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Towards An Integrated Model Of ISDM Tailoring

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Towards An Integrated Model Of ISDM Tailoring

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Abstract

Information Systems Development Methodology (ISDM) tailoring is often portrayed as a simple linear process. In this study, the use of an ISDM on a complex, multi-million dollar commercial project is examined. It reveals that ISDM tailoring should be viewed as a complex series of tailoring steps, some of which occur in a proactive (or “contingent”) way in response to known or planned project conditions, whilst others are more reactive in nature and represent improvised responses to project conditions which emerge.

Keywords

Information systems development methodologies, modification, tailoring, adaptation, customization

1. INTRODUCTION

Much of existing research into Information Systems Development Methodologies (ISDMs) has focussed in large part on the design of ISDMs and in so doing has not addressed issues surrounding their use, in particular in large, complex, projects. Instead the focus has typically been on smaller projects, or projects focussed on student developers rather than IS professionals. Despite this, Information Systems Development Methodologies (ISDM) are widely advocated as useful in supporting the construction of information systems of all sizes (Avison and Fitzgerald 2003; Beynon-Davies and Williams 2003). The claimed benefits include:

- acting as a mechanism for capturing and recording collective knowledge and experience (Backlund 2004) - Capturing and recording of knowledge and experience allows the development process to be "templated" in order to facilitate knowledge transfer and to enable inexperienced developers to be brought up to speed more quickly (Fitzgerald 1998b). In doing this, the dependency on individuals is lessened, as the knowledge stored in the ISDM represents an externalization of the collective knowledge of developers (Stolterman 1994)

- providing a common vocabulary for information exchange (Fitzgerald 1998b) - A key rationale for the use of an ISDM is to provide a means for developers, testers and other members of the development team to communicate effectively. ISDMs achieve this by providing a common vocabulary (and in some cases, common notations e.g. Unified Modelling Language) to enable a shared understanding of the problem and the solution to be developed (Riemenschneider et al. 2002)

- improving the process of systems development (including making the process more manageable) (Avison and Fitzgerald 2003) - The development of an information system is a complex undertaking and as a consequence, is difficult to manage and control. ISDMs are seen as a means by which the complexity inherent in such projects can be managed by structuring the development process (Fitzgerald 1998b) and to provide a mechanism for managing and monitoring the progress of the project (Avison and Fitzgerald 2003)
producing a better quality end product (Riemenschneider et al. 2002) - The adoption of the use of an ISDM to guide the development is often founded in the belief that doing so will result in the creation of an end product of higher quality (Avison and Fitzgerald 2003).

Studies have shown, however, that whilst practitioners might claim to follow a prescribed methodology relatively few actually use ISDMs as described or documented. Instead unique instantiations are created for each project (Fitzgerald 1998b).

Research on the use of ISDMs such as that described above, has shortcomings: students have been studied rather than experienced practitioners; the application of the methodology to sample, rather than real problems has been the focus; or the studies have been performed in a laboratory rather than in the practitioner’s usual working environment (Wynekoop and Russo 1997). This has led to calls for further research on how methodologies are actually used (Aydin et al. 2005).

This paper reports study of one cycle in a real, large-scale IS development project, carried out by practitioners in their usual working environment and considers the following research question:

What is the actual nature of tailoring during the use of a methodology in a commercial project as one moves from the Methodology-as-Documented to the Methodology-in-Action?

The study develops the ideas of contingent and improvised ISDM tailoring, and Methodology-as-Anticipated, drawing upon data collected in this cycle of ISDM development.

2. BACKGROUND

2.1 Defining ISDMs

ISDMs exist to provide a means to assist IS designers and developers to produce and document systems designs. This includes the accurate recording of requirements, monitoring of progress to identify changes as early as possible, delivery of systems within appropriate time and cost limits, securing well documented systems easy to maintain, and making it possible to deliver systems which are appreciated by the relevant parties (Avison and Fitzgerald 2003).

ISDMs also provide a framework for the use of techniques and resources at the right time in the development process, the possibility for developers to specialize, and the possible standardization of the process and thereby the facilitation of the interchangeability of developers among projects (Fitzgerald 1998a). They also provide a way "...to regularise and formalise the good practise of experienced developers " (Backlund 2004).

Many definitions of an ISDM have been reported (Avison and Fitzgerald 2003; Riemenschneider et al. 2002), however, two elements are included frequently. Those are that an ISDM provides:

- For the ordering and structuring of an IS project. It typically does this by defining phases (and where necessary, sub-phases) and by specifying the order in which various tasks are to be executed.
- Support for the execution of the methodology. This is achieved through the provision of defined procedures and techniques, tools, documentation aids, training etc.

An additional element often reported is the inclusion of a philosophical basis for the ISDM. Avison and Fitzgerald (2003) see this as the theories and assumptions (either implied or explicitly stated) which the creators of the methodology hold to be true or necessary for effective systems development.

In this study, we adopt the definition of an ISDM proposed by the British Computer Society and cited in Avison and Fitzgerald (2003, p.527-528) as it encapsulates the three key elements of an ISDM outlined above as well as addressing the distinction between a method and methodology:

“A systems development methodology is a recommended means to achieve the development, or part of the development, of information systems based on a set of rationales and an underlying philosophy...The recommended means usually includes the identification of phases, procedures, tasks, rules, techniques, guidelines, documentation and tools.”

2.2 Research

Whilst the use of ISDMs is advocated for the development of an Information System (Fitzgerald 1996), studies have shown low rates of usage of ISDMs (Fitzgerald 1997; Wynekoop and Walz 1999). Several reasons have been advanced to explain this, including:

- "... ignorance among practitioners" (Fitzgerald 1997)
• a perception that "...SDMs are sometimes viewed as valuable and sometimes as a hindrance" (Wynekoop and Russo 1997)

Further, a variety of studies have shown that ISDMs are often modified in practice (Fitzgerald 1998a; Fitzgerald 1998b) rather than being used as documented. Reasons offered for this behaviour include that rigorous application of the ISDM may impede or restrict the ability to exploit opportunities which arise during development (Carroll and Swatman 1999) by inhibiting creativity or intuition (Carroll 2003; Russo and Stolterman 2000), and that the ISDM does not reflect the way people actually work (Fitzgerald 1994). User perceptions are also key – some developers see ISDMs as nothing more than a hindrance or unnecessary overhead and consequently are reluctant to utilise them as intended (Wynekoop and Russo 1997).

The departure from the documented form of the methodology can take many forms, including dealing with some phases in more detail than others, deleting the production of some work products or techniques specified by the methodology, and/or adding additional work products or techniques not specified by the documented form of the methodology (Westrup 1993, p.271-272).

2.3 Theory Development

A number of models have been proposed to describe methodology modification. (Fitzgerald 1998b) identified that an ISDM can exist in two states. The first state, referred to throughout this paper as the "Methodology-as-Documented" (M-a-D) represents the original methodology as proposed by its creator and formalized in a manual or some other form (Fitzgerald 1998b, p.107). The second state, referred to as the "Methodology-in-Action" (M-i-A) represents the ISDM, "uniquely enacted or instantiated by the developer" (Fitzgerald 1998b).

Method Engineering (ME), and in particular, Situational Method Engineering (SME) also represent approaches to the task of modifying a M-a-D. In these approaches, certain features of the project are taken into consideration in order to produce a project specific method (Harmesen et al. 1994; Ralyté et al. 2003). Within the SME space, a variety of potential approaches to the modification of the M-a-D (or "base" method as ME describes it) are posited. These include the construction of a project specific method through:

• the reuse of existing method fragments;
• applying documented extension patterns to apply to the base method; and
• application of a "paradigm-based" approach in which a new method is obtained by abstraction from an existing method or by instantiation of a meta-model (Bajec et al. 2007)

In this paper, we chose to extend Fitzgerald's two state model by proposing the introduction of a third state, the "Methodology-as-Anticipated" (M-a-A). This state represents the unique instantiation of the Methodology-as-Documented in anticipation of, or in response to, project circumstances and conditions prior to the execution of the methodology by developers. We chose Fitzgerald’s model as the basis because ME/SME typically refers to a process of (tool and rule based) method configuration in order to generate a project specific ISDM (Bajec et al. 2007) for which we saw no evidence; and the ME/SME tailoring process is conceptualized as consisting of contingent tailoring only and does not appear to cover the type of improvised tailoring observed on this project. The differentiation between the creation of a M-a-A or M-i-A in anticipation of, or in response to project conditions will be introduced in section 2.3 and its implementation on the subject project discussed in section 4.

Throughout the remainder of this paper, the processes of ISDM modification are referred to as "tailoring" where this is defined as the modification of the ISDM to contextualize it to the perceived circumstances of the project to enable it to operate more effectively (modified from Westrup (1993, p.270)). Further, we make a distinction between two types of tailoring:

• Contingent tailoring

A contingent approach is predicated on the idea that there is no single "best way" to achieve success when managing or planning (key activities in ISD) and that for any project or system, there are a number of variables which influence the performance of an information system - the better the fit of these variables to the design and use of the IS, the better the performance of the IS (Weill and Olson 1989, p.63). In the context of ISDM tailoring, contingent tailoring refers to the process of ISDM modification which takes into account known, or planned for conditions (the "contingency variables") or where there are gaps, documented assumptions. Method Engineering approaches (including the “Situational Method Configuration” aspect of Situational Method Engineering (Bucher et al. 2007)) typically adopt this approach to method tailoring.

• Improvised tailoring
Improvisation stresses the importance of adapting while acting rather than simply following plans (such as the documented forms of ISDMs) (Weick 1998). Rather than it being random and ad hoc in nature, it is "purposeful human behaviour…ruled at the same time by intuition, competence, design and chance” (Ciborra 1999, p.78). The key components of improvisation are that responses are immediate; where learning and adapting to the situation at hand occurs. Drawing on the analogy of improvisation in music, improvisation in ISDM tailoring makes use of established rules and techniques documented in the ISDM (Vera and Crossan 2005, p.587) and leverages experience and opportunism, flexibility, and adaptability to tailor the ISDM to suit the characteristics of the situation at the moment of action (rather than it being planned ahead).

Models put forward to date to explain the process of ISDM tailoring have tended to over-simplify the process by showing the methodology existing in one of two potential states, and with the tailoring occurring in a single step, typically in a contingent way. However, evidence from this project has demonstrated this is an over-simplification, and have shown that in fact an intermediate state exists. Further, the distinction between contingent and improvising tailored observed in this project has not previously been commented upon.

At a high level, the process of ISDM tailoring can be represented as a simple, linear process in which the original Methodology-as-Documented is tailored (see Figure 1). In the first step, the Methodology-as-Documented undergoes contingent tailoring to produce the Methodology-as-Anticipated. In this step, known project characteristics and constraints are taken into consideration and the ISDM tailored in a proactive way to produce a methodology which it is believed represents a good fit for those characteristics.

![Proposed high level model of ISDM tailoring](image)

Figure 7 - Proposed high level model of ISDM tailoring

The Methodology-as-Anticipated is then further tailored, as project execution proceeds, but is done in a reactive, spontaneous, improvised way in response to conditions which emerge. This improvisation results in the development of the Methodology-in-Action which may be highly innovative and be a good fit for the conditions, or it may be chaotic and actually hinder the achieving of the desired outcomes (Vera and Crossan 2005).

Few studies have examined the nature of methodology modification in practice, tending to rely on “after-the-event” interviews and surveys or on surrogate practitioners and/or projects. This has led to calls for more research into the actual application of ISDMs in practice (Aydin et al. 2005; Fitzgerald et al. 2000) that is addressed in this paper.

3. RESEARCH DESIGN

3.1 Research Approach

An inductive theory building approach was employed to address the research question. This approach was selected as this is exploratory research to address the lack of research into how ISDMs are used in practice and to develop theory which makes sense of the processes of ISDM tailoring. A case study approach employing a variety of qualitative research methods was selected, as case research allows for the capturing of "…‘reality’ and detail by studying a phenomenon in its natural context" (Cavaye 1996).

Case research can be underpinned by either a positivist or interpretivist epistemology. Since ISDM tailoring is largely a social phenomenon involving the interactions of many people, an interpretive research design was selected (Walsham 1995) as this provides a means to understand the participants’ perceptions of the nature and rationale of ISDM tailoring. The use of multiple data collection methods and sources within this case allows for development of a richer, deeper understanding of and insight into, the phenomenon (Neuman 2003). These included interviews, document study, and participant observation.

The development of theory from qualitative data is a highly iterative process (Carroll and Swatman 2000, p.236; Eisenhardt and Graegner 2007). This in turn drives the need for a research design which supports iteration. Structured-case (Carroll and Swatman 2000) was identified as a framework which met this requirement for the following reasons:

1. It is intended for use in interpretive research;
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2. It supports the use of case based research; and
3. It has iteration built into it.

3.2 Study Site

The organization chosen for the case (referred to here as “Sysco” to preserve its anonymity) is a large, global provider of information technology hardware, software and services. It was chosen because it had a mature, well-documented set of methodologies for information systems development, an explicitly articulated organizational commitment to their use, and a willingness to provide access to the methodologies and to projects to which they were being applied.

Sysco’s methodology has been iteratively developed over many years as a result of use on thousands of projects of different sizes globally. It consists of a framework which supports a number of what are referred to as “Engagement Models”. This framework may be considered as one of the levels of Method Engineering described by Harmesen et al. (1994), in that it is tailoring undertaken at the level of the organization.

Each Engagement Model then represents a form of the Methodology-as-Documented partially tailored to suit particular problem domains, for example, e-Commerce, and which describe how to deliver a project in terms of a work breakdown structure, defined roles and technique guidance. This does not quite fit with Harmesen et al.’s model since it is neither the “meso-level” of method tailoring (i.e. project level tailoring), nor is it “macro-level” (or organisation specific tailoring). It is part of the Sysco Methodology-as-Documented that a selected Engagement Model will be tailored further at the commencement of a project by taking into account the known characteristics of that project using a contingent approach.

The project studied is the first release of a large, multi-release, outsourcing contract between Sysco and a major telecommunications company. A key element of the first release was to put in place the infrastructure and associated software as a foundation for subsequent releases, as well as providing functionality to support the outsourced business.

4. FINDINGS AND DISCUSSION

4.1 Project Narrative

Prior to the commencement of project execution, an initial Methodology-as-Anticipated was produced by members of the development team who tailored the Methodology-as-Documented. Whilst the detailed examination of the process by which the initial Methodology-as-Anticipated was created is outside the scope of this paper, it included the selection of an appropriate Engagement Model on which to found the Methodology-as-Anticipated based on an understanding of the problem at that time (which was founded in part on a set of documented assumptions and in part on an assessment of the existing systems and processes). As will be discussed in section 4.2, this represents a form of tailoring that was pro-active in that it took into account known or planned conditions.

As project execution commenced, the initial Methodology-as-Anticipated was subjected to further tailoring. This tailoring was driven by additional project characteristics and constraints which were identified between the signing of the contract and the commencement of project execution. These included:

- The need to use the “Maximus” package as the core of the solution and to align the Methodology-as-Anticipated to include key elements from the Maximus methodology;
- A Sysco mandate to incorporate an internal governance and quality assurance methodology, the "QAM"; and
- A need to align the tailored methodology with the customer’s own internal methodology.

In addition, the initial Methodology-as-Anticipated was subsequently further tailored leading to the commencement of development. These subsequent tailorings involved the addition and deletion of work products from the set originally identified in the initial Methodology-as-Anticipated. The principal motivations for the addition of work products were the introduction of dependencies due to the previously mentioned requirement to align the Methodology-as-Anticipated with the customer’s own methodology and the requirement to apply the QAM to provide a higher level of quality assurance. Motivations for the deletion of work products centred on the belief that the use of a packaged application as the core element of the solution eliminated the need for work products such as a System Requirements Specification.

As execution continued, the development team attempted to elicit business requirements on which to base the solution as the Methodology-as-Anticipated specified. However, these requirements were not available at this
time. Contractual constraints regarding delivery dates for key documentation then drove further modification of the Methodology-as-Anticipated to produce what Fitzgerald (1997) refers to as the “Methodology-in-Action”. In this case, a considered decision was taken to assume a design based on the capabilities of the Maximus package. In effect this represented the displacement of the design phase of the Methodology-as-Anticipated to an earlier point in the methodology where not all of its input dependencies had been met. Additional tailoring also occurred at this time in the form of the non-production of specified work products, including those identified within the Methodology-as-Anticipated as inputs into contractual deliverables.

4.2 Contingent Tailoring

In section 4.1 the development of the initial Methodology-as-Anticipated from the Methodology-as-Documented including the selection of the base Engagement Model (which took into account the decision to use the Maximus package as the core of the solution), and additional work products required to accommodate the extensive amount of custom development required, particularly to enable integration with third party systems was described. Subsequent tailorings of the Methodology-as-Anticipated outlined in section 4.1 identified various project characteristics and constraints which were taken into consideration during the tailoring.

Within IS, contingency approaches are built on the view that there are a number of variables which influence the performance of an information system and that by taking these variables into consideration in the design and use of an information system, the better the performance of the system will be (Weill and Olson 1989). Adaptations to this were outlined in section 2.2 where contingent tailoring was defined as a process of ISDM modification which takes into account these "contingency variables" to produce a methodology which is a better “fit” for the project characteristics. The development of the initial Methodology-as-Anticipated from the Methodology-as-Documented is an example of this form of tailoring. Such tailoring is proactive in nature, in that it is based on an understanding of the project characteristics as they are perceived at the time.

This initial Methodology-as-Anticipated was then subjected to further tailoring, as additional information about characteristics and constraints of the project which had emerged subsequent to the definition of the initial Methodology-as-Anticipated (such as the need to incorporate the QAM, align with the client’s methodology, and schedule and budget constraints) and were taken into consideration. These subsequent tailoring too were proactive responses to the understanding of the project’s features at that time and so also represented contingent tailoring. In particular, these included the need to assume a design caused by schedule constraints.

4.3 Improvised Tailoring

Improvisation is based on a thorough understanding of the problem and draws heavily on experience and on pre-established routines (Vera and Crossan 2005) whilst recognizing that gaps arise between these pre-established routines and events as they occur (Ciborra 1999). To be able to improvise effectively in order to address these gaps requires flexibility, opportunism, and adaptability (Vera and Crossan 2005, p.208).

The lack of requirements in the Sysco project and a contractual obligation to deliver key documentation by a specified date meant that adhering to the Methodology-as-Anticipated as it existed at this point would have not been met, as the methodology defined dependencies on requirements before developing a design. This drove a considered decision to further tailor the Methodology-as-Anticipated by assuming a design based on the out of the box capabilities of the Maximus package. In so doing, the team was aware of the risk of subsequent re-work with additional budget and cost impacts should the solution as designed be a poor fit for the requirements when they were ultimately delivered. This decision was not opportunistic but rather one which was considered, and characteristic of improvisation, drew on the experience of the team in the problem domain and in the package being implemented, to enable them to meet the high level contractual obligations whilst still providing sufficient flexibility to modify the design in later stages of the project (Crossan 1998).

The tailoring at this point was a spontaneous, reactive response to emerging project conditions (rather than planned conditions) but one which drew on the experience of the team and was thus improvised in nature.

Later in the project, additional improvised tailoring took place in that some work products previously defined in the methodology as being required were not produced whilst others, not previously identified, were produced in a reactive response to emerging project needs. For example, the team implementing the Maximus package began their work and found there was a need to produce a Functional Specification work product which had not been previously identified as being required. This instantiation of the Methodology-as-Anticipated to produce a unique Methodology-in-Action was spontaneous, improvised and reactive in nature.
4.4 Tailoring Events

In section 2.3, an extension of the Fitzgerald two state model of the ISDM tailoring process (in which the tailoring occurs in a single step) was proposed. This extension included the definition of a new state, the "Methodology-as-Anticipated". Evidence from this project provides support for the creation of this state. On this very large, complex project, we observed multiple instances of tailoring, including examples of both contingent and improvised tailoring – for instance, there were multiple instances of the Methodology-as-Anticipated produced. Some, such as the initial Methodology-as-Anticipated were produced using contingent tailoring, whilst others were obtained from a process of improvised tailoring. The key episodes of tailoring observed are described in Table 1 below.

Table 1 - Summary of Observed Tailoring Events

<table>
<thead>
<tr>
<th>Tailoring Event Number</th>
<th>Form of Tailoring</th>
<th>Nature of Tailoring Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contingent</td>
<td>Development of the initial Methodology-as-Anticipated from Methodology-as-Documented. This was based upon the selection of the appropriate Engagement Model on which to base the Methodology-as-Documented, supplemented by additional work products from other development methodologies in order to fill gaps which were identified in the base EM during an analysis of the contract and other information known at the time.</td>
</tr>
<tr>
<td>2</td>
<td>Contingent</td>
<td>Refinement of the initial Methodology-as-Anticipated. Subsequent to the definition of the initial Methodology-as-Anticipated, additional information about constraints came to light. Key to these were an internal Sysco mandate to integrate a specified Quality Assurance Method (QAM) onto the initial M-a-A. In addition, since there was to be extensive engagement with the customer, the developing methodology was aligned with the customer's own methodology.</td>
</tr>
<tr>
<td>3</td>
<td>Improvised</td>
<td>Refinement of the Methodology-as-Anticipated. This refinement took various forms, including:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Adding additional work products from the base Methodology-as-Documented, or from other Engagement Models based on a need identified following analysis work early in the project</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Modification of existing work products – for example, one identified work product, the &quot;System Requirements Specification&quot; was found not to completely meet its intended purpose at the expected point in the lifecycle where it was to be produced. In an example of improvised tailoring, the &quot;System Requirements Specification&quot; as defined in the base EM underwent significant modification to provide a document which met all of the needs at the appropriate point in time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Removal of defined work products because the reason for their inclusion in the first place could not be understood</td>
</tr>
<tr>
<td>4</td>
<td>Improvised</td>
<td>The Methodology-as-Anticipated as it existed at this point in time only covered the operations of the I.T. team. It became apparent that there were at least two, possibly three, other streams of activity whose operations had touchpoints with the I.T. Team:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Business Process and Solution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Business Operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Change Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The contract to which the program was working made no distinction between the teams and up until this point they had tended to work in isolation from each other. At this point, the significant interdependencies which existed between them were identified and</td>
</tr>
</tbody>
</table>
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Towards a Synthesis of Concepts

Section 2.3 of this paper introduced the distinction between contingent and improvised tailoring and placed it initially within an extended version of Fitzgerald's (1998b) model. In large complex projects however, such as that studied in this present research, the picture is not so simple. On this project, we observed multiple instances of tailoring (see Table 1), including examples of both contingent and improvised tailoring – for instance, there were multiple instances of the Methodology-as-Anticipated produced. Some, such as the initial Methodology-as-Anticipated were produced using contingent tailoring, whilst others were obtained from a process of improvised tailoring.

An alternative potential starting point for the synthesis of concepts proposed in this study is that of Method Engineering and in particular, Situational Method Engineering. Some features of ME/SME were observed, in particular, the development of a project specific ISDM through a combination of the assembly of existing method fragments such as the supplemental work products referred to earlier (an approach referred to by Bajec et al. (2007) as “assembly based SME”) with “method for method configuration” where a particular ISDM is chosen as the starting point for tailoring rather than finer grained method fragments. In this case, we observed the selection of a base Engagement Model (which itself can be considered to be a method fragment).

However, the ME/SME literature typically sees the ISDM tailoring process as occurring solely at the commencement of a project, using contingent tailoring (in response to known or planned for project conditions) and does not address the potential for subsequent tailoring to be more improvisational in character. Further, the method configuration step is described as requiring as a minimum, the ability to identify method fragments which are compulsory and those which are optional (Bajec et al. 2004). No evidence was found to support such a step in this study.

Figure 2 provides a more detailed view of the observed tailoring process which represents a further development of the 3 state model presented in section 2.3. (Numbers refer to tailoring events identified in Table 1 above.)
This view captures elements of the complexity inherent in the process by which the Methodologies-as-Anticipated are developed. Rather than representing the ISDM tailoring process as a single step of contingent tailoring at the head of the lifecycle which is then largely left unchanged until the creation of the Methodology-in-Action, in fact we observed it to be a complex series of interactions drawing on both contingent and improvised tailoring.

5. CONCLUSIONS AND FUTURE WORK

This study has demonstrated that, far from being a simple, linear process, ISDM tailoring is a complex process involving a series of tailoring steps each of which could be performed in either a contingent or improvised way. Thus, neither a purely contingent nor improvised model for explaining ISDM tailoring adequately describes practice. Project characteristics can not be fully forecast in the "contingency" phase. This lack of up front knowledge means that conditions will inevitably arise during the execution of a project which must be responded to and highlights limitations of those models which see ISDM tailoring occurring exclusively “up front” based on anticipated project conditions. Responses to project conditions which occur later in the life of the project typically will occur in an improvised way. Notwithstanding this, tailoring for fit between the ISDM and the project as planned using contingent tailoring may lead to less improvised tailoring in practice.

The concept of a Methodology-as-Anticipated, representing a bridge between the “official” documented form of the ISDM and the “Methodology-in-Action” was introduced as was a proposed model incorporating the concepts of contingent and improvised tailoring with the three methodology states: Methodology-as-Documented; Methodology-as-Anticipated; and Methodology-in-Action.

This understanding has arisen from an innovative project dealing with a highly complex and poorly understood problem. Further work on the relationship between contingent and improvised tailoring is needed on different types of projects that are perhaps less complex or more routine.

6. REFERENCES


