CSCW in the National Westminster Bank

Raul Espejo, Antonia Gill and Anthony Gill

Syncho Ltd.

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Abstract

This paper describes a CSCW research project that is currently taking place in a major UK high street bank from the perspective of managerial cybernetics. Within this framework a number of exiting methods and techniques have been refined while new ones have been developed and are still under development. In this paper we report on progress made with some of these methods: those used to diagnose the operational structure of the bank and to design a set of ‘virtual organizations’ to overcome certain communication barriers arising from the bank’s formal structure. These virtual organizations represent a successful ‘experiment’ in establishing a cross-functional, geographically dispersed work community; and providing appropriate forms of technological and non-technological support to enable that community to work effectively towards meeting corporate performance objectives.

Introduction

The aim of the Systems Development and Co-operative Work: Methods & Techniques (SYCOMT) Project has been: “…to provide a framework of methods for the design of CSCW systems which supports the co-operative nature of work activities more effectively” through field studies of co-operative work and organisational analysis / design within the context of a major ‘high street’ bank.

This paper offers a general discussion of methods for organisational diagnosis and design and some of the results emerging from their application to the bank. The project includes a ‘pilot study’ of an application of CSCW to the core bank business process of Lending.

Our research partners are Lancaster University, who are contributing an ethnographic research perspective, together with IT support, and National Westminster Bank. The project is partially funded by the Engineering & Physical Sciences Research Council and the UK Department of Trade and Industry through their CSCW programme.

1.0 Methods for CSCW

We have used a cybernetic model - the Viable System Model (Beer 1979, 1981, 1985) and a related method (Espejo 1989c) - to understand and articulate the evolving structure of the bank during a period of major restructuring and change.

The Viable System Model (VSM) offers an approach for understanding and/or redesigning an organization’s structure and hence for explaining work relationships and desirable collaborative communities.

The VSM is especially suited to helping large, complex organizations resolve inherent conflicting drives in their structures - for example, reconciling the advantages of resource centralisation with the need to have functional decentralisation. This reconciliation is particularly necessary when the organization has scarce specialised resources which need to
be made available at all points of contact with customers. In the bank’s case, a series of recent strategic reorganisations had led to a high degree of resource centralisation in the management of transactions and lending activities. This had the potential of delivering significant economies of scale and processing efficiencies, but only if resources could be made available at the point of contact with customers. To achieve this flexibility, the bank had to understand both local requirements to provide excellent customer service and communication requirements to relate the centralised and decentralised resources.

Underpinned by this model and our earlier work in methods, the Sycomt project - and in particular the pilot work in the bank - has helped us to make further progress in developing and applying three methods. These are:

1. the ‘complexity unfolding’ method, which relates organization structure to business strategy
2. the definition of ‘team’ requirements for integrated and flexible organizational performance
3. the braiding of business and organizational processes

### 1.1 Strategy and structure: the unfolding of complexity

We have found the ‘unfolding of complexity’ method (Espejo 1989 a, b, c) to be a useful shorthand way of discussing different structural scenarios in relation to an organisation’s strategy. This method is based on the need to have autonomous systems within autonomous systems in order to produce an organisation’s products or services as defined by its strategic intent. This method shows how organizational complexity ‘unfolds’ (either by design or happenstance) and whether this unfolding is consistent with the organisation’s mission and vision. The models emerging from this method are non-hierarchical in nature and therefore unlikely to correspond precisely with any organizational reporting charts in use. Figure 1 shows an example of an unfolding of complexity for NatWest Bank at a highly aggregated level.

The ‘unfolding of complexity’ model shows only the ‘primary’ activities of the bank’s retailing business (those producing the products and services that the customer buys) and depicts them as a series of nested autonomous units/sub activities. Each activity (represented by a circle) is viable in the sense that it is assumed that the organization wants to make it viable (as implied by its strategy) and is structurally coupled to an external environment of relevance to that particular activity.

Each circle should be read as containing the five systemic functions of the fully drawn VSM: Policy, Intelligence, Monitoring-Control, Co-ordination and Implementation (Espejo 1989 a). Implementation refers to the production value chain of that primary activity in the organization. The other functions are the regulatory functions that are essential for the primary activity’s viability.

The VSM tells us that at each level of unfolding, within each primary activity, the five systemic functions need to recur. This means that, for example, policy-making is not something that only happens at the highest levels of management; it needs to be present in some form in each identified viable unit at whatever level it occurs. Intelligence, or the ability to learn from the longer term trends in the environment and the ability to communicate effectively with those representing these trends, must also be present in each identified viable unit. This is Beer’s principle of structural recursion (Beer, 1979).
The VSM provides detailed guidance about the relationships between these systemic functions at different levels of recursion and the counterbalancing roles that they need to play in relation to one another. It therefore not only provides a tool to articulate and discuss in outline possible alternative organizational structurings unencumbered by the formal organizational reporting chart; it also provides a template for more detailed design work at the work team level to help teams identify required resources, behaviours and relationships to make them viable.

1.2 Method to study teamworking and communications

As a structuring tool, the VSM defines in principle where improved communication is required (between which groups of people or ‘roles’ in the organisation) for both improved workflow and long term viability and, in overview, what the general purpose of that communication should be.

The Katzenbach & Smith definition of a team which we adopt here is a small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable (Katzenbach & Smith, 1993).

We add to this the need to recognise that working out a common purpose between the individual members of a team on an ongoing basis is essential to team performance.

A basic distinction can be made between primary and regulatory teams. A primary team, at whatever level within the organization it operates, actually produces the products or services that define the organization’s core transformation(s). A regulatory team exists to help or service, directly or indirectly, one or more primary teams.

Regulatory teams can be categorised as follows:

Development:

an ad hoc team set up for a specific business development purpose, for example, studying an investment proposal from different perspectives or developing a new product using a cross-functional range of skills.

Support:

a stable team providing an ongoing service within the organization rather than to an outside market using mainly organizational/procedural knowledge (eg engineering maintenance, telephone liaison), or offering the organization a form of specialised skill or expertise that is continually updated from external sources (eg human resource management, legal, marketing, accountancy).

Business:

a team appointed to manage a particular (niche) market segment, co-ordinating (but not controlling) all production activities for that segment.

Steering:
a well established group to define corporate or business unit policies.

We further categorised the teams in terms of whether they are collocated or dispersed, permanent or ad hoc, whether they operate continuously or meet sporadically, and what systemic function(s) they perform and at what recursive level. Any of the above team types can in fact be a virtual team, that is, a team of people operating in different places, times and now integrated by a common concern. Finally, the identified teams are linked to a series of descriptive models of business processes to show how the various teams are interlinked and related to each other by the flow of these work processes.

This analysis enables us to identify gaps in terms of possible types of teams to support the viability of the organization and to recommend practical ways, often based on information technology, of overcoming obstacles of time and space in bringing together people with requisite skills for a particular systemic purpose.

We believe that this type of analysis represents an innovative use of cybernetics and the VSM and offers scope for further application/development. In particular, while methods abound for analysing internal team dynamics, there appear to be very few methodologies available that specifically help organizations to design the deployment, constitution, purpose and systemic function of work teams.

1.3 Method to braid business and organizational processes

We are applying the process of ‘deployment flowcharting’ to understand business processes in greater depth. This work is enabling the braiding of business processes (derived from process mapping techniques) with organizational processes (derived from the VSM study). We have developed and are still developing a method to achieve a more cohesive approach to process-mapping than that traditionally employed by ‘process re-engineers’ - one that takes into account the organizational context of business processes. Deployment flowcharting deals with workflow and with the ‘actors’ in the process; it helps to chart the relationships between people and groups of people and is thus a ‘natural’ complementary tool to the VSM, providing a greater level of detail on business processes and organizational relationships. It is particularly useful in offering a way of managing detailed complexity through the breaking down of processes into sub-processes.

The VSM is able to provide the organising framework to link the process maps to the organization’s structure through the use of the same organizational units in both the unfolding of complexity diagrams and the deployment flowcharts.

The combination of these two particular tools should contribute to informing systems development in the light of co-operative work requirements and this is an aspect of our current research.

2.0 Findings of the pilot study

2.1 Relating organizational structure to strategy

Our ‘system in focus’ for the CSCW project is an Area of the bank. Our analysis has entailed gaining an in depth understanding of how the Area operates in the context of a Region and the Bank as a whole. To provide a further focus, we have been concentrating on one of the primary activities at the core of the bank - Lending.

Our analysis led to the presentation of three structural options for addressing issues of communication and control and the integration of lending activities at Area level.

Option 1 viewed the high street branches as autonomous primary activities within Area, using the resources of the centralised centres of excellence as support. A prototyping project along these lines would have involved creating
a ‘virtual’ branch team, including staff from the Lending Centre acting as an invisible extension to the branch in question. This option had the potential benefit of providing customers with an apparently complete, seamless service through the branches. However, it ran counter to the bank’s overall strategy of centralising its processing functions and was therefore arguably the least likely option to be acceptable.

Option 2 viewed the bank’s Lending Centre as being primary, with the branches providing it with amplification resource. A prototyping project in accordance with this scenario would have made the branch-based customer service staff ‘virtual’ members’ of the Lending Centre. This option, with its emphasis on centralisation and increased reliance on new technology, could be seen as the logical next stage of evolution for the bank. However, it was felt on balance to represent too sudden a transition to this new state to be practicable in the current organizational climate.

Option 3 integrated personnel from the Lending Centre and a branch into a separate ‘virtual primary activity’ with the common responsibility for lending. This option implied the need for an even closer working relationship between these entities than would be the case if their respective roles and responsibilities were more clearly distinguishable. It implied the design of an integrated team that would share responsibility for all aspects of the lending process, as opposed to having the branch and Lending Centre operate in a customer-supplier type of relationship.

This third option was selected by the bank at a local and national level as the most feasible alternative for formally establishing various kinds of cross-functional teamworking. It was acknowledged, however, that implementing this option would require careful attention to communicating the rationale and benefits of the ‘single team’ approach. No symbolic office moves would accompany the establishment of ‘the team’ and therefore other means would need to be found to help break down functional barriers and help the team become a cohesive, viable organization.

2.2 Improving teamwork and communications, supported by IT

Our method to study teamwork has enabled us to help the bank to work out the structural implications of implementing ‘option 3’. In particular, we were able to recognise the various kinds of teams that can and should exist in support of the bank’s service delivery strategy and to broaden the concept of teamworking in this light.

As part of the Area organization study, the existing teams that were recognised by interviewees were analysed and categorised according to cybernetic functional criteria. This analysis was used to recommend the development of further types of teams consistent with the three options above. However, the detail design was focused on ‘option 3’.

A number of ‘virtual organizations’ consistent with ‘option 3’ have been established that are responsible for all aspects of Lending in the small business market segment of the Area. The core members of these teams are staff in the Lending Centre who are responsible for lending to small businesses, and corresponding staff in four branches spread across the Area. These virtual organizations represent an ‘experiment’ in contrast with arrangements in other areas of the bank, where the branches and functionally specialised support units are more loosely interconnected.

A key requirement arising from the study was to establish common goals and incentives that would bind the teams together. Previously, staff of a branch and Lending Centre perceived themselves to be in competition since credits for sales of lending products were awarded to the unit which sanctioned the loan. Also, because of differences in training and organization culture, Lending Centre staff saw their role more in terms of controlling risk, while the branch staff was less concerned with risk and more driven by sales. An important objective was therefore to generate a consistent approach, set of goals and supporting systems for managing the customer interface across the virtual teams.

Furthermore, the organizational study highlighted the need to have an overview of
both risk management and sales management at Area level in order to contribute to a balanced, consistent approach to lending. The lack of a single individual or group with this overview was contributing to problems of communication and co-ordination across the functional divide. To address this requirement, a meta-level Area team (known as the MAT) has been established, consisting of the Area Manager, Service Centre Manager and Lending Centre Manager. This ‘steering team’ now meets formally on a monthly basis to agree jointly performance measures, aims and targets for managing the lending process from a total Area perspective. Additionally, the team communicates informally face-to-face, by telephone and latterly by e-mail on a regular basis which is helping to foster good working relationships and a shared vision, approach and tangible performance improvements for lending management.

It is certainly the case that some nominal liaison was evident between the MAT members prior to this project, but any such contact was purely ad hoc and carried no regular or measurable aims or results. The purpose of the MAT is to steer cross-functional improvement activity throughout each primary virtual organization through a process of empowerment, communication and performance management.

The MAT has rightly played a proactive role in driving various changes in the way the different functional groups relate to each other and communicate by technological and non-technological means. They have clearly recognised the benefits of cross-functional teamworking and have championed an increased use of technology in support of this co-operation.

Technologies introduced during the project so far have included file transfer of regular correspondence between units using the peer to peer LapLink system and server technology. This has been particularly instrumental in speeding the workflow and eliminating work duplication between the units. The usage of this technology has been largely determined by the MAT, who have set up multi-functional research teams to help prioritise IT investment requirements and investigate various aspects of the lending process.

Given the comparative lack of standard PC literacy among our target population, this use of technology represents a considerable step forward. Previously, the units only had access to dumb VDTs for accounting and customer information and they were reliant upon a courier system to carry forms and other documents between them so that much time was being consumed in completing forms manually.

We believe that this has proved a useful ‘hybrid’ approach to developing CSCW systems. The pitfalls of traditional systems development techniques when applied to CSCW environments are widely acknowledged - in particular, the slowness of development cycles and the lack of user involvement in the process of developing systems. The newer Rapid Application Development (RAD) techniques speed up the development process and bring users into the cycle through prototyping. However, important though these contributing factors are, they are insufficient in themselves to ensure exploitation of the full potential of CSCW. The reason for this is that RAD techniques still fail to see user needs in more than a single dimension, as described by a small group of individual users gathered round a screen; and they start from the assumption that users understand (and can articulate) what is required from their system.

What is required are methods that can help to determine what are the logical boundaries and membership of CSCW work groups, independent of current organizational arrangements, before entering into detailed prototyping of new technology systems. What interactions are required, both local and distant, to help the organizational system improve its performance within the context of its environment? A cybernetic analysis can help to address these questions and define the scope and nature of the communities to be supported. In the case of the bank, the organizational analysis resulted in the Area’s acceptance of some important structural adjustments before any new IT systems were even planned. Once the organization had been realigned, the users were then able to take the lead in specifying the systems that they wanted to see from a co-operative work or process perspective. No dominant individual was allowed to hijack the system or constrain it to fulfil perceived individual needs; rather, the emphasis was on the team recognising as a team the work
processes that facilitated or hindered its operation and the role that IT could play in improving workflow and communications.

While the users have increasingly felt themselves to be ‘in the driving seat’ in the implementation phase of the project, their meetings have been facilitated by a facilitator with cybernetic skills who has provided subtle guidance on team process and agenda in the light of cybernetic considerations. This ongoing support has been essential to ensure the viability of the emerging teams and that team learning takes place through reflective action.

The virtual organizations are now well established and after only three months the improvement in working relationships and processes is already beginning to show measurable results in terms of providing the customer with a more consistent approach to lending decisions and a more streamlined process. Many of the improvements have come from changes in work practice rather than from the introduction of technology. For example, a ‘work experience swap’ scheme has been introduced to cover all ‘virtual team’ members at all levels, including branch managers. This is helping to break down the ‘them and us’ mentality which existed previously and leading to a shared view and more comprehensive understanding of the whole of the lending process.

2.3 **Braiding business and organizational processes**

This section has still to be written. It will include 1-2 process maps as illustration of the method, but I’m not sure how much we’re going to be able to say about the practical results of using the method. Any suggestions? It would help to have a clear example of the braiding, that is, of how the business process is affected by improved primary activity control processes. In our case, the relation between the ‘virtual team’ and the MAT helps to overcome hierarchical controls of ‘functional activities’ (of the business process) by offering a more integrated and cohesive control of the total process from the MAT.

**Conclusion**

This paper has described the use of cybernetic modelling techniques in the creation of a ‘virtual organization’ in one area of a high street bank. These techniques have helped to define the scope, boundaries and relationships within and between co-operating work-groups that span functional and geographic divides.

The VSM has provided a tool and framework for discussing in overview the alignment of structure, strategy and the communication needs of various management and implementation groups within the Bank; it has also provided the background model or template for the more detailed work of implementing changes and strengthening communications (by technological and non-technological means) ‘on the ground.’ Without such a model, organization and system design efforts all too often tend to be heavily influenced by existing work groupings and short-term political expediency - reinforcing rather than addressing the dysfunctionalities in the overall organizational system.

In implementing this virtual organization, the users themselves have taken the lead in specifying the technological systems that they require. This strong uptake of technology is perhaps indicative that if the organizational system is one that ‘works’, the technology will follow on naturally as people search for ways to improve their efficiency; but that technology of itself will not necessarily improve a poorly functioning organization. A meta-level view is required to help people understand the ‘organizational system’ of which they are a part and expand their view of their own potentials and those of other people in the system.

Our research has led to an enhanced understanding of the function, roles and support requirements of different types of team within the bank. It is providing a non-hierarchical organizational context for the mapping of business processes, to enable both process detail and organizational relationships to be more effectively captured through process modelling. Finally, it is also influencing how the affected communities or teams view performance and the management of performance as a mechanism for learning and managing change.
Salient features of the cybernetic approach used in this research include:

- a more widespread distribution and sharing of information across all structural levels of the organization, i.e. a distribution of discretion;
- a re-balancing of organizational conversations about current and future actions to give sufficient weight to future concerns at all structural levels (the ‘outside and then’ versus the ‘inside and now’);
- an emphasis on ‘soft’ as well as ‘hard’ measures of performance;
- an emphasis on information currency, as opposed to relying on historical accountancy data as the main tool for performance measurement; and
- a change from an emphasis on profits to an emphasis on viability. This encompasses such intangible aspects as managing corporate reputation that may influence the acceptability or otherwise of an enterprise in the long run.

In practice, the critical variables for performance measurement are those that primary teams at all structural levels perceive as critical to manage their organizational tasks. These perceptions can be improved by helping teams build shared mental models and systemic awareness of their tasks within a broader organizational context. Our aim in the remaining phase of the project is therefore to help the virtual teams that have been established to leverage their performance through the creation of shared team mental models. We will be combining various system thinking tools and approaches to progress a team’s thinking from individual concerns couched in their own language, to a more systemic way of understanding and dealing with important change management issues. Computer support will be used as appropriate in this process as a modelling and memory aid.

References


