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How to cite:

Bell, Simon and Wood-Harper, A. T. (2007). Applying the multiview analysis and design methodology in a non governmental organisation in Bangladesh. *Journal of Global Information Technology Management*, 10(2) pp. 7-33.

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Version: Version of Record

Link(s) to article on publisher's website:

<http://dx.doi.org/doi:10.1080/1097198X.2007.10856442>

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Applying the Multiview Analysis and Design Methodology in a Non Governmental Organisation in Bangladesh

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ABSTRACT

This article describes the preliminary Information Systems analysis and design process of the Multiview methodology in a Non Governmental Organisation (NGO) in Bangladesh. The project, sponsored by an international donor agency, was intended to provide Technical Assistance (TA) for the NGO in a variety of areas including livelihoods, data analysis, impact monitoring and the development of Management Information Systems (MIS). The central research question being addressed is: can the initial stage of Multiview be presented to and, if found to be of value, be adopted by NGO staff in the Bangladesh context? The article describes how the Multiview methodology as originally devised by Avison and Wood-Harper was applied and partially adapted to meet the needs of the Impact Monitoring Agency (IMA) of the NGO in order to assist with Impact Assessment. Arising issues of the relevance of the methodology, the role of researchers and the sustainability of IS projects are discussed. Actual names of agencies have been made anonymous throughout this paper in order to respect the sensitivities of all parties.

KEYWORDS

MIS, Multiview, Soft Systems Methodology, Participation

THE RESEARCH QUESTION

The authors of this article have a long standing interest in the value and applicability of the Multiview approach to various contexts (for example, see the three cases described in Bell 1996). In this article the authors set out an application of the Multiview approach (Avison and Wood-Harper 1990; Avison and Wood-Harper 1997), describe how it was applied in a specific organisational/cultural context in Bangladesh and analyse related issues. The central research question is:

Can the initial stage of Multiview be presented to and, if found to be of value, be adopted by NGO staff in the Bangladesh context?

A series of issues emerge but, more specifically, the article discusses concerns relating to the adaptability of the methodology to different contexts, the 'stories' that surface in processes of analysis and design, and the sustainability of this type of project.

ACTION RESEARCH IN INFORMATION SYSTEMS PROJECTS

Claims for the success and expected benefits of Information Systems (IS) in public and private agencies in different country contexts have ranged from the highly optimistic (e.g. see Woherem 1993) to the candidly cautious (Walsham 2001). Walsham in particular has undertaken extensive studies on the cultural interpretation of different types of IT. He concludes:

- Knowledge is understood differently in different cultures.
- Western style IS needs to be understood within the context of alternative mindsets.
- Cross cultural collaboration is possible.

Many authors have commented on the development of IS making use of wide ranging methodologies (Midgley, Gu et al. 2000; Midgley and Wilby 2000; Molinari 2000; Munro and Mingers 2000; Taylor 2000). Key lessons refer to the need to develop IS in participation with local communities. Action Research (AR) has often been used as the primary means to achieve participation.

The Action Research literature, founded on Lewin's Field Theory (Lewin 1946), emphasised the need for any analysis of social action to be grounded in the context of such action as well as persons, groups or organisations. It can be argued that Lewin provided the basis for a range of quantitative forms of analysis, including Action Learning (Revans 1980), Experiential Learning (Argyris and Schon 1974, Kolb 1984), Participatory Action Research (Chambers 2002) and Co-operative Enquiry (Heron 1996). The morphology of AR is well documented elsewhere (for example, see Kakabadse and Kakabadse 2002); however, Bottrall provided guidance on the application of AR as a means to achieve transparency and inclusion in development practice (Bottrall 1982). Bottrall's early work has been extended and discussed in many fields – often related to Information Systems (IS) issues (Stowell, West et al. 1997; Baskerville and Wood-Harper 1998; Checkland and Holwell 1998; Lousberg and Soler 1998; Paton 2001). Baskerville and Wood-Harper have provided an overview of AR typographies (Baskerville and Wood-Harper 1998) and an overview of winning strategies in the approach (Baskerville and Wood-Harper 1996). More recently, the action research approach has been tied into issues of self-reflection, vulnerability and learning from outcomes by Bell (Bell, Coleman et al. 2000). Also, AR has been argued to be a viable means to deal with conflicts and competing stakeholder requirements (Johnsen and Normann 2004) – this was assessed by the research team as being a potentially important power in a context where local and international perspectives could be at variance.

Cultural responses to ICT do vary across nationalities and across organisations (see, for example, Gamila 2003; Puri and Sahay 2003). Action Research has the potential to bring out the understandings of those presenting different perspectives. Wadsworth,

addressing the place of interpretivist approaches such as AR to problems solving argues:

"If conventional science wanted to give a group of people the power to determine 'truth' for and on behalf of others, the new science arose from a world of multiple and competing versions of truth and reality as a way of assisting people both to come to the truth of their own reality, and also to embrace that of others" (Wadsworth 1998).

The study which we undertook in Bangladesh was intended to help local communities within a prominent NGO make sense of and determine their own vision of IS future, and undertake this vision-making in collaboration with their colleagues.

MULTIVIEW AS A MEANS TO DEVELOP IS

AR is one vehicle to undertake IS work in developing country contexts, and the Multiview approach described in this article is a methodology which needs to be undertaken as part of an interpretivist/AR approach. In particular, the initial stage of Multiview (Soft Systems Methodology or SSM) can be a means to engage in meaningful IS change. Baskerville and Wood-Harper (1998, page 99) argue:

"Multiview is included among the action research forms because Checkland's soft systems methodology strongly influences the human activity analysis stage of Multiview, and no alternative tools for this stage are suggested"

The approach to be tested and applied in Bangladesh was an adapted version of the original Multiview (Wood-Harper, Antill et al. 1985; Avison and Wood-Harper 1990; Wood-Harper 1990), the rapid version of this is described elsewhere (Bell and Wood-Harper 1998) and was to lead to the refinement of a non-specialists practitioner guide (subsequently published in: Bell and Wood-Harper 2003). Multiview strives to bridge the gap between "hard" and "soft" views on information systems in an organisation, and is currently being applied in various contexts including strategic information systems (Vidgen, Avison et al. 2002) and the transport industry (McManus and Wood-Harper 2003)

Multiview is so named because it contains within its structure a series of alternative and complementary methodologies (including SSM), methods (such as End User Information Modelling) and techniques (such as implementation strategy assessment). The stages of Multiview, and the relationships between the methodology, AR and SSM are shown in Figure 1.

In applying Multiview, Soft Systems Methodology or SSM is the first stage. SSM focuses on three tools and outcomes. Firstly, to gain understanding of the present socio-technical situation - and not just from the perspective of technology or technologists but also from the wider organisational perspective (including social,

cultural, and ethical issue), rich pictures are drawn. These free form, cartoon type diagrams of the context are drawn by stakeholders across the organisation.

Figure 1. Multiview within the Action Research Approach

The rich picture exercise is followed by the development of root definitions. The root definition should clearly indicate:

- Who the customers for the information system would be?
- Who will be developing it?
- What transformation the IS is expected to achieve?
- What is the main assumption contained in the transformation?
- Who will own the final system?
- What are the major constraints operative in the context?

The rich picture presents an image of what the present situation is – from a variety of perspectives – the root definition sets out where the aspiration for the IS in the future is directed.

Following the development of the root definition, the final stage of SSM results in the development of a conceptual or activity model. At this point the stakeholders develop their understanding of how they will get from the present situation to the aspired transformation set out in the root definition.

The expected outcome of the first stage of Multiview is clarity over the planned progression for the IS. This plan can subsequently be developed in a variety of ways. The subject of this article is the application of stage 1 of Multiview, however, it is useful to see how the subsequent stages of the approach evolve.

Stage 2 builds off the activity plan and involves the construction of a high level, information model, or End User Information Modelling (EUIM). At this point diverse stakeholder groups are asked to define:

- What information they need from the IS?
- Where it is held at present?
- What the data is to provide the information?
- What needs to be done to the data to create the information?
- When this needs to happen?

More technically, this information can subsequently be developed as information, entities, attributes, functions and events – a technically sound information model. The main output or EUIM is to provide detailed awareness of what the key information products the IS is expected to produce throughout the organisation.

The third stage of the methodology is Socio Technical Systems or STS. Here the hardware, software and human requirements of the IS are considered. The stage starts with a scenario planning exercise. This is included so as to build into the IS planning

process a realistic capacity to produce tomorrow's information and not merely archive yesterday's data. A risk analysis of the final specification can also be undertaken at this stage. The expected outcome of the stage is a feasible, high level specification for the IS components.

The next, fourth stage is Human Computer Interaction or Interface design. The team or teams engaged in the analysis are asked to specify the needs of the technical, social and security interfaces. Each is considered focusing on – how the IS will be presented on the technology, what training and preparation will be needed for users to be able to make effective use of the IS and what security will be needed. The outcome can be a high level prototype, usually on paper, of how the IS will be experienced.

In the fifth and final stage, four aspects are considered. In the STS stage an outline of hardware and software was provided, now the hardware, software specification and the training specifications are developed in detail, down to the procurement process. The implementation strategy is also finalised. The outcome of the last stage should be a detailed and feasible, costed proposal.

The translation of Multiview into diverse cultural contexts is described in Bell (Bell 1996), and success in meeting the challenges of the incorporation of such methodologies in diverse cultures is argued there to be, in part at least, a function of reflective systemic practice. Success also depends on factors such as language, organisational agendas and technical capacity.

The approach to Multiview as set out in the 1998 Bell and Wood-Harper text had been developed specifically taking into account the need in developing countries for local needs, priorities and value systems to be respected (Kumar 1993; Chambers 1997). To this end the approach is primarily focused on the use of softer and more systemic modes of understanding in the early stages, (Checkland 1981; Checkland and Scholes 1990; Checkland and Holwell 1998) rather than the more formal and technical focus of many conventional Requirements Analysis approaches regularly applied in the developed economies. The latter stages of Multiview are, in common with most analysis and design methods, aimed at addressing data and technical issues. However, the technical focus is set within a participative and inclusive initial analysis.

Basing our analysis on action research concepts, linked to methods for rapid and participatory appraisal (Chambers 1992; Chambers 1997; Chambers 2002), the structure of the study resolved itself as:

- *Examination* of the value of the application of Multiview in the Bangladesh context.
- *Exploration* of participatory action research as a investigating framework.
- *Consideration* of the value of Multiview in the NGO context.
- *Examination* of the role of the external researchers/ consultant.
- *Assessment* of the sustainability of the IS project process.

THE BANGLADESH CONTEXT

The subject of this article is a Technical Assistance project in Bangladesh. The project was intended to provide improved capacity in information handling for monitoring and evaluation purposes. The specific NGO operates in Bangladesh with a mission to remove poverty from the country - most specifically by providing micro-finance for those who would normally be unable to acquire loans. In Bangladesh, where the IMF has said challenges of low spending on education, unreformed banking, unreformed state-owned enterprise and weak governance are impediments to growth; micro finance is a key issue. In 2003, Deputy Managing Director of the IMF, Shigemitsu Sugisaki argued:

"The key challenge now for Bangladesh is to move to a higher growth path to help create jobs and, over time, lift the country out of poverty" (Sugisaki 2003).

Linking to the IMF agenda, the NGO focuses its attention on training, education, and action. The NGO employs several hundred staff in locations all over Bangladesh but with a head office in the capital, Dhaka. It seeks to realise a vision of poverty eradication through social mobilisation in small groups, by providing micro-finance, skills and assistance. The essential operating method of the NGO is to form local communities into groups which then co-operate in gaining access to resources and share in the proceeds of improved practices. Zaman (1999) has argued how such agencies can help the very poor in Bangladesh. He argues that membership in micro-credit programs reduces vulnerability - by smoothing consumption, building assets, providing emergency assistance during natural disasters, and contributing to female empowerment. (Zaman 1999).

The Technical Assistance provided by the project operated across the range of its activities, however the element of key focus here was the provision of assistance in the development of Management Information Systems (MIS) for the Impact Monitoring Agency (IMA) of the NGO. The IMA had a mandate to gather information across the workings of the NGO, but a key area of concern was the gathering and assessing of information on such issues as micro-loan uptake and repayment. Clearly, this sub-component was targeted, however from the outset it was recognised that the MIS aspect had a capacity to achieve wider aims than those of narrowly improving impact monitoring. Therefore, the MIS component had several objectives from inception:

- Primarily, to assist staff from IMA and related internal agencies to develop a computerized MIS for impact monitoring.
- Secondly, to review the overall data structure of the NGO in order to gain an overview of the effectiveness of the data and information processing processes.
- Thirdly, implicitly, and as a virtuous outcome of the first two, to seek to improve information handling within the management of the NGO.

Although this is an NGO which has a mandate for poverty alleviation, it is not an un-technical or "low-tech" agency. On the contrary, the main office of the NGO is a tower block with its own commercial internet service provider (ISP) on the ground floor. Computers are used throughout the site and internet connections are gradually being extended to the Local Development Centres (LDCs) which are the regional offices of the NGO and the front line of engagement with customers.

From an outside perspective the NGO looks and feels like a successful IT enabled agency. Computers abound in the organisation. However, following a preliminary transect walk through the organisation and conversations with senior ICT staff, it seemed that here, as in Galliers et al (Galliers, Madon et al. 1998)

"information systems did not figure high on the list of priorities of the Chief Executive".

The organisation appeared to be very hierarchical, dominated by a charismatic Chief Executive and with different operational divisions appearing to work in isolation from each other. Unsurprisingly for an organisation of this size, levels of inter-departmental competition and information ownership were identified at an early stage. However, on the positive side, conversations with both technical and non-technical staff indicated high levels of computer literacy among junior and senior staff. Visits to the main web site and the web site of its ISP indicated high levels of technical competence. The Computer Development Programme unit (CDP) appeared, even from a brief visit, to be organised, purposeful and operationally engaged with most departments within the head office. However, the need for the intervention arose not from the ICT capacity of the organisation, rather it arose from the need to make effective use of the diverse and varied information already generated. A review of the various data agencies within the organisation demonstrated a vast range and breadth of formats. Data identified by the IMA resided in at least three different, isolated computer systems and one major paper-based reporting system from the LDCs. Much data needed by the IMA needed to be collected in paper form from around the country, to be subsequently photocopied and then collated prior to data entry to ICT systems.

This project was focused on the need of the IMA to understand its data needs for monitoring and evaluation and to be able to report effectively on its operations. The MIS project was intended to focus exclusively on the perspectives and needs of the various stakeholder groups within the NGO.

FIRST STAGE OF MULTIVIEW IN THE NGO

The first application of Multiview was discussed and agreed with local decision makers within the IMA unit. Following a process of open meetings with key stakeholders in the NGO, in which a variety of approaches were discussed, it was

agreed by the main parties that the MIS team would work through the preliminary stages of Multiview with NGO staff in order to:

- Gain a clear understanding of a range of perspectives of the current situation
- Review current work practices and problems.
- Analyse existing information systems for content and value.
- Review data management.
- Review the social and technical interface of information systems.
- Review the human computer interface in the presentation of information systems.
- Review current needs in terms of training, implementation, hardware and software provision.

It was recognised by all parties, and vocalised at early meetings, that the use of Multiview did represent a challenge to the parties engaged in the development of the MIS but, it was also accepted that the use of alternative, possibly more structured techniques, could provide deeper and more complex challenges.

At the outset of the MIS project, the MIS team met briefly with the Deputy Director of IMA, the wider IMA stakeholders and some NGO stakeholders outside IMA. At these meetings it became clear that to map the current information context of the IMA it would be necessary to spend the first part of the project 'scoping' the current situation - and not just the situation as it related to explicit use of information, but rather to the wider complexities of the organisational context as a whole. This would involve the research team in educating the stories which IMA members and more generally those involved with the IMA across the NGO told about themselves and about their working experiences. It was apparent following introductory analysis that the current information environment within IMA and more widely in the NGO was largely unmapped and unintegrated. Stakeholders made it clear in meetings that the information context was not explicitly linked to and understood in terms of the social, political and economic realities of the organisation and its relationships to the wider context of Bangladesh. In order to engage with this complex context, it was agreed to undertake three soft systems reviews as the first stage of Multiview. The three reviews would take in a range of stakeholders - to reflect both the interests of those with an appreciation of the information context of the NGO, but also those with a wider understanding of the operational context. To facilitate this scoping exercise, a group, consisting of representatives of both the international team and local officers of the NGO agreed to invite a broad spectrum of NGO officials to participate in three groups taking the following form:

- Firstly with the IS core team.
- Secondly with the IMA stakeholders.
- Thirdly with the NGO stakeholders.

It was intended that this diverse group would simulate wide-ranging and diverse sets of views for the analysis to work from.

Stage 1/1 of Multiview: SSM – Rich pictures, and types of story

Multiview, as originally devised, focuses the first stage of analysis on understanding: "what the organisation is trying to achieve - what it is for" (Avison and Wood-Harper 1990, page 43). By way of contrast the approach adopted in the NGO was to "help the major stakeholders in the organisation define the situation and analyse what the problem is".

The movement from an approach to seek (and therefore assume the existence of) purposeful action to one seeking to allow local actors to define their view of the problems in the context is not, we argue, merely a change of emphasis. It provides a demarcation of two different modes for applying the Multiview approach:

- The first is categorised as implicitly tending to the functional and purposive.
- The second is tending to the interpretivist - allowing stories from personal perspectives to be told and for purpose to emerge from dialogue.

During the SSM reviews the research team captured the stories of the stakeholders experiences of their professional lives. These stories were set out in rich pictures of the current environment in IMA and the wider NGO, as experienced by these stakeholders. The rich pictures represented a range of the issues which the organisation was experiencing. The IMA teams produced three rich pictures of their experiences and finally the wider stakeholder group produced their rich pictures. An example of one of the pictures is presented in Figure 2.

One of the observed powers of the Rich Picture exercise when undertaken in action research is of providing a forum and medium to speak the unspeakable. Participants will draw or use graphic images for issues and concerns that are not so easily discussed (Kok and Patel et al. 2006). This was pertinent to the research as it was observed in early meetings that members of the organisation seemed uncomfortable at times with descriptions of organisational processes and procedures. When probed further, team members volunteered the information that members of the organisation were not keen to appear to be complicit with apparent data /information risks which could result in failures. Therefore, honesty in describing difficult or failed initiatives and related lessons learned or not, was problematic. Further, the organisation was, at the time of the analysis, closely linked to a major political party in the country. With a general election about to occur, the NGO was experiencing a high degree of nervousness concerning its future. Political concerns and potential economic decline figured large in the minds of those engaged in the analysis.

Figure 2. A Rich Picture Produced by NGO Staff

The rich picture exercise was adapted within the SSM element of conventional Multiview, to provide stakeholders with the opportunity to express their wider concerns - and consider deeper issues than those pertaining purely to information use and organisational purpose, and to set these out in the context of the potential success or failure of the MIS project.

The rich picture in Figure 2 shows visual metaphors of money being diverted, intervention of government in NGO affairs (people with powerful sticks to beat the organisation) and internal frustrations (gestures of worry and concern) as well as the more prosaic matters of information flow and delivery. In short, the picture tells a number of stories.

- The first story was the presenting, explicit, 'published record' approach to MIS development with Multiview - reflecting the need of those engaged in the process to develop a logical and purposeful model for the MIS.
- The second story was implicit, an outcome of the confidential nature of the workshops, the spoken or 'acroamatic record', where issues and

concerns which could not be easily and openly discussed or publicised were dealt with

The notion of an oral, insider story, not openly available to the public record has a long tradition. Plato in his academy provided a written teaching (his Dialogues) which were supported and guided by the acroamatic teaching (see, for example the commentary of Szlezak 1999). The un-packing of the acroamatic story within the SSM aspect of Multiview we argue, goes beyond the conventional notion of a 'soft' message in the analysis

To some extent, the remainder of the project concerned the subtle ways in which the latter story or narrative braided with and influenced the former. Also, it was often the second, acroamatic record, which as observed in the enthusiasm of those taking part, provided indications of the NGO staff adopting and feeling included in the Multiview process. It was also evident at this stage that the published story could not achieve its objective - the establishment of an MIS, without themes and concerns from the second, acroamatic story being taken into account. At any stage in the following analysis, the core team were constantly aware of the potential jeopardy of their work in the light of the unfolding acroamatic story.

From the rich picture came a series of tasks and issues for the three teams in Table 1.

Table 1. IMA Tasks and Issues for the Three Teams

Tasks	Issues
Core team Tasks and Issues	
Review IMA systems	Inadequate information
IT training	Lack of IT skills
*Need better integration (re-design, development)	*Lack of integration among different management information systems
Close monitoring	Manipulation of data by LDC
Training related to monitoring	
IMA team Tasks and Issues	
*Ensure co-ordination among Departments	*Lack of integration
Develop a web site	Duplication of information
Develop skills (data collection system)	Needless data collection
Require basic and panel data	Lack of basic and panel data
Advance training in IT	Lack of IT provision
Wider NGO team Tasks and Issues	
Review all the systems	*Information systems are not integrated
Ensure that information is properly used	Information is not properly used
*Revise systems to reduce data duplication	Duplication of information
Develop proper monitoring systems	Management sometimes violated policy

Notes: Tasks and issues which were mentioned by all three teams are marked with an asterisk. Items which relate more to the acroamatic story – but are limited here in expression because of their origin - are represented in italics.

Following the rich picture exercise, the ongoing development of the project followed the work represented in the conventional, published story. From this point onwards the weighty issues derived from the acroamatic story found no formal ground for open reporting. This did not mean that they were not discussed, rather, the outcomes of these discussions were not conformable with the reporting structures of Multiview and/or were not acceptable as issues to be openly addressed in the NGO. However, the acroamatic story did still influence the development of the project process:

- Firstly as informal briefing at most team meetings
- Secondly as rubrics for guidance of what was /was not possible
- Thirdly as a spur to adapt the stage of Multiview to enable appropriate inclusion of acroamatic themes.

The way in which the acroamatic story of the project and the published story braided in practice as a Logical Framework is an issue of importance for practitioners of Multiview and is discussed in more detail in latter sections.

Following the SSM team work, the research team met to discuss the outstanding and agreed issues which arose. A summary table of the tasks and issues of common concern is provided in Table 2.

Table 2. Tasks and Issues of Common Concern

Tasks	Issues
Need to redesign IS	Data irregularity
Need to redevelop IS	Blockage and frustration in access to data and information
Need for more training	Lack of integration
	Need for more IT (unspecified)

Within SSM the task and issue list is taken as the priority³ list of concerns for the project. Working from this a process of prioritisation can occur, resulting in the development of a statement of intent or 'relevant system'. It was with the common traits set out in the tasks and issues in mind that the research team developed the following statement as the relevant system to develop:

"A system to review and re-engineer all programme based, NGO information systems in order to avoid duplication of data and information and identify the gaps."

This relevant system was agreed by the team to meet the greatest need of the NGO and fulfil the mission of the project whilst being most achievable given the conditions imposed by the realities contained in the acroamatic stories.

Stage ½ of Multiview: SSM – Firming up the Published Story – the Root Definition

The next task for the core team was to engage with unpacking the 'relevant system' as a 'root definition'. The purpose of this stage was to gain clarity over six key features of the coming IS development. The Customer, Actor, Transformation, Worldview (or key assumption behind the transformation), Owners and Environmental constraints (or CATWOE) criteria were developed and agreed by the MIS team and are shown in Table 3. It is noteworthy that the CATWOE terms were not particularly valued or clearly understood by some members of the team and, were subsequently adapted as: Beneficiary, Implementer, Transformation, Assumption, Manager and Constraint - BITAMC.

Table 3. CATWOE/BITAMC Criteria

Customer	Donor, Top management, other departments, LDCs, Groups, other organisations (research organisations) and Banks.
Actors	Staff of IMA, GIS, CDP and the consultant
Transformation	Evolution of IS from one which is not functionally integrated to one which is functional to the end user
Worldview	The transformation of this system would happen if the top management and key users are convinced that IMA/GIS staff can achieve this
Owner	IMA, (GIS), ((CDP))
Environmental constraints	Confusion over ownership, space, necessary skills, hardware and software, difficulties with information sharing

Notes: GIS: Group Information System; CDP: Computer

From this CATWOE/ BITAMC the following root definition was developed:

"A project to review and reengineer the programme based IS of the NGO, by and for IMA (GIS) ((CDP)), to attain functional integration in Information Systems, within the resources and engaging the users and beneficiaries in the achievable project."

It was agreed at the time that this 'vision' would constitute the formally accepted mission for the information systems sub project. It was generally agreed to be sensible and achievable, while only gently flagging some of the concerns contained in the acroamatic story. For example, acroamatic outputs inform the terms "engaging the users" (not common practice), and "achievable project" (indications of modest goals, but also achievable goals rather than rhetorically unachievable ambitions which sound good but ultimately disappoint).

Stage 1/3 of Multiview: SSM – Developing Activity Plans: the Conceptual Model

With an agreed and limited root definition, the MIS team went on to develop the conceptual, or activity model required to achieve the transformation for the system.

Following an iterative process of brainstorming, clustering and prioritising the following seven key activity areas were agreed (Table 4).

Table 4. Conceptual Model Activities

1. Assess what kind of outcomes are needed by top management	2. Prepare a detailed action plan	3. Develop new physical structure as required	4. Collect data/ information according to new formats - by LDC staff	5. Collect feedback from user	6. Provide training to LDC staff as required
1.1 Assess what kind of information is needed by the key users	2.1 List all the indicators and variables of existing system and identify duplication	3.1 Provide training to the IT professionals who will be involved with the new system	4.1 Talk with the people of relevant departments	5.1 Maintain the new system	
1.2 Study all the existing programme based information	2.2 Review the existing physical structure	3.2 Develop systems documents	4.2 Communicate with users and management	5.2 Introduce monthly reporting	
1.3 Define the unit of analysis	2.3 Identify key resources constraints	3.3 Purchase necessary equipment	4.3 Prepare guideline operational manual for the new system	5.3 Test the new system developed by the team	
1.4 Identify key persons responsible for the new system	2.4 Analyse costs and benefits	3.4 Change the formats as required	4.4 Organise a workshop with relevant departments following collection of indicators and primary information		
1.5 Ensure internal facilities	2.5 Prepare a budget	3.5 List the necessary logistics and purchase IT training	4.5 Check the data of the relevant departments		
1.6 Identify persons in relevant Department to do the work		3.6 Co-ordinate with Government statistical officer at Thana level			
1.7 Formulate the policies needed for this transformation					

In the table the tasks or activities of greater importance are placed at the top of the column with lesser activities being set out in sequence below them.

The top level activities are expressed as a conceptual model (CM) in Figure 3 below. The purpose of the CM is to present the main activity headings in the form of a flow or process. In setting this out it is not intended that the flow be deterministic or that the process be inflexible. Rather, the intention is to use the model to underline the range of potential relationships between consecutive and concurrent tasks and to highlight potential areas where resources could be stretched to meet the system requirements. In this case the activities seem to show a high degree of consecutive relationship indicating that high resource requirement for concurrent tasks would not be a major problem.

Figure 3. Conceptual Model of Main Activities

Reviewing the SSM Process – Adaptation for Story Inclusion

At the end of the analysis process of SSM, the main stakeholder team was asked to assess the relevance of the conceptual model to the rich pictures as first conceived. Although those attending the workshop expressed the belief that many items arising from the acroamatic story from the stakeholder exercise had not been addressed, it was generally recognised that in the time available and within the scope of the project, not all items could be satisfactorily addressed. The model was seen by colleagues in the NGO as addressing the core ICT issue. The major causally linked activities which arose from the analysis are the following:

- Align the information vision contained within this analysis with the strategic vision of top management. This implied some paradigm shift in terms of current information awareness and use.
- Gain an effective awareness of the information needs of the organisation. This could be gained by further adaptation to the Multiview approach and include the development of an information audit (such an adaptation has subsequently been flagged in a later publication: Bell and Wood-Harper 2003).

Following the information audit, the data analysis of IMA/ GIS could be completed. Following from the soft systems analysis, the conventional Multiview process goes on to stage 2 where stakeholders are facilitated to develop an End User Information Model. In the case described here the approach was adapted and, in a new stage 4 of SSM, a Logical Framework or Log Frame was produced indicating the main activities and expected outputs of the project. The Log Frame was seen as being especially important at this stage as it would provide a means to braid the various project stories – linking the project narrative with elements of the acroamatic story.

A Log Frame is a four by four matrix which sets out the fundamental items of the project which will follow. The first column is known as the narrative summary. More usefully it can be thought of as corresponding to the published 'story' of the project. The fourth column is the assumption or risk column. It in turn can be seen as a place to include all or elements of the acroamatic, counter story or risk story of the project. The two middle columns are the indicators of achievement and means of verifying these indicators. These two middle columns provide the accountability of the project, informing the team if the project is achieving what it is expected to achieve. It has been argued elsewhere (Bell 2000) that Log Frames follow Aristotelian principles of causality in setting out four levels for the project. The bottom row are the activities of the project (what is to be done?), the second from bottom row are the outputs (what will arise from the activities?), the second from top row indicates purpose (what is the project expected to achieve?) and the top row is the goal or the high level objective – (what is the project's ultimate intention?).

Log Frames are widely used throughout the development community. Almost all projects developed by the World Bank, UK Department for International Development and other aid agencies make extensive use of Log Frames. They very often constitute a non-negotiable aspect of development projects and are widely suffered and criticised (Gasper 1999).

SSM provides a participative way to develop Log Frames.

- The Rich picture exercise, including the discovery of the acroamatic story, provides a great deal of the detail for the risks/ assumptions column of the Log frame (specific items derived from the acroamatic record are underlined in the Log frame).
- The Root definition effectively becomes the purpose for the Log frame (column 1 row 2).
- The activity set for the project (column 1, row 4) can be directly taken from the conceptual modelling exercise.

By this use of Log Frame and SSM together, the SSM process makes the Log Frame exercise more participatory, the Log Frame content is derived in a more open and consensual manner and the acroamatic story finds a place for some of its themes in the assumptions column. In this way the full richness of the story of the project is more effectively braided.

Table 5. Partial Log Frame: (sections shaded are tentative)

Narrative summary	Objectively verifiable indicators (OVI)	Means of Verification (MOV)	Assumptions
Goal To alleviate poverty in Bangladesh	Poverty reduced according to 5 year plan	annual report	Bangladesh shows positive development trends
Purpose A project to review and reengineer the programme based IS of NGO, by and for IMA (GIS) ((CDP)), to attain functional integration in Information Systems, within the resources and engaging the users and beneficiaries in the achievable project.	IS fully functional by end of 2003 and developing new functionality by the end of 2004	External evaluation mission report	The project delivers timely regular, reliable and relevant information for IMA concerning the impact of the NGO

<p>Outputs</p> <ol style="list-style-type: none"> 1. Complete list of attributes and variables which inter-link in the NGO's programme based information systems 2. Team have obtained a guideline to complete the project systematically 3. Functionally integrated programme based IS of the NGO 4.1 NGO managers better informed about their programme to make strategic decisions 4.2 IMA better able to undertake high quality IAS and IPMS 5. Capacity of the new system to adapt as it learns 6. Data will be accurate 	<ol style="list-style-type: none"> 1. Publication of all existing and revised programme based IS formats by 06/02 2. Guideline in action by 02/02 3. System in test phase by 08/02 4.1 Workshop with managers in 02/03 4.2 Review of results of IPMS in 2002 and IAS in 2005 5. 80% of users satisfied by 06/03 6. 90% of data is accurate by 01/03 	<ol style="list-style-type: none"> 1. Report to senior management 2. Report to senior management 3. Report to senior management 4.1 Report from Workshop 4.2 Report available 5. User survey report 6. Expert review 	<ol style="list-style-type: none"> 1. The variables are accurate 2. The guideline is accepted by technologists and users 3. This is used on a regular basis 4.1 This information is used in decision making 4.2 The ability is applied 5. Reforming action follows learning 6. information flows from the data
<p>Activities</p> <ol style="list-style-type: none"> 1. Assess what kind of outcomes are needed by top management 2. Prepare a detailed action plan 3. Develop new physical structure as required 4. Collect data/ information according to new formats - by LDC staff 5. Collect feedback from user 6. Provide training to LDC staff as required 	<ol style="list-style-type: none"> 1. Top management outcomes known by 08/01 2. Action plan completed and approved by end of 01/02 3. New physical structure of IS completed by 06/02 4. 50% of data collected by 12/02 5. 70% of sample users are satisfied with new system by 12/02 6. 100% of users trained by 06/03 	<ol style="list-style-type: none"> 1. Outcomes forwarded to consultant 2. Activity plan document disseminated 3. Publishing of technical manual 4. New quarterly and monthly reports available 5. User survey 6. User survey 	<ol style="list-style-type: none"> 1. Top management take ownership of the IS 2. The action plan is contributed to and is approved by top management and users 3. We have the technical ability and user approval to complete the task 4. The data / information is compiled in a user friendly manner 5. The systems designers and managers are willing to change 6. The trained staff are retained

DISCUSSION OF PROJECT OUTCOMES

Returning to the original question which guided this research: *"Can the initial state of Multiview be presented to and, if found to be of value, be adapted by NGO staff in the Bangladesh context?"*, only modest claims can be made based upon experience of applying Multiview in the present context. We would argue that:

- The initial stages of the approach proved to be applicable to the NGO context – and key methods, tools and techniques were adopted by NGO staff
- The outcomes in the published story, including the Log Frame, appeared to be acceptable as valid by most stakeholders both within the NGO and in the broader, international community.
- This preliminary stage appeared to offer the potential for the development of a participative MIS project design - co-owned by local and international project staff
- The potential for the benefits of new MIS good practice – as identified in the root definition and activity plan – provided concrete means to produce beneficial performance and economic returns from the agency as a whole.

The formal/ published story of the project indicated a high degree of viability for the Multiview approach in the NGO context, however, from the acroamatic story, three outstanding Multiview practice challenges were observed:

1. Cultural relevance of Multiview. Multiview is presented as a powerful, coherent means to develop IS, however, it is, by definition of its origin, the product of a UK IS mindset. It comes with a tradition and with baggage which could provide obstacles to wider understanding in cultures not versed in the UK experience. The adoption of an action research approach, guided by rubrics arising from experiences in reflective practice cannot be expected to overcome all cultural difficulties. Multiview arose partly as an eclectic mix of tools to counter the observed failure of overly technical approaches to IS development. The more recent incarnations of the methodology have been developed to focus on soft issues. Yet, the inclusion of a participatory and human-needs centred focus cannot be assumed to be understood or welcomed by those who do not understand the *raison d'être* for the methodology (see also, Puri and Sahay 2003). At various points in the extrapolation of Multiview in Bangladesh it proved necessary to explain not just how the approach worked but why it works that way and why it needs to work that way.

A related issue is that of social inclusion in processes of selecting tools for analysis and design. At times participants wanted to include craft skills, tools, techniques and methods from their own experience (a point also noted in: Roman and Colle 2003). These were familiar to local experts and had the added value of being developed from within the context. Conversations did include the informal

application of minor tools but the project framework did not provide time or resources for extensive application. In this sense the IS approach did not have the formal capacity to learn from local experience and this was noted as something of a loss to the project overall.

2. Facilitating braiding stories in Multiview. In the context described in this article the researchers were outsiders to the context. As such the researchers were developing personal understanding and at the same time initiating the Multiview process. Reflective Practice (e.g., as presented in Moon 1999) was key in facilitating the process. It was a means to learn in practice and the theoretic and practitioner literature (e.g., as celebrated in Chambers 2002) was extensively drawn upon – specifically in terms of craft skills for sensitive braiding of the published and acroamatic records of the project process.

The researcher comes to a context with objectives and terms of reference and these need to be checked with stakeholders locally and assessed for acceptability to local people – as Chambers argues:

*“Local people’s knowledge and skills often qualify them as consultants”
(Chambers 1997, page 218).*

In the experience of the authors, the inclusion of local people in decision making and in reflective practice on decisions made is vital if there is to be any meeting of minds in the IS development process – and if the acroamatic is to be effectively represented in the published story. Researchers and international consultants are sometimes experienced as an unwelcome interference by local people and can be guilty of not understanding local sensitivities. On the other hand, they can be in the privileged position of confidant to acroamatic stories and major facilitators in either assisting openness or complicit in hiding important but uncomfortable facts. The agenda of the project donor is not necessarily commensurate with the needs of those working on the ground. Reflective Practice, including welcoming informal input from local counterparts is suggested as an important craft skill for inclusion in the Multiview process.

3. Project Sustainability for Multiview: At the time of when this article was originally written (July 2003 - January 2004), the MIS development process had undergone some considerable re-alignment. Critical to the process has been the loss of two of the three main MIS professionals working on the project in the NGO. Despite early encouraging developments, the loss of these key individuals meant that the Multiview process became moribund. It appears that either a substantial reworking of the process with new staff or the adoption of a less ambitious process - and therefore MIS outcome - would be required.

In the authors’ experience, this is not a rare event. Projects of all types progress - apparently successfully - to a point, then fail following a critical event - for

example, the loss of key staff, reduction in funding, changes in political allegiance to the project vision, the loss of a project champion (issues more widely discussed in: Bell and Mayhew 1994; Bell and Morse 1997; Fortune and Hughes 1997; Fortune 1999). IS projects seem particularly prone to this type of disruption - one cause being the marketability of English speaking professionals with IS skills. This is an issue beyond the capacity of any methodology and has more to do with the funding priorities of donor and recipient agencies. A related point arising from more recent contact with the project context and linked to the issues of cultural relevance already discussed above, is the emergence of levels of hostility to MIS concepts of transparency and accountability - what is referred to here as "MIS Culture". The sustainability of any MIS process going forward means that powerful local stakeholders and leaders recognise that MIS does not merely mean the development and wide-scale use of ICT, it also requires MIS culture to be embedded (a point also flagged by Galliers, Madon et al. 1998). MIS culture comes with its own specific baggage and assumptions but it is an underlying requirement if MIS is to be more than selective data archive. In many organisations there is a culture, fostered and encouraged, of privacy and secrecy. Whilst not wishing to imply judgement on the reasons or necessities for these features in some organisations, if MIS is attempted without openness concerning potential culture clash - issues usefully flagged in the acroamatic story - then these issues can cause the MIS process to fail completely in spirit if not in fact.

WHERE NEXT FOR MULTIVIEW?

This article has attempted to set out why and how the Multiview approach was applied in the specific NGO context in Bangladesh. Here, we go no further than to describe the first SSM stage of Multiview and to draw out some modest claims for its effectiveness, changes made to it as outcomes of experience and problems encountered in the wider project experience. The authors indicate the following areas of interest for their on-going research from their experience to date.

1. Issues of social inclusion. The Multiview approach, undertaken in an action research manner is concerned to encourage and manage inclusion of diverse stakeholder groups in the analysis and design process (in this article, three groups of stakeholders were included in the preliminary stage of analysis and design). Whilst this inclusion has benefits for encouraging wide ranging thinking in the core team and allows those with an interest in the outcomes of the analysis and design process to feed-in to the process, it remains a problematic area in terms of managing the inclusion. The authors are concerned to improve this process within Multiview, providing mechanisms for different voices to be heard and allowing for checks and balances in the priority allocated to the different voices.
2. Issues of cultural adaptability. In this article the first, SSM stage of Multiview is scrutinized. Although the three aspects of SSM - rich pictures, root definitions and activity models - were applied with some levels of success, at times the

elements required some considerable explanation to the working teams. The authors are aware of numerous techniques for gaining information about: "How are things right now?", "What would we like to change?", "How do we change it?" .. and these are the main questions answered by SSM. The authors are interested in exploring, as part of early IS project scoping, the adoption of locally designed techniques for eliciting this type of information. This in turn could lead to the development of culturally adapted variants of the Multiview approach.

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