants to assist the client even if the client disagrees or does not known it. This backstage activity is sanctioned because often the client ignores his own abilities, what is best for his
Through structuration theory’s dimensions and dual modality, ISD process emerges as deeply social where simply focusing on structural or interactional elements may not provide the complete picture. Dynamic and static categories interact and are deeply inter-linked to produce the richness of the overall process.

5.3.2 Archetypes

Another theoretical area relating to our discussion is that of Archetypes, which have been used in organisational strategy and design. Archetypes allow a more holistic examination of organisations beyond traditional bi-variable relationship models which are limited in expressing the complexity of organisations:

“Archetypes are defined as clusters of prescribed and emergent structures and systems given order or coherence by an underpinning set of ideas, values and beliefs, i.e. an interpretive scheme.”, (Hiwings & Greenwood, 1989:22).

“an archetype is the most symbolic, universal psychological image of a character type known”, (Mittroff, 1983:84).

Given these definitions, the concept of approach can be analyzed in terms of archetype. In the above definitions we can substitute organisational structures and systems for methodological, project and process support structures and systems, and instead of a psychological image we can have a metaphorical image. The links with our previous discussion are apparent. Archetypes are fundamental entities that are determined by a system of values and assumptions. We have already talked about the role of the diagnostic scheme within the approach and the fundamental metaphors behind each approach. We have also noted how each approach comes across differently projecting to the outsider a different symbolic image. As the classification of structures and systems within archetypes are not seen as neutral but embodying intentions, aspirations and purposes we too have noted how different diagnostic schemes mean different use of the same method. Thus it is useful to try to identify archetypes of approaches in order to examine the notion of approach from a holistic perspective.

There are three fundamental consultancy approach archetypes that can be identified from our data:
The Investigator archetype is solely characteristic of HI, who differ significantly from the other consultancies in our sample. Their diagnostic scheme is truly adhering to the interpretive paradigm. Like an actual investigator, nothing is taken for granted and the cause of action is determined only after the collection and analysis of data from the client system. Neither the client’s insistence on a particular solution, nor the existence of a prescriptive solution deter HI from carrying out their investigation. Only when this is completed a project can be initiated. Underlying the approach lies an assumption that reality is very complex, presenting a series of problems and distorted views of problems. To deal with the complexity the consultant uses a holistic, iterative, process-oriented and flexible problem solving approach in order to unravel intentions, responsibilities, causes, deeper issues, influences and conditions. During development significant process activity takes place as the situation remains complex and may need more than one attempts to deal with it.

The archetypes are important in indicating the holistic nature of the approach and show the importance of values in determining how methodologies are used and projects are organized. It is interesting to note that any consultancy could easily belong to another archetype. For example, HI could be Marketeers if they decided to take advantage of the prescriptive nature of quality standards’ models. Link also could be Advocates if they decided to promote their in-house methodology.

Archetype analysis is useful in charting the conceptual level of approaches and facilitate their understanding and can offer a terminology that is suitable for analyzing meta-methodological concepts. Archetypes allow examination of a series of interacting elements that make up the approach without delving into the isolated examination of particular relationships between these elements. In doing so the context is always maintained. For example, tailoring can be studied non-holistically for its contribution to the success of ISD. However, without understanding values, core metaphors, tradition, culture and frameworks of choice we can not understand the role and function of tailoring. Approach ensures success, but it is not one single element of the approach that makes it able to do so. Archetypes can help understand how different approaches ensure success. For example, for the Advocates success relies in being as close as possible to
behaviour and is described as the "living embodiment of knowledge". This makes the consultant the focal point for providing access to knowledge, theories and practices. Furthermore, the consultant's presence depends on himself being consistent with a set of values and views, and helping others learn from his "way of being". While the latter is an aim pursued by the Gestalt approach to consulting, the remaining points could be easily said about Approach. Gestalt theory highlights the notion that the consultant's presence is the result of his adoption and following of an approach that is in parallel taught to the client by the consultant's enactment of it. This certainly provides theoretical coverage for the point made earlier that approaches come across differently to the outsider. It appears that presence and approach are but two sides of the same coin. The enactment of an adopted approach is a result of values which the client relates to. This also ties in with the notion of "personal chemistry" that develops between consultant and client. Again, the important point here is that the approach is a holistic entity where no specific element of it can be identified as contributing to the consultant's success or to successful IS development. The synergy of all the various elements, such as values, assumptions, culture, diagnostic scheme, framework, components range, tailoring criteria as well as the consultant's skills in using the approach, determine overall effectiveness and appeal to the client. Gestalt theory supports this notion through the concept of the consultant's presence which describes how the approach comes together for a particular consultant in his relationship with the client.

Another aspect of presence is that the consultant can not be easily trained to enact a prescribed presence. This is confirmed in our analysis of consultant recruitment practices which reinforce the organisation's culture by hiring compatible individuals or by hiring graduates who their professional cultural make-up is not fully formed. Furthermore, it is an established practice for consultant skills development to move consultants around through different positions in the organisation and through different project areas. This effort, apart from improving experience and skills, also aims in providing a holistic understanding of the field and of the consultancy's approach towards it.
What Ciborra describes can be thought of archetypes of approach towards ISD. Indeed all three notions have their roots in fundamental and ancient metaphorical images of the processes of caring, hospitality and cultivating. Ciborra’s arguments indirectly support the notion of approach as a concept based on such key images. His suggestions further find support in our call for a paradigm-shift in ISD thinking.

Departing from the premise that business requirements may change frequently, Gadner et al (1995), make the case for tailorable information systems. These systems allow tailoring not only to their interface, but to their essential functionality. This form of tailoring goes beyond parameter based customization to provide the user with control over the behaviour of the system. Tailorable information systems are contrasted to systems developed under the Fixed Point Theorem, i.e. the assumption that “there is some point in time when everyone involved in the system knows what they want and agrees with everyone else”. For the authors:

“This approach is typical of methodologies used for designing and developing information systems. These methodologies assume that user requirements can be known and agreed.”, (ibid:183).

Our analysis confirms this weakness which consultancies overcome by tailoring their methodologies. The need for tailorable systems supports the need for tailoring. As these systems are not completely redeveloped each time requirements change, methodologies can not be used that operate on the full SDLC. The evolution of a tailorable system requires tailorable methodological approaches as the system is mostly in place. With the advent of RAD and its growing popularity the pressure for tailorable systems will increase and with it the pressure for tailorable approaches.
5.4.1 Values

The values that emerge in our ISD process are mostly (a) pragmatic values and (b) development effectiveness values. Our consultancies are predominantly commercial organisations that have to remain effective in the marketplace. Even when there are strong cultures showing preference for a particular methodological approach, (Advocates, Investigators), pragmatic values ensure what the client wants is delivered. Related to pragmatic values are development effectiveness values. These ensure that ISD factors aim to remove fundamental problems from the projects undertaken and ensure that no unexpected issues occur in any type of project: structured, evolutionary, or where no methodology is used. Development effectiveness values also permeate tailoring decisions where methodological approaches may be optimized to achieve fitness for purpose at an acceptable cost.

While each consultancy firm differs ultimately in its particular values the above two sets are common to all of them. In contrast both OD value sets are lacking. We see that humanistic, democratic and "people" values are not a fundamental concern of ISD consultancies and neither of the client-organisations. We see this characteristically in RAD's popularity. The motivation for developing these approaches is speedy development, increased user acceptance, incorporation of changes and increased business benefit rather than pursuing principles of empowerment of users, participation, ownership and team development.

The lack of humanistic values implies that the wider impact of IS development is not examined as it should. Beyond the immediate concern of the ISD problem the wider impact is felt only by the people who interact with the new system and its processes. We came across a mismatch between IT and Business rationalities which really reflect a fundamental misalignment of values. IT rationality is typical of ISD values which conflict with Business rationality focusing on business benefit. The above ISD values have been nurtured by a general functionalist organisational tradition within organisations.

Similarly, organisational effectiveness values are not a concern of ISD consultants. IS development is not seen in terms of delivering business benefit but in terms of a
performing a thorough diagnosis of the client. For some firms, like E&Y, the range of components is exhaustive which makes this form of diagnosis essential for the whole approach to work.

A question arising at this point is whether the above forms of diagnosis are simply forms of assessment, which is a less thorough and exhaustive process. We believe they are forms of diagnosis because although they are directed to a particular area they are nevertheless the most creative aspect of an ISD project. The initial contact between the consultant with the client emerges in our data as the most critical and most complex period of the whole project. Consultants manage this initial situation without any prescribed methodologies, but rely on diagnostic models, like the frameworks and diagnostic schemes, and their own skills. They will also not engage in a project until they have a satisfactory understanding of who the client is, his likely contribution, the key concerns and the possible ways forward. This involves a thoroughness characteristic of a diagnostic activity. In OD, assessment is too a form of diagnosis, but it is not considered as thorough and exhaustive. Assessment is a response to the changing business environment which requires faster diagnostic cycles. We do not see the same sense of urgency in IT as projects undertaken are not always RAD projects. Therefore it is the norm for our consultants not to rush these initial phases which they regard as the most important.

In support of methodological decisions, approach may utilize component repositories. These can be contrasted to the “OD arsenal” or toolkit. Even for the firms that do not have a central library system, a shared conceptual collection exists in the form of experience and knowledge in consultant's minds. Consultants share their experiences and are monitored in all firms and important lessons are captured and disseminated. In HI's case this takes place through regional and other in-house conferences. Where they exist, component repositories are used in exactly the same way as the OD toolkit. We also have a combination of components, but more importantly we have tailoring of the components to fit the situation's requirements. Tailoring and customization of OD interventions is an important function of the OD approach as well.
his own personal understanding. However, soft systems are collaborative methods not personal analysis tools.

While OD focuses on the total system this does not appear to be the case with ISD. The focus is limited on the immediate system under development. Once ISD factors are taken care of, during project start and project management, there seems to be little interest to review the wider ramifications of development and the system itself. This creates a paradox because our firms do recognize, indirectly at least, the systemic nature of the organisational situation. All agreed on the surface that a large number of projects are part of a larger situation and that some of the problematic projects have knock-on effects to other projects and to the organisation as whole. However, we do not see any evidence of genuine understanding.

OD is a collaborative methodological approach that requires the client to work with the consultant in bringing about change. In ISD the degree of collaboration depends on the particular situation, the desires of the client, the type of automation and the methodological approach followed. Our consultants would wish their clients were more involved and would try to involve the client as much as they can. In evolutionary development projects collaboration may be achieved if management and key stakeholders are involved throughout the project and along key users. Overall the requirements for collaboration are similar between the two fields.

OD is a systemic approach that places the consultant within the problematic situation. Apart from HI who practice a systemic approach, the rest of the firms show a pragmatic approach. This means that it is not important whether the consultant is part of the situation or external to the situation as long as his approach proves of value in dealing with the practical concerns at hand. During his intervention it is possible for the consultant to be accepted as part of the client-system and treated as a member of the organisation. Many client organisations do hire consultants to act as resources to development teams rather than develop something.

OD’s approach views organisational reality as dynamic. The ISD model maintains a rather static view of organisational reality, unless specific issues arise that must be
Table 5.4: Differences between OD and ISD model characteristics

<table>
<thead>
<tr>
<th>OD model</th>
<th>ISD Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generic change methodology</td>
<td>Change is a side-effect</td>
</tr>
<tr>
<td>Open-pluralistic</td>
<td>Esoteric-pluralistic</td>
</tr>
<tr>
<td>Action oriented, data-based</td>
<td>System oriented, surface data</td>
</tr>
<tr>
<td>Systems thinking</td>
<td>Limited systems thinking</td>
</tr>
<tr>
<td>Total system focus</td>
<td>Immediate (sub-) system focus</td>
</tr>
<tr>
<td>Collaborative methodology</td>
<td>Depends on situation</td>
</tr>
<tr>
<td>Systemic approach</td>
<td>Pragmatic approach</td>
</tr>
<tr>
<td>Dynamic nature of organisational activities</td>
<td>Static unless issue resolution required</td>
</tr>
<tr>
<td>Applied Behavioural Science</td>
<td>Reliance on consultant skills</td>
</tr>
<tr>
<td>Reflection on process of intervention</td>
<td>Reflection on process of project</td>
</tr>
</tbody>
</table>

5.4.3 Skills

OD and ISD skills are contrasted in the following table:

<table>
<thead>
<tr>
<th>OD Skills</th>
<th>ISD Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrapersonal skills</td>
<td>Personal Characteristics &amp; Culture</td>
</tr>
<tr>
<td>Interpersonal skills</td>
<td>Political / Interpersonal</td>
</tr>
<tr>
<td>General Consultation skills</td>
<td>Managerial &amp; Process</td>
</tr>
<tr>
<td>Organisation Development theory</td>
<td>Fundamental Knowledge of ISD &amp; Technical</td>
</tr>
</tbody>
</table>

ISD intrapersonal skills do not emerge directly from our data. However, these are examined during ISD consultant recruitment which ensures that individuals with appropriate personality characteristics and culture are recruited. A main difference is that in ISD there is no consideration for the development of intrapersonal or interpersonal skills. Training focuses on the technical side of ISD and a richer experience is developed through moving positions and project areas. Intrapersonal skills represent esoteric skills that it seems ISD consultants ignore. Consultancies avoid the issue by hiring suitable people rather than attempt to train them. In HI's case only consultants that have a natural talent for process understanding are seen as capable of grasping the complexity of process consultation and only after a long period of time. In OD this view is challenged and skills development programmes can turn most open-minded individuals into an effective process consultant, (Atkins et al, 1994).

For the remaining skills areas it is obvious that the same skills are needed in both OD and ISD. Specifically, interpersonal skills are needed in both OD and ISD, with an emphasis on political skills for ISD. General consultation OD skills were reflected in
consultants in our sample show both the difficulty of the task, but also the requirement for persistence over a long period. The client may open up to another possibility only after an initial effort has failed requiring the consultant to persevere. This shows the intensity of the consultant’s intervention, but also the two levels that he needs to operate at: (a) content-task and (b) process. The consultant is likely to carry out a process intervention because of his intent to help the client and because he “always knows more than the client”. As we discussed earlier the consultant finds sanction to help the client as he best can, in the client’s inability to help himself. The difficulty of maintaining an effective relationship is intensified by the client’s tendency not be involved and share responsibility for the project. This makes the consultant-client collaboration problematic and weakens the relationship.

The project range taken up by consultancies spans from content-oriented to process-oriented projects. Process-oriented projects increase the client’s ISD capability and self-sufficiency. Consultancies may help the client choose the most appropriate ISD strategy for themselves, although they may promote their own methodological products as well. However, their process orientation is more narrow in focus than process consultation. The main vehicle is an advisory-consultancy role where value is added, skills transferred and a certain “know-how” is passed on. This consultation has no wider extensions and implications into the way the organisation functions from a process point of view. Although projects may aim to improve the client’s capability they do not aim to help the client improve his own capability himself. Thus process-oriented projects are more like training/reengineering projects. On the other hand, content-oriented projects are carried out with minimal client involvement. In these projects consultants “take full responsibility for the success of the project”, in ACL terms. These projects are very technical in nature and have to be very well defined for the consultancy to proceed without the client’s involvement.

The above picture implies that ISD consultants should be also process consultants. Apart from HI where process consultation is practiced, the remaining firms ignore this mode of consulting, despite the fact that they undertake projects which solely focus on improving the client’s ISD capability. Process skills are not developed separately in their own right or as part of consultants’ standard training. Moving consultants around is
An important realization has been that ISD methodology is not always suitable or even able to solve ISD problems and is not in a position to determine a successful outcome. Instead this is achieved by the approach which provides the context of use of methods and guides the consultation effort. Approach directly matches the complexity of the situation and the uniqueness of every organisation and project. Characteristic of this property is the process of tailoring, which seriously challenges the structure of traditional ISD methodologies which assume there is largely one best way of developing information systems. Tailoring, along with a supportive framework and components repository, proves that there is no pure use of methods in practice and that the approach represents the element of craft or art associated with any prescription. This is because the enactment of each approach by a consultant, what is Gestalt Theory’s Presence, depends on his skills, culture and abilities. Consultancies make sure they hire the right people from the start and immerse them in their culture and in “live” projects. The
What the above diagram shows is a scale of abstraction levels. The higher up the scale, the higher the level of abstraction in focus. The levels are drawn in the shape of a
instance where these values are rendered inappropriate the problem solver critically reviews them engaging in a paradigm-shift or a creative leap.

Once new values have been established the process of decomposition may start again. This way analytical cycles form until problems at various levels are resolved. The processes of choice and application shift problem solving from higher to lower levels of abstraction. Implicit in the diagram is the range between conceptual and physical foci. At each level a process of diagnosis or assessment determines choice and application.

In the above diagram we can conceptually locate approach, which relates to a particular path through the abstraction levels, starting with a particular mix of values. The width and height of the pyramid will increase for the most open and pluralistic approaches and decrease for the more dogmatic/prescriptive approaches. Along with this diagram we can also identify criteria for determining approach effectiveness for both clients and consultants, without focusing solely on examining methods and project characteristics. In the ISD literature the term approach is frequently used, but has only being termed as an entity by Earl (1992) who identified a number of approach archetypes in the area of strategic information systems planning (SISP). The author admits that SISP is a complex phenomenon where it is more appropriate to talk about a holistic approach rather than SISP methods. We have extended such analysis in mainstream IS development which is too a complex phenomenon. Like Earl we have produced a classification of different approach found in our sample and we have identified their conceptual structure. We studied their differences and defined archetypes that can serve as tools for studying other approaches. Clearly, a priority for ISD is now to study approaches more extensively in order to inform approach development and improvement.

Frameworks too can be thus developed independently of approach or method. An emerging discussion can be identified in this area through the work of Jayaratna (1986), Kumar & Welke, (1992), Jackson & Keys, (1984), Avison & Wood-Harper, (1990) and Olle et al (1988). To this body of work we could add the relevant discussion of paradigms in ISD, (Hirschheim & Klein, 1989). These meta-methods, frameworks and classifications do not prescribe a single methodological path but allow and support the identification of the most suitable one for the project. We will be looking at these
of project types. The multi-level complexity ensures that during IS development nothing can be taken for granted. The complexity of organisational life and activity appears to be such that politics, culture, change and unexpected issues arise to threaten both the success and future of a project. Given also the fact that not all organisations are fully prepared for IT related change the overall situation emerges of significant complexity. IS development emerges as a process which can not be addressed effectively by any single way or at any single level. The complexity increases for the consultant due to the power differential between the two parties. The client has the last word in issues resolution and consultant’s pragmatic values do not allow a confrontational challenging of the client. Despite these constraining conditions the consultant tries to help the client through his backstage-process intervention.

• The “Side-effect” Assumption
Organisational phenomena are regarded largely as an unavoidable side-effect of the ISD process and project. While the situation is an organisational phenomenon and the organisation is seen as the locus of the most important sources for problems in ISD, we do not see an equally rich understanding of organisational issues or a proactive attitude towards them. The complexity and sophistication of the approach manages to deal with such issues, but only at a superficial manner. Given that current ISD operates at a mode that focuses on surface issues, the need remains for driving ISD intervention at a deeper level where it can be more effective in addressing change into the client system. Currently the consultant is significantly constrained by the power balance with his client which makes his intervention appear spasmodic and reactive. A more effective intervention will help readdress the power relationship and make it easier for the consultant to steer the project towards the right direction. An indication of the consultant’s inability to address the power balance in favour of the project’s success is that fact that the client does not immediately buy into the consultant’s proposals. To do so the consultant must first challenge the client’s assumptions and then bring about a change in the client’s mind-set. This requires intervention to reach a deeper level where issues of assumptions, openness to possibility, resistance to change and readiness to change can be assessed by the consultant.
A direct result of the side-effect assumption is the lack of organisational “components” within ISD approaches. Organisational techniques, tools, models, theories and methods
the ISD outcome. A discussion on such key schemes is needed in ISD to take the form of diagnostic models which can be used by consultants to determine the potential success of a project—not only in economic terms. Some relevance can be seen in the discussion of success factors in ISD, which however has focused on user involvement, (Ives & Olson, 1984; Tait & Vessey, 1988), situational factors, (De Brabander & Thiers, 1984), technical/project characteristics, (Brooks, 1975; Cerullo, 1980), organisational factors, (Land et al, 1992a). Our findings call for an expansion and integration of research efforts in this area as one factor on its own may not be studied appropriately. Characteristic evidence of this is the argument that user involvement is not found to be always appropriate, despite its wide-spread recognition as a success factor, (Newman, 1989). In our research we identified an diagnostic scheme which diagnoses a number of interrelating factors including the consultant-client relationship. More recent work has focused on more holistic sets of factors, (Whyte & Bytheway, 1996; Chu & Bannister, 1992; Johnson, 1995) that can be potentially turned into diagnostic models and frameworks.

5.5.5 Implications for ISD Values

ISD needs a reflective discussion in the field about values held by consultants, values reflected in approaches and values perceived by client-organisations. Our research data indicate overtly pragmatic and development effectiveness value sets. While these are not necessarily ineffective, they allow too much space for ineffective and substandard behaviour by consultants and ISD professionals. There are no values that act in a limiting capacity, drawing appropriate boundaries to pragmatic and effectiveness pressures. In other words, a conscious consultant is not hindered in his work by being pragmatic and focusing on improving the effectiveness of development. However, there is nothing to constrain consultants pursuing pure pragmatic and effectiveness interests at the expense of client needs. This is apparent in the uniform admission from our consultancies that they would always do as the client insists, even if they disagree strongly with him. They also noted that consultancies facing pressure skip activities that are not seen as developmental like testing—however essential.

186
individuals could learn them and only after a long time. This may be indicative of a wider belief in ISD, but this is not true. It is possible as we see in OD and other management fields to effectively train consultants and change agents alike in this mode of consultation and intervention, (Atkins et al, 1994).

5.5.7 Implications for Clients

Clients may setup projects that are destined to be problematic. The consultant spends significant amount of effort and time in assessing key ISD outcome factors that ensure success that the client has not thought about. The client emerges as the weakest party in the ISD process, i.e. being more in a position to contribute to failure of the project. Characteristic of this is that no successful project is free of having to solve minor or major problems. The primary sources of problems originate in the organisation rather than in technical, methodological or development staff areas. The client’s role that emerges from the ISD process is one of ill-preparation for IT and ISD, of minimal involvement to the ISD process and presenting a risk factor. However, without the client’s participation important issues that unavoidably challenge the project can not be resolved. In some cases changes to projects are difficult as the client is too close to the project to allow significant changes to it. Having full participation of the client from the start allows to keep the project on the right track.

Clients in ISD need to reassess their position towards the development process and consultants. They need to gain a better understanding of what ISD entails and help the consultant drive the project to the key issues. The consultant can not operate effectively without the participation and collaboration of the client-organisation. An awareness discussion must be raised to inform clients on their role in ISD and how to maximize its effectiveness. A belief that must be abandoned is that ISD is simply a product or a service that can be purchased and installed with minimum client involvement. To an extent, this logic is understandable because the client’s priority is looking after the business and may not expect to commit significant resources to participate as he should. Given the consultant’s power status in the consultant-client relationship, the above situation is reinforced rather than challenged by the consultant. However, the client is sensitive to developments in the market and the business environment. Examples of this
Chapter 6

How Can Organisation Development Ensure Successful Information Systems Development?
diagnostic model of ISD practice. The chapter finally outlines a number of suggestions for undertaking further research and summarizes the thesis' contribution to knowledge.

6.2 The OD Contribution in the Literature

As we mentioned earlier, the usefulness of OD in ISD has been noted already by a small number of researchers and theorists. Although most of this literature takes the form of theoretical proposition, Loftin & Moosbruker (1982) describe an organisational change effort within a major data processing organisation which involved activities defined and implemented using OD methods. The authors argued for the importance of OD methods to IS managers as:

"OD methods are powerful skills and tools for working change of the most important kind, namely change in organisation and group behaviour. As the primary agent for change in the corporation, IS managers can employ these methods to make the IS organisation more responsive to the needs of the business.", (ibid:15).

The authors summarize the usefulness of OD methods in the following areas:

- The IS manager is an agent of change and as such can be supported by OD methods,
- The IS manager can apply OD methods to help develop skills and abilities of other managers throughout the organisation,
- IS tasks require intense interaction with other departments and users. OD methods can be applied to ensure these interactions are supportive and constructive,
- OD methods can help IS managers focus their attention to decision making processes, information sharing and personal reward systems. These factors that relate to employee motivation, morale and productivity are unfamiliar ground for these managers who view the human as a component of systems.
- While the IS organisation tends to emphasize the mechanistic dimension, OD calls for attention to the human dimension. This will allow ISD to consider what humans can do as well as what machines can do.

191
Desanctis & Courtney, (1983), divide the OD contribution to MIS implementation into theoretical and applied. While OD is seen to have a primarily applied focus, a number of key theories are proposed such as Lewin’s three stage change model, Likert’s organisational change scheme, Bennis’ integrated theory of change and Argyris’ theory of the change process. While these theoretical contributions are geared towards understanding organisational and behavioural factors in implementation, the applied side of OD includes techniques and expertise for fostering organisational change:

<table>
<thead>
<tr>
<th>Techniques</th>
<th>Expertise on how to</th>
</tr>
</thead>
<tbody>
<tr>
<td>• survey feedback</td>
<td>• encourage creativity</td>
</tr>
<tr>
<td>• group diagnostic meetings</td>
<td>• utilize information resources for</td>
</tr>
<tr>
<td>• communication training</td>
<td>• non routine tasks</td>
</tr>
<tr>
<td>• laboratory training</td>
<td>• develop norms that encourage use of</td>
</tr>
<tr>
<td>• training sessions</td>
<td>• computerized information technology</td>
</tr>
<tr>
<td>• role negotiation technique</td>
<td>• improve relationships and communications</td>
</tr>
<tr>
<td>• organisational mirror technique</td>
<td>between users and MIS personnel</td>
</tr>
</tbody>
</table>


The authors also identify a list of situational variable affecting the need for OD. These include: the extensiveness of the MIS, the attitudes of the users, the nature of norms concerning the MIS, the nature of MIS relations with general management and the nature of change concerning the MIS.

The article concludes with the suggestion that an OD consultant should be invited to work on MIS implementation projects and that responsibility for issue resolution should be delegated among the OD and MIS specialists. The OD specialist would focus on the social system and change issues.

A similar implementation oriented view is taken by Hirschheim, (1985b) and Willcocks & Mason, (1987). The first author argues for the use of OD models under the framework of Planned Change, such as Lewin’s three stage change model and Kolb/Forhman’s model, in the area of office automation implementation. The main motivation for using these models of change is to overcome resistance to change, although the author deems these models as too general, as assuming rationality on part of organisational members and as unable to take into account the plurality of the office. Along similar lines, Willckocks & Mason, (1987), argue for the use of OD as an implementation strategy and
Jelinek & Litterer, (1988), observe that IT is increasingly used throughout the organisation to automate manufacturing and support processes and ensure high quality is achieved through their precision and speed. For the authors, “computers permit organisations to embrace change where once they shunned it: programmable automation makes manufacture of variety inexpensive.” However, for computers to be used effectively new practices and assumptions about information and communication are required. Although the OD consultant has long addressed the related issues IT-related change brings the difference is that in the new IT-enabled organisations the scope and intensity of organisational coupling is greatly increased. People, their decision and actions are more widely and densely connected to each other. This increases the necessity for OD’s traditional emphasis on the value of the individual. The new focus in OD has to be “upon shared participation in a community of goals and effort, rather than the more traditional focus on the “individual as an abstraction or ideal”.

Barry (1989) departs from the observation that IT requires a different treatment in OD than technology in general. He notes that:

(1) The conventional paradigm of technology in the organisational literature inadequately addresses information technology,

(2) Information technology needs to be conceptually disaggregated from the broad technology construct,

(3) Agents of change need to understand and master the threats and challenges posed by information technology to organisational development.

Traditional notions of technology focus on its role in the production process rather than its role in the managerial process and they focus on structure rather than multiple dimensions of organisational functioning. The implications for OD evolve around the risks IT poses for managers and change agents and the challenges for successful intervention into an IT-intensive organisation. Risks from IT stem from the transformation of the decision making process, the redistribution of power within the organisation, the transformation of the ways organisational members communicate, and the threat to worker satisfaction as a result of IT-increased work monitoring. Given the above risks, OD specialist have to reevaluate their individual theoretical perspectives on
in a position to respond to the challenges concerning IT as the field has always exhibited the ability to deal with innovation and challenge.

The literature originating from OD call for the field to become more familiar with IT and develop new or customize existing models of change to take account the specific nature and impact of IT to organisations. While OD is not directly involved in IS development, it is interesting to observe how the field already is opening up to the possibilities and challenges of IT and ISD. As IT has an impact on organisations themselves, OD begins to take notice. Unfortunately, the same cannot be noted for ISD which still largely ignores what happens to organisations. From the above arguments the point arises that perhaps in the future the two fields could merge into one as both fields can benefit from each other. While for OD such integration is a futuristic vision that will be determined by the role of IT in the future, for ISD this integration is far more urgent and critical for the success of the field.

Linking the above arguments with the discussion developing in our study, as early as chapter 1, the potential contribution of OD emerges along three levels:

a) Supporting a new OD-informed ISD approach for transforming ISD, we term as Total Systems Development, (section 6.3),

b) Offering its knowledge repository and toolkit, for integration with the ISD repository, (section 6.3.8), and

c) As a diagnostic model of ISD practice and failure, (section 6.4).

6.3 Towards Total Systems Development

The main contribution, in our opinion, lies in the catalytic effect OD can have for current ISD thinking and practice. OD concepts can facilitate a change of values in ISD. We agree with (Desanctis & Courtney, 1983; Willcocks & Mason, 1987), that the utilization of OD theories and techniques is very useful and we deal with this line of thinking in the following two sections. We also extend their viewpoint as we do not narrowly consider OD only as an effective implementation strategy. Implementation assumes primarily structured development that occurs outside the organisation. New ISD methods and practices means that IT-related change occurs early on.
Operating within this process of development, a Total Systems Development approach can be examined along the following dimensions:

- Values & Principles
- Key Diagnostic scheme
- Frameworks
- TSD Framework
- Key Processes
- TSD Model
- TSD Consultant
- TSD Repository-Toolkit

6.3.1 Values & Principles

The starting point for an ISD paradigm shift is the issue of values. As we discussed already, OD values could enhance ISD’s overtly pragmatic and development effectiveness values. Apart from the particular value sets, ISD lacks an in-depth discussion and reflection on its own values. Such a discussion, and in some cases an intense argument, has been characteristic of the OD field. A similar discussion in ISD is now appropriate and needed. Like OD, ISD too has to respond to the developments occurring in the general business environment affecting organisations. In all recent developments, (RAD, BPR), organisational effectiveness is the primary driver, but to secure it and minimise its impact to the organisation people issues are now equally important. ISD has responded with the development of methodologies in the above areas. While these may help ensure organisational effectiveness they are totally ignorant of the humanistic issues involved. As we saw in the RAD projects in our sample, facilitation and group dynamics are an issue not handled by the method used or by the ISD professionals involved. While in the ISD model these issues are treated as side-effects of development they have the capacity to stall the ISD process, rendering a RAD project anything but “rapid”. For ISD to remain relevant to organisations a discussion and an expansion of values is needed.

A second area where paradigm change has to occur in ISD is the principles of Systems thinking. While surprisingly it is considered one of the foundations of OD, (French &
Table 6.1: Summary of TSD Values & Principles

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Systems Development</td>
<td>A holistic approach to systems development, that can facilitate development of any type of system.</td>
</tr>
<tr>
<td>ISD Values</td>
<td>Reflecting a pragmatic interest &amp; pursuing the effectiveness of systems development processes, procedures and technical excellence.</td>
</tr>
<tr>
<td>Humanistic Values</td>
<td>Focus on democracy, fulfillment in the work-place, the well-being of human actors, and the development of people in relation to systems development.</td>
</tr>
<tr>
<td>Organisational Effectiveness Values</td>
<td>Focus on what the organisation on the whole is trying to achieve — not only on the problem the IS is solving.</td>
</tr>
<tr>
<td>Systems Thinking - Total System</td>
<td>Viewing the organisation as the total system that is developed through systems development. Focus on the systemic nature of organisational reality.</td>
</tr>
<tr>
<td>Intervention &amp; Change</td>
<td>Taking into account the disrupting effect of development activities have on people and organisations. Focus on managing organisational change.</td>
</tr>
</tbody>
</table>

6.3.2 Key Diagnostic scheme

As we saw in chapter 4, a diagnostic scheme is part of an approach. Using our research findings and OD we can formulate a diagnostic model, as part of the TSD approach, to assess the client-organisation’s Capacity for Systems Development:
own role, the vision he has about the project and the ISD effort, the assumptions he is or is likely to make, amongst other things, about the consultant, the IS and the ISD process, and what his position is in relation to his involvement and his support of the project.

The Involvement element examines the involvement of all possible stakeholders. The project element examines the project's characteristics. As we saw in our analysis, projects range in type and as such create different requirements on the consultant and his approach. A very well defined content-task project carries less risk than a project that aims to develop strategic ISD capability. Projects may also face pressures and constraints that may not be acceptable. The nature of technology is also important as very new technology or certain types of technology may prove problematic. Project management is also an important facet. Examining how the client wishes to manage the project is important. Finally, the skills of people and the capabilities of teams are also important. People with questionable skills pose an additional risk that the consultant or client may not be able to minimise.

The Needs and Requirements element in our model represents the core ISD question: What does the client really needs and how his needs compare to the requirement raised initially. If there is a big gap between the two the project may suffer and the consultant may not be willing to collude if the project is to fail. If there is a smaller discrepancy it may also require significant backstage effort by the consultant.

Coming to the Organisation, the consultant has to assess the culture of the particular organisation as for example there might be a strong preference for structured development, the historical background of developing systems and in doing projects in general, whether the organisation faces financial difficulties that will affect the project, the potential for out-of-scope organisational problems and issues influencing or stopping the project's progress, the various pressures the organisation faces in its business environment, its internal politics and the pressure for organisational change.

Adapted from OD, the Readiness for IT-Change element examines whether the client-system is in a position to undergo the desired change. As we saw, often an organisation may desire IT but may not be fully prepared for the changes that comes with it.

The consultant element is again informed from an OD viewpoint. The consultant diagnoses or assesses a client and his project, but he has to assess his own position in relation to the project. He does so by being clear about his own values, assumptions,
Having used this model the consultant may have a number of options:

- The client has the required capacity for SD —the project is undertaken,
- The client's capacity is problematic but sufficient —the project is undertaken after the client is informed of the potential risks,
- The client's capacity is below the required level, but can be increased —the project is undertaken if the client agrees to deal with certain issues first, and
- The client totally lacks the required capacity for SD and for his own improvement —the project is not undertaken.

This model represents a guide for the key diagnostic scheme that the consultant employs in every project to determine its feasibility and ultimately its success or failure. In OD fashion this model is presented as diagnostic guide that helps the consultant read the situation in a consistent and focused manner, rather than relying on general guidelines such as "involvement is important in every project". Such guidelines can be better organized through the function of this model and indeed such is also the role of diagnostic models in OD.

6.3.3 Frameworks

From our research findings frameworks emerge as important for facilitating choice as part of the approach. Frameworks are meta-models that facilitate a match between what is required by the problematic situation, represented by the Problem System and its Context and the possible courses of action, represented by the Action System and its Context of application, (Figure 6.3, pg.206). Frameworks exist to facilitate choice of the appropriate process and content of intervention in the problematic situation. As problematic reality is complex the problem system is also made up by many elements and their relationships. Furthermore the problem system is influenced by its wider context. To match such complexity, the action system offers a great number of options that can be applied in a number of different contexts. A match between the action system context and the problem system context determines requirements for appropriate process of intervention. A match between the problem system and the action system determines requirements for the appropriate content of the solution to the problem. In
framework is a diagnostic model for making choices and matches between actions and problems. In other words it links action options with problem options and helps explore their match. However, the framework does not determine the sequence of action. Once a problem is identified as suitable action can be selected.

6.3.4 A TSD Framework

Frameworks and their classification schemata are important for the function of an approach. Using the experience from OD we can build on our research findings to define a TSD framework. The framework is organized along four major dimensions:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS Development</td>
<td>Development of appropriate, (needed &amp; desired), information systems.</td>
</tr>
<tr>
<td>Organisational Development</td>
<td>Development of the organisation as a result of systems development</td>
</tr>
<tr>
<td>Intervention Process</td>
<td>Appropriate intervention into the client-system and problematic situation</td>
</tr>
<tr>
<td>Systems Change</td>
<td>Management of systems change</td>
</tr>
</tbody>
</table>

The framework links the action and problem systems by means of the relationship between issues and interventions. We employ here the OD notion of an intervention to denote a programme of action. By our research terms interventions are components used in projects and change efforts. In our framework interventions may range from practical action, for example a complete change programme, (e.g. Grid OD), a meta-methodology, (e.g. TSI), a methodology, (e.g. SSM), to conceptual action, for example, a framework for methodology choice, (e.g. NIMSAD), a model, (e.g. Seven “S” Systems model), or a technique, (e.g. structured walkthrough). The abstraction/decomposition levels of the framework are depicted in our conceptual abstraction levels model, (Figure 5.2). Each intervention is a purpose-built programme of action and as such it has by design certain characteristics and addresses specific issues. For example, a strategic organisation development intervention was designed to address a strategic issue, e.g. how to gain competitive advantage, (Cummins & Huse, 1989). As our research shows this may not be fully the case with ISD “interventions”, as ISD methodologies are largely considered as panaceas and universally applicable, (Malouin & Landry, 1983). However, we extent the discussion of ISD paradigms, from chapter 1, to use these paradigms as dimensions along which we can classify ISD
Both issues and interventions are linked in the framework. This means that all choices have to take into account issues and interventions in all the dimensions of the framework. This gives this framework its total systems development character.

The Interventions boxes in the above diagram represent parts of the overall action classification schema employed in the model. OD interventions are further organized in the dimensions proposed by Cummings & Huse, (1989). The Intervention Process area organizes interventions that cover support for process and the project and are derived in part from the repository components identified in our study. The system change interventions involve all systems change approaches and models that guide action which aim to bring about desired change. More detailed examples are given later in this section when we discuss the TSD components repository.

We also need to note that the classification schemata in the above framework are not given in a prescriptive manner. Indeed within the above framework, frameworks and approaches can be evaluated at the levels depicted by the abstraction levels model. The TSD framework can be used to choose another more suitable framework if it is necessary. The dimensions do not focus solely on IS development or on methodologies.

6.3.5 Key processes

The discussion about frameworks is not complete without a discussion on the key processes that utilize them and make the overall approach work. The danger is that a framework may provide a prescription for making choices. In reality this is not the case as a framework is used iteratively to produce choices and help determine action. The key processes that enable this are adopted from OD intervention:
Diagnosis may vary in focus, ranging from the investigation of process to the examination of content. Diagnosis may also have an analytic focus on “how to do diagnosis”, what models to use, and a practical focus on using diagnostic models to produce a diagnostic “reading” of the situation.

- **Choice**

Diagnosis relies on the selection of appropriate mental constructs, (metaphors, models, theories), that can be applied towards the solution of problems and for gaining better understanding. In OD’s case, the huge array of OD theories, tools and techniques provides the source for such constructs. In the discussion about the TSD components repository we extend the OD arsenal to include the ISD toolkit.

Choice is an analytically focused form of diagnosis that helps make decisions about what action system instances to use and how. Choice is inextricably linked with diagnosis of the problem system and its context, but we can distinguish between the two as choice supports the use of frameworks. Choice can produce a number of outcomes:

**Table 6.2: Outcomes of the Choice Process**

<table>
<thead>
<tr>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Selection of an existing component</td>
</tr>
<tr>
<td>• Mixing of existing component(s)</td>
</tr>
<tr>
<td>• Tailoring of existing component(s)</td>
</tr>
<tr>
<td>• Creation of new purpose-built component(s)</td>
</tr>
<tr>
<td>• No selection or creation of required component(s)</td>
</tr>
</tbody>
</table>

The last outcome represent cases were the required component either cannot be specified in the necessary detail, is too complex or too time consuming to create. The case might also be that the situation is so complex that adequate understanding of the problem system and its context is not yet available. In some cases this is not a weakness of using a framework. As Lewin has argued: “if you want to find out more about a system try changing it”. The last outcome may represent the option of introducing change into the client-system and problematic situation in order to understand them better.

211
Figure 6.5: The TSD model based on Action Research

- **Problematic Situation**
  - Perception of concerns and system requirements
  - What is really the problem or need?
  - How can the total problem be examined from various perspectives?

- **Joint Problem Definition**
- **Joint Selection of Appropriate Framework**
- **Joint Diagnosis**
- **Joint Action Planning**
- **Implementation of Changes**
- **Monitoring & Evaluation**
- **Joint Learning from Process**

**Conceptual Toolkit**
- New Conceptual Models

Based on Warmington, (1980:27).
Within this issue-resolution logic phases are merely organizing concepts. Action research addresses the problematic situation within which ISD takes place. The problematic situation is messy and complex, requiring continuous effort to resolve problems. By the term problem throughout our discussion, we do not only mean a requirement for a corrective action, but also an issue that needs to be explored, a goal that needs to be achieved, a vision to be realized or simply to fulfill a void in knowledge and understanding. All these are “problems” because they involve a gap between actual and desired states. They are resolved through problem solving actions which integrate the appropriate content of the solution and the appropriate process of achieving it. In AR a kind of problem that may arise is whether to resolve a particular problem or not. The gap mentioned therefore is not defined in economic terms, in terms of a performance differential, but it may be conceptual, knowledge, or consensual. Through AR-iterations the understanding of the problem itself may be examined and challenged, redefining completely the problem under the light of new data and past actions.

Each stage of the SD life cycle, (traditional or evolutionary), has requirements for an appropriate approach that manages the problematic situation. ISD does not occur in isolation and a successful approach much take this into account. Action research can be adopted without conflicting with the phase-logic of ISD efforts as one property of approach is to provide context and meaning to action. For example, each stage of the traditional SD life cycle can utilize a number, (1 to N-many), of AR cycles which will persist until required issues are resolved, (Figure 6.7). The action research approach also allows for concurrent or parallel tracks to be employed. For example, the whole project may need to address issues of a strategic nature, while within each phase smaller cycles may be employed to resolve more tactical issues. At the whole project level we need to note that once ISD has ended the particular project may lead to follow-up project in which case the action research-based model would keep the common thread to the new project.
change, partly a focal point for the development efforts, partly an assumptions 
challenger, partly a trainer and partly a manager of resources and people. Furthermore, 
as the problematic situation is of considerable variety and complexity the consultant’s 
viewpoint is analytically shifting from the inside to the outside, from the macro to the 
micro, from the extensive to the narrow and from the hard to the soft. In this effort the 
consultant utilizes his approach and the approach elements as long as they are 
appropriate. If they become inappropriate his ultimate guide is his set of values and 
assumptions that helps him clarify conceptual boundaries and provide him with an 
interest for improvement. At that point, were even his approach appears to be 
challenged, any other interest would and does create problems. OD has developed such 
a set of values and interest, and ISD must too. Through our proposed TSD approach we 
have put forward values and principles that the TSD consultant should adopt.

As we saw in our research, the OD and ISD consultants are not that different, apart from 
their values and approach. The skills are present in both types although in ISD’s case the 
opportunity to use them is rare. While an experienced and aware ISD consultant could 
easily become a TSD consultant, the same can not be said for the majority of ISD 
professionals. As we saw IT staff within organisations are lagging behind developments 
even within ISD. These professionals destine themselves to become marginalized as 
technical personnel led by TSD consultants. To an extent this already happens now as 
business consultants lead projects with technical consultants in a support role. However, 
we wish to see a change occurring within organisations with the recruitment or 
development of TSD consultants to lead IT staff and departments. As we saw in our 
analysis, the link between business and IT staff is of crucial importance to the proper 
functioning of new facilitative-participative approaches like RAD. TSD, through action 
research is too relying on meaningful and adequate involvement on behalf of the actors 
within the problematic situation. Where TSD of course differs from RAD and 
evolutionary methods in general is that these links can be built at the beginning of the 
project as a result of the problem / issue oriented logic of the action research model.

Concerning TSD skills and their development we need to note that consultants should 
be trained to understand and command a variety of consultation modes, should 
understand and have knowledge in the areas of organisational change, frameworks,
### Table 6.3: Types of stored components.

<table>
<thead>
<tr>
<th>Methodological Support Components</th>
<th>Action System Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>• information on components</td>
<td>• paradigms, theories, models</td>
</tr>
<tr>
<td>• approach &amp; framework guidelines</td>
<td>• guidelines</td>
</tr>
<tr>
<td>• techniques with narratives</td>
<td>• interventions - change programmes</td>
</tr>
<tr>
<td>• tools with descriptions</td>
<td>• approaches</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process Support Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• experiences on method use</td>
<td>• classification schemata</td>
</tr>
<tr>
<td>• how-to-do advice</td>
<td>• meta methodologies</td>
</tr>
<tr>
<td>• lessons learnt</td>
<td>• hybrid methodologies</td>
</tr>
<tr>
<td>• tips and hints</td>
<td>• methodologies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Support Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• case studies</td>
<td>• techniques</td>
</tr>
<tr>
<td>• contacts</td>
<td>• tools</td>
</tr>
<tr>
<td>• templates</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Training Support Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• training interventions - programmes</td>
<td>• diagnostic techniques &amp; tools</td>
</tr>
<tr>
<td>• theories &amp; models</td>
<td>• IS failure models</td>
</tr>
<tr>
<td>• case studies</td>
<td>• classification schemata</td>
</tr>
<tr>
<td>• experiences on training sessions</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Problem System Components</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• diagnostic theories &amp; models</td>
<td></td>
</tr>
<tr>
<td>• diagnostic techniques &amp; tools</td>
<td></td>
</tr>
<tr>
<td>• IS failure models</td>
<td></td>
</tr>
<tr>
<td>• classification schemata</td>
<td></td>
</tr>
</tbody>
</table>

### A. Change Agent dimension

This dimension, (see table below), organizes components that have to do with the role and effectiveness of the change agent, be it a consultant or a manager. These issues cover intervention, choice of the appropriate mode of intervention and consultation, determining the appropriate level of intervention and establishing and maintaining effective relationships. This dimension also organizes required skills for the change agent to be effective. The main area of ISD application is the management of relationships within the client-system, minimization of the disruption to processes and the informal system, and the development of consultant skills.
Relevant Criteria | Component | ISD Application
--- | --- | ---
• Individual Performance | • Life & Career Planning  
• Role Analysis Technique  
• Coaching & Counseling  
• Education & Training Transactional Analysis  
• Gestalt OD  
• Behaviour Modeling  
• Grid OD phase 1 | • Users-Managers (MIS)  
• Experts  
• Project Sponsors  
• Project Managers  
• Head Analysts & ISD professionals

**Group Level**
The performance of teams in ISD and OD are very important. The components in this level focus on improving group functioning and performance from the point of forming a team to the point of team members returning to their normal positions. A number of teams can benefit from OD interventions and theoretical components which have represented OD's legacy of Group Dynamics. Such teams range from Project and Development to teams of diverse ISD professionals working on the same project. In fact the components below can be applied wherever there are requirements to establish an effective working team.

Relevant Criteria | Component | ISD Application
--- | --- | ---
• Group Effectiveness | • Team Building (Task or Process directed)  
• Family T-group  
• Responsibility Charting  
• Role Analysis Technique  
• Education & Training  
• Sociotechnical Systems & Quality of Work Life  
• Quality Circles  
• Force Field Analysis  
• Grid OD phase 2 | • IS Development Teams  
• User Groups  
• Mixed Development Teams  
• Project Management Teams  
• Team of Programmers

**Intergroup Level**
This level deals with the performance of inter-group relationships. The application to ISD focuses on the relationship between local-organisational groups and external ISD professionals groups. Another area of application is organisational as groups within the client-system may resist IT or there may be conflict between various groups as to the nature and control of information systems. We came across issues in this area in one of our case studies but also when we examined the TAURUS failure. In both instances
its effectiveness. This area is of particular interest to change agents who need to be aware of their approach and process in order to conduct themselves appropriately within a problematic situation.

<table>
<thead>
<tr>
<th>Relevant Criteria</th>
<th>Components</th>
<th>ISD Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How to determine an effective and appropriate approach</td>
<td>• Socio-technical Approaches</td>
<td>• Approach Development</td>
</tr>
<tr>
<td></td>
<td>• Action Research Normative Approaches</td>
<td>• Appropriate Choice of ISD components</td>
</tr>
<tr>
<td></td>
<td>• Process Consultation</td>
<td>• Effective communication &amp; challenging of values</td>
</tr>
<tr>
<td></td>
<td>• Action Science</td>
<td>• Appropriate conduct within an organisation</td>
</tr>
<tr>
<td></td>
<td>• Gestalt OD</td>
<td>• Appropriate handling of Problematic Situations</td>
</tr>
<tr>
<td></td>
<td>• Methodological Support (*)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Process Support (*)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Project Support (*)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Training Support (*)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Value Statements &amp; Code of Ethics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Frameworks &amp; Diagnostic schemes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Classification Schemata (Action-Problem Systems)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Change Models</td>
<td></td>
</tr>
</tbody>
</table>

* see Table 6.3, pg.219

D. Problematic Situation dimension

This dimension represents a problem-system oriented classification schema and is further divided into four levels of issues adopted from the TSD framework presented earlier. These levels are: the Strategic level, the Techno-structural level, the Human Processes level and the Human Resources level.

• Strategic Level

At the strategic level issues that pertain to the organisation’s effectiveness are examined. This level is equivalent to the total-organisation level in the organisation development dimension. The focus is on strategic issues rather than any particular organisational issue. The relationship of the organisation to its environment is thus examined and its effectiveness is considered against other systems. From an ISD point of view these components help examine the strategic nature of IT and ISs within the organisation and their role in ensuring a competitive advantage.
Relevant Criteria | Components | ISD Application
--- | --- | ---
• How to do things right | • Team Building | • Development Teams processes
• How to communicate | • Process Consultation | • User Groups & Involvement processes
• How to solve problems | • Survey Feedback | • Organisational Groups process
• How to make decisions | • Intergroup Relations | • Organisational processes
• How to lead | • Third-Party Intervention | • Consultant Intervention
• How to interact | • T-groups | • Confrontation Meeting

• Human Resources Management Level

As human activity systems development requires the recruitment of effective people, these components deal with these issues and can be applied in ISD to maximize the effectiveness of various teams, motivate them and develop their skills.

<table>
<thead>
<tr>
<th>Relevant Criteria</th>
<th>Components</th>
<th>ISD Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How to maximize the potential of people</td>
<td>• Goal Setting</td>
<td>• Development Teams</td>
</tr>
<tr>
<td>• How to attract competent people</td>
<td>• Reward Systems</td>
<td>• User Groups &amp; Involvement</td>
</tr>
<tr>
<td>• How to set goals and reward people</td>
<td>• Career Planning &amp; Development</td>
<td>• Organisational Groups</td>
</tr>
<tr>
<td></td>
<td>• Stress Management</td>
<td></td>
</tr>
</tbody>
</table>

Concluding the presentation of the TSD repository it is obvious that a number of dimensions and components overlap, (table 6.4). This is built in the repository as alternative schemata can be employed to provide alternative viewpoints into the same components. It is also a natural consequence of the systemic nature of the repository’s dimensions: no dimension operates in isolation as the issues it grapples with are part of a wider more complex problem system. Pluralism in the repository is thus enabled as the requirement is not to select a single component, but many. The overlapping dimensions facilitate this as the most appropriate viewpoint to the components is adopted.
6.4 OD as an ISD diagnostic model

This is another area of OD contribution combined with our research findings. The main elements of OD are part of a model, (Figure 6.9), which can be used as a diagnostic guide for analyzing ISD assumptions and practice —either before, during or after a project. As this model focuses on approach it can be used irrespective of the use of ISD methodologies. The model can also serve as a framework for examining IS failure. This model represents a more static application of OD in ISD. It does not for example guide action or development activities.

Figure 6.9: OD as a Diagnostic Model
6.5 Discussion

We now examine how benefits can be realized through the adoption of the TSD approach for facilitating a new paradigm of ISD thinking and practice. Figure 6.10 provides an overview of the approach’s elements presented above.

The TSD approach meets the requirements for the Total Systems Development process which includes the ISD process, (Figure 6.1). Within this process the TSD approach aims to offer a way of dealing with problematic situations that occur within the organisational context. The first implication for ISD thinking is that ISD’s focus is extended from only computerized information systems to systems in general, from an ISD professional to a consultant-change agent, from a narrow ISD problem to a wider Problematic Situation and from using an ISD methodology to using an Approach. This does not mean that every small ISD problem and case is made into a big crisis. What this means is that when issues arise, as they frequently do in IT, that have wider organisational implications the consultant and IS development are in a position to offer effective help. What is thus extended with the TSD approach is the scope of ISD application. Such extension allows ISD efforts to be placed in their appropriate context within a wider organisational effort. Our research shows that IT and ISD are not isolated phenomena, but are often part of a wider situation.
As it emerged from our research the consultant's involvement begins with the use of a key diagnostic scheme. This model or framework encapsulates the essence of what is important in every project situation. It is a basic guide for interpreting the key factors that represent indicators of how a project may develop. It helps examine not only the feasibility of a project, but also the capacity of the client-organisation for systems development.

Once the key diagnostic scheme has been used to assess the nature and future of the potential involvement of the consultant and the client, the consultant enters the client-system, (the organisation), and the problematic situation. Within the client-system he is confronted with his client contact, with the wider organisational system with its people, groups, norms, procedures, systems and practices. Within the problematic situation the consultant comes face to face with the areas of concern, the actors and systems within it and experiences the symptoms and expressions of various issues and problems. As the client-system is an on-going working system that does not stop its operation for the purposes of the project, the consultant's presence may have a disrupting effect on it. The consultant manages his intervention in order to minimise disruption and control change that is a natural consequence of systems development. However, to do so the consultant has to find out enough about the concern at hand, the problematic situation and the client-system. To manage this process effectively the consultant utilizes his TSD approach which is based on the Action Research model. This TSD model of involvement allows him to make the client part of the problem solving team while he himself is gradually immersed in the total situation.

The complexity of the situation and his intervention is such that the consultant has to operate on a number of different levels of abstraction and has to switch between carrying out tasks and looking after process. The key processes the consultant adopts to manage multi-level operation are diagnosis, choice and action. These form a cycle that helps explore an issue, determine a suitable option for its resolution and taking action to apply such option to the issue. The nature of issues determines the conceptual level that becomes the focus of this analytico-practical cycle.
allowing for resistance to emerge out of ill preparation, ill communication and mistrust of the "external" consultant.

Another implication of action research is the problem/issue-oriented logic it introduces to systems development projects. This logic can transcend phase-oriented logic of the traditional and evolutionary SDLC. This allows for the TSD approach to provide the appropriate context for any component, (e.g. methodology, framework or technique), without changing basic development cycles. As such the TSD approach can be used in both structured and evolutionary project SDLCs although the latter agree more with the approach's iterative action research model.

The proposed TSD approach has been a direct result of the implications our research findings have on ISD. Retracing the implications we identified at the beginning of this chapter, the TSD approach is an expression of the value sets we identified are needed in ISD. While it is not a pragmatic approach it does not add an overhead whenever a more rigorous approach is not desired. Two notions separate the TSD approach from pragmatic development: Awareness and Reflection on Process. Approach can be as flexible as pragmatic development and as rigorous as structured development. The TSD approach acts on what is appropriate, but in being extremely flexible nothing is lost as learning is elicited from the whole process. Those of us who have participated in pragmatic development become often exhilarated by the speed and flexibility of development but also very frustrated by the repetition of exactly the same errors over and over again in exactly the same situations. My experience has been that people in pragmatic development always forget the encountered crises once they are over. The main goal seems to be resolving the immediate practical concerns rather than improving ISD. With the TSD approach, and via its action research-based model of involvement, improvement of the process becomes an important goal as well.

The approach does not impose the need to follow its "letter" as it expresses what consultants do naturally in a situation. It builds however on that by making the consultant aware of his process, assumptions and effectiveness. The elements presented earlier were not presented in order to offer an elaborate prescription or a methodology replacement. Our effort aims to contribute to the discussion needed in ISD on
Concluding our discussion, OD has helped build on our research findings and put forward a plausible proposal for a new approach. The approach takes advantage of OD's strengths like values, action research, key processes, components and framework dimensions. The OD approach has also influenced various models in the approach by supporting the areas of organisation, intervention and systems change which are also important within OD itself.

The TSD approach, although paradigmatic, does not come to contrast with the way consultants and organisations operate. OD itself is a consultancy field popular to many organisations. The basic action research-based model of the TSD approach is already in use by numerous OD consultants and the flexibility inherent in the approach allows for it to be compatible with a number of situations. Contrasted also to our analysis about alternative approaches in ISD, our proposed TSD approach appropriately addresses the heart of the critique and fundamentally does not exclude other approaches from its frame.

6.6 Suggestions for Further Study

Due to our qualitative framework a number of opportunities emerge for further research. At the centre of our research findings is the notion of Approach. As a next step, it is important to produce field-wide taxonomies of different approaches in the wider IS development field. Our research sample was small and therefore generalization is difficult. Support and confirmation of our findings on a wider scale could be achieved by a quantitative study collecting data about a number of different approaches and correlate them with different company size, domain area and approach effectiveness. Related research should focus on developing frameworks of choice between different classifications of components, and for exploring the extent of tailoring throughout the field. Both of these can be carried out under a quantitative framework.

Another area of further research should deal with exploring how clients relate to different approaches given our observation that clients choose an approach rather than simply IT / ISD expertise or methods, which are readily available. Such a research could
methodological expertise must continue. However, the understanding must be that it is only one part of the wider picture.

OD has also been very useful and unique in providing a diagnostic model to inform and elicit learning from ISD practice and support approach development. This model can be the basis for diagnosing organisational failure in ISD. Finally, an array of OD models and components have been identified for their direct application to ISD.

We hope this thesis becomes the stepping stone for future work in the area of the IS development process and its complexities, of approach development and of studies arguing for transformation in the field. We feel that, through our work, opportunities arise to explore a number of understudied issues in some detail, such as approaches, tailoring of approaches and methodologies, development of frameworks and component repositories. While this represents exciting possibilities, we feel that challenging ISD values should also be a top priority amongst academics and practitioners. We are satisfied that our thesis has prepared the ground for more detailed investigations and theorizing at a meta level that helps envisage solutions independently of methodologies and IS technology that dominate the field and its discussions.

We believe the thesis makes a number of key contributions to existing ISD knowledge. At one level we believe it contributes in rectifying the lack of research in the area of the “whole process” in IS development. In doing so we feel we have provided a basis for exploring aspects of the ISD process in more detail. The emergent ISD process theory itself confirms arguments that ISD is a complex socio-technical and organisational process. It highlights aspects of development that have been traditionally outside the ISD paradigm. Our process theory helps readdress and challenge a number of elements. The notion of Approach emerges as much more suitable for solving ISD problems than methodology. From our data we have identified the structure, key elements and role of the approach and we have studied its function in IS development. Another key finding focused on the role of the ISD consultant which emerges as requiring a range of appropriate consultation modes to deal with the total intervention complexity. Similarly, our findings show that the role of the client as well is much more involving and demanding than previously assumed.

237


"Rethinking re-engineering", Computerworld, Vol.27, Iss:11, pp:102-105, 15 Mar

Cameron, KS et al, (1988)
"Readings in organisational decline: frameworks, research and prescriptions", Ballinger.

Cannon, JA, (1994)

Case, TL; Vandenberg, RJ & PH, Meredith, (1990)


Checkland, PB, (1981)

Checkland, PB, (1992)


Ciborra, CU, (1992)

Ciborra, CU, (1997)

Clement, RW, (1992)

Coghlan, D, (1988)

De Cock, D & I, Hipkin, (1997)


Deetz, S, (1996)

Denzin, NK & YS, Lincoln (eds), (1994)
"Handbook of Qualitative Research", Sage Publications.

Desanctis, G & J, Courtney, (1983)


Dos Santos, BL & SR, Hawk, (1988)

Duffy, M, (1993)


"Information Technology and Organisational Change", Taylor & Francis, Ch.7, pp:107-128.


"Research Methods for Managers", Paul Chapman Publishing Ltd.


Glaser, BG & AL, Strauss, (1967)  

Gleick, J, (1987)  
"Chaos making a new science", Cardinal.

Goldstein, J, (1993)  

Golembiewski, RT, (1993)  


Habermas, J, (1972)  
"Knowledge and Human Interests", Heinemann: London.

Hammer, M, (1990)  

Hanson, PG & B, Lubin, (1995)  
"Answers to Questions most frequently asked about Organisation Development", Sage Publications.

Head, TC, (1993)  

Hedberg, B & E, Mumford, (1975)  

"Chaos University", www.standishgroup.com/chaos.html

Kahn, WA, (1990)


Keen, PGW, (1981)

Keen, PGW, (1987)


Kling, R, (1977)


Kolb, DA; Rubin, IM & JM, McIntyre, (1979)

Kumar, K & MS, Thibodeaux, (1990)

Kumar, K & RJ, Welke, (1984)

Lucas, HC, (1979)
"Why Information Systems Fail", Columbia University Press


Lyytinen, K & H, Klein, (1985)


Lyytinen, K, (1988a)

Maglitta, J, (1994)


Margulies, N & AP, Raia, (1978)

Markus, ML & D, Robey, (1983)

Markus, ML & D, Robey, (1988)

Markus, ML & J, Pfeffer, (1983)

Markus, ML & N, Bjorn-Andersen, (1987)

Markus, ML & RI, Benjamin, (1996)

Myers, MD, (1994)

Myers, MD, (1997)
“Qualitative Research in Information Systems”, www.auckland.ac.nz/msis/isworld/index.html

Nevis, EC, (1987)


Nielsen, RN; RM, Frame & LE, Pate, (1992)


Orlikowski, W, (1993)

Oz, E, (1994)

Oz, E, (1994)

Page, D ; Williams, P & D, Boyd, (1993)
“Report of the Inquiry into the London Ambulance Service, South Thames Regional Health Authority”, Communications Directorate, South West Thames Regional Health Authority, Feb.

252
Robey, D, (1981)

Salaway, G, (1987)


Schein, EH, (1980)

Schein, EH, (1987)

Schein, EH, (1988)

Shand, RM, (1994)

Shepard, HA, (1960)

Sherwood, FP, (1976)

Sorensen, PF, (1993)

Spear, R, (1976)

Stowell, FA & D, West, (1994)


"Basics of Qualitative Research: Grounded Theory Procedures and Techniques", Sage Publications.
Warmington, A, (1980)  


Weisbord, M, (1987)  


"Computerizing work: people, systems design and workplace relations", Hollen Street Press.


Williamson, M, (1993)  

Willmott, H; Mouritsen, J; Flensburg, P & B, Elkjaer, (1990)  


APPENDIX 1 - Research Methodology


<table>
<thead>
<tr>
<th>Stage</th>
<th>Main activity</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Develop Categories</td>
<td>Use the data available to develop labelled categories which fit the data closely.</td>
</tr>
<tr>
<td>2.</td>
<td>Saturate Categories</td>
<td>Accumulate examples of a given category until it is clear what future instances would be located in this category.</td>
</tr>
<tr>
<td>3.</td>
<td>Abstract Definitions</td>
<td>Abstract a definition of the category by stating in a general form the criteria for putting further instances into this category.</td>
</tr>
<tr>
<td>4.</td>
<td>Use the Definitions</td>
<td>Use the definitions as a guide to emerging features of importance in further fieldwork, and as a stimulus to theoretical reflection</td>
</tr>
<tr>
<td>5.</td>
<td>Exploit Categories Fully</td>
<td>Be aware of additional categories suggested by those you base produced, then inverse their opposite, more specific and more general categories.</td>
</tr>
<tr>
<td>6.</td>
<td>Note, Develop and Follow-up Links between Categories</td>
<td>Begin to note relationships and develop hypotheses about the links between the categories.</td>
</tr>
<tr>
<td>7.</td>
<td>Consider the Conditions under which the Links Hold</td>
<td>Examine any apparent or hypothesized relationships and try to specify the conditions.</td>
</tr>
<tr>
<td>8.</td>
<td>Make Connections, where relevant to Existing Theory</td>
<td>Build bridges to existing work at this stage, rather than at the outset of the research.</td>
</tr>
<tr>
<td>9.</td>
<td>Use Extreme Comparisons to the Maximum to Test Emerging Relationships</td>
<td>Identify the key variables and dimensions and see whether the relationship holds at the extremes of these variables.</td>
</tr>
</tbody>
</table>

- Data Management Outline

1. **Raw Material**: field notes, tapes, site documents.
2. **Partially processed data**: write-ups, transcriptions, (initial, cleaned-up, commented versions, with marginal or reflective remarks).
3. **Coded Data**: write-ups with specific codes attached.
4. **The coding scheme or thesaurus**: with iterations.
5. **Memos or other analytical material**: the researcher’s reflections on the conceptual meaning of the data.
6. **Search and Retrieval records**: information showing which coded chunks or data segments the researcher looked for during analysis, and the retrieval material; records of links made among segments.
7. **Data displays**: matrices, diagrams etc. with analytical text.
8. **Analysis Episodes**: documentation of what you did, step by step, to assemble the displays and write the analytic text.
9. **Report text**: successive drafts of what is written on the design, methods, and findings of the study.
10. **General Chronological log** or documentation of data collection and analysis work.
11. **Index** of all the above material.

*Source: Miles & Huberman (1994)*
6. What percentage of the projects you undertake require tailoring of your approach to suit the situation's requirements? ______% 

7. If you do find it necessary to tailor your approach which criteria do you use in determining your tailoring decisions? 

8. Rate the following statements according to how closely they express your view of the client's role in Information Systems Development:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Neither Agree or Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The client is an expert on his business</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>The client is a sponsor of developers</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>The client is a sponsor of users</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>The client-organisation is developing the</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

9. What percentage of projects you undertake is Information Systems Development part of a larger problematic situation? ______% 

10. What kind of problems do you encounter that are not directly part of your job but may influence the outcome of your work? 

11. Rate the following sources of problems according to their importance for a successful outcome:

<table>
<thead>
<tr>
<th>Source</th>
<th>Very Important</th>
<th>Not at all Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>The organisation</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Management</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Users</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Technology</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Organisational environment</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Development staff</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>External to business pressures</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

12. How important are the following strategies when dealing with organisational issues and problems that are not directly your responsibility?

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Very Important</th>
<th>Not at all Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>I let the client deal with them</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I provide information to the client</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I try to understand and facilitate a solution</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I work together with the client to resolve them</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

13. Why do you think Information Systems Failures occur? 

14. What percentage of clients you encounter are ready for IT related change? ______% 

15. Please allocate 100 points to indicate what percentage of the clients you encounter fall in the following categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent to work with</td>
<td></td>
</tr>
<tr>
<td>Easy to work with</td>
<td></td>
</tr>
<tr>
<td>Difficult to work with</td>
<td></td>
</tr>
<tr>
<td>Impossible to work with</td>
<td></td>
</tr>
<tr>
<td>Would never work with</td>
<td>100%</td>
</tr>
</tbody>
</table>

16. What criteria determine whether you can work with a particular client?
### APPENDIX 3 - The OD Toolkit

- **Cummings & Huse (1989), Classification Schema for OD Interventions**

<table>
<thead>
<tr>
<th>Human Process Issues</th>
<th>Human Process Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication, Problem Solving, Decision Making, Interaction, Leadership</td>
<td>T-groups</td>
</tr>
<tr>
<td></td>
<td>Process Consultation</td>
</tr>
<tr>
<td></td>
<td>Third-Party Intervention</td>
</tr>
<tr>
<td></td>
<td>Team Building</td>
</tr>
<tr>
<td></td>
<td>Survey Feedback</td>
</tr>
<tr>
<td></td>
<td>Confrontation Meeting</td>
</tr>
<tr>
<td></td>
<td>Intergroup Relations</td>
</tr>
<tr>
<td></td>
<td>Normative Approaches</td>
</tr>
<tr>
<td>Technology / Structure Issues</td>
<td>Techno-structural Interventions</td>
</tr>
<tr>
<td>Division of Labour, Coordination, Production, Design of Work</td>
<td>Differentiation &amp; Integration</td>
</tr>
<tr>
<td></td>
<td>Formal Structures</td>
</tr>
<tr>
<td></td>
<td>Collateral Structures</td>
</tr>
<tr>
<td></td>
<td>Quality of Work Life</td>
</tr>
<tr>
<td></td>
<td>Work Design</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Human Resource Issues</th>
<th>Human Resource Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruitment, Goals, Rewards, Careers</td>
<td>Goal Setting</td>
</tr>
<tr>
<td></td>
<td>Reward Systems</td>
</tr>
<tr>
<td></td>
<td>Stress Management</td>
</tr>
<tr>
<td></td>
<td>Career Planning &amp; Development</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strategic Issues</th>
<th>Strategic Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competitive Advantage, Functions, Products, Services, Markets, Relation to Environment, Values</td>
<td>Open-Systems Planning</td>
</tr>
<tr>
<td></td>
<td>Transorganisational-Development</td>
</tr>
<tr>
<td></td>
<td>Culture Change</td>
</tr>
<tr>
<td></td>
<td>Strategic Change</td>
</tr>
<tr>
<td></td>
<td>Self-designing Organisations</td>
</tr>
</tbody>
</table>

- **French & Bell (1990), Typology of OD Interventions**

<table>
<thead>
<tr>
<th>Target Group</th>
<th>Types of Interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>Life &amp; Career Planning</td>
</tr>
<tr>
<td></td>
<td>Role Analysis Technique</td>
</tr>
<tr>
<td></td>
<td>Coaching &amp; Counseling</td>
</tr>
<tr>
<td></td>
<td>T-group (sensitivity training)</td>
</tr>
<tr>
<td></td>
<td>Education &amp; Training</td>
</tr>
<tr>
<td></td>
<td>Grid OD phase 1</td>
</tr>
<tr>
<td></td>
<td>Some forms of Job Enrichment</td>
</tr>
<tr>
<td></td>
<td>Gestalt OD</td>
</tr>
<tr>
<td></td>
<td>Transactional Analysis</td>
</tr>
<tr>
<td></td>
<td>Behaviour Modeling</td>
</tr>
<tr>
<td>Dyads / Tryads</td>
<td>Process Consultation</td>
</tr>
<tr>
<td></td>
<td>Third-party Peacemaking</td>
</tr>
<tr>
<td></td>
<td>Role Negotiation Technique</td>
</tr>
<tr>
<td></td>
<td>Gestalt OD</td>
</tr>
<tr>
<td></td>
<td>Transactional Analysis</td>
</tr>
<tr>
<td>Teams &amp; Groups</td>
<td>Team Building - Task or Process Oriented</td>
</tr>
<tr>
<td></td>
<td>Grid OD phase 2</td>
</tr>
<tr>
<td></td>
<td>Family T-group</td>
</tr>
<tr>
<td></td>
<td>Responsibility Charting</td>
</tr>
<tr>
<td></td>
<td>Process Consultation</td>
</tr>
<tr>
<td></td>
<td>Role Analysis Technique</td>
</tr>
<tr>
<td></td>
<td>&quot;Start-up&quot; Team-Building</td>
</tr>
<tr>
<td></td>
<td>Education &amp; Training</td>
</tr>
<tr>
<td></td>
<td>Some forms of Job Enrichment and MBO</td>
</tr>
<tr>
<td></td>
<td>Sociotechnical Systems</td>
</tr>
<tr>
<td></td>
<td>Quality of Work Life</td>
</tr>
<tr>
<td></td>
<td>Quality Circles</td>
</tr>
<tr>
<td></td>
<td>Force Field Analysis</td>
</tr>
<tr>
<td>Intergroup Relations</td>
<td>Intergroup Activities-Task or Process Oriented</td>
</tr>
<tr>
<td></td>
<td>Organisational Mirroring</td>
</tr>
<tr>
<td></td>
<td>Structural Interventions</td>
</tr>
<tr>
<td></td>
<td>Process Consultation</td>
</tr>
<tr>
<td></td>
<td>Third-Party Peacemaking</td>
</tr>
<tr>
<td></td>
<td>Grid-OD phase 3</td>
</tr>
<tr>
<td></td>
<td>Survey Feedback</td>
</tr>
<tr>
<td>Total Organisation</td>
<td>Collateral Organisations</td>
</tr>
<tr>
<td></td>
<td>Sociotechnical Systems</td>
</tr>
<tr>
<td></td>
<td>Organisational Restructuring</td>
</tr>
<tr>
<td></td>
<td>Confrontation Meetings</td>
</tr>
<tr>
<td></td>
<td>Strategic Planning / Management</td>
</tr>
<tr>
<td></td>
<td>Grid-OD phases 4, 5, 6</td>
</tr>
<tr>
<td></td>
<td>Survey Feedback</td>
</tr>
<tr>
<td></td>
<td>Contingency Theory Interventions</td>
</tr>
<tr>
<td></td>
<td>Likert System 1-4</td>
</tr>
<tr>
<td></td>
<td>Physical Settings</td>
</tr>
</tbody>
</table>
APPENDIX 5 - Case Studies - Consultancy Sample

The 6 Consultancies

Before we explore the ISD process as it emerges from the experiences of six leading consultancies we are going to examine how each consultancy addresses IS development. This discussion will provide the context for understanding how and which ISD process unfolds from the consultant's point of view. Each case is structured along key categories grounded in the data.

1. HORWOOD INTERNATIONAL (HI)

HI primarily helps clients to achieve quality using the generic and all encompassing holistic models of the various quality standards. These holistic models define sets of ideal goals, characteristics, and benchmarks for organisations without imposing any specific way of achieving them. The models are flexible enough to be split into various self contained components. HI uses combination of these components to form the most suited approach for addressing clients requirements. Even though these models provide the opportunity to be very prescriptive -like ISO9000- HI adheres to an in-house “holistic” approach, which is a synthesis of best practice rather than a documented-structured method. HI’s approach is to decide which would be the most appropriate methodology or tool for a particular project and organisation. HI’s approach is also used in technical IS development.

- **Diagnosis**

HI’s approach starts with diagnosis where consultants look for diagnostic issues while not limiting themselves to any prescribed or expressed ones. Their aim is to produce a list of diagnostic issues that require attention, decide which parts of the holistic model to be followed and examine various cost implications. Diagnosis is considered by HI as “a totally creative step which relies completely on the skills of the consultant”. HI believes there is no prescription or method that consultants could use to perform effective diagnosis. Due to HI’s holistic approach diagnosis is carried out even when fairly prescriptive quality models are used.

- **Project-Start**

Once a list of diagnostic issues is produced it is the client’s responsibility to prioritize them and decide which to pursue. For HI, the client has to recognize the need to address these issues, whether he can afford the project and whether there is willingness to do something about the raised issues. Several iterations between diagnosis and feedback to the client may take place before a decision is made, by the client, to commit to a project.

Before the project actually starts, the client considers who is going to carry out the project. The client may decide to handle the project either internally without consultants, externally by another consultancy, or by extending HI’s involvement. In HI’s experience the latter is the norm, as a “personal chemistry has developed between the client and the consultant up to that point”.

- **Facilitation**

Throughout their involvement with their clients HI adopt a facilitative role. One of the modes of consultancy styles for supporting this role is Process Consultation:

“The consultant in this process and facilitation role, takes a step back from the expressed problem to discover the causes of certain problems and not the other way around, for example answers in search of solution. Throughout the project technical expertise is brought in on a need-to-basis.”

HI believe that a successful approach is one where facilitation is used to bring technical expertise on a need-to-basis to a project. HI see an overtly technical approach at the heart of many problems in projects, but recognize its strength due to:

“a big pool of narrow minded consultants who have spent time and effort in increasing the depths of their specialisations.”

- **Incrementalism**

HI’s approach very often develops incrementally, not only at the beginning of a project, but throughout the project:

“A client, up to now, came to the consultancy looking for help in achieving or implementing a recognised national or international quality standard. This request would be of a quite narrow subject The consultants then would, through their diagnosis, come up with the ideal solution for that organisation. Such a
Use of ISD Methods

While SSADM is not mandatory any longer for central government projects it remains, with PRINCE, WS's favourite method. WS has strong links with the development of both SSADM and PRINCE through discussion groups, and has particularly participated in the development of PRINCE. Both methods are also well known to WS's customers. WS realize that SSADM is not applicable to all projects. WS would never use SSADM for Spreadsheet Development, Executive Information Systems (EIS), and very small systems or clients. In such cases use of DSDM is preferred.

Certain types of projects, like package selection, require a collection of procedures, weighted evaluation models and cash-flow analysis, instead of an ISD methodology. The ultimate check however, of any instrument, is the consultant's expectations. These types of projects vary considerably in complexity and may range from examining a great number of options which have limited impact, to examining a few options of significant implications.

However, even in SSADM projects WS recognizes that every new system the organisation wishes to develop is functionally new. This means that method customization may be required on a need-to-basis. The increasing need for this is reflected in changes made to the latest version of SSADM (4.2) which is designed to be a tailorable methodology. Tailoring decisions are made usually according to the following criteria:

- what is considered to be best practice,
- what is used already,
- what is appropriate to the client,
- what is WS's standard,
- what is the industry's standard, and
- what is the type of project (i.e. procurement or IS development)

WS would consider the possibility of developing a completely new method if it was seen as necessary, but so far it has not been the case. In one case, however, the Business Management Unit reviewed all BPR methods and produced a hybrid, but again did not develop one from scratch.

3. ERNST & YOUNG (E&Y)

E&Y's approach is based on an: "integrated, multidiscipline service philosophy and 'best team' approach". Consultants from various disciplines are pulled together to work on a particular project. They are supported in their work by comprehensive automated methodologies that capture knowledge gained from best practice. E&Y's aim is to be in a position to offer value to clients. For this reason methodologies are extensive and systematically constructed. Various frameworks and criteria guide selection, modification and application of methodological components to match a specific situation.

- Methodology

For E&Y a methodology is considered a "Risk Strategy Management Framework" and as such is communicated to clients. A methodology is seen to provide an "audit trail" leading back to the framework. It is also considered a "process template which facilitates risk management thinking" by helping consider all the "might dos against the will dos." A methodology is preferable instead of a "no-recipe" approach for ensuring consistency of approach and communication.

The need for consistency of approach and communication arose in E&Y out of very pragmatic reasons. In the past, every E&Y discipline had its own methodology and techniques, both across different divisions and internationally. Even between similar divisions there were differences in the use of tools and techniques. For example, there was a Process Innovation method, the IS Navigator method, the BU effectiveness method, and a Change Management method. All used different constructs and terminology, even for identical things:

"This created problems for diverse and multinational projects where every consultant brought together a different methodology to the same project."

The decision was taken to create a common integrative framework in the form of the FUSION methodology. FUSION addresses the issues of consistency of approach and communication both across different disciplines and different countries.

- Performance Support

An important theme behind E&Y's methodological approach is Performance Support. This is the provision of a complete description of all the steps needed to complete a task or to achieve an outcome. Performance Support has its origins in production and it is designed to achieve consistency of approach and delivery. This allows less experienced consultants or clients to carry out the right sequences for complet-
and quality management overlay and several computer-aided software engineering (CASE) tools.

"Navigator Systems Series provides the user with a comprehensive methods knowledge base. This repository integrates the "what to do" during a project life cycle with the "how to do it" — techniques and tools guidance. The repository also contains requirements for effective project and program management. By integrating all of this information into one methods knowledge base, Navigator Systems Series provides a single project planning and management process for the rapid and effective development of business solutions."

The series consists of a methodology and a training program. Users can license the entire series or purchase certain services. Navigator has been described as "a step-by-step guide for building a system based on a model of a user's business enterprise". As such, it is aimed at the entire life cycle, including both front-end analysis and design as well as back-end generation, implementation, and maintenance of code. The role of quality management offers a standard approach to building information systems and implementing software packages, as well as managing these efforts effectively.

The methodology is organized around the following logical paths called Route Maps:

1. Accelerated System Development,
2. Business Process Reengineering,
3. Client/Server Development,
4. Package Selection,
5. Application Improvement, and
6. Custom-Bespoke Development.

The international team that developed Navigator involved more than 100 professionals along with input from clients throughout the world. The methodology, in non-automated form, takes up no less than 97 A4 size volumes.

A typical use of the method would involve the consultant entering the organisation in order to collaborate with the client to produce "value propositions concerning the systems needed". During this period the client infrastructure is examined by the consultant in order to identify actual needs and resources. At this phase, the consultant presents his approach. The client may decide to be trained on the methodology and to become part of the system developing team. In some cases the client may wish to build the system himself under the guidance and help of the consultant. During the initial identification of value propositions the consultant uses AME's expert system interface. The interface contains selection lists from various alternative options and techniques stored in the knowledge base. The interface changes according to the requirements:

"For example, when estimating organisational changes a special questionnaire comes up. The consultant then has to answer as many questions as possible. Also a number of tips and on-line help are available for reference. From the selection of options and answers supplied, the system generates a project charter, which is a kind of contract for communicating expected responsibilities, changes to scope of the project, and expectations. However, this is not a legal contract. According to the estimations carried out, this charter contains sections identified various levels of expected risk. This is done to communicate to the client the various risks involved and their implications for the project. This process is iterative and the charter may be generated many times until both client, (project sponsor), and consultant are satisfied. Also, additional charters are produced as the level of engagement increases. Finally, the project plan is generated and if agreed the parties commit themselves fully to the project effort."

AME supports the consultant and speeds up tasks such as the drafting up documents. Although the methodology seems very prescriptive, the initial collaboration between consultant and client is an iterative and creative process. The project will not start until the client agrees to the project plan produced. Navigator is a focal point of the consultant's engagement and the consultant may do very little without the methodology as various instruments determine what the next steps would be. E&Y argue, however, that there is a room for the consultant's to use his cognitive processes. For example, the consultant is required to assess the quality of the development staff and input his assessment into AME which estimates how long the project would take given the particular assessment. Overall, Navigator seems to make the consultant's job much easier and straight forward.

Navigator has a strong Project Management dimension with a well defined and supported role for the Project Manager. Integrated in the methodology is a project management approach: the Objectives-
project management.

- ED reduces delivery time-scales and costs associated with development making it possible for organisations to undertake more projects than before:

  "Adoption of evolutionary approaches in customer organisations has been enabling them to carry out projects that would otherwise be low in the priority list or would be too time consuming and expensive to do"

- **DSDM**

  DSDM is a non-prescriptive framework containing sections on techniques consultants can use according to the needs of a project:

  "DSDM is purposely set at a high level, leaving developers with the freedom to select and use their preferred development practices"

  The whole framework is covered in just one manual in contrast to voluminous structured methods.

- **SystemsCRAFT**

  SystemsCRAFT is a "fourth generation method" for ED that has been designed to take advantage of modern development tools like 4th generation languages and CASE. Proven structured analysis techniques are used in the method but in a simplified business oriented manner. The method can be customized to suit various projects involving small system requirements, GUI systems, work group computing, object orientation, package evaluation and corporate-wide development. SystemsCRAFT also ensures compliance with DSDM principles and is a method that can be applied under the DSDM framework. The method distinguishes between the Base Method and the Additional Toolbox Techniques which ensure the method can provide support for unique characteristics in each development project.

- **Method Selection**

  While the systems division in Olsy undertakes half a dozen large projects a year where more traditional approaches are still used, there is an effort to introduce DSDM in all future projects. This however, will not eliminate completely the use of waterfall:

  "Of course evolutionary methods, like DSDM, are not a panacea. DSDM for example, is a framework which means the consultant has to use his own skills and cognitive processes to make choices and decisions. This might even mean that he can decide on using a more structured methodology or technique in a project. without being restricted by DSDM."

  Indeed Olsy argue for the appropriate selection of a method for a project:

  "a substantial number of ASIS Division's staff are professional project managers. Considerable experience has been gained on different types of project over the years. The optimum approach and appropriate techniques are determined in relation to the nature of the project and the culture of the customer organisation. The traditional life-cycle, while still relevant for some projects, is giving way to an evolutionary approach with innovative workshop techniques."

  The selection of methods is determined by the experience of the consultants, the nature of the project and the culture of the client-organisation. An effort is made to select the optimum approach and the appropriate techniques. An expression of values is revealed in the last sentence where it is obvious that evolutionary development is seen as modern and innovative.

5. **LINK ASSOCIATES (LINK)**

  Although Link have developed their own method, the company uses a variety of structured methodologies and RAD. The in-house methodology is not prescriptive and allows the use of industry standard techniques. Link compliments the use of methods with a central library which organizes learning and experience gained from projects in the form of templates.

  **Methodological Choice**

  When choosing a methodology Link examines the stage of the project, whether considerable investment has been made already using a specific approach, and the company's relationship with the client. For example:

  "In a previous project the customer had already spent a big deal of money and effort in producing a functional specification using Method I before inviting
particular methodologies. Project management is seen a “key discipline”, i.e. another key value that is re­spected by the framework and throughout ACL.

The framework is a key expression of ACL’s overall approach. ACL utilizes a number of methodologies which are considered more or less tools employed in development. The continuous improvement cycle is followed in every project — structured or otherwise. In practice methodologies are, in ACL terms, “streamlined”, i.e. optimized for best performance.

- **Components Library**
  Supporting ACL’s framework which allows choices, the components library reflects best practice and pro­vides a repository of methodological components for supporting the consultants work. The components library covers the whole SDLC and includes everything that might be needed in a project:
  - information and experiences on method use
  - references of consultants for contacting purposes
  - information on: techniques, prototyping, case tools, and methodology support tools
  - tips & hints, lessons learned
  - how to do: analysis, design, testing, measurement, and documentation
  - sets of guidelines and frameworks
  - information on deliverables
  - pieces of code

The library facilitates organisational learning that allows ACL to improve its expertise and abilities. The information is collected by the support-technology group which captures the metrics from the projects and records observations made of good practices. Projects and project management guidelines are also re­viewed regularly especially when projects reach critical paths.
• The two “Camps”
When the project started business people and IT people represented two very different camps. Never before had these two camps collaborated on an IT project. Business people lacked an understanding of what IS development involves and what problems should be addressed. On the other hand, IT people lacked an understanding of the business and were reluctant to use their interpersonal skills. IT people overall were also technically oriented, very into their “relational” speech, wanted all the requirements up-front and were concerned about documentation.

• Need for a Facilitator
Due to the existence of two different sets of people, who had never worked together before, and because of the completely new method, there were some initial problems with the collaboration. JAD workshops suffered from lack of clarity in for the roles business and IT people should assume. Business people lacked an understanding of ISD which caused them to stay too long at a very high level while expecting IT people to “drive them down” to a more detailed level. This did not happen immediately because IT people in return expected business people to lead the project. This was perceived by business people as a reluctance of IT people to participate and created some confusion as to what the IT people were up to. This was not helped by inexperience in doing JAD workshops. People from both sides were on one hand trying to understand Joint Application Development and on the other clarify whose role is what, what expertise and skills are needed, whose providing support and what should everybody’s contribution be.

Another complication was that the teams has no dedicated expert facilitation as the focal point for resolving these issues. The team members facilitated amongst themselves, which meant that eventually people with the appropriate skills emerged to take on that role. Due to these problems an external facilitator from DSDM was consulted and some issues were clarified. Once these initial issues were addressed and once the teams progressed to the point were facilitation from within emerged, the project moved forward. This allowed IT people to help business people get into more detail as to what is exactly required. Reaching that level caused respect between the two camps to develop. In a way a new shared language was established through common understanding. A few IT people that could “speak English” to users emerged as well and helped drive the project forward. While they would probably say they did not understand the business their communication skills helped put things into the right context for business people.

The need for a facilitator or a consultant on facilitation, (process consultation), is something that has been seen as important. According to the business manager leading the project, just talking to occasionally was not sufficient. It was expressed that someone, perhaps from DSDM, needs to come in and challenge people, audit what is happening and make sure things are done properly, either on a full time or occasional basis.

• Achieving the 100% Solution
One of the issues that created some diversity during the project was achieving fitness for purpose. Business people were used to well planned projects that covered all aspects. Additionally IT people have always gone for technical excellence and achieving the 100% solution to problems. In contrast, the business manager driving the project was sensitive in focusing on what can achieve fitness for purpose. The difference between the two orientations needs to be clarified in an DSDM project. DSDM requires to focus on the 80/20 solution. This sits more comfortably perhaps with business people as long as what is delivered matches what is needed. It is more of a challenge to IT people’s beliefs. The 80/20 solution means that the system is not going to be technically excellent and the high quality system IT people want to provide. However, pursuing the 100% solution is problematic itself. Experience in IC has shown that systems developed with that approach in mind end up not suiting everybody in the end and require huge amounts of money to add the final “bells and whistles”. DSDM suits everybody because everybody is part of the development process. Although not all users are directly involved the core group of users become the link with the wider user community and represent their concerns.

Moving away from the 100% focus requires challenging cultural norms at different levels. On one level IT and business people have to learn to focus on milestones and be sensitive on what is or is not delivering business benefit. At an organisational level there is a need to change the way commitment is escalated down a particular path of development. In IC there is still some reluctance to realize that if a particular path followed is not working there is a need to start again on a different direction. Once a path has been selected people are naturally inclined to make it work.

A-XVII
toolset used and the new approach. Once the new toolset was understood and people settled into the new arrangements, the team formed into a coherent entity driving development forward at a phenomenal speed.

- **Empowerment**
Empowerment led to the personal development of people — both developers and business people. This was reflected in the increased commitment to the project by the team's members. Whilst traditionally people involved in projects left 5 o'clock sharp, MF's people felt happy to carry on until late.

- **Culture Change**
DSDM introduced cultural change at many levels. While IT professionals were skeptical of the new way of developing projects, they were also unwilling to leave their familiar offices to move to the "unfamiliar location" of the users. However, the satisfaction they experienced from working closely with the users and delivering business benefit overrode, in the end, every other consideration. For the business people DSDM redefined their relationship with systems development staff who now shared their concerns. DSDM was instrumental in braking the barriers between IT and the business.

While in VM not all projects are suitable for DSDM, such as too technical-back office type systems, the principles and learning from DSDM can be still applied in other areas. DSDM has helped change attitudes towards information systems development itself.

- **Implementation**
While the development iterations of the project went perfectly well, when it came to managing implementation DSDM was not as effective as expected. It did not seem to manage effectively the issues of transition, moving data across, getting support documentation in place — areas where a traditional method is suitable.

Additionally, once the DSDM project is over and the system is operational, development staff move to other projects and support people take over the maintenance of the new system. The support staff, however, are not involved with the users to the extent that the development staff are. Business people found it difficult to relate to the new set of IT professionals. In a way the traditional lack of relationship and barrier becomes again an issue.

- **Dissolving the Team**
Related with culture change is the realization that once the project is over the team that was so carefully put together must be suddenly dismantled for people to return to their normal duties. This closing down period is not explicitly addressed in DSDM and is something that is expected to be an issue when the overall project reaches its final stages. The disengagement of people from the project is an important phase that has to do with managing change and maintaining the quality relationship between development and business. One of the problems is that people from both sides will not be willing to give up the relationship they have established and let go of the team they were part of. Already following completion of stage 1, users call upon development staff for maintenance issues and not support staff, and development staff have expressed their dissatisfaction with non-DSDM projects. These are early indications that the decoupling of the people that participate in a DSDM project needs to be managed as effectively as development itself.

- **Comments about DSDM**
One of the strengths of DSDM is that it is a framework, and not a prescriptive methodology. Loosing that framework character would have implications for its effectiveness. As a framework it allows principles and key processes to be appropriately applied even to non-DSDM projects.

DSDM created a lot of satisfaction because it enabled the creation and development of an effective team. The team's effectiveness was partly due to having the right kind of people and partly because the team was properly empowered. People draw meaning and fulfillment by being members of an empowered team. Being part of an empowered team serves psychological purposes as well as practical — for example the elimination of paper as a means of communication. In MF, business users and IT people enjoyed being part of the team and draw satisfaction from it when they realized the benefit their work generated. This could only be possible with an approach like DSDM which values collaboration, empowerment and facilitation.

- **Delivering the Business Benefit**
One of the key drivers of the project and of the Business Systems group is the delivery of benefit. VM has an internal system for measuring projects along the dimensions of timeliness, quality, involvement opportunity and benefit delivery. Using DSDM allowed MF to score high on involvement opportunity, as users where involved directly, and on benefit delivery (85%-90%), as assessed by the customers themselves.
DSDM has been a success in LA as all of the expected benefits of evolutionary development have been realized. However, we need to bare in mind the small size of projects and the fact that only early-adopters have been involved in them. For LA, persuading their (internal) customers to adopt DSDM is the main obstacle in fully realizing the method's potential.

4. AMERICAN CORPORATION (AC)

AC is a large organisation which sells computers. The requirement for developing the CV system was part of a project aiming to improve service to customers. CV allows easy access to data held in organisational divisions by providing a single interface. CV did not replace existing systems, but provided another layer of collecting and presenting information to customers.

The CV project had an intense project history. A first area of contention was introduced as divisional managers felt threatened by the quest of data and feared for loss of jobs and status. This meant that "back door" data collection methods had to be employed instead. These involved hacking, networking, and collecting small amounts of data from a variety of covert sources. Despite data collection problems development was rapid and the development team was able to start demonstrating the system very early on. While the system was not perfect, it did encompass significant functionality that showed it was on the right track. The main principles that made this possible were identified as:

- "Follow 80/20 rules; put effort where greatest return can be found,"
- "Early success,"
- "Continuous improvement,"
- "Participation / distributed ownership,"
- "Senior management support from across all functions,"
- "Unbelievable optimism,"
- "Set expectations."

The new way of developing information systems, based on these principles, created a second area of contention, with the MIS organisation. The project presented a serious challenge to their traditional structured way.

The system reached its introduction stage in just three months. Customers of the system and other organisational members could now install the internet browser and gain access to CVIS. This created a third area of contention. The divisional data that made it to the CVIS data warehouse enabled field users to root requests for more information and assistance back to the divisions. The divisions saw a de facto expansion of their user base and were overwhelmed by requests for more information. As the program manager put it "users where braking the walls". As CV is expected to move in the Internet site it is expected that external customers will brake the walls surrounding divisional information and systems as well.

Diagnosis of Needs - Formal Organisational Rationality

The initial identification of the problem was consistent with the senior management's role of identifying strategic directions and systems. The initial problem statement was communicated to other senior management who helped develop the initial vision by identifying the three areas of attention. This initial vision made its way down to the rest of the organisation. The divisional layer were involved in further clarification and development of the vision. At this point it was made clear that the People issues would involve workshop style group interventions, Information issues would be addressed with the development of the CV information system and that Communication issues would be examined at a comprehensive manner. However, the dissemination of the vision started braking up when it was time to consider the Field layer, representing the strong sales organisation. The field was neither informed properly nor made part of the visioning process before actions were decided. The vision, although still vague, was more or less predetermined.

This lack of involvement of the field may be explained in terms of a gap between the top and the bottom of the organisation. As the program manager noted, top management perceive their role as determining strategic directions and systems requirements while expecting the rest of the organisation to "do as they say". On the other hand, the field, being closer to the customer knows what is required by the organisation. This may be in contrast with what top management identify as needed and this creates the potential for conflict. The middle divisional layer quite often intervenes between the two to keep the right balance. Formal organisational rationality expects ideas and visions to flow from the top downwards, although it may be also effective to let them rise from the operational layer. As ideas and visions flow down they become less and less susceptible to influence and reshaping until they take the form of prescriptions.
rationality is also characterized by Functionalist values through the adoption of structured, well planned, long term and comprehensive development sequences. The existence of this rationality within AC is consistent with the cultural norms relating to projects in general. The leader-founder of the company was responsible for introducing the “the program of the year” legacy. This was a scheme for selecting best project ideas for implementation. In order to allow evaluation, projects had to be well structured and planned.

- **Mismatch of Managerial and MIS Rationality**
  During the project managerial and ISD rationality completely clashed. In the case of the MIS organisation, the program manager from the outset felt he could not use them at all. External technical and data specialists also completely missed managerial concerns and focused only on the technological requirements. Having a soft spot for a technologically excellent solution meant that these possibilities were not examined. Managerial rationality placed importance on organisational effectiveness criteria and on a process that could support problem solving. ISD rationality placed importance on the feasibility and optimization of the technological solution. The difference between the two rationalities was such that the gap could not be bridged. As mentioned earlier the program manager set a demonstration date for the system before it was even developed. This is something unimaginable for those exhibiting ISD rationality.

- **Radical Improvement Approach**
  A particular methodological approach was not adopted, but a number of RAD-like principles guided development.

  **Continuous Improvement**
  Radical improvement required an evolutionary cycle of development to facilitate problem solving in the organisational situation. As the program manager put it: “Every activity was a battle to complete” requiring “continuously chipping away at the problems”. In CV’s case development started with a vague vision which was continuously refined:

  “We have always planned to make the results of the program available on a continual drip-feed basis. For two reasons: first the development proceeds in that manner. Second, it keeps the project in the public eye for longer and maintains interest.”

  The second reason was due to the fact CV aimed to deliver radical improvements. To do so it had to challenge traditional processes of developing systems, assumptions about the location of data, and assumptions about sharing and accessing the data. CV was a cross functional system affecting all the divisions and impacting field staff. It was a unique project never before attempted in this fashion. The continuous improvement cycle matched the problem solving complexity of the situation. The development team had to deal with a number of unexpected problems. For example, resistance surfaced when the attempt was made to get the data.

  **Frequent Delivery of Major Functionality**
  From an approach point of view this requires a change of focus from achieving the perfect solution (which is unattainable in many cases) to focusing on what can be pragmatically achieved. This focus commits resources to areas which can deliver gains even if the immediate result is not perfect. It is easier to refine and perfect the right solution.

  **Management of Expectations**
  Success depended on the goals set and the results promised. The program manager from the beginning let everyone know that CV was a long term (5 years) project. When the project started producing results within a few months everyone was pleasantly surprised. Focusing on the 80/20 solution the development team never promised something they could not achieve. Management of expectation is also needed within the development team itself as the phenomenal success of the project placed the team and the project on “an explosive peak”. The lesson was to down-play the peak in order to minimise the effect of coming down to earth among the team members.

  **Diagnosis and Management of the Political Situation**
  Because of the radical nature of the CV project a diagnosis of the political context proved to be essential. Without a thorough understanding of the internal power structure the project manager would not have been able to manage his political intervention which run almost parallel to development. In CV’s case IS development could not be separated from the political context. IS development activities had a clear political colouring and created contentions in many areas. CV disrupted the political scene and it did that with phenomenal speed and conviction. Without the significant political management CV could easily have lost its space and support joining the list of projects not executed.
The Electronic Document Management System (EDMS) project has been active for 3 years but is currently on hold as company wide change is taking place. Its focus is on providing electronic document search and retrieval and workflow. The intended overall process of implementation covers the following areas:

1. Propose Product Standard,
2. Define and scope pilot work, the pilot would test performance, capability and process in order to confirm the company wide standard. The emphasis in on early success criteria:
   "What constitutes a successful pilot will be established prior to setting up the pilot, i.e. the success criteria by which it will be evaluated. Success is not return on investment, it is not about productivity gains as the time-scale is too short, it is about information capture, storage, retrieval and sharing, and about building a process that may be used for creating information management systems that will ensure a consistent approach organisation wide. This latter point is an essential requisite for establishing a quality system."
3. Agree process methodology
4. Establish implementation process
5. Define vendor relationship
6. Establish user-community ownership
7. Study human factors of implementation, this was seen as important as:
   "I have a view that so little attention has been paid to this area which in part explains why IT has consistently under-delivered over the last twenty or more years. Hence my earlier point about these projects being user-led."
8. Assumptions, behind identifying the above areas were characteristically clarified as follows:
   "I am assuming here that the only system anybody wants installing is one that works every time and gains a reputation for reliability. The task will be incremental and will take a considerable amount of dedicated effort by means of teams over several years; from that point on it will need to be adapted to user demands. Ownership of the project must be by the user community within the organisation. Provision, installation and maintenance will remain the responsibility of MIS. That there are project management systems in place to ensure such an initiative is managed. It is the management and migration of information that is key, not the hardware or software in and upon which it resides. The EDMS vendor should support the company's requirement to evolve a system in such a way that the system grows in capability and coherence so that it may eventually offer the organisation a company-wide solution."

Traditionally systems are developed in LB in response to the identification of a need from management or company segments. The IT/MIS department fulfills these requests. In many past cases, there has been an felt inability from the side of management to adequately express exactly what it is they want. The IT dept. dealt with this by developing systems regardless and by delivering them irrespective of whether they were what the customer actually needed. IT will always fulfill any requests. Their focus is mostly mechanistic and technical, but it is up to the managers to determine what they need. In the past some managers have revealed a poor understanding of what technology can do demanding some times unfeasible or impractical systems.

Concerning EDMS, while a long time has been devoted to examining the suitability of technology, there was an appreciation of the importance of human factors. Significant effort has been put in involving other managers and preparing the organisation for change. Management are seen to have a clear focus on the management of change and understanding of culture. In pursuing the new vision IT people and management will be working together. The new IT head is also keen in providing a service organisation to internal customers and is keen on change and people issues.