

# Why Your Projects Are Late: It's Time for a Paradigm Shift



Your company is growing, the number of initiatives is increasing, but the volume of timely delivery doesn't change. Does it sound familiar to you? Reasons vary, and an experienced project manager or the adoption of a resource management solution won't help in isolation. This problem requires a complex approach to successfully resolve it.

We've compiled this guide based on our researchers' experience in efficient multi-project resource management to help you understand what dimensions should be considered and transformed at your organization to cope with the growing amount of work and deliver multiple projects always on time, without any delays.



# Multi-Project Environment: Choosing the Right Framework and Changing an Approach

## Project Management Methodology: Which One Are You Currently Using?

Despite the diversity of project management frameworks, many companies are still using traditional methodologies, despite the fact that they don't fit long-term and complex projects and provide no room for flexibility. For instance, the Aerospace and Defense industry still often relies on the Waterfall methodology, which sometimes becomes one of the major causes of their delayed projects. This is explained by the following principles:

**Planning takes too much time.**

**This framework gives no room for project changes.**

**It doesn't provide full control of the overall workflow.**

All this makes this framework unsuitable for large projects with complex requirements that are often altered throughout the project life cycle.



Agile is often regarded in contrast to Waterfall. It suits large projects and is inappropriate for small ones. Let's overview the main differences between a traditional approach and Agile in the context of product delivery:

Traditional	Agile
Linear sequential development methodology	Continuous iteration of development and testing in the process of software development
Detailed planning at the very beginning of a project	Iterative planning throughout the whole development process
Requirements are gathered once at the beginning	Requirements are prepared every day
Changes to the scope are avoided	Changes to the scope are allowed
There is a single testing in the whole development process	Testing is performed concurrently with product development

*At the same time, Agile isn't an ideal tool and also has its disadvantages: e.g., its maintenance is more expensive compared to other frameworks, it requires an experienced project manager to make crucial decisions, etc.*

The list of the most popular frameworks in project management can come down to the following ones:



SCRUM



KANBAN



LEAN



HYBRID

(Waterfall + Agile,  
Scrum + Kanban, etc.)



PMBOK



CCPM



CPM

The above-mentioned names are not fully methodologies themselves but rather a set of principles taken from different frameworks. A hybrid methodology is considered to be the most reasonable approach today because a company uses the best parts of several frameworks and makes better use of them.

We recommend choosing a methodology that provides enough room for changes, because when working with long-term complex projects, uncertainty levels are double high, and project requirements may change throughout the journey.

# Changing the Approach to Project Management: Interdependent Multi-Project Environment

If your company runs multiple projects and their due dates are regularly missed, another thing you should dwell on is an approach to managing them. When working in a multi-project environment with a shared pool of resources, projects can't be treated one by one. A multi-project environment is a unified system with its interdependencies, where the most significant one is resource dependency based on which a project plan should be built.

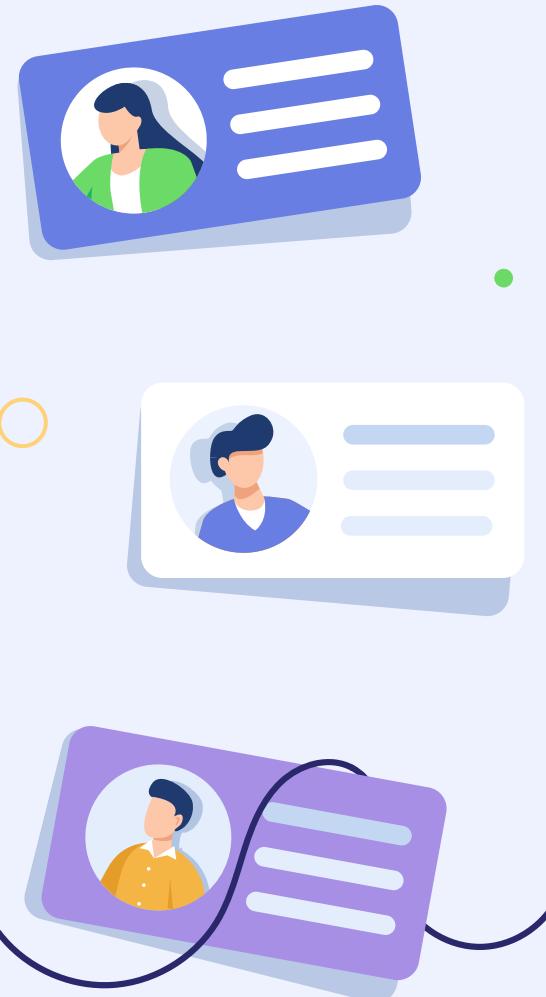
There are some key points to keep in mind:

The fact that your **limited resources work on several projects simultaneously makes your projects dependent on each other**.

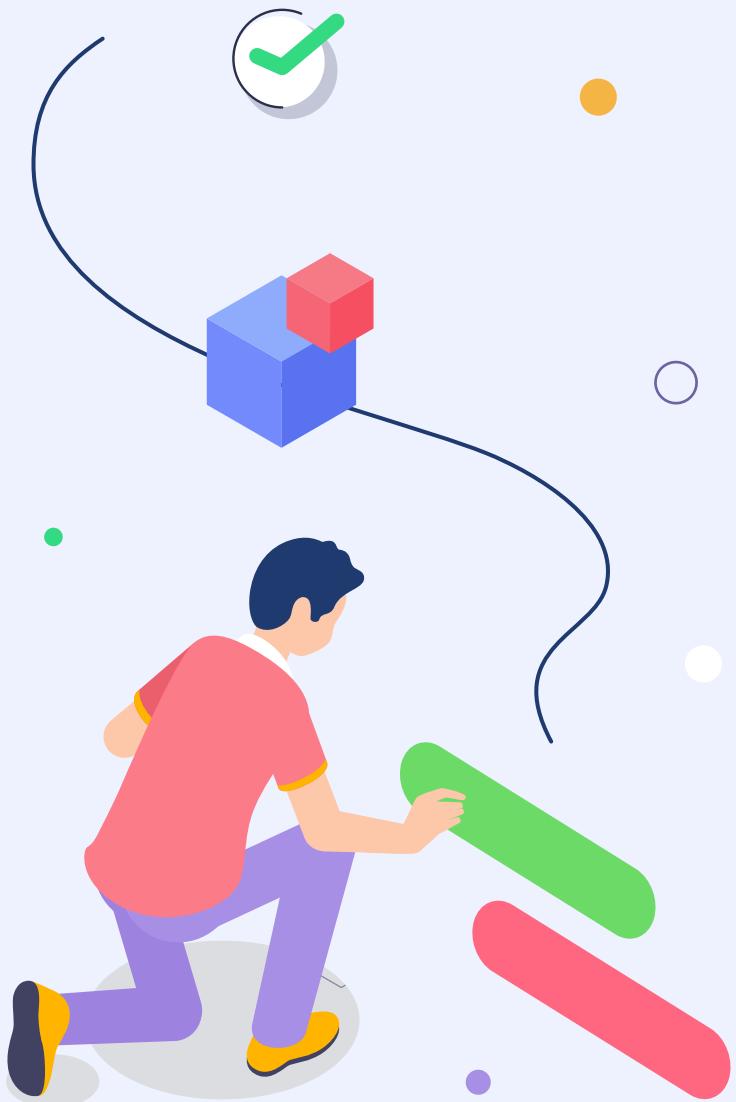
Dependencies between projects should be carefully managed, otherwise, you'll face resource conflicts, overload, missed milestones and due dates.

**Your environment must be structured:** tasks should be prioritized across all the projects in the company taking all dependencies and constraints into account. You won't ever complete multiple projects on time without clear priorities.

**Uncertainty should always be taken into consideration** when making project plans. Buffer management is an essential part of managing multiple projects with a shared pool of resources.



# Task Estimate Transformation: What Should Be Assessed?

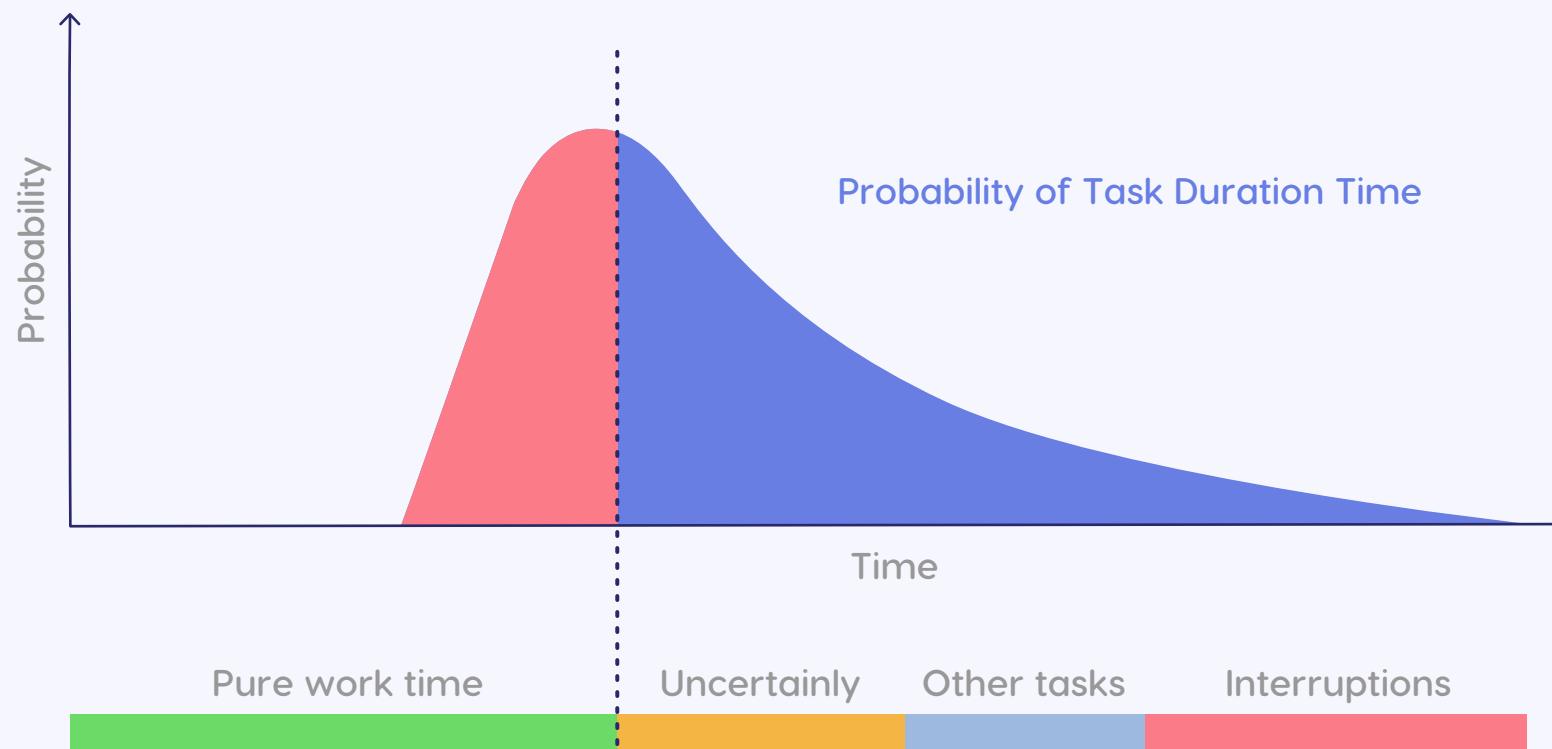


Setting optimal task durations is a common recommendation in project management. Estimating a task is a rather difficult process because its duration depends on a lot of factors, e.g. whether it's a new kind of activity or the one familiar to your team members, whether it will be performed by a highly-qualified employee or the one without required experience, etc. So, when setting up a task duration, one has to take all the necessary information into consideration. As a rule, when estimating a task's duration one puts some safety in it and gives it about 80-90% probability, but then the task's execution becomes unnecessarily long and prone to a lot of harmful effects.

*"Time estimates are probabilistic. The mistake we make is we treat them as deterministic". Dr. E.M. Goldratt*

The more probability you put into a task duration the more vulnerable to Parkinson's law and student syndrome it becomes as its execution becomes longer due to uncertainties, interruptions, and things like that.

Just take a look at the picture its below to see how this process looks like.



Therefore, instead of estimating a task's duration, the amount of work this task requires should be assessed. It's much easier to answer a question of how much work you should do to complete the task than how much time it will take. It is definitely more accurate than estimating the time because you can list the steps the task takes to be completed. This approach to project task estimations will help you avoid student syndrome and Parkinson's law effects.

# Switching Management Focus from Projects to Resources

To deliver multiple projects successfully on time and within budget, you should take care of proper resource management. It's the basis of project orchestration because resources are the driving force of any activity. The right resource management approach and effort are a guarantee that you will complete your projects on time and within budget.

Let's consider the pillars of efficient resource management in the table below:

Thorough resource capacity planning	Resource capacity planning is the process of determining the number of resources you're expected to require to meet the project needs.
Proper resource allocation	Resources should be assigned to tasks based on their capacity, availability, and competence.
Resource load and capacity forecasting	To prevent bottlenecks, resources' load and capacity should be foreseen based on the analysis of historical data and existing constraints.
Resource utilization tracking	Both material and human resource utilization should be examined in real time throughout the whole project life cycle. It can prevent resource shortages and help you avoid unbalanced workload.
Resource performance tracking and analysis	Knowing how your resources cope with their load is an important indicator that helps to assess your project state.

Let's dwell on the last point more precisely. In project management, it's usually project progress and that is tracked. But have you ever thought that **what is happening on the project level is just an effect of how things are going at the resource level?**

E.g., when a resource group is overloaded or doesn't work at their full capacity, their performance will be reduced. For sure, this effect will be reflected on the project's progress too. But the most important thing is that this gap will become visible long after this problem appears. It may happen that management finds out about a bottleneck several months after its occurrence. And as a rule, it's too late to improve things. This is why **if you keep track of your people's performance in real time, you won't ever miss any bottlenecks and resolve them as soon as they occur.**

Tracking performance at the resource level implies getting relevant information about the way project team members cope with their tasks: how many of them are successfully completed and when, if there are any issues that hinder the flow, if a resources' workload is balanced, if they produce the expected output, etc.



When a bottleneck occurs, it becomes immediately apparent if you're focused on the resource level. Thus, **you can take urgent measures not to let it affect your projects: e.g., move a milestone, reassign a task, etc.**

 When your attention is at the project level only, **this bottleneck will burden your people, and as a result, their performance will be significantly reduced.** This may result in missed milestones, prolonged due dates, cost overrun, and even a project failure.

Keeping track of resources' performance is especially important for multi-project environments because of the resource dependency between projects. Even one inefficient team member can become a bottleneck that will hamper the whole workflow. Therefore, **you should be sure that all your resources have optimal workload: they're neither idle nor overwhelmed.**

To have an opportunity to see how your teams work and the output they produce, **you need a resource management solution which will show you these indicators at different levels.**



# How a Resource Management Solution Can Ensure Timely Delivery of Projects

When working in a multi-project environment, you should deal with a huge amount of data that has to be collected, structured, and analyzed. A modern resource management solution does this for you, and saving your time is just a small part of its functionality. Let's take a look at the most important functions RM software provides project managers and teams with.

## It Prevents Resource Conflicts and Overload

Resource conflicts occur when an employee is required on several projects at the same time. They lead to bottlenecks that hamper the workflow and slow down the delivery of projects. Overload has the same effect and happens as a result of improper resource management when a person has too many tasks simultaneously together with inadequately estimated task durations. Multi-tasking and overload significantly decrease resources' performance.

### How exactly does a resource management solution prevent resource conflicts and overload?

- 1 by prioritizing tasks with regard to the dependencies between projects;
- 2 by suggesting optimal allocation decisions based on capacity, availability, and competence;
- 3 by ensuring efficient collaboration across the organization;
- 4 by providing real-time information about the workflow;
- 5 by informing a project/resource manager about team's performance;
- 6 by predicting bottlenecks.



## It Helps to Avoid Student Syndrome and Parkinson's Law Effects

A stand-alone resource management solution will hardly protect your people from procrastination and unnecessarily prolonged task durations, but its combination with the right framework and approach to work (as described above), they will bring brilliant results.

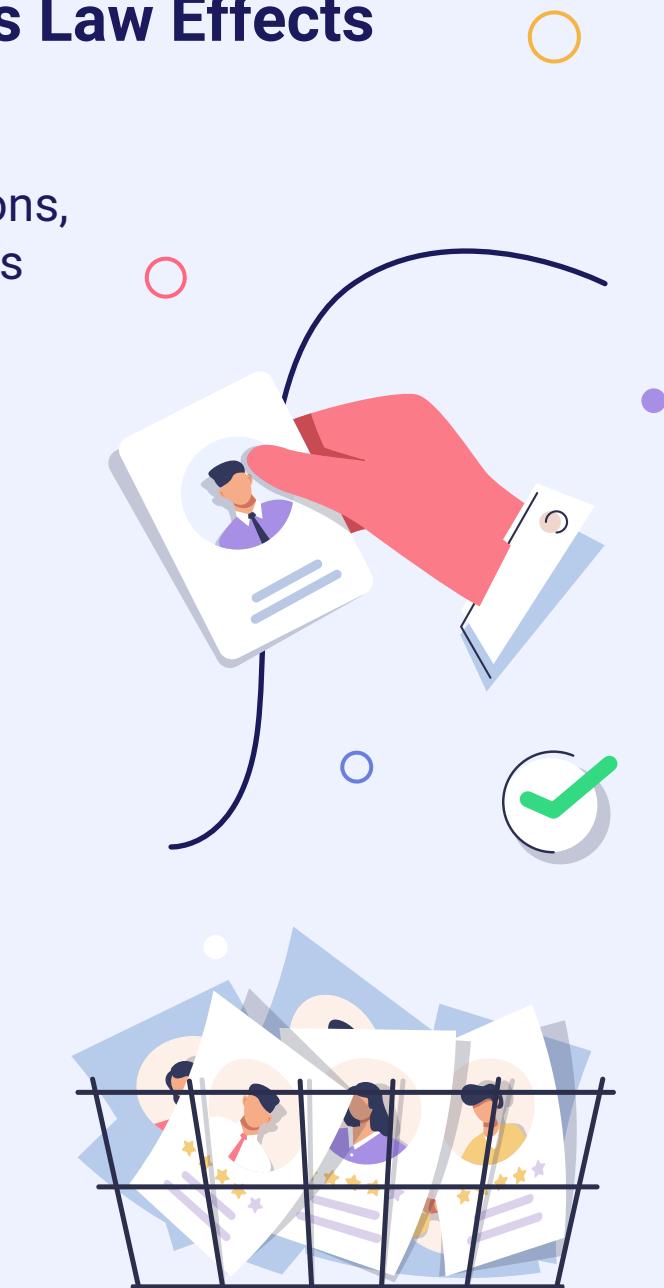
Estimate the volume or work necessary to complete a task (instead of time estimations).

Don't add a buffer to every task but add it to the end of the project.

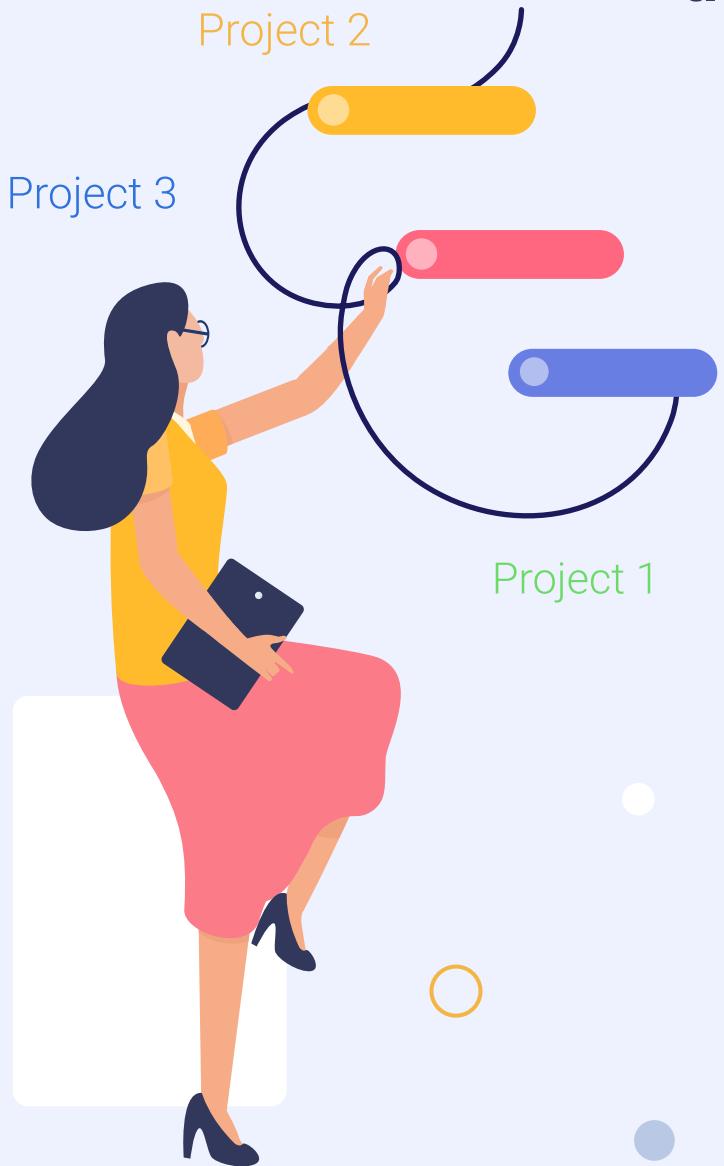
Make your project team be guided by the rule "leave the project in a better state after you start a new task". This involves using buffer time only in case of urgency and completing your tasks asap.

By utilizing a resource management tool, you always know what your resources are working on at the moment and can track the team's progress in real time as well as examine their performance over time.

An RM solution also helps manage buffer time: you can check its consumption at any time.



## It Reacts to Changes Immediately and Reschedules the Plan Automatically

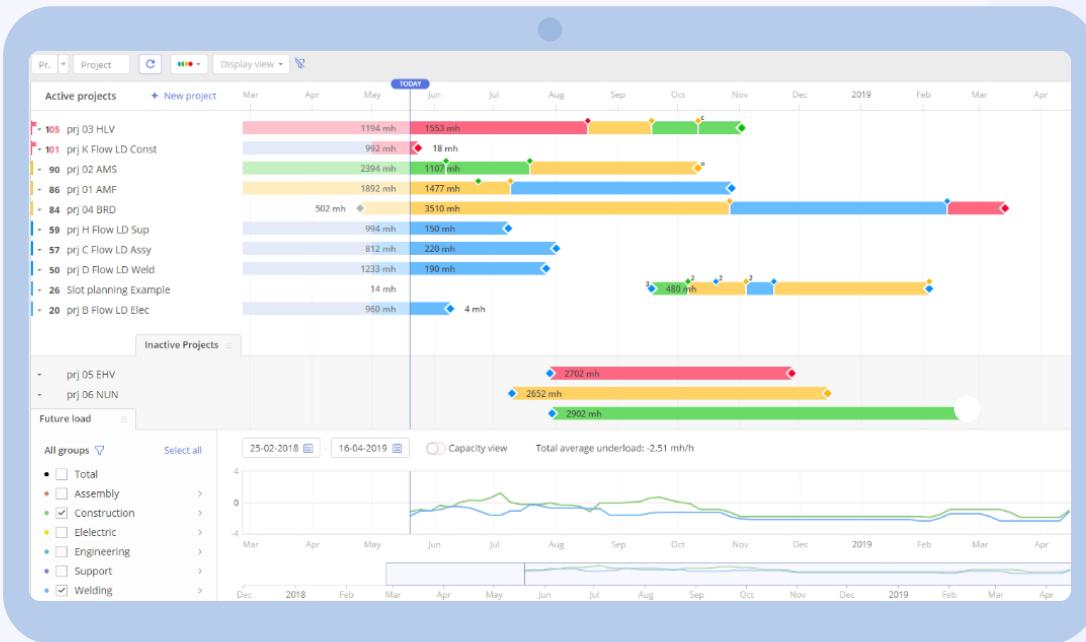


Modern project and resource management software solutions make scheduling and baseline measurement much faster. Creating a project schedule becomes as easy as ABC: you add all task- and resource-related information in the system, and the solution comes up with a ready-made project schedule. If any changes occur in your project environment, a resource management solution rebuilds everything automatically in a matter of seconds: it automatically recalculates priorities and suggests new variants of resource allocation.

### It Provides Full Project Transparency

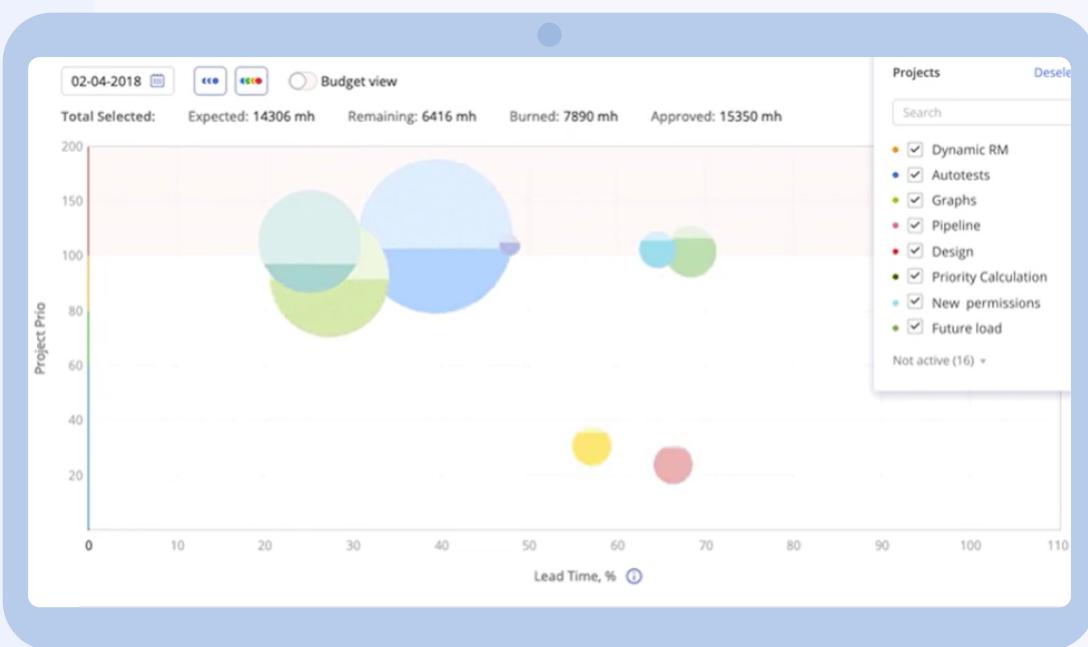
By having a resource management solution, a project manager always has access to real-time and historical project data. Gathering it manually is almost impossible due to its enormous amount, while a multi-project management solution shows the necessary information in a handy format (tables, graphs).

Let's take a look at how **Epicflow**, a multi-project resource management solution, presents essential data to users. It manipulates data into information, which is then used by management to make conclusions and decisions.



Examine your current workflow with a **Pipeline**

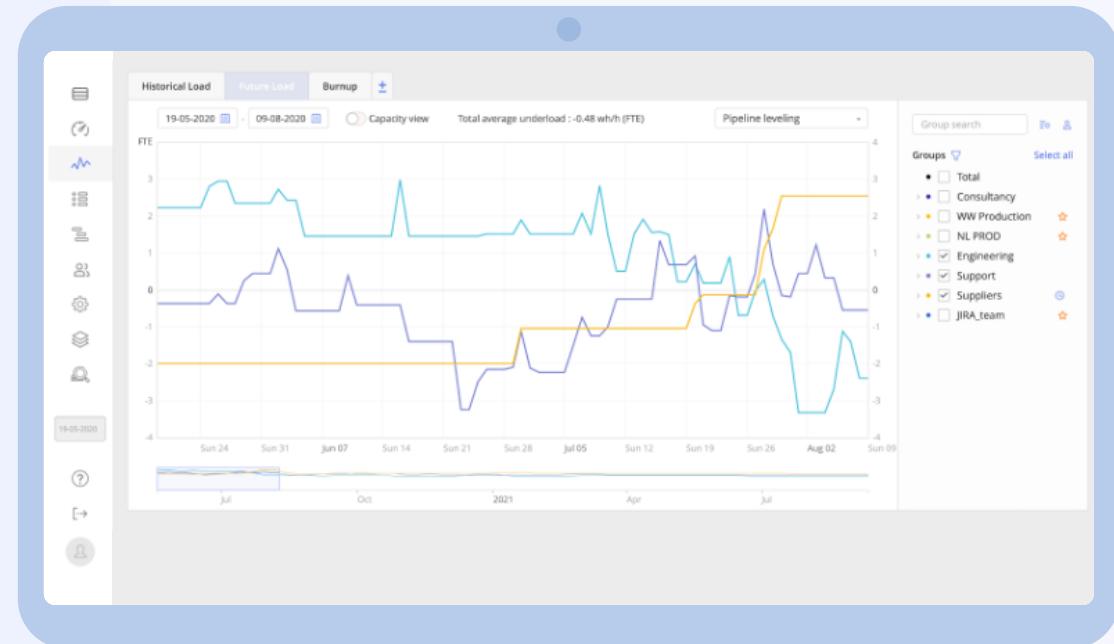
Track your projects' and budgets' progress against the time and budget constraints on micro and macro views with a **Bubble Graph**



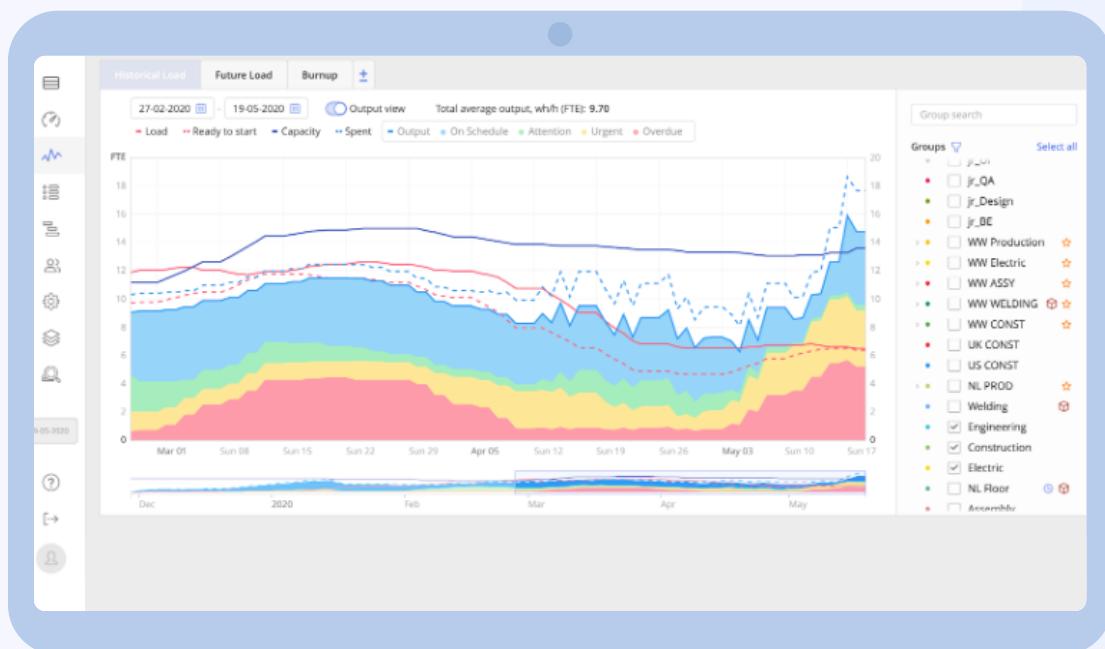
See your teams' output and assess their productivity with a **Timesheet**

Personal Timesheet  Display view ▾

A	Albert	Status	Spent	Rem.	May - 2018					
					15	16	17	18	19	Total (May)
⌚	Engineering		105	140	245	16	0	0	47	63
⌚	prj K Flow LD Const		44	18	62	16	0	0	24	40
⌚	Start and finishing duties		44	18	62	16	0	0	24	40
⌚	last paperwork	○	44	18	62	16	0	0	24	40
⌚	prj 03 HLV		29	120	149				3	3
⌚	1145 Module 01		29	120	149				3	3
⌚	Engineering 1145 Module 01		29	120	149				3	3
⌚	Engineering Layout	⌚	29	120	149				3	3
⌚	prj 04 BRD		32	2	34				20	20
⌚	Machine 01		32	2	34				20	20
⌚	1145 Module 01		32	2	34				20	20
⌚	Engineering 1145 Module 01		32	2	34				20	20



Forecast your resources' output with a **Future Load Graph** to make sure they'll cope with their work



Examine output and load changes over time with a **Historical Load Graph**

Examine your team's progress against the remaining work on the project with a **Burnup Chart**



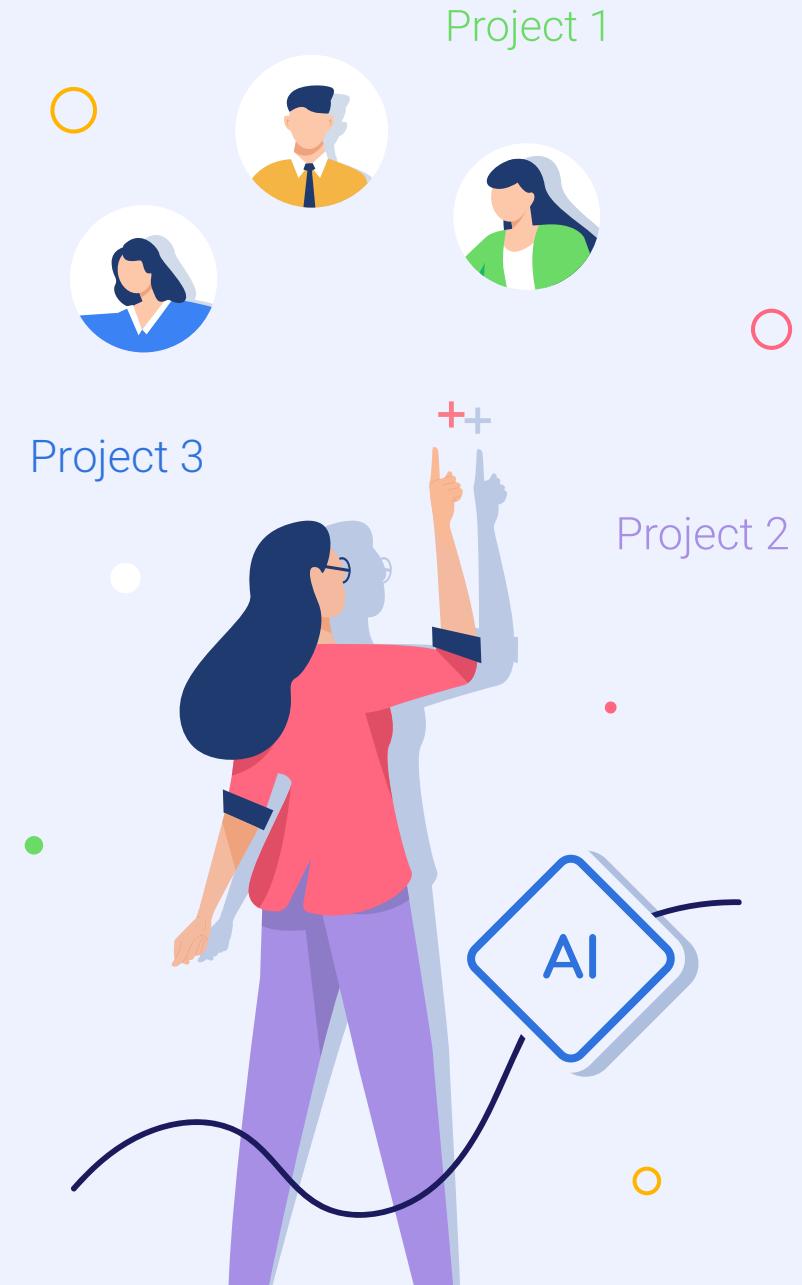
# The Role of Artificial Intelligence in Successful Project Delivery

An AI-driven resource management solution is an efficient tool that gives you confidence in timely delivery of your projects. At the moment, only machine learning and predictive analytics are the two technology types belonging to artificial intelligence that are actively used in project management, but they're enough for letting companies successfully complete their projects on time. According to the results of the PMI survey "AI Innovators: Cracking the Code On Project Performance" involving 551 project management professionals, AI provides the following benefits to the companies that have adopted an AI-driven resource management solution:

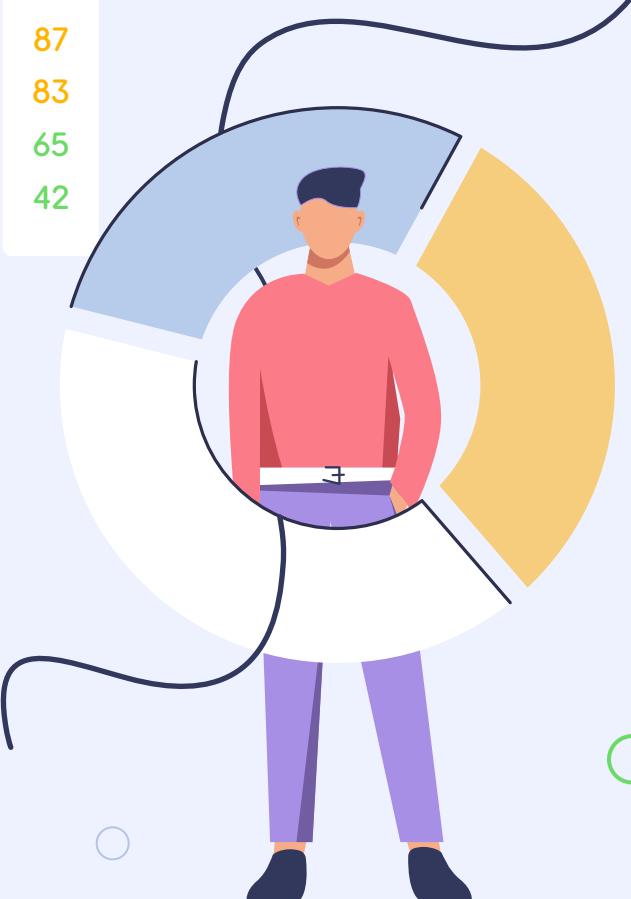
**61%** of complete projects on time and within the approved budget thanks to AI.

**69%** of projects let them reach 95% of their business goals.

**64%** of their projects met or exceeded their original ROI estimates.



PRIORITY
131
87
83
65
42



Let's have a brief look at its main functions in project and resource management:

- AI helps balance employees' workload by eliminating idleness and multitasking.
  - AI helps with resource staffing and allocation by predicting demand levels and making assignment suggestions.
  - Predictive analytics helps make project decisions.
  - AI is capable of reducing costs and time by making your teams deliver better results in the fastest way possible.
  - AI helps manage risks by foreseeing emergencies and suggesting options to mitigate them.
  - AI makes it possible to reduce lead time by smart task priorities and predictive capabilities that help avoid missed milestones and project delays.
- AI-driven tools collect, analyze, and structure large amounts of data that can't be processed by the human brain, which is a great assistance for program, project and resource managers. These solutions improve their efficacy and help achieve better results faster.

## Here's a list of the most efficient and popular AI-driven functionality (based on Epicflow):

Resource load balancing	The system shows idle and overloaded resources and suggests changes to balance the workload.
Risk management	The software solution suggests the ways to mitigate risks.
Demand forecasting	The tool analyzes data and predicts the demand, which lets a company reduce costs.
Success prediction	The system processes all available data and makes predictions regarding the success of the project.
Resource allocation	Machine learning analyzes all available data about resources and offers the best options for allocation.
Resources' output prediction	The solution provides information about the way your teams' load will be distributed in the future, and you can make conclusions about their output based on this data.

- Remember that a resource management solution (even the AI-driven one) itself isn't a game changer. You won't get the desired results if you don't change your mind and approach to project and resource management.

# Implementing Transformations into Your Organization: Change Management Best Practices

If you decide to change an approach to managing projects and your company and make a decision to shift to another paradigm, a lot of work is to be done to implement the changes. According to McKinsey, more than 70% of change initiatives fail. This is why you need not only to transform your project environment but also introduce efficient change management into your company.

Change management is a comprehensive approach taken in an organization to move from the current to a future desirable state using coordinated and structured efforts in collaboration with stakeholders.

This involves the application of processes, tools, and techniques that are required to administer the human side of change. Digital transformation initiatives have more chances for success when people are enthusiastic about the changes, understand why the company needs them, and what journey they should go through.



• Here's a checklist of your efficient change management strategy if you're ready to start a paradigm shift at your company:

✓ **Define your end goal clearly**

Assess the current state of an organization to know what exactly requires change and what doesn't and determine the end goal of your change initiatives and establish timelines.

✓ **Adopt a change management framework**

A change management framework offers a systematic approach to managing change (e.g., McKinsey 7-S Framework, ADKAR Model, Kotter 8-Step Process for Leading Change, Lewin's Change Model, and Satir Change Management Model).

✓ **Create a team of change agents**

Change cannot be implemented solely by senior executives or employees. Instead, these tasks should be assigned to the team of change agents who have necessary skills and mindset and who will motivate and support the rest of an organization's members.

✓ **Take care of your people to overcome their resistance**

Communicate with your employees to facilitate their acceptance of change (discuss the objectives, the vision, the mission, the context, the need for change efforts, and their concerns). Provide training for employees. Apart from acquiring new skills and behaviors, it will psychologically prepare them for work in a changed organization and reduce their resistance.

✓ **Prioritize change initiatives**

Too many initiatives drain valuable resources and leadership attention. With this in mind, every change initiative, either new or the existing one, should be thoroughly analyzed regarding its value, feasibility, and related risks.

## Conclusion

To start delivering your multiple projects always on time and forget about missed due dates,

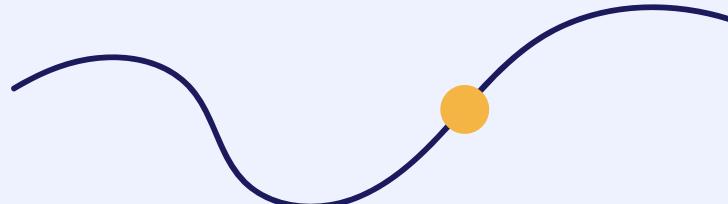
**Reconsider a PM methodology you rely on.**

**Start treating your multiple projects as a system instead of one-by-one management.**

**Change your management focus from project to resource performance.**

**Adopt an AI-driven resource management solution.**

**Implement change management strategy for an efficient paradigm shift.**



## References and Useful Links

1. Change Management Best Practices: Overcoming Pitfalls of Change Implementation.
2. How to Beat Parkinson's Law and Deliver Projects in Half the Time.
3. Managing Project Dependencies In a Multi-Project Environment.
4. Boris Ewenstein, Wesley Smith, and Ashvin Sologar (2015). Changing change management. McKinsey.
5. Dana Miranda, Adam Hardy (2022). Project Management Methodologies All PMs Should Know. Forbes.
6. Student Syndrome in Project Management: Real Constraint or Just Human Factor?
7. Top 5 Reasons for Project Failure in a Multi-Project Environment.
8. Tracking Performance: Switching from Project to Resource Level.
9. Why No Miracle Happens: Typical Mistakes in Work with a Resource Management Solution and How to Avoid Them



To learn more about multi-project resource management  
and how to start delivering more on time with your  
current project team, contact us at

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