

CASE STUDY

Cornell University Streamlines Scheduling and Makes Funds Go Further



Cornell University.



PROMETHEUS GROUP

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Cornell University



Ithaca, N.Y.



Higher Education

Challenges & Opportunities

- Conflicting prioritization and soft delays.
- Inability to share labor.
- Inconsistent tools and software.

Results

- Time-to-schedule reduced **80-90%**.
- Job time reduced **by 78%**.
- Budget stretches up to **300% further**.

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ABOUT CORNELL UNIVERSITY

Founded in 1865, Cornell is a privately endowed research university and a partner of the State University of New York. As the federal land-grant institution in New York State, Cornell's mission is to make contributions in all fields of knowledge in a manner that prioritizes public engagement to help improve the quality of life in New York state, the United States, and the world. It comprises of 14 colleges and schools including seven undergraduate units and four graduate and professional units at the Ithaca campus. It employs approximately 10,000 faculty and staff, including 250 skilled tradespeople to serve more than 20,000 students and maintain 600 buildings.

CHALLENGES

With a community of more than 30,000 people, including a 24/7 residential campus, the 50,000+ service requests received annually come from a multitude of sources. The high volume of service requests, paired with the fact that requesters cannot choose from a pick list to identify the scope of their request, means that validation occurs at the level of the 14 individual colleges that make up Cornell. At validation, it is determined which campus partner is funding the work, and they distribute to the appropriate zone who plans and schedules the work before it is performed by the assigned trades.

Given these processes, Jim Hatch, Facilities Manager at Cornell, describes some of the major challenges they faced:



Improving communication and clarity between stakeholders

With more than 600 buildings and 14 campus partners, each with their own methods, priorities, and internal champions, it was vital to improve communication between stakeholders and reduce silos. Increasing transparency regarding the needs of other zones, potential opportunities, and the realities of maintenance capacity and resources could lead to better strategizing and decision-making. Jim explains, “We needed a way to provide more consistent, strategic, and transparent communication about the deployment of services to meet everyone’s needs. As a community, we are always striving to improve and enhance the partnerships between Cornell’s many stakeholders.”



Conflicting priorities and inconsistent prioritization

Fielding approximately 50,000 service requests annually with about 250 skilled tradespeople, the lack of visibility meant “everyone was working hard. But were they working hard on the right things?” It was difficult to ascertain the top maintenance priorities for the university and to understand the impacts of maintenance decision-making on other departments or zones. With internal champions pushing their own priorities, they had no view of the impact this might have on other departments or faculties – which could be quite serious. Jim says, “Delaying maintenance on a research facility, for example, could jeopardize whether or not a world-renown researcher comes to Cornell, or whether that department receives funding. But when you can’t see that, you can’t know it, so you focus solely on your own priorities.”



Inability to share labor

Jim says their previous scheduling tool “was not useful” to sharing labor because there was a disconnect between the decision-makers and the doers. This meant work was often delayed unnecessarily and that the institution wasn’t taking advantage of seasonal downtimes or individuals’ expertise in particular crafts.



Inconsistent tools and software

Due to the unique nature of the University, much of the planning and scheduling was occurring by word-of-mouth. The different units, departments, zones, and teams at Cornell all had their own processes and tools from Excel spreadsheets to Maximo to Microsoft Project, to emails, handwritten notes, and in-person conversations between partners, managers, supervisors, and tradespeople. No two units operated alike, which meant the planning and scheduling processes weren’t repeatable, efficient, or using best practices.



Soft delays

Maintenance operations at a university are understandably different than those in a manufacturing plant. But without strategic decision-making, work was not coordinated as well as it could have been, leading to lower wrench-time. Maintenance workers spent incalculable amounts of time on travel, set-up, and even finding parking. These, and other soft delays, meant less work was being completed in a timely manner.

With these issues, Jim says everyone was working hard, but not necessarily working smart — they were doing the best they could with the tools they had, the processes they improvised, the resources they could see, and in the context of only the priorities they knew about. This resulted in delays and increased costs.



SOLUTIONS

Jim knew that there were cost-saving and timesaving opportunities that were being overlooked due to the lack of a global view and evidence to support decision-making. Getting buy-in to adopt the right planning and scheduling tools wasn't as difficult as one might anticipate.

"We're a huge ship and it's hard to steer," says Jim. "But facts don't lie. It was tough at first, showing all the inefficiencies. With the cooperation of various groups, we were able to put their processes on paper and we showed senior leadership how difficult it was to do the work we were doing with the various screens, whiteboards, spreadsheets, and interactions. Campus partners wanted us to be more efficient. Senior-level leadership needed to understand the root cause to ensure the right decisions were being made and we were working on the right stuff. Everyone felt the impacts of less than optimal decision-making, but they didn't know why those decisions were being made. When we showed them how we could solve these problems using Prometheus Scheduler, we got the buy-in to go ahead."



Solution Components Prometheus Scheduler for Maximo

Cornell has now implemented Prometheus Scheduler in many different zones. Jim and the team created a strategy to introduce Prometheus as a bottom-up initiative, rather than a top-down mandate. They can now do planning and scoping simultaneously for an entire work group and the heat maps provide an easy visual to support discussion. "The tool speaks for itself,"



"We're not just buying software. With Prometheus Scheduler what we're really getting is continuous improvement for our business processes, as well as a useful tool."

- Jim Hatch, Facilities Manager, Cornell University



vCalendar

Using vCalendar, Cornell can easily manage workforce availability in an easy-to-use, effective calendar view. From sick leave to vacations, training to partial-day exceptions to multiple shift schedules, their planners and schedulers can manage it all in a single screen with minimal clicks. To facilitate consistent communication, they can export these exceptions to Outlook calendars. Most importantly, the exceptions entered in vCalendar update the resource availability and workload heat maps in Prometheus Scheduler to give an accurate view of workers' actual availability.

"The tool speaks for itself. Once people start using it, and they see how powerful and easy-to-use it is, they wonder how they ever lived without it."

- Jim Hatch, Facilities Manager, Cornell University



BENEFITS

With the benefits and capabilities Cornell has gained, they are making sustainable, continuous improvements to their planning and scheduling process through:



Evidence-based decision-making and prioritization

Decision-making was made at the zone level. This often happened based on the personal knowledge of a few individuals; much of this came down to their observations and instincts. With Prometheus Scheduler, Facilities Operations can clearly present information to the zones to determine an appropriate timeline for maintenance work in relation to other priorities

Decision-makers have the evidence they need to make better decisions, determine the impact of important events, and the ability to share data to facilitate those conversations. Like any organization, there are limitations to capacity and resources; since nobody can do everything all at once, it's vital that the colleges have an accurate view of how to best use resources for the entire campus.

"Before Prometheus Scheduler," says Jim, "we did not have the ability to show our true capacity. Now we have the evidence in front of us to show when we are over capacity and under-resourced. We're using what we call 'The Moneyball Approach.' That is, we're using stats and data to get the right people working on the right jobs and scheduling for the strengths of our workforce. We couldn't do that in Maximo, but in Prometheus Scheduler we're able

to sort and filter on the fly and use subsets of work. We're able to look at people as individuals and play to their skills, especially if they're across different crafts."



Improved communication

"With the evidence to back up our interactions, we're having more valuable dialogue. Nobody is ever funded to full capacity. But now, instead of Facilities Operations being 'the bad guys,' we can use Prometheus Scheduler to show our campus partners the conflicting priorities. We can show how some trades are further behind on work, and even better, show different options and potential solutions. We can now talk openly about the impact of the work that's being deferred and we can predict the impact of the new important, urgent work that comes in."



Resource sharing

"With our previous solution, the problem was that there was a disconnect between those down the chain-of command doing the work and those where the decision-making was happening, and that's where the bottlenecks were occurring," Jim says, "it just wasn't a useful solution for our unique needs." Prometheus Scheduler gives us a user-friendly interface for Maximo data. With Prometheus Scheduler, you can do all that planning and scoping for an entire work group. And the heat maps to see capacity are fantastic. In this way, we're able to share labor across zones. We can schedule to the strengths of our resources. In Prometheus Scheduler, I'm able to mark individual tradespeople for their skills. So, I can mark Joe, an electrician, as also being a knowledgeable motor guy and I can assign work to him that I know he'll knock out of the park. We're not looking for exact throughput. We're looking at individuals."



"Prometheus Scheduler has allowed us to have better dialogues and to get global buy-in throughout the university. Senior management has already seen the benefits. Now everyone is talking Prometheus Scheduler. It's the new buzzword for planning and scheduling."

- Jim Hatch, Facilities Manager, Cornell University



Consistency

Prometheus Scheduler allows the Cornell team to organize data in whatever way they choose. In a list of 4,000 work orders, they can search one word to quickly narrow the results. They can look at the data that is important to their customers, literally in seconds. This empowers everyone to think more in-depth, because it's quick and easy to see the whole picture. As more teams gradually adopt the Prometheus solution, they no longer have a need for the workarounds, shortcuts, and mishmash of tools they once relied on. The spreadsheets, whiteboards, and post-it notes are becoming a thing of the past. Repeatable processes are more efficient and less confusing – everyone can be on the same page, comparing apples to apples.



Clean data

Jim describes how the data they work with is often less-than-desirable. “We have data from some zones that isn’t cleaned up. But we can configure Prometheus Scheduler to pull in nontypical fields and this allows us to pick up the assignment status for the work orders. So, right from the Extra Info bar within the Gantt, we can see if there’s completed assignments on this work. In Maximo, you can’t filter down to say, just electrical work in a zone and see in one screen what’s bad data, what is true work.”



Changing culture and improved morale

Jim explains that changing the culture and processes of such a large organization is no small feat. “We don’t have Prometheus Scheduler across our entire workforce yet, but it’s steadily growing. We opted to implement Prometheus Scheduler from the bottom-up, rather than as a top-down mandate. At first, some folks were feeling intimidated and skeptical. Since this is a well established organization, culture change is a slow and steady process. We want to show those in Facilities Operations the value of the solution and how it helps them save time and organize their work more easily.

“As more units continue to adopt Prometheus Scheduler, initially some folks still have concerns. We’re talking about changing the way they’ve done work for 30 years. But now there’s so much work to do, the old ways are no longer effective. So, our approach to get buy-in was

all about customer empowerment. “The first groups using Prometheus Scheduler really had bragging rights. It became obvious quickly that they were outperforming the schedule and enjoying the benefits of knowing what they would work on tomorrow. Others started asking questions like, “How do you know what you are doing tomorrow?” and “What do you mean, you’ve completed your week’s work today?” When you know you’re working hard, you want that report card that shows it and shows your workload. You want that recognition.”

RESULTS

Implementation and configuration is ongoing at Cornell, as they continue to expand prometheus scheduler to additional zones and departments and optimize their processes. Three of the major quantifiable results they’ve seen thus far include:

Time to schedule reduced by 80-90%

Jim says that with Prometheus Scheduler’s easy-to-use interface and one-click features that are built to save Planners and Schedulers time, the team is saving tons of time. “Before, it could take weeks to build a job plan. Sometimes, it took longer to build the job plan and a scope of work than to do the job itself. With Prometheus Scheduler, we can quickly gauge and build job plans. Likewise, the time to create a schedule has gone down from weeks to the same day. Once people understand how to use Prometheus Scheduler, they can make a schedule for 20-30 people in a couple of hours.



“Prometheus Scheduler is changing the daily operations of our facilities management team. It is easier for everyone to understand the value of clean data and how we can better utilize our processes to keep Maximo and Prometheus Scheduler working effectively.”

- Jim Hatch, Facilities Manager, Cornell University



Today, those using Prometheus Scheduler find it much easier and faster to do their day-to-day planning and scheduling. It's much easier to sort through the Maximo data. Word is getting around and more and more people want to try it and get involved."

Reduced job time by 78%

In addition to drastically decreasing the time to build schedules, the Cornell teams who have adopted Prometheus Scheduler are also noticing an increase in their productivity and efficiency – meaning the same jobs are taking them less time. They conducted an experiment on one unit to understand in real dollars what Prometheus is doing for them. They were able to see tremendous increase in the throughput with their new processes, narrowing down the time to complete the job by 78%. Additionally, time-saving opportunities are no longer being left on the table. "When everyone was using inconsistent tools, there was no global visibility. So, we couldn't take advantage of opportunities, like the seasonality of what we do. Each zone has seasonal highs and lows and we couldn't

share labor across the zones fluidly. Now, we're able to plan more strategically to take advantage of like work orders or individual skill sets. Jobs that used to take several weeks now take days."

Budget stretches up to 300% further

Jim says that some of the biggest successes with Prometheus Scheduler have resulted in the ability to take on projects that would normally be outsourced and do them in-house. This is a result of freeing up trades to accomplish more work and reduce their backlog. Furthermore, they can stretch their maintenance dollars further, getting far more value for the money spent. "We did an engineering case study for a Controls project building, which included two buildings and would take about two years. With the proper planning and resourcing that we've been able to do with Prometheus and our improved job plans, we can now fit six buildings into that same budget."

*For more information, please visit
www.prometheusgroup.com*

About Prometheus Group

Prometheus Group is a leading global provider of comprehensive and intuitive enterprise asset management software solutions that work within ERP systems and span the full work management life cycle for both maintenance and operations. Developed jointly with end users, Prometheus software enhances the customer experience for planning, scheduling, and executing work for both routine maintenance and shutdowns and turnarounds, all while protecting the workforce with safety solutions and electronic permit to work. Our straight-forward functionality, graphical visualization, and simple processes enable customers to increase productivity, reduce costs, and improve reporting.

For more information, please visit www.prometheusgroup.com or call (919) 999-3485.