![eSUB construction software logo]
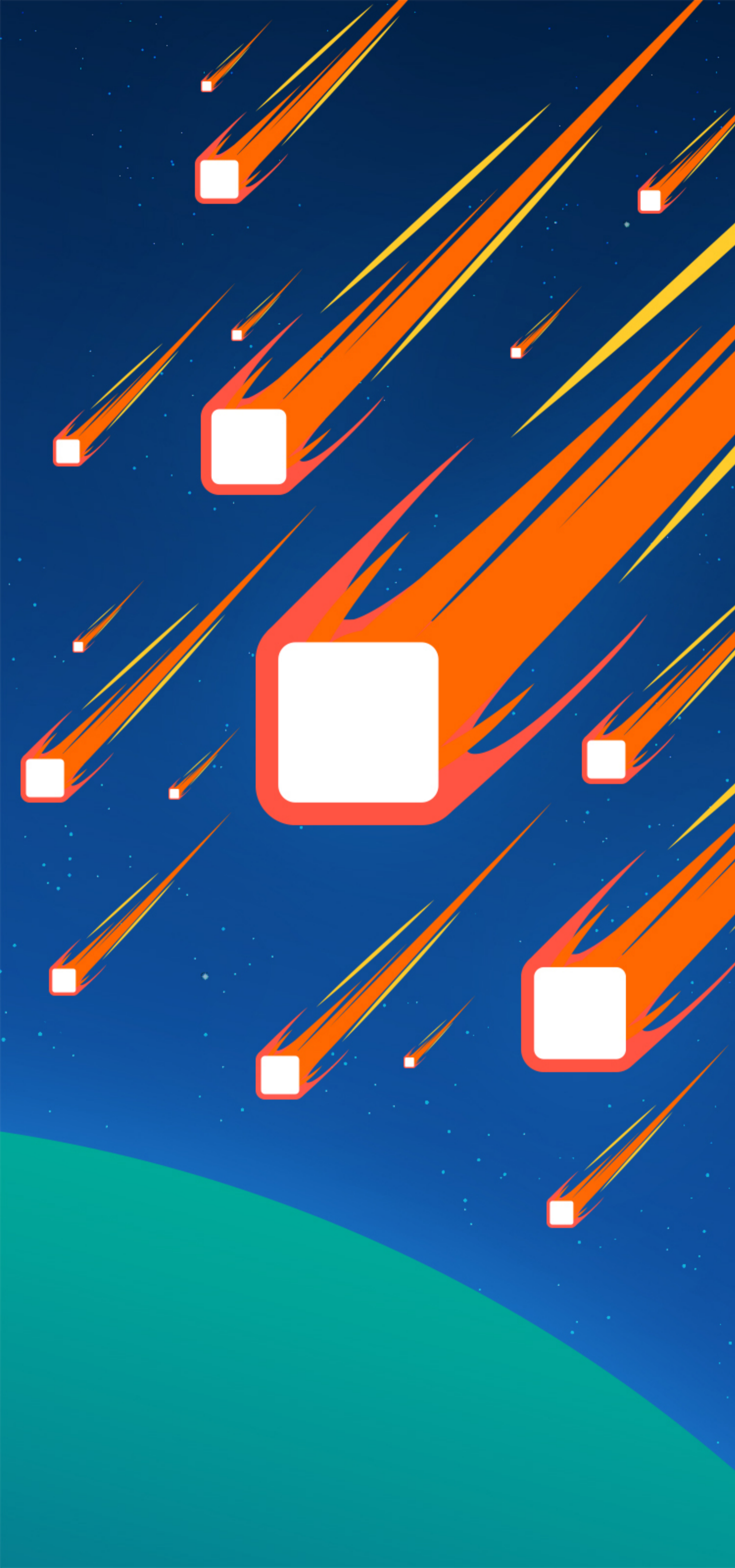
Trade Contractors Unite:
# CONQUERING APP-AGEDDON!

Overview

Trade contractors build the world around us. They possess the technical expertise and years of experience in their trade to serve as the constructability experts. Trade contractors have teams toiling in the field performing the labor on massive construction projects and teams in the office coordinating activities with customers, general contractors, and suppliers.

Unfortunately, many trade contractors lack the appropriate platform and digital tools to perform their jobs effectively. They are burdened with manual processes or platforms that were not made for their unique workflows. This results in unproductive labor, rework, or even worse, payment disputes and claims.

Construction is one of the last industries to be digitized and automated, however there has been a surge of investment into the construction industry in the last few years in order to develop technology solutions. In 2018, construction technology companies received $3.1B in new funding representing a 324% increase over 2017.

This influx of investment in construction technology has led to an overwhelming amount of new solutions in the marketplace. The vast construction technology ecosystem addresses various areas including:

- **Concept & feasibility**
- **Design & engineering**
- **Preconstruction**
- **Construction & commissioning**

- **Operation & maintenance**
- **AI and machine learning**
- **Construction back office**
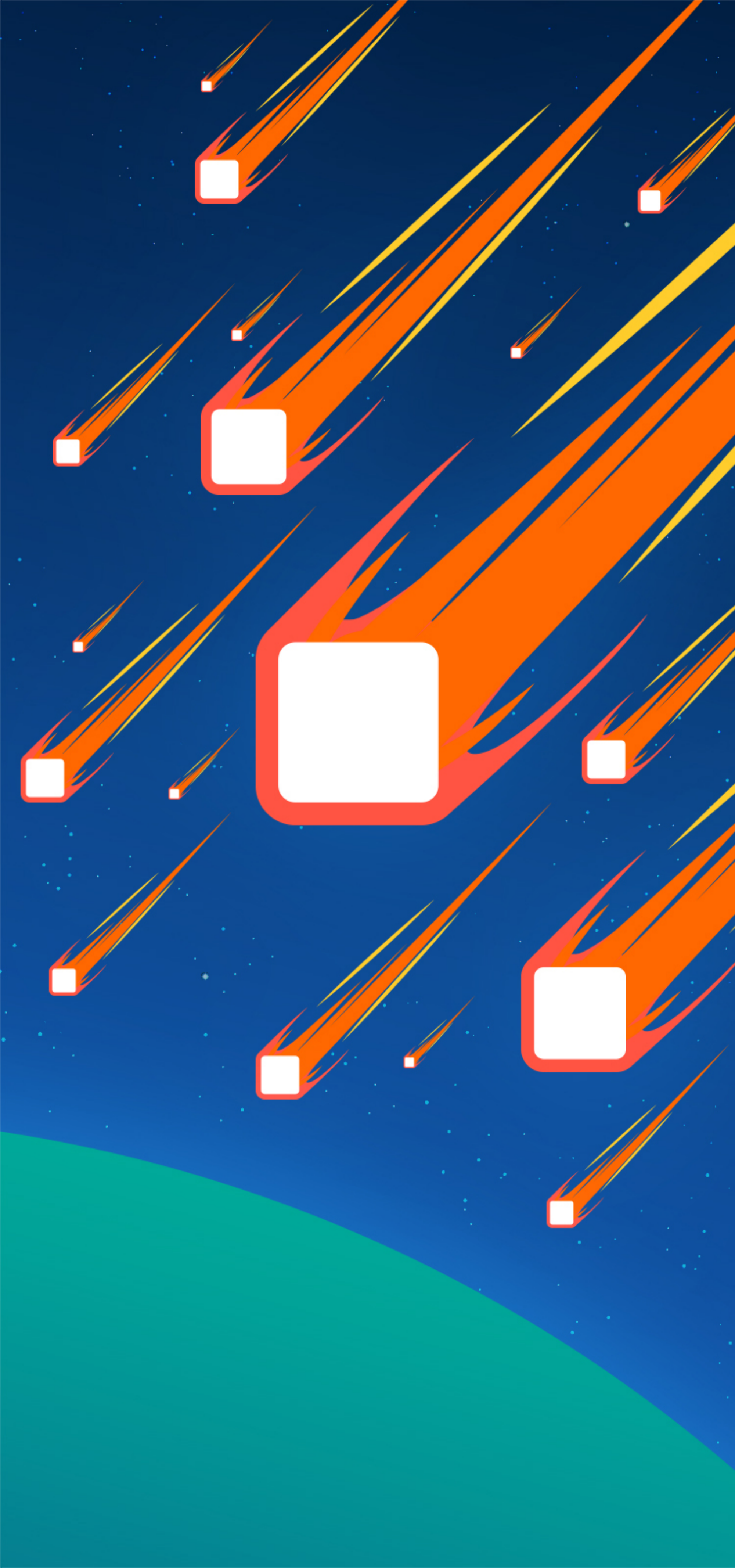
However, with over 2400+ (and growing) technology solutions, how can you determine which is the right solution for managing your construction operations? This eBook will help trade contractors conquer app-aggedon and navigate through the crowded construction technology marketplace.

In this e-book Trade Contractors will learn:

- **The evolution of construction project management solutions**
- **The challenges with using your General Contractor's project management system**
- **The value of a purpose-built solution for trade contractors**
- **How Pacific Rim Mechanical conquered app-agedon with a best-of-breed integrated solution**

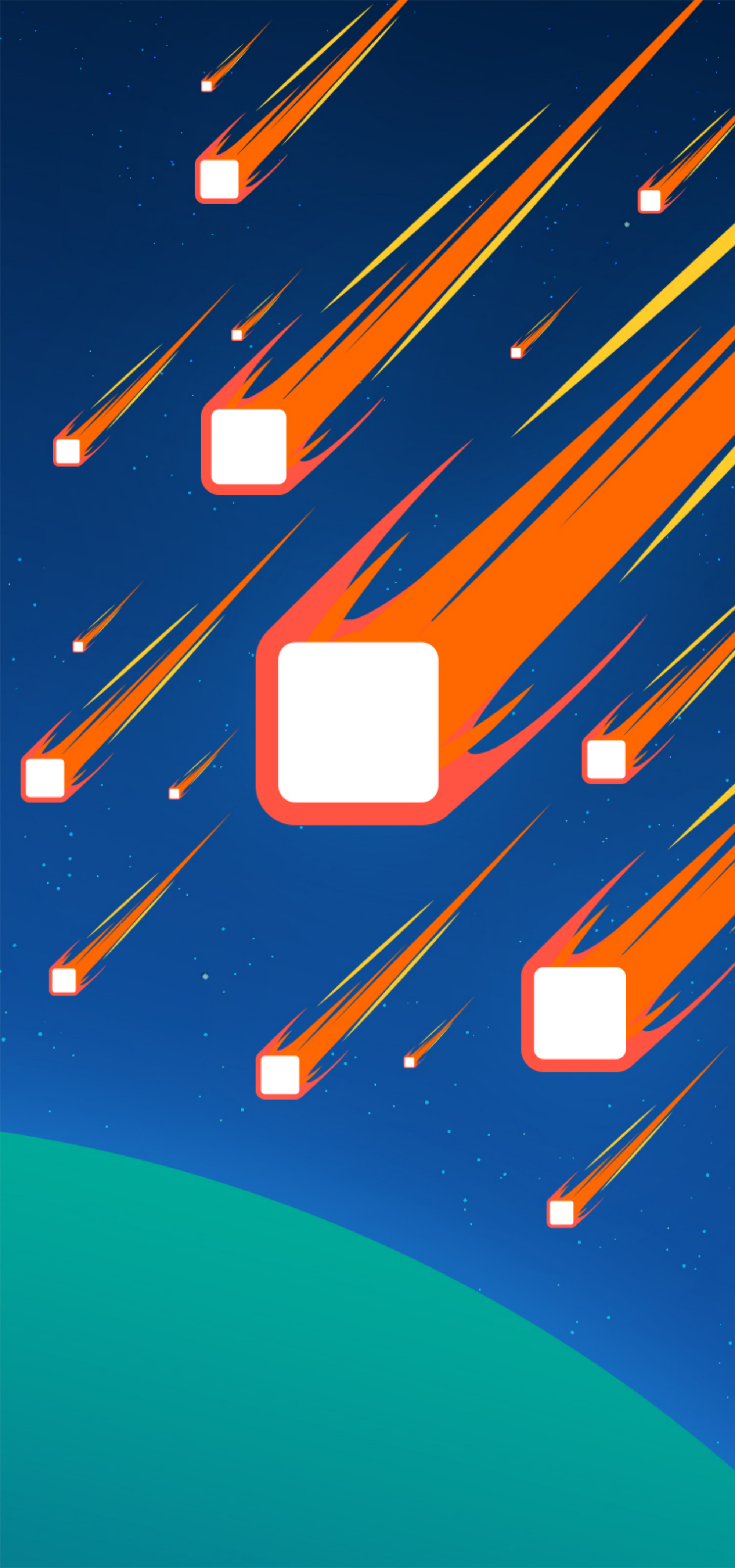# Evolution of Construction Project Management Technology

Despite the influx of new entrants in the construction technology marketplace, technology and software is not new to construction. There are many solutions that have been in use for over 20 years, and Excel and Word have been a cornerstone of these software solutions. When looking at software and its value into your operations, it's important to examine the intent of the solution, how it can improve your current processes, and how it fits into your overall technology ecosystem.

How do you manage your construction projects?

Excel and Word

Excel and Word are valuable administration tools, and for many trade contractors, it is a way of life in managing projects. RFIs are created in Word, then logged and tracked in Excel. The RFI document and Excel log is stored on an internal server and finally emailed to the General Contractor. This is a pretty straight-forward process and an effective way to manage projects for small contractors. Unfortunately, as an organization grows in terms of employees, number of projects, and size of projects, utilizing Excel and Word to manage projects becomes more complicated.

The intent of Excel is to store small data sets. It was not developed as a repository to serve as a system of record tracking the documentation and costs in large-scale, commercial construction projects. When working with larger teams, maintaining data integrity becomes harder. Data may not get updated in time, or may get inputted incorrectly. Never mind the fact that there may be multiple versions of a file on each person's hard drive or the central drive – so which file is correct?
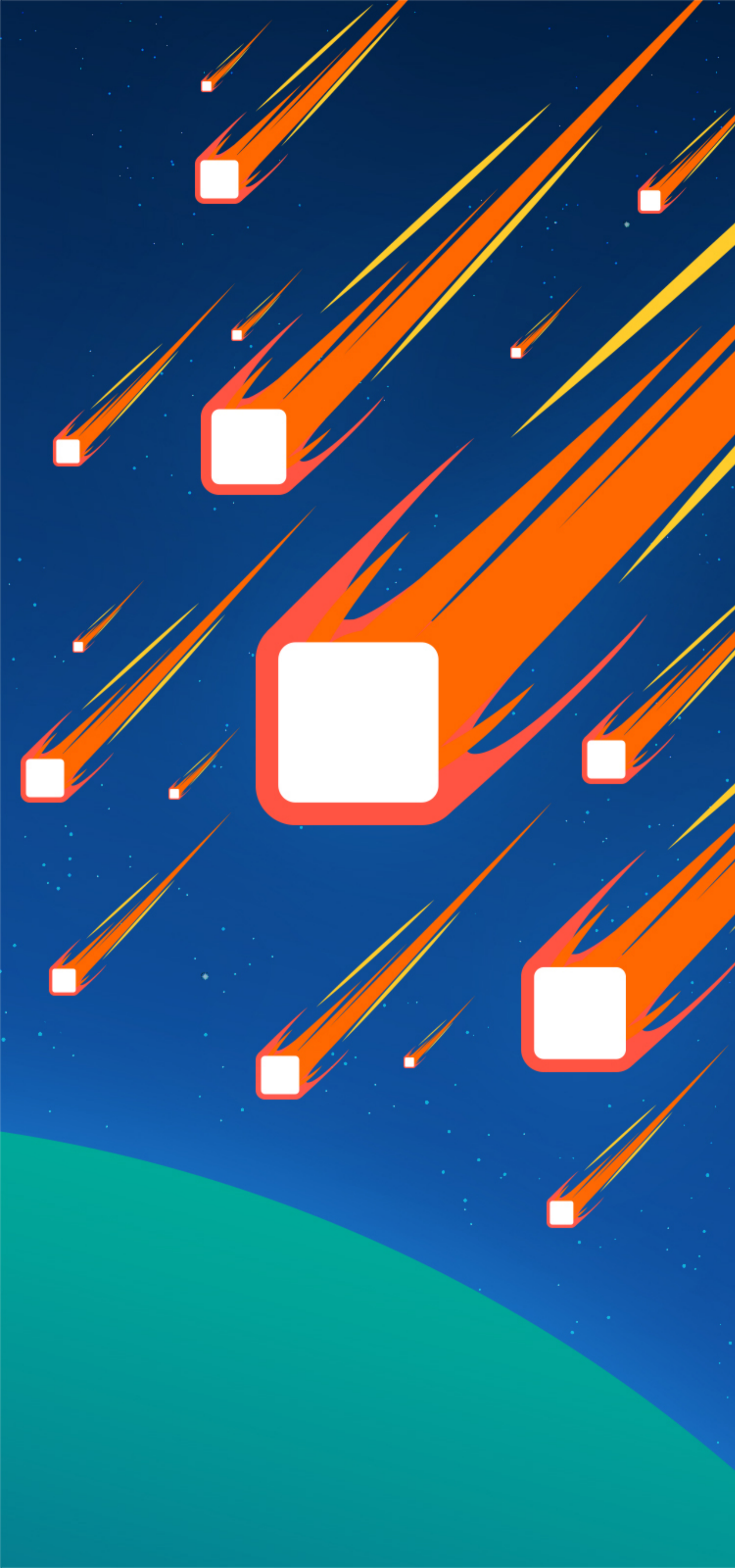
Excel and Word are widely used because they are considered "free" solutions as part of the standard Microsoft package. However, as contractors grow, it becomes more expensive in the long run to use Excel and Word for project management. Think of the time wasted in searching for documents and their status. Think of the money lost due to inaccurate data. Additionally, there is substantial time and money resources invested for installing servers, backing up data, and upgrading systems.

Accounting-based Solutions

Similar to many industries, when computers became more affordable and accessible, the accounting team was the first lucky recipients of the computer. While the accounting team initially worked off spreadsheets, many technology vendors began developing accounting software packages. The accounting solutions were on-premise, server-based solutions perfectly suited for the needs of the construction accounting teams who were always in the office.

With heavy usage by the accounting team on their particular accounting software, many construction companies have long standing relationships with their accounting software vendor. Naturally, as other departments began to recognize the value that technology can deliver, the first place many companies looked is their accounting software vendor.

Many accounting software vendors have developed additional project management capabilities. However, the solutions were not purpose-built for operations. In fact, many of the solutions were developed for the purpose of making accounting's job easier. A workflow to make capturing time easier for payroll. A workflow to make capturing expenses easier for purchasing. However, little thought was made in making the solutions tailored for the field or provide relevant productivity and progress reports for project managers. Because the operations team is in the field, these on-premise accounting-based solutions delivered little value to operations and the employees in the field.

Cloud-based Solutions

A large problem with many accounting-based solutions was the accessibility from the field. Many accounting-based solutions were server-based and in order to be used at the job site, the field team needed a laptop, internet connectivity, and log in via virtual private network (VPN).

These challenges allowed a new entrant into the field of construction project management: cloud-based project management software. Cloud-based solutions solved many of the challenges in accessibility with Microsoft and Excel and Accounting based solutions. There was now a centralized repository to track and manage projects from anywhere. Information is updated in real-time and accessible via an internet connection. Cloud-based solutions no longer needed heavy IT investments—servers, upgrades, and maintenance. However, these solutions were still developed for the office environment with little thought given to the field teams.

Mobile Point Solutions

The introduction of mobile devices including smartphones and tablets and the greater accessibility to wireless internet led to the explosion of mobile apps and point solutions in construction. Finally, the workers in the field had access to new tools. Developed just for them, the mobile apps were simple and easy to use. The tools provided them real-time access to information and they were able to document activity from the field. There was no longer any need to go to the office to turn in paperwork, and it enabled them to be more productive in the field.

Unfortunately, these helpful apps are only helpful at one thing and create an environment for app-ageddon! Field workers had an app to access updated plans, an app to track time, another app to complete daily reports, and an app for safety. There is an app for everything! With more tools and apps, can contractors truly be more productive?
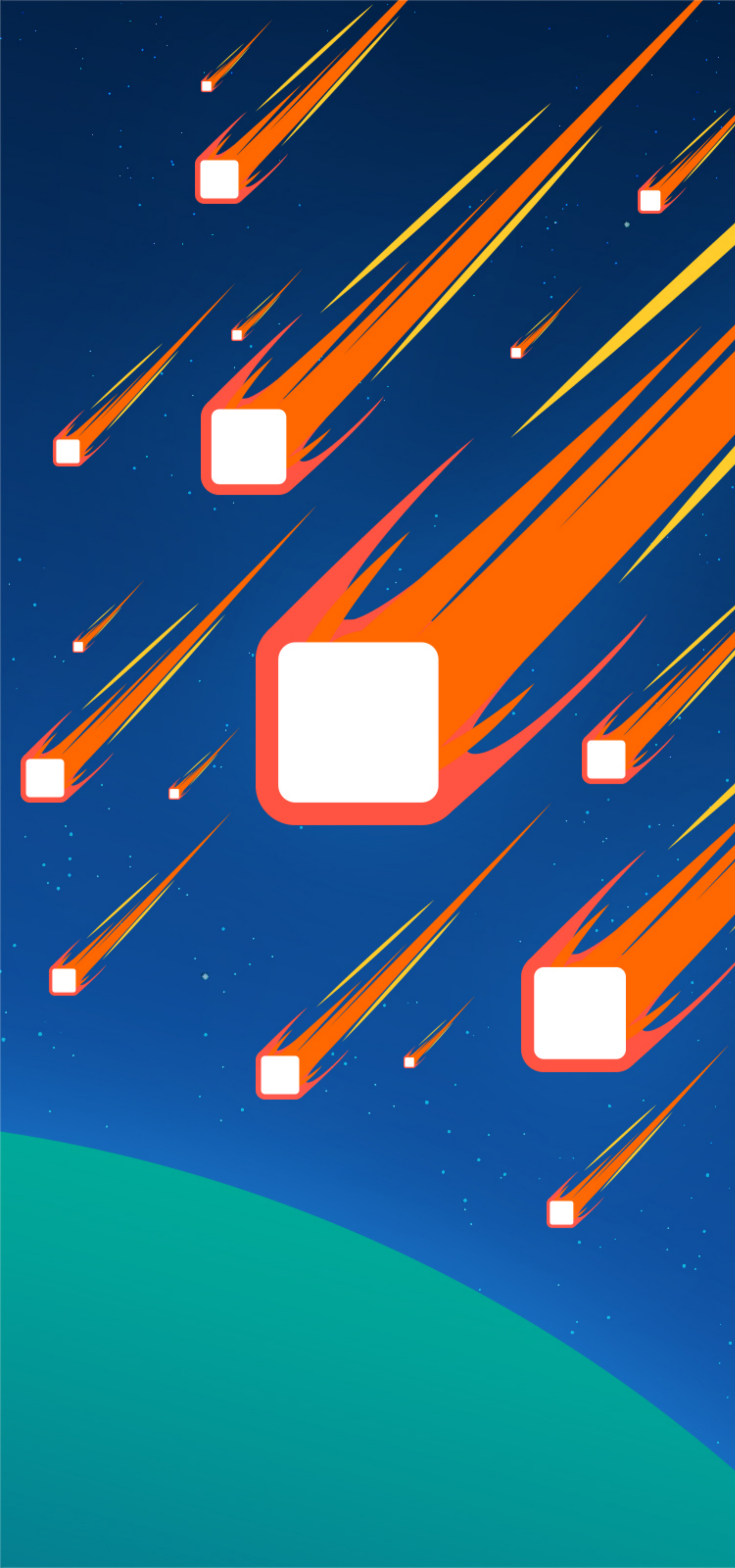
General Contractor software vs. Trade Contractor software

On a construction project, there is typically a general contractor that serves as the prime on a contract. The general contractor then subcontracts with various trade contractors to complete the work. In this relationship, the general contractor is responsible for managing the work of various trades and serves as the liaison between the trade contractors and the owner and designer.

Because the trade contractors perform the work and the general contractors manage the work of various trades, it's obvious that their roles and workflows in managing the project are drastically different. This is why there is a distinct difference in a general contractor-based project management system and a subcontractor-based system. A GC-based cloud project management system enables collaboration with many of the different stakeholders in the project including the owner, engineer, designers, and trade contractors. The GC system is meant to collect documentation and route them to different parties. The general contractor is responsible for the overall collective costs of the project spread out across the different trades.

Contrast that with the way a trade contractor manages projects. A trade contractor is responsible for completing the work and managing resources effectively. Scheduling crew, tracking labor hours and productivity, ordering materials, tracking job costs at a more specific detail, and communicating upstream to the general contractor or owner, are just some of the ways a trade contractor manages projects differently than general contractors.

So while a general contractor is collecting documents and routing information upstream to owners and designers and downstream to trade contractors, a trade contractor is coordinating the work between the field workers and the office team.
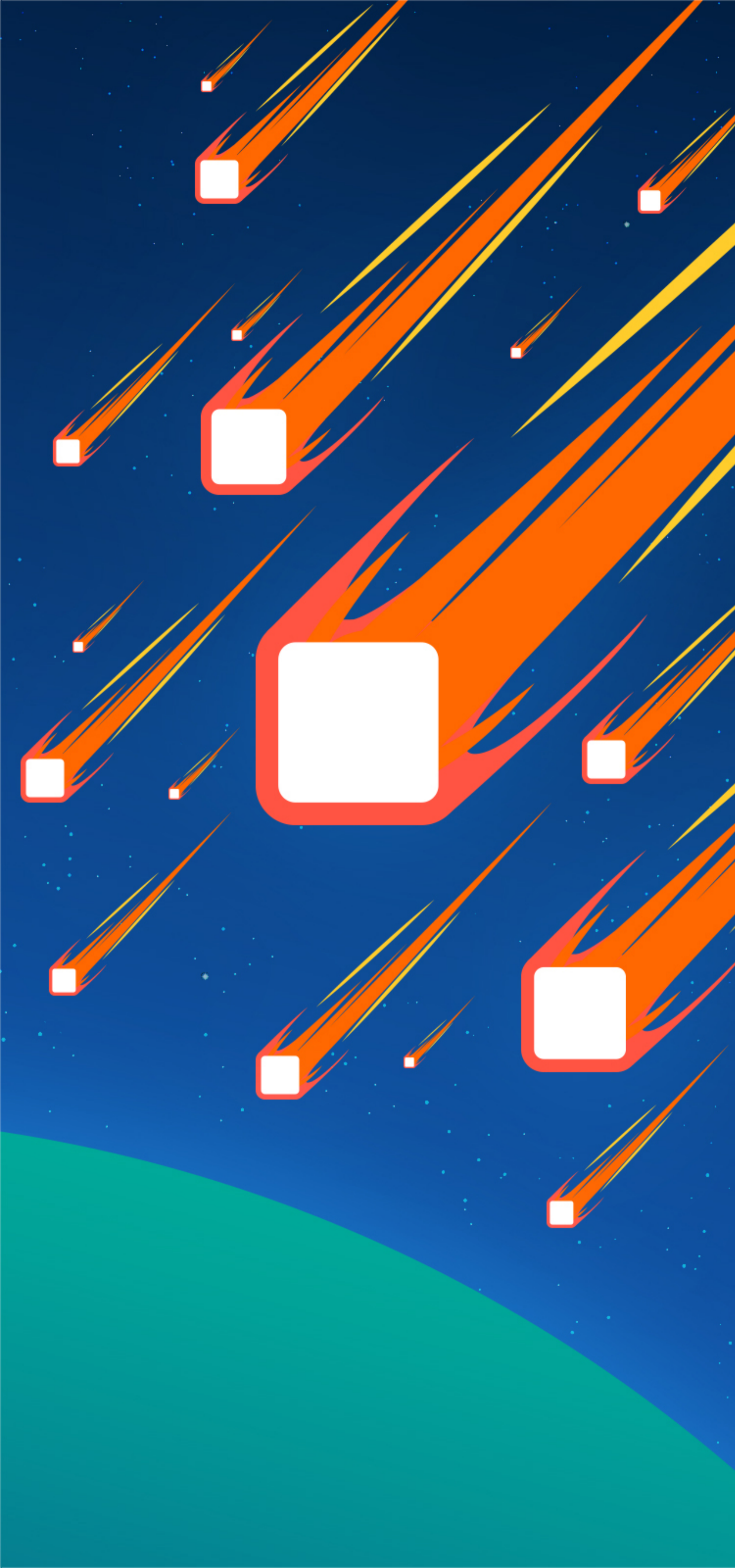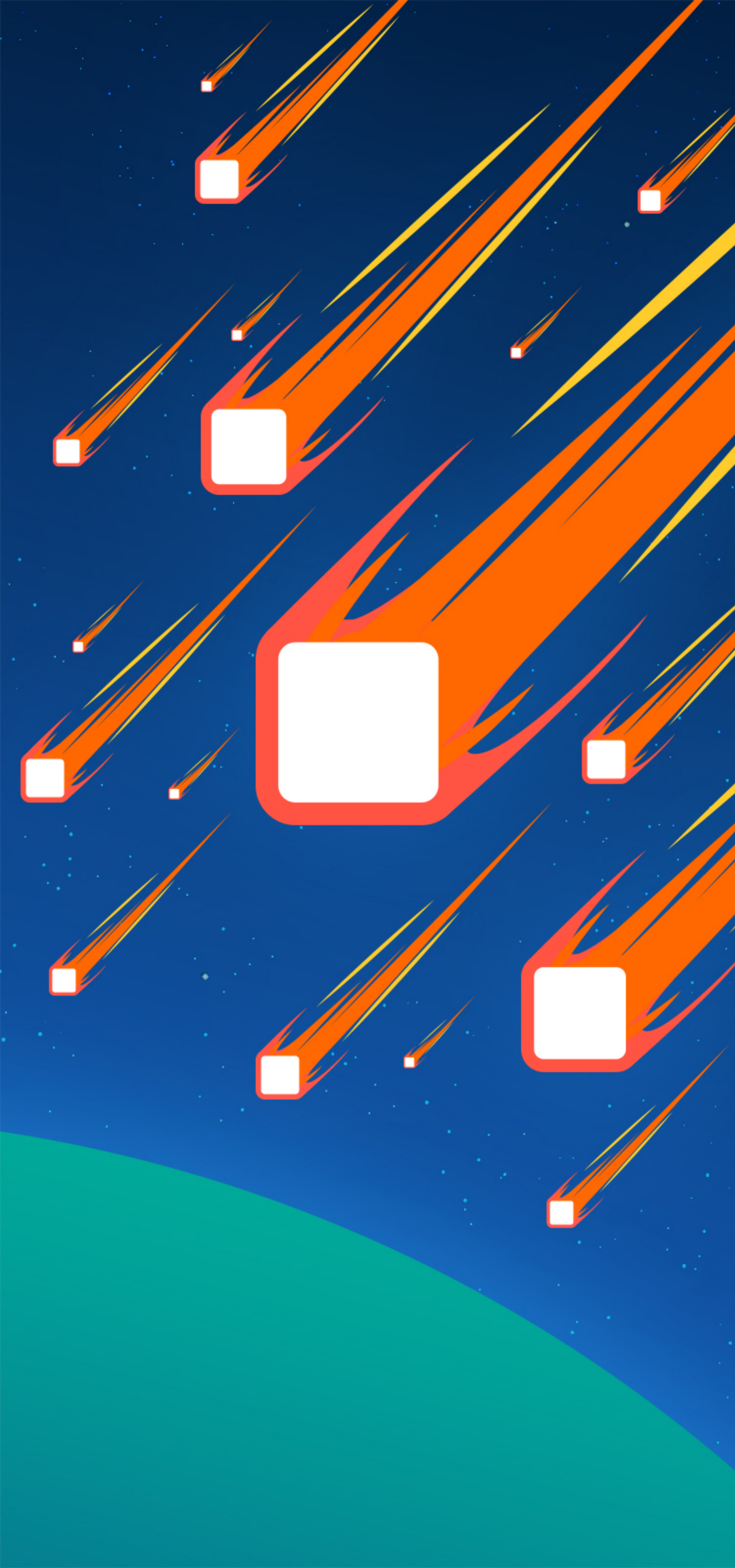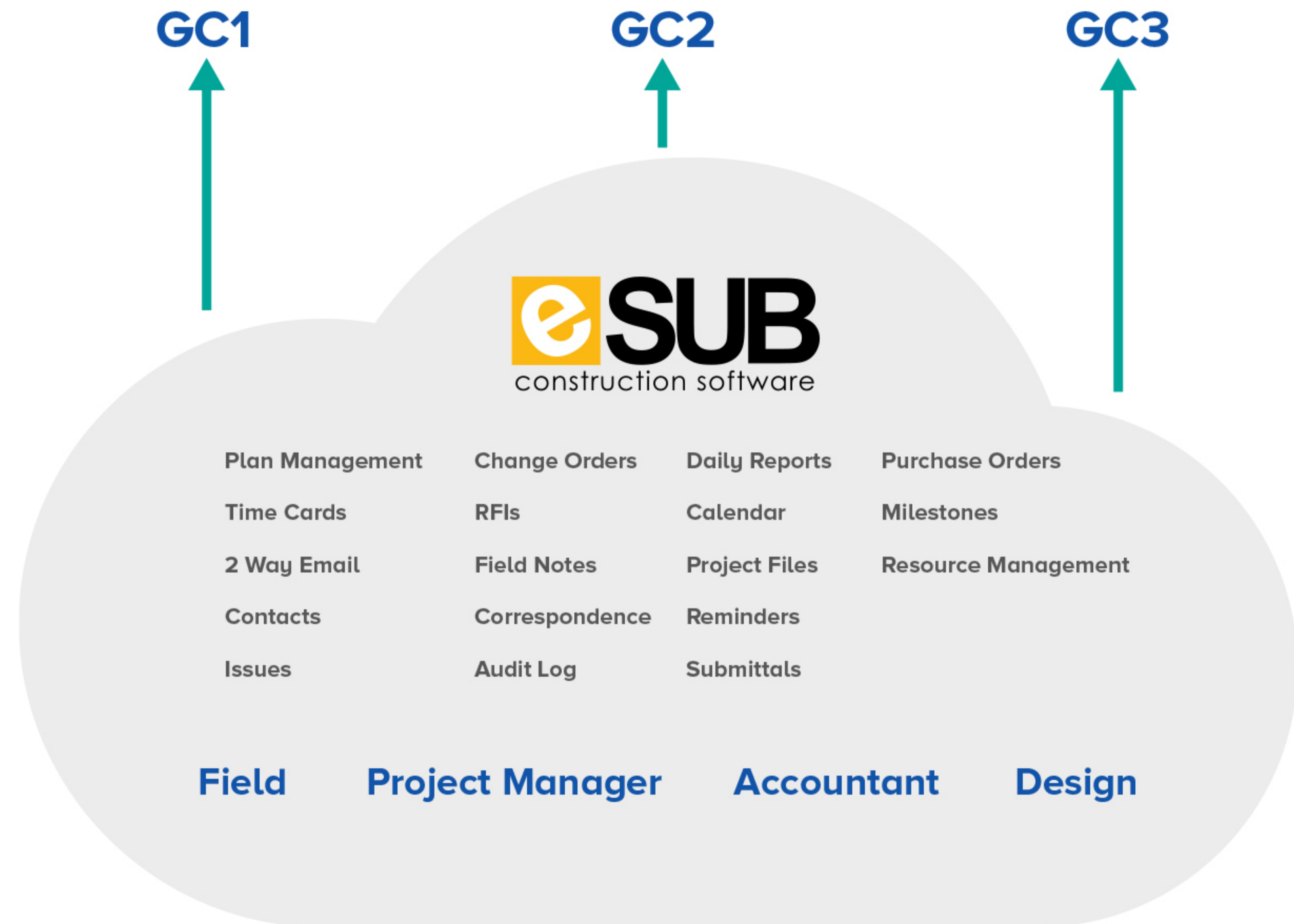
GC Management

Controlling the Data
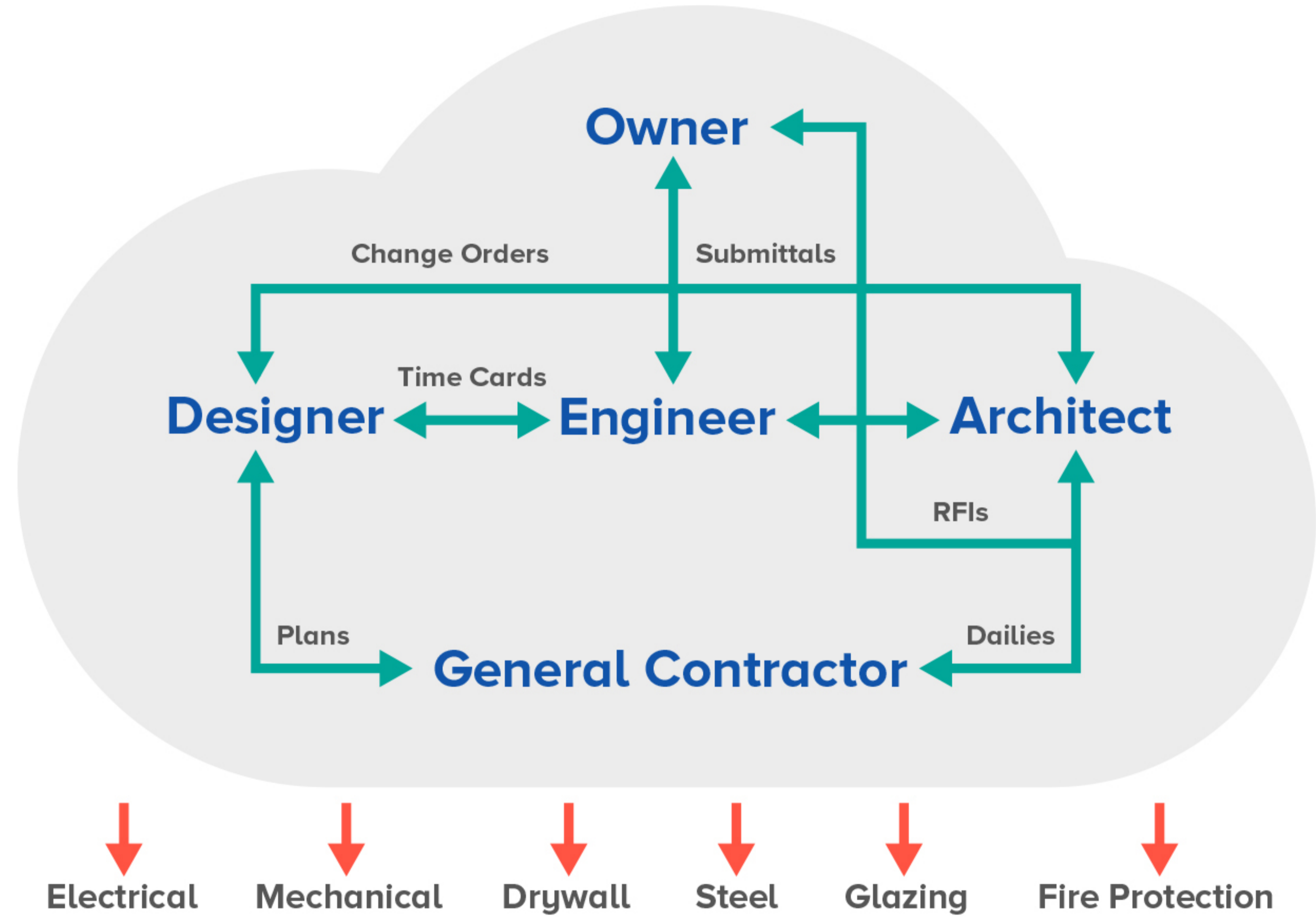
- **Ongoing collaboration with design team**
- **Collecting documents and routing**
- **Shooting down changes to the field**

Subcontractor Project Management
Managing Field Productivity

GC1   **GC2**   **GC3**

eSUB
construction software

Plan Management	Change Orders	Daily Reports	Purchase Orders
Time Cards	RFIs	Calendar	Milestones
2 Way Email	Field Notes	Project Files	Resource Management
Contacts	Correspondence	Reminders	
Issues	Audit Log	Submittals	

Field   **Project Manager**   **Accountant**   **Design**

- **Subs log in to their system of record**
- **Total coordination between field and office**
- **Subs own their own data**
- **Archive of the project**

- **Proactively initiating docs from field**
- **Reactively doing work**
- **Trying to get paid for it**
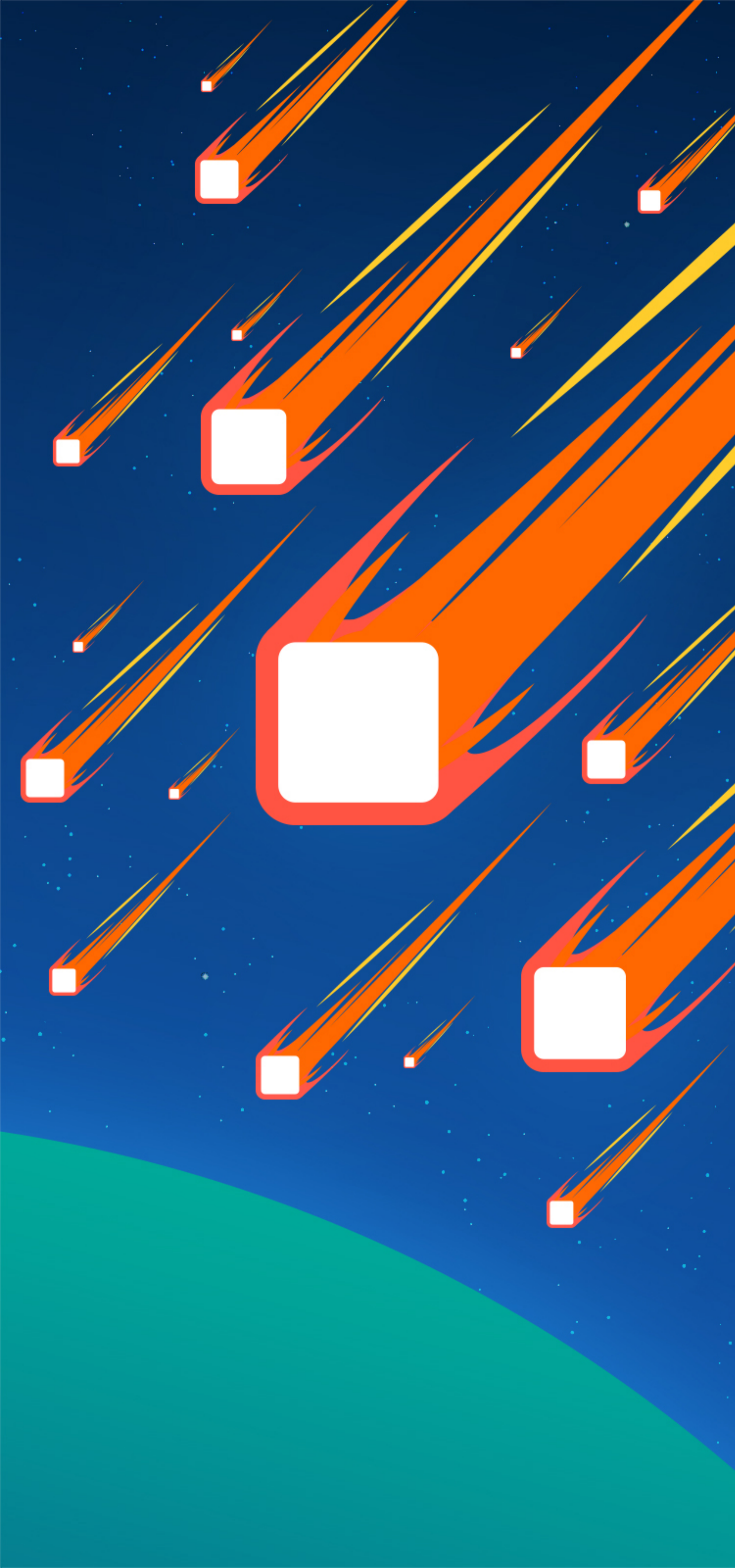
Using Your General Contractor's System

It is an interesting dichotomy that although the trade contractors perform the majority of the work on projects, the majority of construction project management systems are targeted towards general contractors. Because of the contractual nature of construction, the general contractor bears a great amount of risk on a project. It is in the general contractor's best interest to establish a project management system to bring together all stakeholders, including trade contractors, which is why many GC-based systems have unlimited user licenses. It delivers a centralized repository to view, enter, respond to, collection information for the general contractor. Opening up access to the general contractor's project management system improves collaboration with the trade contractors, designer, engineer, and, most importantly, the owner.

Unfortunately, this does little to benefit the trade contractors. It is not their system, they are an invited collaborator. Because it is not their own system, the trade contractor cannot manage the project internally within their team. The trade contractor cannot track the labor of its individual workers on the project. The trade contractors cannot manage their own budget on the project, because the budget tracked in the Financials section is for the entire project.

Not to mention, any of the documentation (daily logs, RFIs, Change Orders, etc) in the general contractor's system belongs to the general contractor. The trade contractor is an invited collaborator, and the general contractor can revoke their access to the system at any time. If there is any dispute or litigation, the general contractor has the documentation in their system. If the only reporting the trade contractor completed was in the GC's system, unfortunately the trade contractor will not have their own documentation to support their claim. This unfortunate circumstance happens quite often to trade contractors and can negatively impact their bottom line.
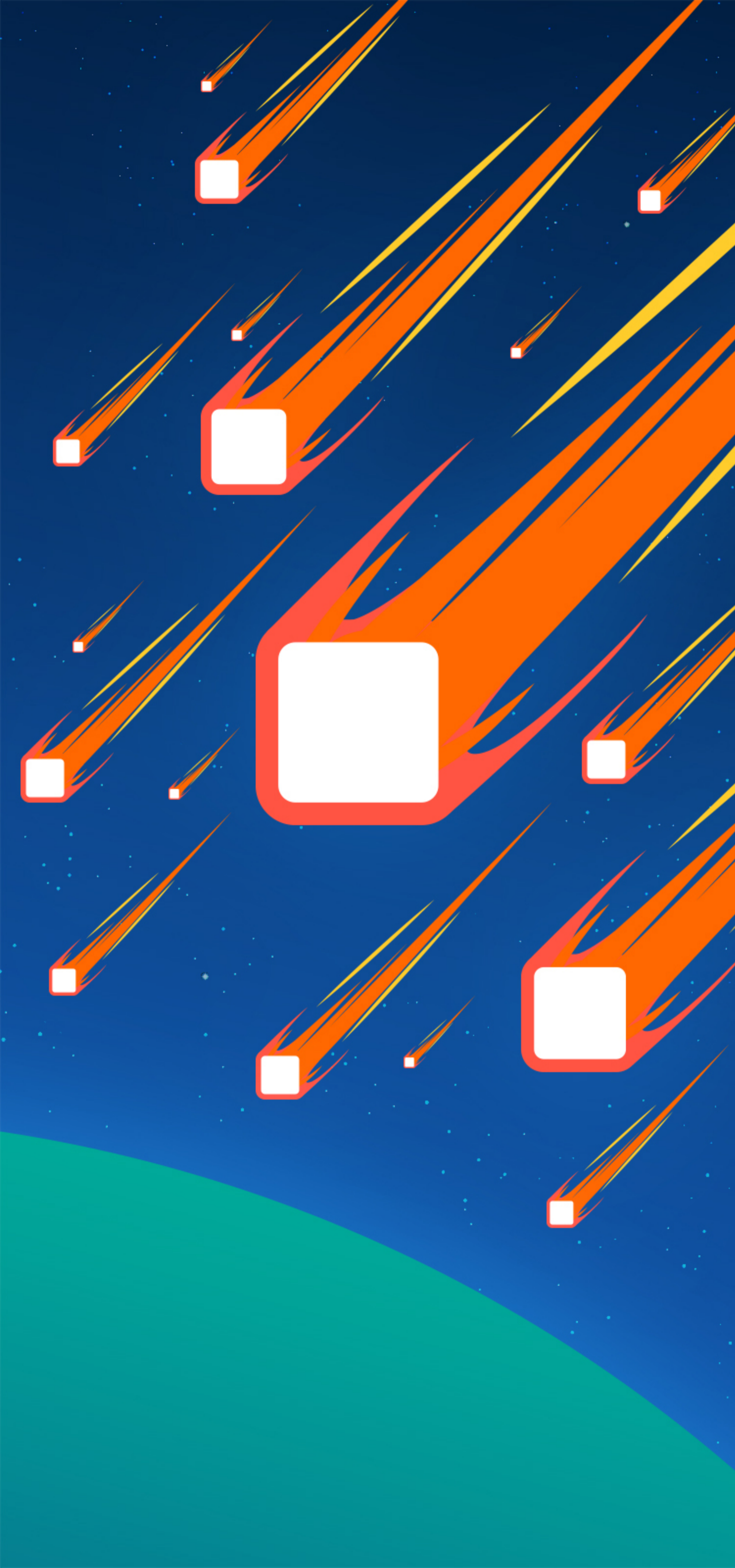
Most importantly, trade contractors work on multiple different projects with multiple, different general contractors. This means that trade contractors are logging into different systems to manage their projects. However, using all these different systems does nothing for a trade contractor to manage their projects holistically and improve accountability and collaboration between the field and office team.

Mitigate Risk with a Trade Contractor System of Record

It becomes an easy justification for trade contractors to use their GC's system, but it is a very risky practice. The argument many trade contractors use is that they don't want to create a daily report in their system and create one in their GCs system. Unfortunately, that is a poor excuse that puts your team at risk.

Trade contractors must be diligent in their documentation as it serves as the prime evidence in any construction dispute. Because of its roots in construction consulting, eSUB Construction Software is purpose-built for trade contractors in transforming the reactive claims and dispute process to a proactive documentation workflow.

Through the eSUB Field Works mobile app, users capture information directly from the field and share it in real-time with the office. This allows the trade contractor's employees in the office to instantly communicate with the general contractor regarding any relevant issues from the field. Documentation created out of eSUB is date and time-stamped to provide a historical timeline of the project. eSUB software provides an easy to use collaboration process that automates the 'due diligence of documentation' and is designed by consultants with construction law advisory specifically tailored for subcontractors. Legal context of correspondence templates provides further standardization to ensure your company gets paid for the work that it has performed and that construction disputes and claims can be avoided altogether.
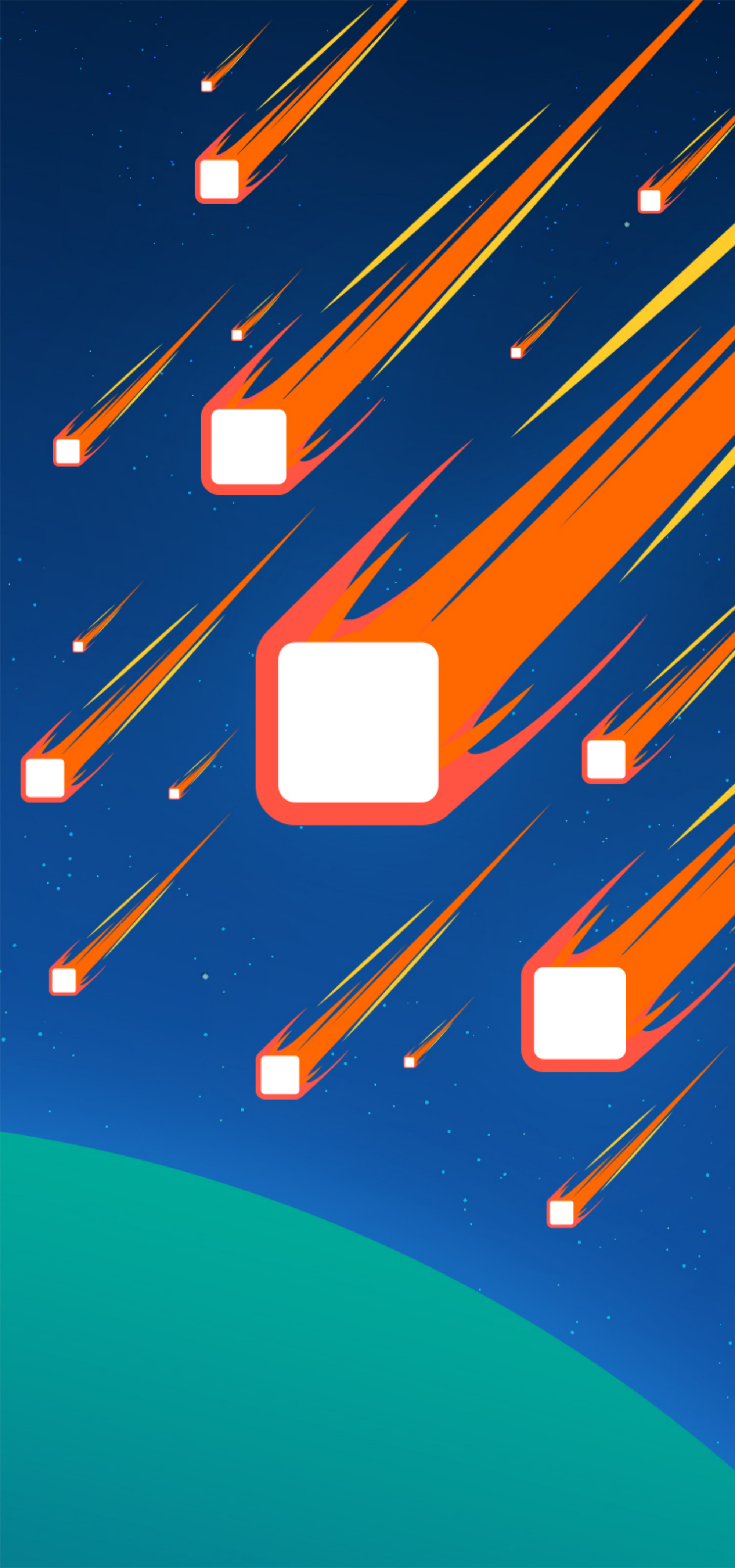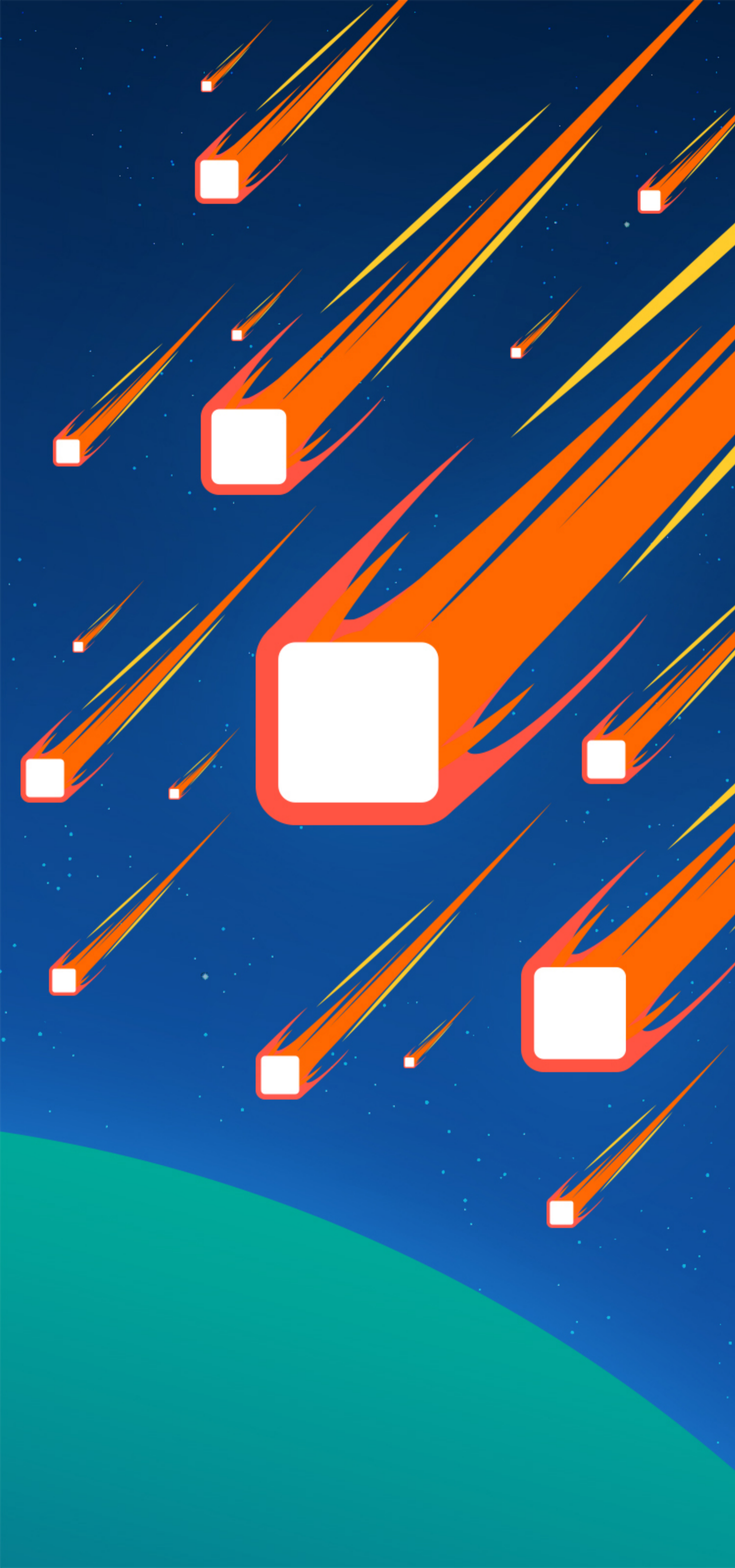
For some general contractors, a simple email of the eSUB daily report will suffice. They then save that daily report into their GC-based project management system. However, even if you have to do duplicate data entry into your own system and your GCs—at the end of the day, using your own system allows you to collaborate with your internal team, own your own data, and have a thorough archive of the project.

Purpose-Built Solution for Trade Contractors

Workflows to Track Productivity and Profitability

When trade contractor's use their GC's project management system and not one of their own, there is no way for them to track and manage their projects at a holistic level. Trade contractors work with on multiple projects simultaneously with multiple different general contractors. Thus they are entering information into multiple different systems. Many times, the only centralized system they are using to collectively track project information are spreadsheets and their accounting system. Unfortunately, relying on one's accounting system to manage projects and provides financial information at least 2-4 weeks late. This is too late. Project Managers need project information regarding issues, labor costs, materials installed in real-time. With real-time information, project managers can proactively manage projects and make adjustments and corrective actions to keep a project on track. Relying on outdated information may be too late to make any adjustments. Mitigating the risk of labor and understanding project costs are the highest priorities for trade contractors and can quickly erode profits if not detected, documented and formally submitted promptly.
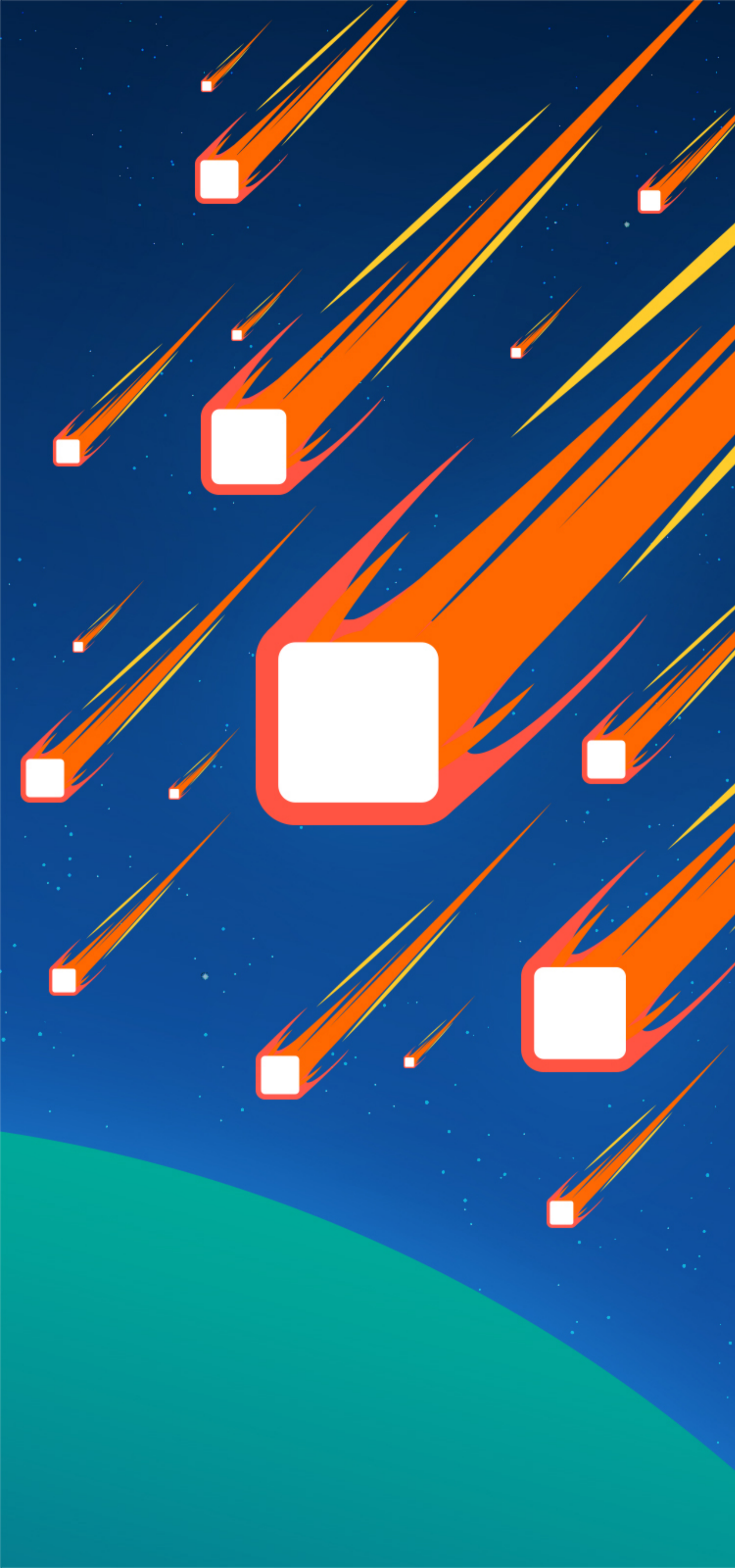
Because trade contractors perform the majority of labor on projects, labor is their biggest risk on a project. Trade contractors need a project management system to track labor productivity and project deliverables in real time. eSUB begins tracking a project from the design or estimate stage with budgeted material and labor costs broken out into systems, phases and cost codes according to a work breakdown structure. eSUB's easy to use mobile app can capture live data from the field to deliver meaningful information and track actual costs to the estimated costs. This method of a work breakdown structure and full cycle job costing is critical for trade contractors. Construction project management systems purpose-built for trade contractors such as eSUB deliver this granularity when managing projects to ensure their teams are productive and their projects are profitable.

Proof of Concept: Pacific Rim Mechanical

Recognized as one of the premier mechanical contractors in Southern California, Pacific Rim Mechanical places a high priority on delivering projects successfully. With different departments including design and engineering, pre-fabrication, commercial construction, and maintenance services, Pacific Rim Mechanical has a varied technology ecosystem:

- **Accounting was using Sage 300 for financials and job costing**
- **Design was using Autodesk products**
- **Operations team was using spreadsheets and Prolog which didn't offer any field capabilities**

"Our operations team was emailing spreadsheets back and forth and running remote desktop and Citrix to access Prolog," says Alan Bretschneider, IT Director for Pacific Rim Mechanical. "When we looked at our processes, we knew that there had to be a way to get information to the field quicker. The growth in cloud technology was appealing to be able to access information from iPads and smartphones."

Previously Pacific Rim Mechanical tried to use an "all-in-one" solution that all departments could utilize. While the all-in-one system worked well, there were always pieces that were missing. However, since moving to a best-of-breed solution that meet the specific needs of our different departments, Pacific Rim Mechanical has been able to make the different departments more efficient.

Mr. Bretscheider continues, "It was not realistic that one system does everything. We have different systems that fit the different needs of our users, and we want to use the best product for each group and not be tied to an all-in-one solution that only does 80% of what we need. It was a great synergy to have eSUB, which specializes in project management for trade contractors like us to link the field and the office and addressing our specific needs as subcontractors, and have that integrate with Autodesk and our Sage accounting system."

eSUB
construction software

contact@esub.com
800.493.3782