Social-GTD for Collaborative Activity Support in Organizations

Filipe Alexandre da Silva Mariano and Joaquim Belo Lopes Filipe

Instituto Politécnico de Setúbal, Escola Superior de Tecnologia de Setúbal, Setúbal, Portugal

Keywords: Planning, Activities Management, Collaborative Systems.

Abstract: Activities management in organizations is of utmost importance for optimizing the effectiveness of business processes. Time is one of the important factors in this context, so time management becomes an important aspect that needs appropriate theoretical support. Our research work is based on work done in personal management but we propose an adaptation of a particular methodology to the organizational context. This work-in-progress includes the development of an information system for collaborative activity support in organizations based on a matrix structure, which can collect and manage available actions, providing each organizational unit the capability of sharing and managing information/resources.

1 INTRODUCTION

Business is constantly changing and it's important for the organizations to stay competitive. However, competitiveness is more challenging than ever and due to the fast changes in technology, organizations are being overwhelmed by information and under-resourced to support all the information they have available.

It's important to decide what to focus on, how and when, and what to do for an organization to maintain its high-performance levels and avoid some failures in time/activities management, due to constant changes in the daily schedule and interruptions that increase the difficulty of planning and priority management. An inefficient management of individual and collaborative agendas can create resistance to the timely and appropriate performance of organizational tasks. Therefore, organizations need new tools to access and organize all internal information available, generated through multiple channels, somehow related to activities management. One of the most well known time management methods was proposed by Allen (2001), under the designation of GTD (Getting Things Done). Despite being an approach that aims at personal management, more and more organizations, groups and/or work teams try to incorporate it in their culture. With the introduction of a Social-GTD variant, as proposed in this paper, it is possible to adapt those ideas to an organizational context, where activities are enacted in a multi-agent collaborative setting.

When all workers sense they control their work and that their goals/commitments are clearly defined, the organization should benefit from it. However, it's not easy to introduce a GTD culture in traditional hierarchical organizations due to the fact that this methodology leads naturally to distributed leadership, and may face some resistance from traditional managers. This seems to be another challenge for organizations in applying GTD principles for organizing their collaborative activities.

2 BACKGROUND

GTD it's a personal productive approach that allows people to have things done, eliminating the stress that comes from all the goals, commitments and tasks that they have in hands. According to Allen (2001), GTD "doesn't involve new skills, (…) but most people will have some major work habits that must be modified before they can implement this system". This methodology presented by Allen, is based on two key objectives: "capturing all the things that need to get done (now, later, someday) into a logical and trusted system outside of your head and off our mind; and disciplining yourself to make front-end decision (…) so that you will always have a plan for next actions that can be implemented or renegotiated at any moment". Having a clear head will allow you to focus on actions that are necessary

to do at the moment, and not in actions on which you can't do anything. For these actions it's required to organize reminders in a system reviewed regularly.

Several professionals think that the lack of time is their biggest problem, but, in many cases, the problem is the lack of clarity and definition about the projects, plans and next actions. Frequently, they can't perform their actions not for lack of time, but due to the execution not been previously properly defined. In this context GTD plays an important role.

The GTD process is composed by five stages: collect, process, organize, review and do it. In the collect stage is where we capture all the things that might represent something to do, i.e., every incomplete action must be saved into a reliable system. Process stage is about identifying each item previously collected and deciding what to do with it, organizing them in actionable or non actionable items. To help to illustrate those stages (process and organize), the next diagram shows the "categories of reminders and materials that will result from process all stuff" (Allen, 2001).
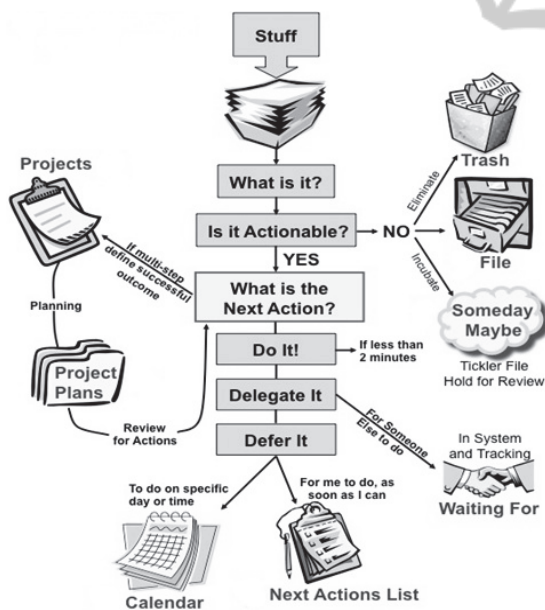

Figure 1: Workflow diagram – process and organize. Adapted from Allen (GTDfiling).

Daily and weekly reviews are required to check the plans, projects and actions state, and to decide what are the next actions. In the last stage (do it) is where we finally choose what to execute at any point in time.

Allen (2001) defines stuff as "anything you have allowed into your psychological or physical world

that doesn't belong where it is, but for which you haven't yet determined the desired outcome and the next action step. (...) As long as it's still stuff, it's not controllable". Therefore, it is important to transform stuff in an actionable way that stimulates a person to act.

In contrast to traditional management methods, GTD adopts a bottom-up approach, dealing first with specific issues rather than high-level goals. There are no "explicitly defined priorities, milestones, or deadlines, i.e. formalized planning schemes and objectives" (Heylighen & Vidal, 2008). Those systems are tools that allow to specify who does what and when. In these systems it is the manager that has the key role and other co-workers don't interact or contribute much to plan improvement, unlike in traditional GTD which aims at personal empowerment.

3 COLLABORATIVE GTD APPROACH

In the previous section, it was made clear that one of the key objectives of GTD is to collect things that need to get done into a logical and trusted system. Although we acknowledge the elegance and effectiveness of GTD, this is mainly targeted at individuals and something more is needed in order to optimize collaborative activities in an organization. Some basic concepts must be defined before we proposed an extension to this method. The first one is **task**, and this is the work unit for all workers; tasks refer to the things that need to get done, which Allen calls actions. To avoid the problem of repetitively creating recurrent tasks, with the same features in different time periods, we consider essential to define an abstraction of task - named **task template** - that can be used to instantiate those tasks that are performed frequently. Allen (2001) defines a **project** as "any desired result that requires more than one action step", but in an organizational approach if we assume this, we will have a large number of projects and, because of that, our approach requires the existence of a conceptual level between task and project, named **activity**, which can be represented by a directed graph of related tasks in a specific context. Analogously, the concept of project can be represented by a directed graph of activities.

3.1 Organizational Structure

At the moment, our approach has been tested only in

organizations that have a matrix structure. This type of organizational structure combines the best of functional and divisional structures. According to Mintzberg (1979), with a matrix structure "the organization sets up a dual authority structure (...) sacrificing the principle of unity of command", this can result in conflicts that should be solved by this system.

The people that are involved in collaborative projects, activities and tasks in an organization belong to one or more organizational units, which may be related to each other by functional dependencies and/or line dependencies, and which may vary in time. This means that the organization can be seen as a superposition of two or more orthogonal hierarchical structures whose organizational units and individual members have a particular dynamic. We tried to capture this complexity by decomposing the problem into subproblems, as usual, and by defining a number of useful building blocks, starting with the concept of **group** as a basic organizational unit. We then devise a general relation between groups that can be used to represent hierarchical structures or matrix structures, based on a particular ontology of **group relations**, which we designate as AVIS – Adopt, make Visible, Inherit, Share – due to the structure of these relations (see section 3.1.2.)
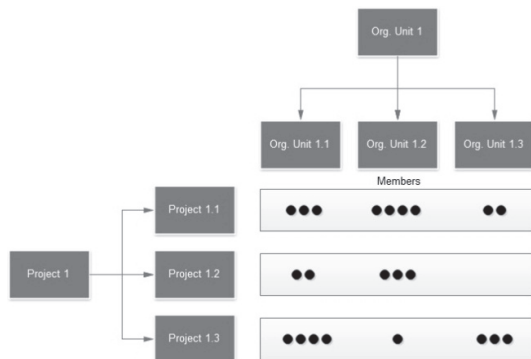
3.1.1 Groups

Figure 2: Matrix structure and groups representation.

To support multiple units that exist in a matrix organizational structure, the system has a concept of **group** that can represent either a department, a section on a traditional hierarchical structure or a project or functional unit. In either case, the group has a set of members (persons) that belong to it in a particular time frame.

$$P \in \{G_i{}^t\}$$

P – Person; **G** – Group; **i** – Group index; **t** – Time frame

Each group member has a **role** which identifies what functions this member can have in the group. Those functions determine what the member can or can't do inside the group.

The system also supports working/ad-hoc groups, which can have a life span as short or as long as necessary.

3.1.2 AVIS

The matrix structure defines channels where information may flow from one group to another. Additionally, it is also possible to conceptualize activities and control structures to flow along these channels, but these can be reduced to information structures, assuming autonomy of organizational agents/actors. In accordance to the agency theory formalized by Belnap and Perloff (1989), it is not possible to see if an agent does what another agent orders. All that is possible is to create in the first agent an obligation that he can fullfil or not, as explained in Filipe (2000), and such commitments can be formalized, in deontic action logic as information structures, and communicated. They can then be enacted and controlled.

Organizations will benefit from these channels because the shared information will create an ontology accessible to each and every group in the channel. With AVIS, groups can share all elements previously described, namely: task templates, activities, concrete tasks and goals, including status information and available resources that can help groups get their own work done in a collaborative context, i.e. sharing information and tasks with each other if and when necessary and taking advantage of available resources in a better way.
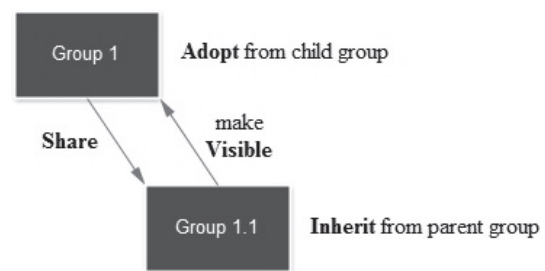

Figure 3: Groups channel, with AVIS actions/enablers, where information flows.

There are two enablers and two actions to make information flows possible. The enablers can be seen in two ways: in a top-down approach, a parent group can share (S) information with child groups; and on the other hand (bottom-up) child groups can make information visible (V) for the parent group. The

actions are the decisions to adopt (A) or inherit (I) the information that has been made visible or shared.

Table 1: AVIS representation between groups.

	A	V	I	S
Owner	0	*	0	*
Parent Group	0	*	1	*
Child Group	1	*	0	*
Impossible	1	*	1	*

The representation with Boolean values in the AVIS table means which group can adopt or inherit resources from other group. The enablers (*) can have Boolean values too, which represents if a group can share or make visible some resources.

3.2 GTD Workflow Stages

The social-GTD system collects information about tasks in three different ways: creating tasks via simple forms, e-mail or importing group plans. Group plans have some features that are unique for all, and others that depend on each group, which means the templates to import always have some static fields for all groups. To process and organize the actions collected previously, there are some containers like next actions list, waiting for list, task pools and calendar, for actionable items. Task pools are related to each group and it has tasks which group leaders don't need to assign to their members. In this case, after a member finishes a task, the pool can be consulted to select a task that best matches their skills. According to Heylighen and Vidal (2008), "this is a flexible approach suggested by job ticketing systems (...) that rather than immediately delegate the task to a specific individual, the system creates a job ticket (...) and add it to a shared pool of tasks to be performed". However, some tasks have to be assigned to a set of members by the leader, and these won't be shared in the task pool.

The system also supports delegation, however it's necessary to verify the member's agenda that will receive the delegated task. If the agenda is full for the period of execution of the task, then it is cancelled. Otherwise this process would create two tasks: to the member that receives the task, and a verification task to the member that has delegated. For the reviewing stage each group leader has to review and coordinate their group. On the other hand, members have to review the agenda, tasks lists and regard that it's all in the right place to ensure the system is organized and updated. The last stage of GTD workflow (do it), is where group members can execute tasks, which the system allows to report a planned or unplanned task. For those that were reported but weren't planned, it's only necessary to register the hours and description. Unexpected things to do appear almost every day, so it's recommended to not have a full daily agenda, because you will require some attention and time to those unexpected tasks (ad-hoc). However, when the same task is created regularly in an ad-hoc mode, it needs to be introduced in some plans to avoid the unexpected occurrence, and make them more realistic.

3.3 Pattern Recognition Helps Organizational Learning

Currently we are trying to improve the system performance by applying pattern recognition to discover which ad-hoc tasks could be used to infer plans that may be reused in the future. This takes into account the number of tasks created ad-hoc with the same specifications per group. Therefore, when a new plan is going to be imported, the system can suggest, for that group, to introduce new tasks in that plan, by using the pattern recognition module thus helping avoiding the proliferation of ad-hoc tasks. Reducing the number of ad-hoc tasks will help the organization to learn and become more and more organized.

3.4 Solving Group Conflicts

Conflicts occur because of the multiple authority structure presented in matrix organizational structures. First of all, each group leader must know about the conflict that is affecting their groups and the system must maintain them informed about more specific details, like members and tasks involved. However, to solve group conflicts, each group member has autonomy to accept or deny tasks assigned to them, which means they can decide about what to do when they're in the middle of a group conflict. When a group member denies a task, he/she has three possible actions: delegate the task to another member in group, call for group leader's help or put the task on the group shared pool of tasks. Otherwise, if it's accepted but it fails, the member has the two last actions, enumerated before, to opt.

3.5 Social BPM

Social BPM combines social tools with BPM to support communication and collaboration in organization's business processes improvement. According to Schmidt and Nurcan (2009) this

combination "enhances business processes by improving the exchange of knowledge and information, to speed up decisions, etc".

This social-GTD approach provides runtime process guidance using social analysis to determine the next actions to do. Also supplies social process discovery by extending it to all organization members through bi-directional communication, provided by internal social wikis and forums between group members. Those wikis and forums should be associated to a group, which facilitates the communication and the processes feedback/know-how between group members. The AVIS is a social way to share resources between groups. Each group only adopt, make visible, inherit or share what they want, which can be a social decision discussed in group's forum. During a task execution some social features can be used - ask group members for help, delegation and task shared notes - to allow group members to interact, collaborate and help others in organizational time/activities management. Thus, this approach allows organizations to observe patterns and behaviors in their members' interactions in order to improve plans, processes and performance.

4 CONCLUSIONS AND FUTURE WORK

According to Heylighen and Vidal (2008), "traditional methods for task and time management only provide superficial relief, because they fail to address the central problem: new information typically requires reconsideration of priorities, objectives and resources". In this case, GTD seems to be an effective way to meet new challenges and opportunities for an organization, because it allows all stakeholders to take responsibility for what they do, to focus on their work and adapt themselves to changes. Therefore, organizations need to maintain their competitiveness to ensure their survival in a constant changing business world.

The GTD methodology presented by Allen (2001), can be extended to support collaborative work, however organizations need tools that they can trust to bring them to high-performance levels. This paper describes an information system that is being developed (work-in-progress), which organizations can trust, based on GTD ideas, to achieve those levels. Some of the future work that needs to be done to this system is: bring pattern recognition to other levels, like finding patterns in

ad-hoc tasks that are frequently created and associated to other tasks, suggesting a new plan to be created for a group; and make a skills matrix (real time updated) based on the effectiveness and efficiency of group members in tasks and activities.

When this information system is finished, it will be provided to an organization, with a matrix structure, so it can be tested and validated. The organization users should be from various departments and with different levels of responsibility. These users will be observed and will answer surveys to find out how this approach is improving the effectiveness of the organization. After three months of usage, the created ad-hoc tasks will be analysed to discover how they could be implemented in the organization's plans, so they can improve their coverage and also be able to refine the estimates of time spent in activities that are already planned.

ACKNOWLEDGEMENTS

REFERENCES

Allen, D., 2001. *Getting Things Done: The Art of Stress-Free Productivity*. Penguin Books.

GTDfiling., s.d.. http://www.gtdfiling.com/wp-content/uploads/2011/02/GTDFlow.png.

Heylighen, F., & Vidal, C., 2008. Getting Things Done: The Science behind Stress-Free Productivity. *Long Range Planning*, Vol. 41, No. 6 , 585-605.

Mintzberg, H., 1979. The Structuring of Organizations. *The Theory of management policy*.

Belnap, N. and M. Perloff, 1989. Seeing to it that: a Canonical Form for Agentives. *Theoria*, vol. 54.

Filipe, J., 2000. *Normative Organisational Modelling Using Intelligent Multi-Agent Systems*, Ph.D. Thesis, Stafford, UK.

Schmidt, R., & Nurcan, S. (2008). BPM and Social Software. *BPM 2008 Workshop Proceedings.* Italy.