

# Collaboration Infrastructure for the Learning Organization

Keith Harrison-Broninski<sup>1</sup> and Janne J. Korhonen<sup>2</sup>

<sup>1</sup> Role Modellers Limited, Somerset, UK  
`khh@rolemodellers.com`

<sup>2</sup> Aalto University, Espoo, Finland  
`janne.korhonen@aalto.fi`

**Abstract.** Human Interaction Management (HIM) is a holistic theory of human collaborative work that provides management principles and patterns for business processes focused on knowledge work. The Human Interaction Management System (HIMS) is the associated software technology for process design, execution and management. Goal-Oriented Organization Design (GOOD) is the associated change management methodology. In this paper, we suggest that HIM, the HIMS, and GOOD provide the basis for a collaboration infrastructure that is conducive to the Learning Organization and that exemplifies good socio-technical design.

**Keywords:** Human Interaction Management (HIM), Human Interaction Management System (HIMS), Goal-Oriented Organization Design (GOOD), learning organization, socio-technical design.

## 1 Introduction

Most knowledge workers find it hard to visualize and manage the structure of their work. They also do not know to what extent they are efficient or effective. In fact, research shows that they are neither. Multi-year time and motion studies on knowledge workers in the US [15] show that they spend an average of 28% of their working day organizing their interactions with one another rather than doing useful work. The cost of this wasted time to employers, and hence to the US economy, is estimated to be 650 billion dollars per annum, which equates to a cost to the worldwide economy of something like 2 trillion dollars per annum. So knowledge workers are not doing things right. Are they even doing the right things? As an example of how ineffective knowledge workers are, further research shows that although 82% of all organizations are undertaking some form of change initiative at any one time [2], 70% of change initiatives fail [4].

Traditional management techniques for describing work arose in manufacturing. In the Scientific Management [16], outputs are specified in advance, a sequence of tasks to deliver them is defined, and the tasks are then scheduled. We view that this mechanistic approach is increasingly outdated in the face of the mounting complexity of the business environment. While it is widely

acknowledged that knowledge economy calls for “learning organizations” that continuously adjust to changing requirements and priorities, the management tools and techniques are still predominantly rigid and geared to relatively stable and predictable business environments. Technological and methodological support for collaborative knowledge work and organizational learning is rather incipient. Prevalent knowledge management and groupware tools have generally made communication faster, but they have not been able to make human collaboration more effective. In this paper, we will look into a proposed alternative approach that provides collaboration with a process context: Human Interaction Management (HIM) [7]. HIM is a holistic theory of collaborative human work that draws from psychology, biology, social systems theory and learning theory.

HIM provides a set of principles and patterns for designing, executing and managing business processes focused on knowledge work. Whereas the mainstream Business Process Management (BPM) techniques and tools deal with “mechanistic” business processes, in which human involvement is limited to key data entry and decision points, HIM extends work support to “human-driven” processes focused on human creativity and collaboration. HIM provides process-based support for innovative, adaptive, collaborative human work and allows it to be integrated in a structured way with routine work processes that are often largely automated via BPM systems or other technologies.

A Human Interaction Management System (HIMS) is a process modeling and execution tool based on HIM theory: “process modeling and enactment system that provides native support for the six Role Activity Theory object types (Role, Entity, Activity, User, State and Interaction), uses a state-based approach to Activity enablement and validation, permits Interactions to be composed of multiple asynchronous channels, and supports management of process change by allowing any process component to be created and configured as a natural part of process execution”. [7, p. 266]. The reference implementation of a Human Interaction Management System (HIMS) is the software HumanEdj, which we will cover in more detail in Section 3.

HIM has an associated methodology called Goal-Oriented Organization Design, or GOOD [8]. GOOD starts with a Design Stage in which organizational domain is defined, vision and mission are designed and refined, stakeholders are identified, and benefits profiled. The next Stage, Delivery, includes manages requirements analysis, stakeholder management, risk/dependency management, and operational transition as a unified whole. The final Stage, Optimization, ensures that communications are effective and benefits managed. In practice, all three Stages may run in parallel for much of the time.

We view that together HIM and GOOD provide a collaboration infrastructure that formally supports management of knowledge work in learning organizations.

The paper is structured as follows. In Section 2, we discuss the theoretical underpinnings of HIM, in terms of the inner structural patterns of collaborative human work. In Section 3, we discuss the practical implementation of HIM as a HIMS. Based on the findings in these sections, we suggest in Section 4 that HIM provides a collaboration infrastructure that, with the associated GOOD

methodology, is conducive to the Learning Organization. In Section 5, we show that HIM and GOOD together exemplify good socio-technical design. In Section 6, we recount a case study of applying HIM in an innovation organization. Finally, Section 7 provides a brief discussion and concluding remarks.

## 2 Human Interaction Management Theory

Drawing from and extending Role Activity Theory [10], Human Interaction Management theory provides a modelling framework for describing collaborative human working behaviour in process terms, and identifies patterns that underlie any form of human activity (whether collaborative or not) and demonstrate how learning is the core of all collaborative work [8]. Harrison-Broninski [7] starts the analysis of human-driven processes from the inner structural patterns rather than from their external manifestation in terms of particular communications. He suggests that any human work consists of five stages [7]:

- *Research*. This stage is about mapping out the terrain of the work; gaining information from external sources, e.g. communities of practice, textbooks, Web search, and turning it into personal knowledge.
- *Evaluate*. Here one steps back to consider and internalize the acquired knowledge.
- *Analyze*. An approach to the problem is decided upon, at least initially.
- *Constrain*. The work is divided into separate chunks and organized. This stage is about laying down the constraints that govern these chunks of work.
- *Task*. As the chunks of work have been handed out to appropriate people, all those concerned can get on with the tasks at hand.

The first stage of the REACT pattern, Research, is further broken down into a sub-pattern AIM, which describes the activities of information discovery:

- *Access* discovery services. This stage is about mapping out the terrain of the work; gaining information from external sources, e.g. communities of practice, textbooks, Web search, and turning it into personal knowledge.
- *Identify* resources required. At this sub-stage, resources of likely interest and usefulness are identified and chosen.
- *Memorize* information obtained from particular resources. This sub-stage is about internalizing the ideas in question.

According to Harrison-Broninski [7], the REACT and AIM patterns describe all human working behaviour. The patterns capture the way that people react to the work they take on: e.g. respond to an assignment, fulfil a responsibility, achieve a goal. REACT and AIM help simplify complex situations since the patterns can be repeated, overlapped, and nested in order to reduce any work assignment to the same fundamental stages.

### 3 The Human Interaction Management System

Implementation of HIM in an enterprise environment (i.e., design, execution and management of business processes according to HIM principles) is facilitated by software support from a Human Interaction Management System (HIMS). The aim of a HIMS is to facilitate all stages of human work without forcing people to follow a set of predetermined steps. A HIMS helps people to see the bigger picture of a process and understand their responsibilities within it. This calls for suggestive rather than prescriptive process description and support: a HIMS provides support and enforces basic control on behalf of the organization, providing an indication to people of what they are expected to do then letting them learn collaboratively how best to meet their assigned goals [7].

A key aspect of this collaborative learning derives from autopoietic theory [18], which asserts that communication is founded not on transmission of information but rather on transmission of intent. Research in biology shows that the purpose of animal communication is largely about synchronizing the behaviour of parties. This understanding has been adopted in business via the classic “Conversation for Action” pattern, in which communication between people and organizations is structured in terms of a small set of request/response pairs – request/promise, offer/acceptance, report/acknowledgement [7]. HIM generalizes this principle by allowing a much broader and less restrictive set of structured communications.

HumanEdj software, for instance, provides full support for speech acts theory [7], according to which a communication act is not only composed of content but also, and at least as importantly, of an intention. A speech act lets the sender of a message specify two things about the message [13]:

- The *Intended Manner*, or the illocutionary force, that describes the tone of voice one is adopting: for instance “Advise” rather than “Require” in order to make it clear that the message is a suggestion rather than an order.
- The *Intended Effect*, or the performative, that describes the sort of thing one wants to happen as a result of the message: for instance “Ask\_All” rather than “Ask\_One” in order to make it clear that one wants the recipient(s) to canvas their entire team about something, rather than just key team members.

Many business people have found the traditional use of speech acts in the “Conversation for Action” too rigid for practical use [5]. Hence, HumanEdj permits business people not only to share data and documents, but also to make a wide range of assertions about the status of Deliverables and Stages. More generally, a HIMS suggests actions rather than prescribes them, allows not only for communication but also for action, does not assume that all communication is direct and does not prevent tangential discussion, i.e. unexpected interactions that go beyond the conversation originally expected [7]. This permits processes to evolve via a collaborative learning process. Rather than being based on a specific aspect of human collaboration such as speech acts, a HIMS is based on the five fundamental features of human-driven processes identified by Harrison-Broninski [7]:

1. *Connection visibility.* Collaborative technology must provide a strong representation of process participants, their roles and their private information resources. To work with people, one needs to know who they are, what they can do, and what their responsibilities are.
2. *Structured messaging.* If people are to manage their interactions with others better, their communications must be structured, goal-directed and under process control.
3. *Support for mental work.* Human-driven process support must recognize the value of the human information processing: the time and mental effort invested in researching, comparing, considering, deciding, and generally turning information into knowledge and ideas.
4. *Supportive rather than prescriptive activity management.* People may not sequence their activities in the manner of a software program, but there is always structure to human work, which must be understood and institutionalized so that it can be managed and improved.
5. *Processes change processes.* Process definition is an intrinsic part of the process itself; it happens continually throughout the life of the process.

The HIMS imposes structure by modelling work formally as a process. By bringing collaboration tools into a unified process context, it promises to make work genuinely more effective [9].

Situated learning [12] suggests that all learning is contextual, embedded in a social and physical environment. Personal knowledge and problem solving are closely tied up with interrelations with others and the artefacts used. This leads to communities of practice [20], in which a group of people, bound together by informal relations, naturally develops common language, understanding of their work context and meaning attached to their tools. The HIMS can be seen as facilitating socialization into a community of practice by providing “scaffolds” [1] in the “zone of proximal development” [19]. As Hutchins puts it, the longer-term transmission of knowledge is “crystallized and saved in the physical and conceptual tools of the trade and in the social organization of work” [11].

The reference implementation of a HIMS, which is arguably most true to the HIM theory and thus our software of choice for the case study, is HumanEdj [6], which is free for small-scale use. HumanEdj has a distributed peer-to-peer architecture, more akin to a Multi-Agent System than to a workflow engine. Participants in a process, which in HumanEdj is called a “Plan” may belong to different organizations and use different HumanEdj instances. HumanEdj automatically synchronizes the Plan state for all participants via a messaging technology such as email. It is also possible to participate in a Plan using a standard email client.

HumanEdj structures activities, messages, documents and data as well as maintains information on who does what, when, where and why. Fine-grained control over who sees what in a Plan is accomplished by grouping all the above items into “Stages”, each of which represents a related set of goals and effectively defines a virtual sub-team within the Plan. Plans may generate sub-Plans, for instance in order to carry out the details of a public process inside distinct private processes [8].

Plan templates are used to generate Plans for projects, initiatives, ventures, etc. – i.e. executable business processes that may cross-organizational boundaries. Each Plan is configured appropriately for the requirements of the situation. The participants themselves adjust the configuration throughout its life, as they collaborate to evolve the definition of the Plan instance in response to external circumstances and internal progress.

A Plan instance acts not only as a mechanism for learning but, once complete, as a source of learning materials. Plan instances from a repository show how other people dealt with problems of a certain type, and new Plan templates may be created from successful Plan instances (or parts thereof).

With regard to assessment of learning results, Plan instances are self-monitoring – they include automatic feedback mechanisms both within the Plan and across Plans to higher management levels. Taking part in a Plan instance in itself both measures and provides evidence of achievement. Plans may also use external services to provide:

- Learning materials customized for the Plan instance
- Standardized evaluation of learning progress
- Trusted competency assessment
- User profiles

Information within a Plan instance automatically has semantic mark-up, as do all communications between participants. This mark-up can be sent to external services to help streamline the results.

## 4 HIM and the Learning Organization

Collaboration is fundamental to what is called a Learning Organization [14]. A Learning Organization facilitates the development of skills and experience by its members and continuously transforms itself via on-going negotiation between its members. HIM and the associated GOOD methodology allow the organization to structure work around learning, resulting not only in a more fulfilling workplace for the individual but also in improved performance for the organization and its partners. HIM and GOOD provide a way to define, implement, monitor and adjust organizational goals and strategies – integrating different levels of management both within and across organizations into a dynamic process network driven by learning.

In their meta-analysis of themes in the learning organization literature, Thomas and Allen [17] synthesized five broad categories:

1. *Learning*. The nature of learning at the individual level, its effect and application at the team level, and amplification at the organizational level. This is empowered by the space and recognition that HIM mandates for mental work in collaborative human activity (for example, HumanEdj Plan templates typically have deliverables that represent the concrete outputs of thought and discussion over a period of time), and the emphasis on such

work in the REACT pattern. Of the five Stages of REACT, the first three are entirely devoted to learning, and the first Stage (Research) is given a special emphasis by being separated into the three sub-Stages of the AIM pattern.

2. *Structure.* The basis and composition that enable the organizational learning processes and systems. This is provided by the re-use of Plans as Plan templates, in whole or part, for particular Plans that embody solutions to special cases or new situations.
3. *Shared vision.* The binding component and catalyst of organizational change. This is assured by the use of Stages to represent sets of related goals and Roles to represent corresponding responsibilities. By making goals and responsibilities concrete, they become visible to participants in a Plan, who can then discuss and negotiate them to ensure shared understanding.
4. *Knowledge management.* The capture, structuring and re-conceptualization of implicit and explicit knowledge. This is given a practical basis in the re-use of Plan templates described above, since they make the solutions derived in practice explicit, as instructions for future operations.
5. *Strategy.* By which the organization identifies potential and capitalizes on the opportunities. This is dealt with via the GOOD method, which provides a standard, universal set of Stages, Roles, Activities and Deliverables to manage the complexity of organizational change.

## 5 HIM and Socio-technical Design

Cherns [3] provides a basic framework for understanding and designing socio-technical systems in consideration of human and social aspects. Building upon the notion of a participative process, he defines nine key principles of socio-technical design. It appears that HIM and GOOD are congruent with these principles and thus representative of good socio-technical design:

1. *Compatibility.* The process of design must be compatible with its objectives. HIMs objective is to support irregular collaborations and give them an appropriate process context. Likewise, the process of design is a collaborative effort by the people taking part in the managed processes, and is focused on defining and sharing sets of related goals.
2. *Minimal Critical Specification.* No more should be specified than is absolutely essential, yet what is essential will be identified. Process description and support in HIM are suggestive rather than prescriptive: a HIMS provides support and enforces control, advising people on what to do and letting them carry out their tasks as they see fit.
3. *The Socio-technical Criterion.* Variances, if they cannot be eliminated, must be controlled as near to their point of origin as possible. In HIM, each participant in the system is responsible for executing their private process and accountable for others as specified in the public process.
4. *The Multifunctional Principle.* As opposed to the traditional form of organization, in which people perform highly specialized and fractionated tasks,

Cherns calls for multifunctional and equifinal mechanisms that can provide a range of responses by using different combinations of elements. HIM allows the network “wiring” between the participants to change and enables fluid behaviour of processes in the declarative bounds of specified channels. The HIMS suggests actions rather than prescribes them and supports unexpected interactions.

5. *Boundary Location.* Departmental boundaries interfere with desirable sharing of knowledge and experience. The role of the manager should be concentrated on the boundary activities: ensuring adequate resources, coordinating with other departments, etc. HIM terms this executive control: determining the Roles, interactions and deliverables of a process.
6. *Information Flow.* Information systems should supply people with exactly the right amount of information to enable them to control the variances that take place in their sphere of responsibility and competence. HIM provides each Role with access to its own data, sharing it with other Roles only through message exchange on an as-needed basis and always within a purposeful context (a goal-directed Stage).
7. *Support Congruence.* The systems of social support should be congruent with the behaviours, which the organization structure is designed to elicit. If the intention is to improve collaboration and increase organizational effectiveness via learning, HIMS provides the right kind of means and constraints to achieve this since the five principles of HIM are based on deep understanding of human interactions and place high value on learning as an aspect of collaborative behaviour.
8. *Design and Human Values.* The outcome of organizational design should be a high quality of work. HIM does not limit human involvement to key data entry and decision points, but also makes goals and responsibilities explicit and supports the corresponding human interactions, thereby encouraging and leveraging purposeful, skilful decision-making and judgment.
9. *Incompletion.* Design is a reiterative process: “As soon as design is implemented, its consequences indicate the need for redesign.” HIM enables continual change (renegotiation) of processes on the fly.

## 6 Case Study – An Innovation Organization

To illustrate how HIM supports collaboration and organizational learning, we will consider an innovative company whose products are improvement programmes that it delivers to public sector organizations. The management structure is flat and staff members are encouraged to propose, seek internal funding for, and implement new improvement programmes on a regular basis. While the culture has resulted in innovations beneficial to their customers, and consequently in growth, the company struggled to make its operations profitable. It was not possible to optimize or even obtain the cost of sales, given the complex way in which improvement programmes were created, sold, and delivered. It became necessary to standardize and monitor customer-facing operations.



The company expected to continue its previous success with standardizing back-office administrative processes using traditional workflow techniques. However, standardization of customer-facing operational processes met with resistance from staff, who were accustomed to using their skills, experience and judgement to adapt their working approach to each customer engagement. Hence, there remained wide variance across the organization in the way that core customer-facing and internal processes were carried out.

The solution required a means of process standardization that provided indicative rather than prescriptive processes (i.e. processes that could be adapted flexibly during execution), and that supported the harvesting of innovative ideas into new products (i.e. improvement programmes). The company used HIM to develop Plan templates for core operational processes including:

- *Sales Funnel*. Developing a sales lead into a new customer engagement.
- *Product Delivery*. Implementing an improvement programme for a customer.
- *Non-Standard Product Development*. Developing a custom improvement programme for a customer.
- *Standard Product Development*. Turning a custom improvement programme into a standard off-the-shelf product offered to all customers.

Shown below in Fig. 1 is a HumanEdj “Grid view” of the Plan template for the Sales Funnel process. Across the top are the Roles in the process, which in an actual Plan would be assigned to named people. Down the side are the Stages in the Plan template – the numbering is only suggestive, since the Stages may be carried out in any order, and they often run concurrently. Here we see Shared vision [17] made concrete via use of Stages to represent sets of related goals.

During the lifetime of a Plan, the Stages will be assigned statuses by the Plan owner, such as “Started”, “Completed”, “Cancelled”, and so on. Different Roles belong to different Stages. Any documents, data or messages created in a Stage are visible to all the Roles in that Stage and only to those Roles. Here we see the emphasis on mental work that is critical to Learning [17], via deliverables identified and recognized as a natural part of Plan execution.

Two Activities in particular are to be noted:

1. “Initiate Non-Standard Product Development” in Stage “Develop Opportunity”, which involves the creation of a new sub-Plan for developing a custom improvement programme, if required. The sub-Plan will be based on a standard Plan template, adapted as required. If the standard Plan template is adapted, the new version may itself become a standard Plan template for use by others. The creation of the sub-Plan not only draws on organizational knowledge about custom improvement programme creation, but may well contribute to it by addition of a new special case. Here we see how the creation of a particular sales proposal contributes to evolving organizational Structure [17], since the way in which it was done is automatically made part of enterprise Knowledge management [17].

Somerset GP Service Q4 2011 :: 31-Oct-2011 14:05:29.390						
Stage	Nominated Sales Lead	Lead Owner	Lead Creator	Client	Solutions Team	Product Specialist
<b>1. Generate Lead</b>	View Lead in CRM (-17 days, due 04-Nov-2011)	View Lead in CRM (-14 days, due 09-Nov-2011)	Maintain Lead in CRM	Not in Stage		Not in Stage
<b>2. Qualify Lead</b>	Qualify Lead	View Qualified Lead (-8 days, due 17-Nov-2011)	View Qualified Lead	Not in Stage	View Qualified Lead	Not in Stage
<b>3. Create Opportunity</b>	Assess Client Arrange Follow-Up Meeting Record Change to Opportunity on CRM	View Pre-Meeting Document	Not in Stage	Not in Stage	Not in Stage	Not in Stage
<b>4. Develop Opportunity</b>	Proposal  Formal tender  Submit Proposal	Approve Proposal Submission	Not in Stage	Not in Stage	Not in Stage	Review Non-Standard Product Offering Initiate Non-Standard Product Development
<b>5. Negotiate Proposal</b>	Send Proposal to Client			Review Proposal		Not in Stage
<b>6. Await Decision</b>	Prepare for Delivery Initiate Delivery Plan		Not in Stage	Not in Stage	Not in Stage	Not in Stage
<b>7. Close Opportunity</b>	Create Contract Close Opportunity in CRM Initiate Resources Allocation For Delivery	View Opportunity Status	View Opportunity Status	Not in Stage	Not in Stage	Not in Stage

**Fig. 1.** Excerpt from HumanEdj Grid View in tabular format of Plan template for sales of improvement programmes

2. “Initiate Delivery Plan” in Stage “Await Decision”, which involves the creation of a new sub-Plan for delivering the improvement programme. The Plan template used for this is created as part of the proposal and adapted for each customer engagement. As above, creation of a sub-Plan for a particular Delivery may well result in an adapted Plan template that can be re-used for future Deliveries of the same type. This creation of one Plan from another is typical of the GOOD method, which can be used at any level in an organization to align operations with Strategy [17].

Statistics from the Delivery sub-Plan are used together with statistics from the Sales Funnel Plan itself (shown for an example template in Fig. 2 and any sub-Plan for Non-Standard Product Development to generate accurate total cost for provision of the improvement programme to the customer, and hence to create a price that ensures the engagement returns a profit (or a deliberate loss).

By explicitly associating the different aspects of customer engagement with one another, the organization is making its customer-facing operations and their internal relations *visible*. This means not only that senior management can learn to manage the processes as a unified whole, but also that new staff can learn what the organization actually does and how they fit into it. These means of learning are fundamental enablers as the organization grows, since geographical expansion means that teams are increasingly virtual and operational staff includes more and more sub-contractors rather than employees.

Plan	Somerset GP Service Q4 2011 :: 31-Oct-2011 14:05:29.390	Work To Do	TRUE	Effort Days	11	Effort Cost - Total	4,230	Effort Cost - Remaining Work	4,230	Earliest Activity Start Date	01-Nov-11	Latest Activity Deadline	17-Nov-11	Latest Activity Expected Finish Date	28-Nov-11	Minimum Activity Expected Margin Days	-17
Description	Instances of this Plan template are created via an Intranet form that anyone can use. The form enters client details into CRM, then starts the Plan pre-populated with: 1. A link to the client page in CRM; 2. A Solutions Area Director assigned to the Lead Owner Role - this Role may be re-assigned during the Plan if necessary.																
ROLE	DAY RATE	OVERHEAD PERCENTAGE	DAY RATE USED	DESCRIPTION													
Nominated Sales Lead	0	0	402														
Lead Owner	0	0	402	All unqualified leads should be assigned to relevant Solutions team Area Director as the lead owner. The Lead Owner Role may be re-assigned during life of the Plan if necessary.													
Lead Creator	200	0	230	New sales leads that have been generated that are not yet qualified as being a genuine lead are referred to as unqualified leads. These are expressions interest for our products/services from a variety of sources e.g. simple conversation, email, enquiry in response to marketing/website etc. These leads can be generated and logged by all individuals in the business in this early stage. In some instances the solutions team may ask these individuals to maintain that early relationship and link, until it is appropriate for the solutions team to get involved from a sales perspective. We must be careful that they are leads and not support queries that we log.													
Client	50	0	57														
Solutions Team	0	0	402														
Regional Sales Support	0	0	402	Supports Nominated Sales Lead in preparing the proposal													
Central Sales Support	0	0	402														
Product Specialist	0	0	402														
Area Coordinator	500	0	575														
Business Development Manager	500	0	575														
Defaults	350		15	Defaults are used where not set specifically for a Role													
Stage	Role	Activity	Deliverables	Resources	Work To Do	Effort Days	Effort Cost - Total	Effort Cost - Remaining Work	Start Date	Deadline	Expected Finish Date	Expected Margin Days					
1. Generate Lead	Nominated Sales Lead				TRUE	0.4	126.4	126.4	01-Nov-11	09-Nov-11	28-Nov-11	-17					

Fig. 2. Excerpt from HumanEdj Summary View in tabular format of Plan template for sales of improvement programmes

Further opportunities include passing on the learning benefits of HIM to client organizations in the form of Plan templates that support their resulting change management initiatives; and use of GOOD to develop the growth strategy. The company has effectively started the latter already, by creating Bottom-Up Plan templates for core operations. The next step is to build a Process Architecture to represent their domain of interest, define vision and mission at multiple levels via a Business Motivation Model, develop understanding of their stakeholders, and create Benefits Profiles for the changes that they plan.

## 7 Discussion and Conclusions

In this paper, we have introduced Human Interaction Management (HIM) [7] and the associated Goal-Oriented Organizational Design (GOOD) method [8]. We have discussed how HIM and GOOD together provide a collaboration infrastructure that formally supports knowledge work, is conducive to the Learning Organization and exemplifies good socio-technical design. In Human Interaction Management, learning is viewed as the basis of all human working activity, recognizing that learning is not only part of all work, but that much work is learning-centred. Whereas traditional scientific management approaches and corresponding workflow tools are inadequate for structuring work around learning, HIM integrates learning into work naturally. GOOD is a methodology for

the creation of organizations that are empowered by learning – organizations in which learning is a driving force for all business processes.

To validate the claims, we have presented a case study of a company that formalized its approach to collaboration and organizational learning with the HIM approach. Although the validation is not conclusive, the case study provided encouraging results: improved visibility into collaborative knowledge work, successful support for indicative rather than prescriptive processes, and natural integration into operational work of all the five themes of Learning Organization [17]. Further research is required to corroborate the tentative findings.

## References

1. Balaban, N.: To become a teacher (1995)
2. Benedict, A.: 2007 change management. Survey Report (2007)
3. Cherns, A.: The principles of sociotechnical design. *Human Relations* 29(8), 783–792 (1976)
4. Dirkin, H.L., Keenan, P., Jackson, A., Kotter, J.P., Beer, M., Nohria, N., Duck, J.D.: Lead change—successfully, 3rd edn. HBR Article Collection (2009)
5. Flores, F., Graves, M., Hartfield, B., Winograd, T.: Computer systems and the design of organizational interaction. *ACM Transactions on Office Information Systems* 6(2), 153–172 (1988)
6. Harrison-Broninski, K.: Introduction to humanedj, <http://rolemodellers.com/resources/HumanEdj.pdf>
7. Harrison-Broninski, K.: Human Interactions: The Heart and Soul of Business Process Management. Meghan-Kiffer Press (2005)
8. Harrison-Broninski, K.: Goal-oriented organization design. *Agile Product & Project Management* (June 2009)
9. Harrison-Broninski, K.: Human interaction management and learning. *BPTrends* (November 2009)
10. Holt, A.W., Ramsey, H.R., Grimes, J.D.: Coordination system technology as the basis for a programming environment. *Electrical Communication* 57(4), 308–314 (1983)
11. Hutchins, E.: *Cognition in the Wild*. MIT Press (1995)
12. Lave, J., Wenger, E.: *Situated Learning: Legitimate Peripheral Participation*. University of Cambridge Press (1991)
13. Role Modellers: Humanedj 3.0.22 Tutorial (March 2008)
14. Senge, P.M.: *The Fifth Discipline*. Doubleday (1990)
15. Spira, J.B., Goldes, D.M.: Information overload: We have met the enemy and he is us. Tech. rep., Basex (2007)
16. Taylor, F.W.: *The Principles of Scientific Management*. Harper and Brothers (1911)
17. Thomas, K., Allen, S.: The learning organisation: a meta-analysis of themes in literature. *The Learning Organization* 13(2), 123–139 (2006)
18. Varela, F.J.: *Principles of Biological Autonomy*. Elsevier (1979)
19. Vygotsky, L.S.: *Mind in Society*. Harvard University Press (1978)
20. Wenger, E.: *Communities of Practice: Learning, Meaning and Identity*. Cambridge University Press (1998)