



# A Matrix Approval Process for Labor Actuals™

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What is it that has otherwise well-organized companies implement two, three or even more timesheet systems at the same time? What would prompt otherwise rational people to supporting multiple entry of a chore that no one looks forward to at the end of the week?

The issue of time collection is a highly topical. Collection of time and attendance records goes back to ancient times but in today's faster-moving, more challenging economy, time and attendance records are insufficient to manage the organization. Knowing when people worked is obviously important but today, knowing what they worked on is essential to good governance.

When locating a timesheet that not only tracks activity-based labor but also supports a matrix organizational structure, the challenge intensifies.

Matrix organizations inherently create a conflict of incentives. One direction pulls the organization to support the organizational structure; to support those who get things done. The other direction pulls the organization towards the work breakdown structure; to promote getting things done. This popular organizational style makes finding a timesheet that can support both axes of the matrix from the same timesheet system a challenge we call the "The Matrix Timesheet Approval Dilemma".

Over the next few pages, we'll discuss this dilemma and show you how HMS Software's TimeControl can help you can solve it.

Why bother with a timesheet system at all? There are several good reasons to automate timekeeping:

### Eliminate errors

With manual timekeeping systems, the opportunity to introduce inaccurate data is enormous. Users can easily mistype information or not look up correct codes or not have the timesheet add up properly or simply enter work as “miscellaneous”. All of this increases work downstream when data must be reconciled in Finance, Human Resources, Project Management and for management metrics.

### Improve management reaction time

With timesheet data entered directly into an automated system, turning data into reports, dashboards or links to move the data into other organizational systems becomes much easier and much, much faster. One of the biggest attractions of automating the timekeeping environment for project managers is access to labor actuals in a more timely fashion.

### Reduce workload

With an automated system, controls can be created to trap typographical errors, validate business rules and reduce other inaccuracies in the timesheet while it is being completed. Also, when data is entered by the person doing the work, there is no need to re-key a manual timesheet into the computerized system.

### Ensure that hours are not lost

In any manual timesheet system, it is difficult and costly to establish checks and balances to ensure that billing data is all captured completely and accurately. An automated timesheet can provide reports that compare expected billings with actual billings and identify any un-billed hours for scrutiny by the billing department.

### Provide the “actual” element of variance reporting

Project-oriented systems often provide some type of variance report. This kind of report shows the actual progress to-date against the original plan. While the planned progress is usually maintained in the project system, the actuals must come from somewhere. Automating the timekeeping environment provides the project system with the progressed element of the budget vs. actual report.

### Improve auditability and transparency of timesheet data

In today’s world of increased scrutiny, good governance and governmental controls, an automated system can enable an organization to more easily comply with auditability standards required by government programs such as the DCAA, European Work Rules, FMLA, Sarbanes Oxley or take advantage of R&D tax credits or other government incentives.

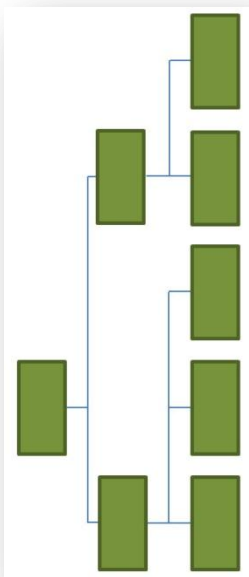
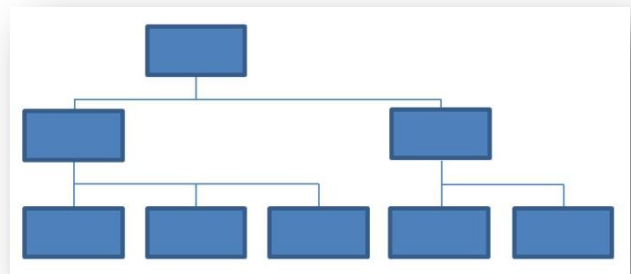
According to recent research by Gartner Inc., savings from an enterprise solutions that automates time and attendance as well as scheduling can reduce labor costs in enterprises with a large percentage of hourly workers by 5% or more. To illustrate, an organization with 1,000 hourly employees each being paid \$30,000 a year would recognize approximately **\$1.5 million** in labor cost savings annually!

## The timesheet dilemma of the Matrix organization

Historically, organizations have followed a hierarchical structure. A founder or leader would look to trusted assistance, usually from within their own family to manage a sub-division of the business as the organization grew. Until the 1970's this was considered the best way to manage a growing enterprise: divide and manage, subdivide and manage, subdivide again and manage each part. The advantage of such structures is that management is easily identified. The management structure is hierarchical and thus each person has only one supervisor.

Modern times moved the organization faster and faster and faster. Run times and the product lines or the projects they represented became shorter. In many industries, it became commonplace to be working on numerous projects or products or initiatives simultaneously. In 1971, an article in Business Horizons by J. R. Galbraith entitled "*Matrix Organization Designs: How to combine functional and project forms*" sparked a drive towards what is now widely considered the most popular organizational management structure.

A matrix organization is set up in two dimensions. On one axis there is the organizational structure. This structure is sometimes the traditional hierarchical structure of an organization with supervisors reporting to department heads who report to a more centralized authority. At other times it is a more autonomous resource manager structure where someone is responsible for the training and availability of a certain category of resource.



On the second axis is the work breakdown structure. This can be imagined as the summary level being all work the organization does, the second level being, perhaps a project or product line and another level being tasks or activities within those projects or product lines. The larger the organization or the projects, the more levels of work that can be defined. These projects or product lines are managed by project managers or account managers who are responsible for delivering the work.

A matrix organization blends these two structures together. A matrix organization establishes structural tension between the goals of each axis. The resource managers in the organizational structure are responsible for the personnel. If there was no pressure to produce work, the organization would end up with happy, well-trained staff.

The project or product managers in the work breakdown structure are responsible for delivering the work or the projects. If there was no limit to how they used resources, the work would get accomplished at

the cost of unhappy, burnt out overworked staff.

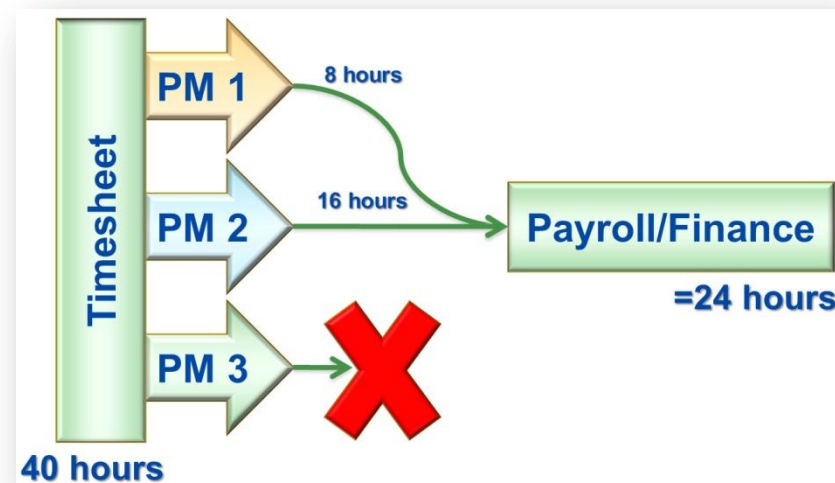
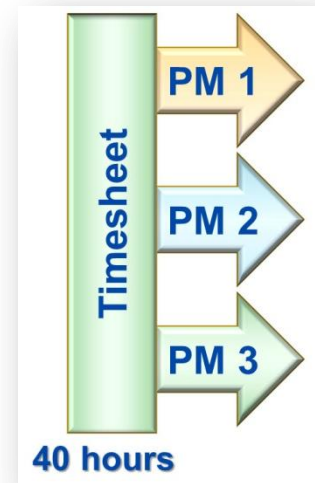
As we bring these concepts to the idea of a single timesheet system, we end up with a conflict of responsibilities and this is most evident when we consider timesheet approval functionality.

### Line Item Approvals

Some organizations expect timesheets should be burst apart to their component lines and each line should go for approval. In this model, each project or product manager would see the line items appropriate to them. They would all approve these lines and then the fully approved timesheet data would go off to the organization so Finance, Human Resources, Payroll or others could use it for their purposes. We call this type of approval “Line Item Approvals”

The concept sounds promising so long as everyone approves the data. The challenge comes when any part of the data is not approved.

Let’s assume a timesheet of an employee who worked a total of 40 hours over three different projects this week. Project Manager #1 has 8 hours of this timesheet to approve. Project Manager #2 has 16 hours to approve and project manager #3 also has 16 hours to approve.



Project Manager #1 and #2 think the timesheet looks fine. Project Manager #3 rejects the 16 hours as completely unacceptable. Now what happens when we gather this data to send to payroll?

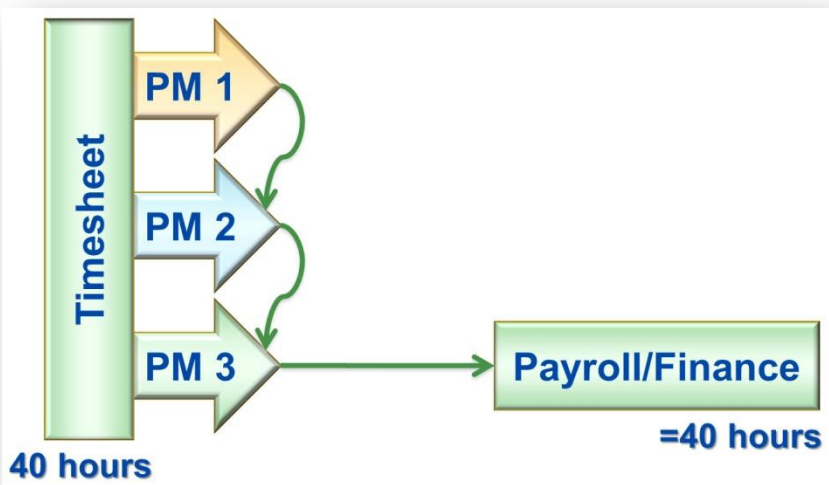
Payroll will only see the 24hours of time on this timesheet that successfully made it out of the Line Item Approval process. This is clearly unacceptable.

### Sequential Approvals

Some organizations believe that Line Item Approvals could be solved by making approvals work in a sequential routing. The Sequential Approval concept is very much like the routing slip for a document. The timesheet would go like a piece of paper from one person to another and then another until everyone who was implicated on the timesheet had had a chance to approve it.

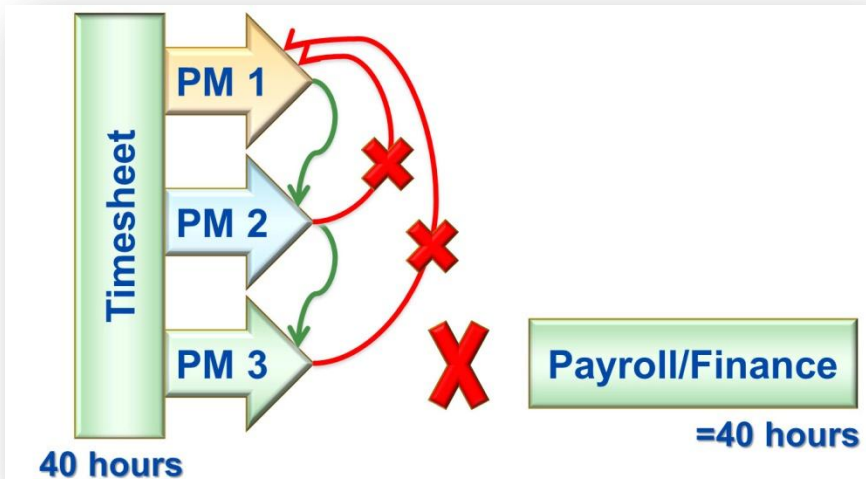
Let's take our same example of a timesheet with 40 hours on it which will start by going to Project Manager #1 then #2 and finally #3 before then being routed to the Finance/Payroll departments.

Once again, the concept looks great on paper so long as everyone approves the data in a timely fashion. As soon as a project manager must reject the data, we end up with a big problem.



Let us say that Project Manager #1 finds the timesheet completely acceptable. Project Manager #2 sees perhaps an issue but not enough of one to reject the timesheet but Project Manager #3 sees a more significant problem. They reject the timesheet for correction. Once it's corrected of course, it must go back to Project Manager #1.

This time Project Manager #1 finds the timesheet fine again but Project Manager #2 has a problem with the changes and must reject the timesheet. We've seen organizations try to implement this where some timesheets are never able to successfully exit the system. These timesheets never make it to the Payroll/Finance department.



### The Matrix Dilemma

This matrix dilemma makes choosing one timesheet for multiple purposes a real challenge. The problem is not that the data is inappropriate or that the group from one axis of the matrix doesn't care what the other group requires. The problem is one of perspective and of process. Without fully confronting the matrix challenge, organizations can make timesheet design or timesheet purchasing decisions that are ineffective and highly expensive in both time and lost effort.

## The danger of not solving the matrix dilemma

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Many organizations don't solve the matrix dilemma. But, not confronting this challenge, doesn't take away the needs of the organization. Consequently organizations make decisions of design and process that can be very expensive. Some of the most common paths for an organization to take are:

### Create multiple timesheet systems

The most common response to handling the dilemma is to deploy multiple timekeeping systems. No one ever plans to do this. It is not done by design but rather by desperation. Finance or Payroll starts a timesheet because they must pay the staff or they must bill for services. It is a critical business element. If the timesheet system is well-established then Project Management may try to make use of it.

Frustrated by a lack of project-level approvals or by a timesheet system which cannot return data at the task level to the projects, Project Management then creates a completely new timesheet system to create their own timesheet data. This results in at least two completely detached timesheet systems. Worse, the systems are almost guaranteed not to reconcile. This results in summary project timesheet data and finance timesheet data not matching. The problem may be compounded by additional timesheet systems for managing vacation time and other time off which is required by the human resources department. In a worst case scenario, employees may need to fill out 2, 3 or even 4 timesheets on a given week.

### Don't have a project timesheet system

Some organizations handle the dilemma by simply giving up. It's too complicated a problem to solve and for some organizations, if they don't have an explainable solution, they simply won't implement any. Payroll has other methods of taking care of paychecks, particularly if most employees are salaried. Project managers simply do without budget vs. actual reporting and variance reporting and update their projects without the actual effort per task being tracked.

### Don't do activity-based-costing (It's too hard)

Another method of giving up is simply to abandon activity-based-costing as part of the organizational structure. Payroll continues with its own system but management of costs on projects is simply not done. A surprising number of project management environments simply do not include cost management. When asked, project managers say they want to do cost management but cannot get access to actual costs in a format or in time to make the useful.

### Create a customized or manual timesheet system which either:

#### **Bursts the timesheet into Line Item Approvals**

As we've described above, this solution looks elegant in its design but is extremely difficult to implement when the rejection of data is considered.

#### **Route the timesheet into Sequential Approvals**

Just like Line Item Approvals, this method works well when no data is ever rejected but bogs down quickly as soon as there is a break in the approvals.

# Escaping the Matrix Dilemma with TimeControl

HMS confronted this dilemma in the early 1980s while designing timesheet systems that would be used by both Finance and Project Management Offices. Acceptance of the timesheet became difficult in the approvals. Solving the dilemma required a re-engineering of the entire approval process.

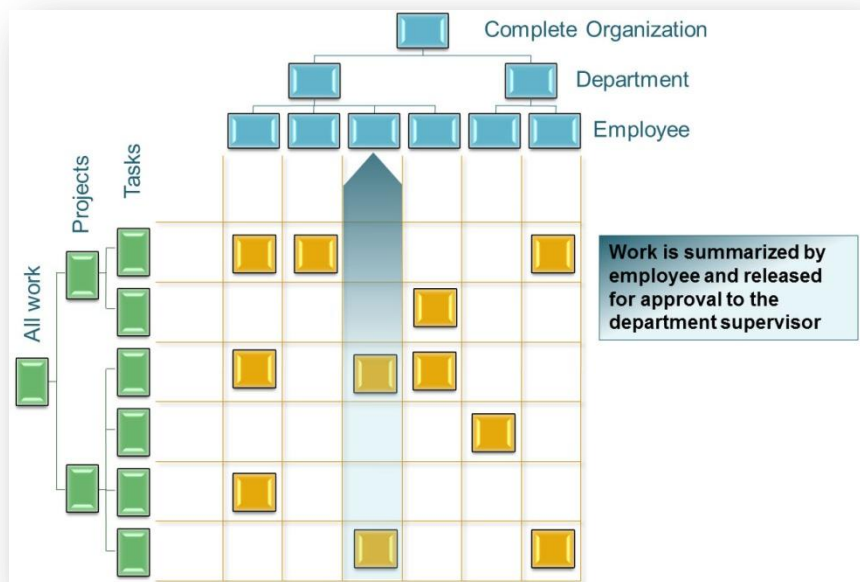
If we separate the approval process into its component elements, the organization of those elements becomes much clearer. Each employee always has some kind of supervisor. Even if that supervisor also carries a project management responsibility from time to time, there is always someone responsible for an employee's time at work. Each employee may also have work whose time must be approved separately. Which of these, we must ask, must be done first?

## Step 1 - Organizational Approvals

The first and easiest step in the process is to determine the total number of hours worked by the employee. If the timesheet is in a weeklong cycle then we must look at the total hours for that week. For salaried employees, this might mean meeting a weekly hourly total standard. For wage employees, it might mean adding the total hours based on the rules of the organization. We can gather other information that may be critical at the same time including any hours that were not worked but must be tracked such as holiday/vacation time, sick leave, personal time off, or other entitlement time which must be tracked by payroll, human resources or other organizational departments.

We can easily apply business validation rules right at the timesheet before it's even seen by the supervisor for manual approvals. Validation rules for total hours, vacation time, banked time and other criteria can be instantly tested and corrected by the employee themselves. Then the timesheet can be sent to

the supervisor and even hierarchically higher through the organization if required where it can be checked visually. The beauty of such a system is that different categories of users can have different rules applied to them. Contractors might have one set of validation criteria, salaried staff another and wage/hourly staff, still another.

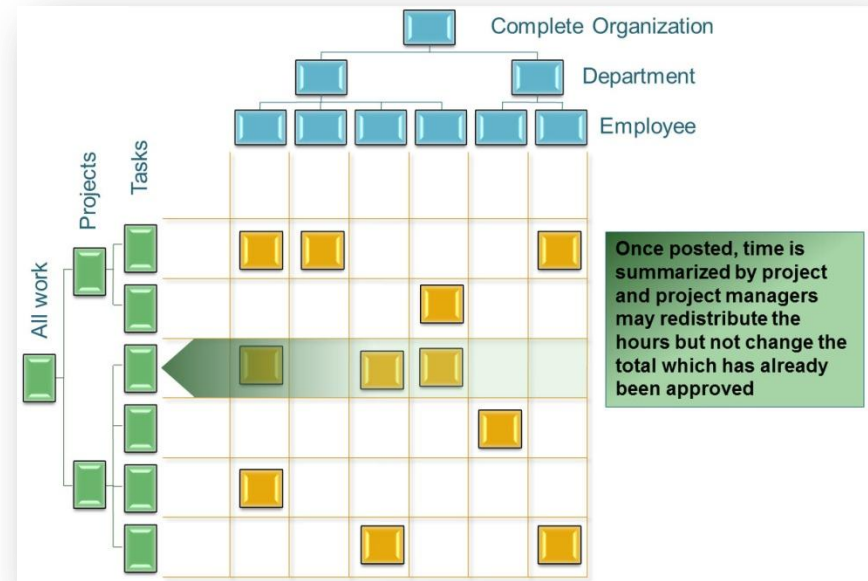


## Step 2 – Project Approvals

Once this element of the data has been approved, these elements can be frozen or locked. This allows the timesheet data to be used immediately for purposes such as payroll and vacation tracking.

Now that the totals for the week are frozen, we can turn our attention to step two in the process and allow project managers to view the line items of the timesheet.

Unlike line item approvals where project managers can just delete a line item and thus change the total, we allow project managers not to delete lines but rather to redistribute the hours from one place to another. The functionality for this is well known in accounting circles as a Debit/Credit transaction. The project manager can take hours from one task and put it on another but they cannot just remove the hours.



When this process is implemented, a limitless number of projects can flow through the system and, because the process is integrated yet each axis of the matrix is managed distinctly, the delay of a project manager or a particular problem with a line item's approval cannot stop the organizational approvals, the payroll or other financial management from proceeding.

One of the advantages of the Matrix Approval process is how each part of the organization can use the same data independently. This is possible because:

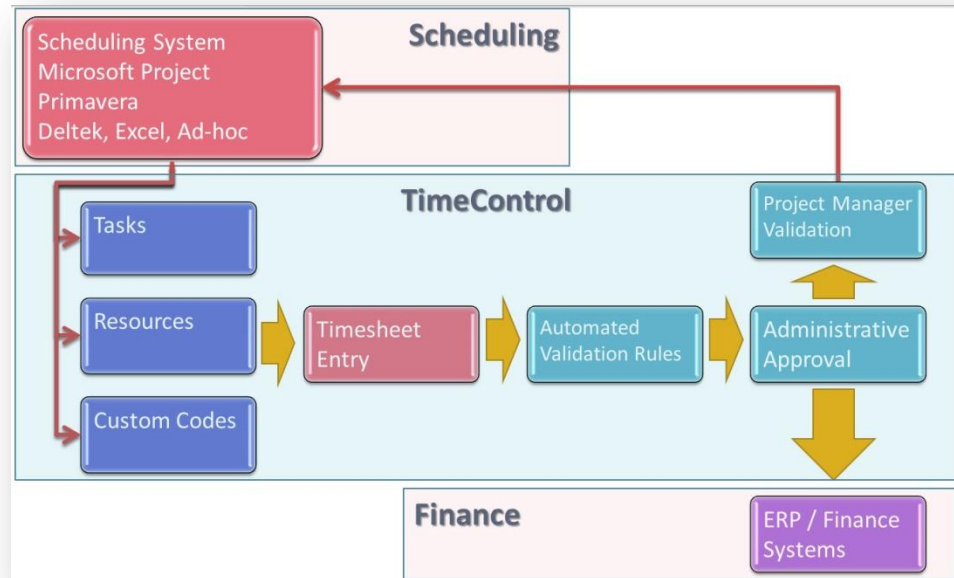
- The Finance, Payroll and HR departments have little interest in what was done with the time. They care more over how much time was spent and what its cost was.
- The Project Department has little interest in how much total time each employee spent working. They care more over what the time was spent on. A project manager will care only for what hours were spent on the project they are managing.

One of the advantages of this kind of environment is its forgiving nature. If a project manager isn't ready or doesn't enter his or her changes, they can simply be entered after the fact. The data will then self-correct in the next project management update period.

## TimeControl's Matrix Approval Process Data Flow

When we put this concept into a flow of data, numerous external system can optionally be included.

We can start the process almost anywhere. If a project scheduling tool or even different project scheduling tools are being used, they can deliver to TimeControl the expected tasks including the resource assignments that were defined. If tasks are defined in other tools including the



Human Resources system, Finance/ERP system or other ad-hoc tools they too can be polled for tasks that may be applicable to a timesheet. This might include not only the tasks and assignments but also linked codes, work center identification, meta data or expenditure types. TimeControl could also manage or initiate tasks within the timesheet itself and not link to any external source for new tasks. All of this results in a list of possible charge codes to be selected by the end user who will spend only a few minutes a week entering their time into their timesheet.

Once the timesheet is released for approval, the automated Validation Rules are tested and if the timesheet passes those it then goes to Administration approval through as many levels as is required. However, with the power of the Validation Rules already in place, most clients will need only one level and some will need none at all. After all, in the past with manual systems, all kinds of elements of the timesheet had to be verified but if the Validation Rules can ensure that all the appropriate business rules for that timesheet have been followed then the supervisor may have little or nothing anymore to verify.

The data is then 'Posted' and the totals frozen before Project Management makes any adjustments it requires with TimeControl's unique Debit/Credit functionality. A complete audit of changes down to the line item is always maintained in order to comply with numerous generally accepted accounting principles and with auditing standards should they be required.

Data can sent to external HR, ERP/Finance, Billing and Project systems as well as used in corporate mash-up reports or dynamically updated dashboards.

In a fast-moving and challenging economy, organizations in both the private and public sector are being called upon to be as effective as possible with their resources. Timesheet management forms a cornerstone of good governance of human resources. It is no longer enough to know just how much time was spent by an organization's staff or how much money that staff costs. It is critical to know what that time was spent on and allow management to ensure that time is being spent on the work, projects or products that will deliver the most value to the organization and its constituents.

Matrix Organizations must resolve the Matrix Dilemma if they wish to collect timesheet data effectively, accurately and in a cost effective manner. Failing to resolve this challenge leaves the organization with either a lack of essential data tracking or excessive effort in collecting the same type of data with duplicate entry in redundant systems.

A timesheet system such as TimeControl can resolve this challenge. It is inexpensive, flexible, fast to deploy and easy to integrate within the existing infrastructure.

"From the beginning, TimeControl was a smashing success. It's easy to use and accurate. Our pilot group learned easily and we were quickly in a position to roll out."

Genie Sarne  
Project Controls  
ElectroMotive  
Lagrange, IL

In today's challenging economy, tracking productivity is more important than ever. It is no longer enough to know only how much time has been spent. Now management demands that you know what was done with the time. Many organizations are turning to project and task based management as a way of being more effective. One of the most difficult aspects of implementing project control is the capture and approval of labor actuals. *TimeControl* provides an electronic timesheet system designed to serve both Finance and Project Management

### Open Architecture

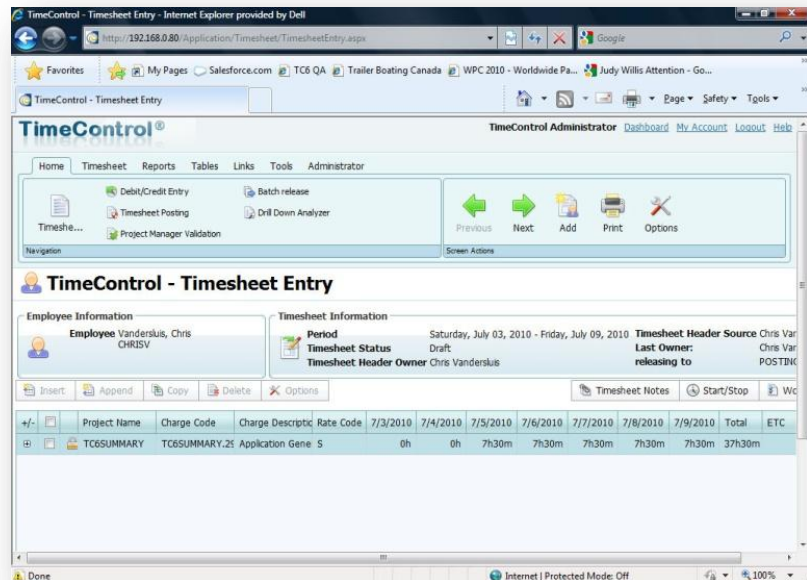
*TimeControl* is an open architecture system which supports a variety of databases including Microsoft SQL Server, Oracle, Sybase and MySQL. Customizable user profiles allow the *TimeControl* interface to be tailored to each user's requirements.

### Timesheet Approvals

*TimeControl* supports HMS Software's unique *Matrix Approval Process for Labor Actuals™* which allows for quick authorization of project data. This process resolves the inherent conflict that is found when both the financial and project management hierarchies must approve timesheet data simultaneously. Automated validation of timesheet data is handled by *TimeControl*'s remarkable Validation Rules. Additional approvals can be done manually with a simple Approve/Reject or Approve Update process. The Project Manager Validation screen displays an easy-to-view hierarchical interface for managing project approvals.

### Vacation Approvals with TimeRequest

The *TimeRequest* module allows users to make a request for certain types of times to be approved for entry in future timesheets. The most common application of this module may be for requesting Vacation time off. Once approved, the time is then automatically entered by *TimeControl* into the appropriate timesheet in the future when that timesheet is created. The *TimeRequest* module is, however, not restricted to just Vacation requests. Any category of time can be exposed to the module. This allows an infinite number of applications such as for travel time, training time, offsite or onsite time or any other type of time category where the organization wishes it to be approved in advance.



## Total Flexibility with User Profiles

*TimeControl's* User Profiles allows the Administrator to determine which menu choices, reports and fields are accessible by each user. The entire interface can be tailored to the user's individual needs. No other system on the market today offers this much flexibility.

Field level security ensures that only the information which is important to each user, is displayed. Fields can be made read-only or invisible, removing them from view entirely. This makes *TimeControl* at once a secure, deployable system and an easy-to-use one as well.

## Links to Project Management Systems

*TimeControl* includes direct links to project management systems including Deltek's Open Plan and Cobra, Microsoft's Project and Project Server, and Primavera's line of project scheduling tools.

Integrating with a project management system drastically reduces timesheet errors as only valid tasks will be available in which to charge time. Hours entered in *TimeControl* are returned directly to the project management system as activity and resource progress.

*TimeControl* also supports customizable export formats for integration with virtually any financial or HR system.

## E-mail Enabled

*TimeControl* allows email notification to be sent for various events such as timesheet rejection or missing timesheets, incomplete or non-approved timesheets.

## Expense Reports

*TimeControl* includes extensive expense report functionality. Users can enter an unlimited number of expense report items for each timesheet line.

## Reporting

*TimeControl's* reporting engine looks just like Excel™. Reports can even be saved in Excel or HTML format.

*TimeControl's* Reporting Wizards make report generation easy. *TimeControl's* field-level security is always active so only the fields which a user has permission for will be shown.

Predefined reports are available in a variety of formats which include posted timesheet data, table lists, printouts of the timesheets themselves and missing timesheet reports.

### Engineering/Construction

Aecon Construction  
AeroInfo  
Koch Business Solutions  
Kongsberg Devotek  
Thompson Beta

### Gas / Utilities

Gulf South Pipeline  
Acergy  
Petrocon  
VenCorp  
Foster Wheeler

### Manufacturing

Alcan  
Parker Hannifin  
Georgia Pacific  
Ultra Electronics  
Tennant  
Wagner Spray Tech  
Vision Systems  
Electro Motive  
GE Sensing  
Tommy Hilfiger

### Defense / Aerospace

Bombardier Inc.  
CAE Electronics  
Lockheed Martin  
Rolls Royce  
SAAB  
Army Corps of Engineers

### Government

Amsterdam Port Authorities  
Atlanta Airport  
Dutch Railway  
Government of Saskatchewan  
Railway Procurement Agency (UK)  
Ville de Montreal  
City of Winnipeg

### Technology

Arivia  
CSI Piemonte  
EDS  
Face Technology  
Fuel Plus Software  
GE Access  
Microsoft  
Positron  
Psion Teklogix  
Inventure  
Fujitsu

### Telecommunications

Cable & Wireless Bartel  
Ericsson  
EXFO  
Motorola  
Philips Semiconductors  
SARA Amsterdam  
Stratos Global

### Financial

Standard Life  
Development Bank of Canada  
Alliance One  
Centre de Recherche Informatique de Montréal

### Health/Pharmaceutical

Boehringer Ingelheim  
National Health Service (UK)  
Azko Nobel (Organon)  
RTS Thurnall  
Canadian Institute for Health Info  
logen  
Registat

### Education

Johnson and Wales University  
Eastern Michigan University  
Queens University  
McGill University

HMS Software, a division of Montreal, Canada-based Heuristic Management Systems Inc., is a leading provider of enterprise timekeeping systems for project environments.

Founded in 1984, HMS Software's expertise in implementing enterprise project-oriented and activity-based-costing systems is recognized worldwide by some of the world's largest organizations. Project oriented products and services from HMS have been used to plan some of Canada's most recognizable products including the Hibernia Oil Platform, Hydro Quebec's James Bay development, Ontario Hydro's nuclear station refurbishing and InterProvincial Pipeline's cross-country pipeline network.

HMS's signature product, TimeControl, an enterprise timekeeping system designed to serve the needs of both Finance and Project Management, is distributed worldwide through an extensive list of distributors and dealers located on every continent with representatives in the US, the UK, Australia, Mexico, Europe, Asia, South Africa and the Middle East.

HMS Software's client list includes some of the world's leading corporations in the telecommunications, IT, finance, engineering, defense/aerospace and government sectors including such organizations as Acergy, Aecon Construction, Alcan, the Atlanta Airport, Akzo Nobel, The Canadian Business Development Bank, The City of Montreal, EDS, Ericsson, General Motors, the Government of Saskatchewan, John Deere, Kelly Services, The UK's National Health Service, Standard Life, UPS, Volvo Novabus and hundreds of others.

HMS maintains offices in Montreal, Quebec and Toronto, Ontario.

For more information about HMS, please visit our website at [www.hmssoftware.ca](http://www.hmssoftware.ca).

### TimeControl

First published by HMS in 1994, TimeControl has been adopted as an enterprise-wide timekeeping system by hundreds of clients and over 100,000 users around the world. TimeControl is designed specifically as an activity-based-costing application and includes such features as hierarchical user structures to allow for multiple levels of timesheet authorization and an open data architecture which makes the product ideally suited for integration with existing data systems in any organization. TimeControl supports numerous database standards including Oracle, Sybase and Microsoft SQL Server. For more information about TimeControl please visit: [www.timecontrol.com](http://www.timecontrol.com).

### Strategic Services

In addition to being a publisher of enterprise timekeeping software, HMS provides a full range of support services including technical support, training and consulting tailored to meet clients' specific needs. HMS Software consultants are skilled in activity-based-costing, timekeeping methodology, project management techniques, cost and earned-value management as well, of course, in the HMS-supplied products. For more information about HMS Software services, please visit [www.hms.ca](http://www.hms.ca).