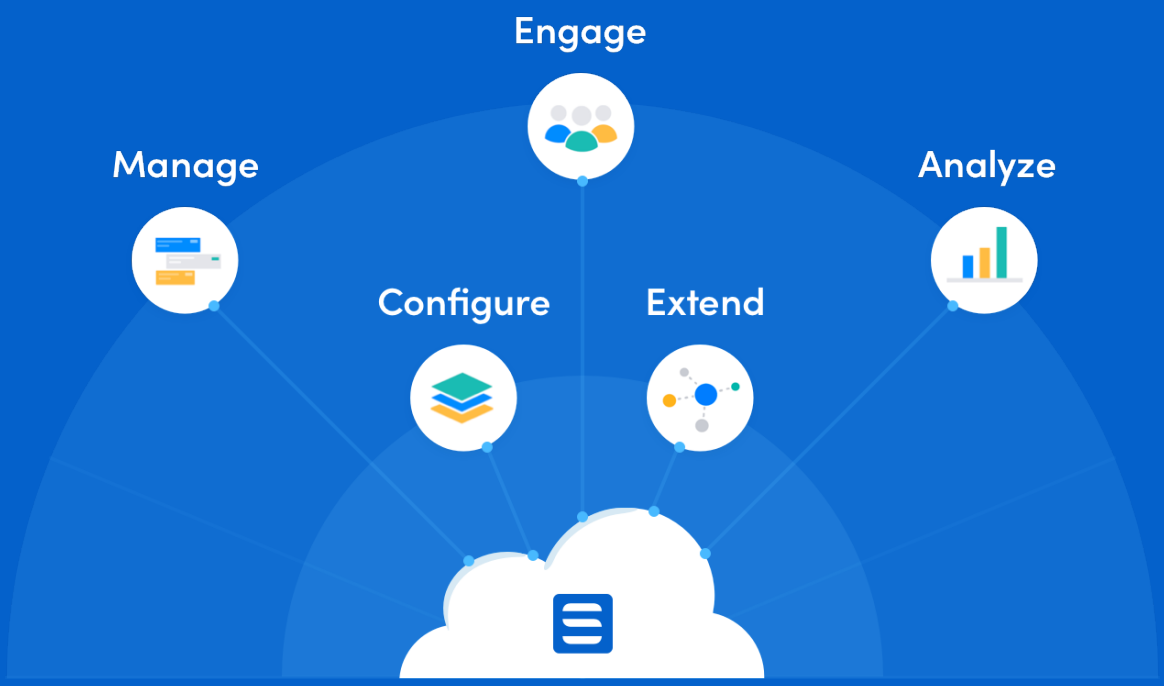
Thought Leadership White Paper

The Evolution of Deskless Work and The Deskless Productivity Cloud



skedulo

The Evolution of Deskless Work

Defining the Deskless Workforce

Employees and workers who don't sit at a desk or in a traditional office setting represent 2.7 Billion individuals - roughly 80% of the global workforce today.

Deskless workers are everywhere and in almost every industry; from retail associates to solar technicians, caregivers and therapists to not-for-profit volunteers, builders to manufacturing workers. In fact, eight individual industry sectors alone each have over 100 million deskless workers.

While some believe deskless work is somehow new, nothing could be further from the truth. When we look at the recorded history of work, deskless workers have always made up the vast majority - and for a long time, the entirety - of the global workforce. The movement and mobility of people and the physical energy of deskless work are evident in the oldest forms of work; desks and office environments are far newer.

Surprisingly, when we look at the relative investment in technology built for deskless workers we see a very disproportionate picture: *only 1% of software venture funding has flowed to companies focused on the deskless workforce and their productivity.*

Breaking Down the Technological Barrier

There's actually a perfectly reasonable explanation for why the relative investment in software has been so low for this demographic. In order to build software to benefit a particular industry or user group, those users must first adopt enabling technology that allows them to access software itself.

For desk-based workers, the major enabling technologies were personal computers (introduced in 1975) and the internet (introduced in 1995). These two developments created a virtuous cycle which unlocked this audience. As more companies adopted computers and the internet for their desk-based workers, the size of the addressable market for desk-based productivity software increased. This spawned software companies to build for this market, which resulted in venture capital investing in those companies. Huge competitive categories for desk-based software emerged like CRM, HRIS, ERP, SCM and Desktop Operating Systems which delivered multi-billion dollar household names; Salesforce, Workday, Oracle, Microsoft and Google, just to name a few.

But while this market evolved rapidly, the enabling technology for the deskless worker was relatively non-existent. Most workers in the field operated off paper and a clipboard, storing the data in filing cabinets or manually transposing it into desk-based systems at the end of the day. Their daily lives didn't operate around any portable hardware technology with computing power, so there was a barrier to building software for them.

Then, in 2007, the iPhone was released, and the flood of smartphones that followed. Smartphone adoption has transformed this workforce from using simple clipboards to rich handheld devices promising endless opportunities for productivity optimization.

Coupled with smartphone adoption, the emergence of cloud computing and the improvement of wireless services such as LTE (and soon 5G and satellite wireless internet connectivity) enabled businesses to start reimagining how they manage their workforce, how they engage with their workers in the field to deliver work, and how they analyze their business to drive performance.

These three technologies have only existed together to a degree to facilitate meaningful change for the last 8 years. Only now have mobile devices become powerful and widely available enough, wireless connectivity pervasive enough, and cloud computing accessible enough to support the complex needs of modern deskless workers.

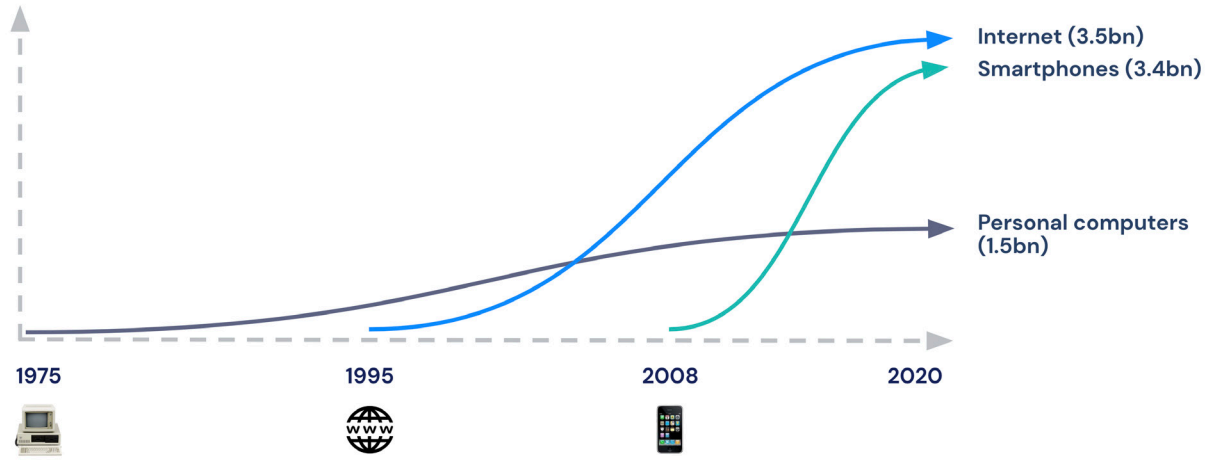


Figure 1. Global technology adoption of Personal Computers, Smartphones and the Internet

A Fragmented Ecosystem for Deskless Productivity Software

In recent years we have seen a number of solutions emerge to serve the needs of the deskless workforce. However, as is true for any technology segment that is in the early stages of rationalization, the options available for companies and organizations with deskless workers are highly fragmented and disconnected. The market has seen these technologies evolve in three primary technology groups:

Industry Vertical applications: These are applications that are somewhat fullstack in their approach to solving problems both for the desk-based (back office) and deskless workforces in a given industry. Healthcare, real estate, retail, manufacturing, and delivery & logistics all have inclusive technology built to serve the specific workflows and complexities those industries face, but they lack essential configurability and scale capabilities.

Horizontal applications: These applications have been built for one part of a deskless workforce's process, but more horizontally applicable than a single industry. Timesheet software, messaging applications, work management and calendaring products, and document and collaboration tools all fall into this category, as they are individually applicable to the lifecycle of deskless work and its workers. Like vertical applications, these solutions fall short in their ability to scale, particularly for mobile work environments.

Agnostic business platforms: These are platforms originally built for desk-based workers but have extended their product capabilities to support the deskless workforce in some way. CRMs, ERPs, HRIS, Service Management and General Business platforms from Salesforce, Microsoft, Oracle, SAP and ServiceNow have all added mobile interfaces and generic capabilities or made product acquisitions to extend their core offerings. However, these platforms suffer from a lack of focus on the needs of the deskless worker.

Agnostic business platforms are considered because vertical and horizontal applications are so limiting. The promise of a platform includes:

1. **Configurability - their workflows do not match those of an existing product offering.** Deskless work involves complex workflows that have grown organically over time. Although many use cases seem similar, most are unique in some way, and one-size-fits all solutions fall short. For example, we see this occur with traditional Field Service Management (FSM) solutions, where companies looking to FSM providers struggle when they can't configure the solution to meet their specific workflow.

2. **Extensibility - they aren't able to build on top of the existing product offerings or integrate them with other systems of record.** To optimize deskless productivity, data must flow to and from existing systems of record. Whether this is a patient's care plan, a resident's address for a solar installation, or hazard notes on a client's site, this information is often sitting in systems like CRMs, ERPs, or EHRs that need to integrate with one another. Being able to extend a solution and then build upon that solution to create competitive advantages is critical as companies scale.

3. **Breadth of capability & maturity - they need a platform and technology that aligns with the complexity and magnitude of their challenges.** As companies mature and grow, they typically graduate in their enterprise architecture to adopt multi cloud and best of breed solutions, with each of the core pillars of the organization demanding dedicated systems to perform. Just as the sales function uses CRM, human resources uses HRIS and finance uses ERP, the same is true for the deskless workforce. Industry products that do many things to a shallow depth of capability don't offer the breadth of capability or maturity in their infrastructure and security architecture to support these customers.

However, what's missing in the platform landscape today is a platform that was purpose-built for the deskless workforce.

Skedulo began in 2013 as a mobile workforce management application which has been used for over 5 million on-time appointments. 18-months ago, Skedulo recognized the opportunity in the market and expanded its efforts to develop the platform built specifically for the deskless workforce. This investment in infrastructure and technology not only helped Skedulo engineering scale, but delivered what customers themselves have long been seeking: a flexible, scalable, reliable platform that is purpose-built for the deskless workforce.

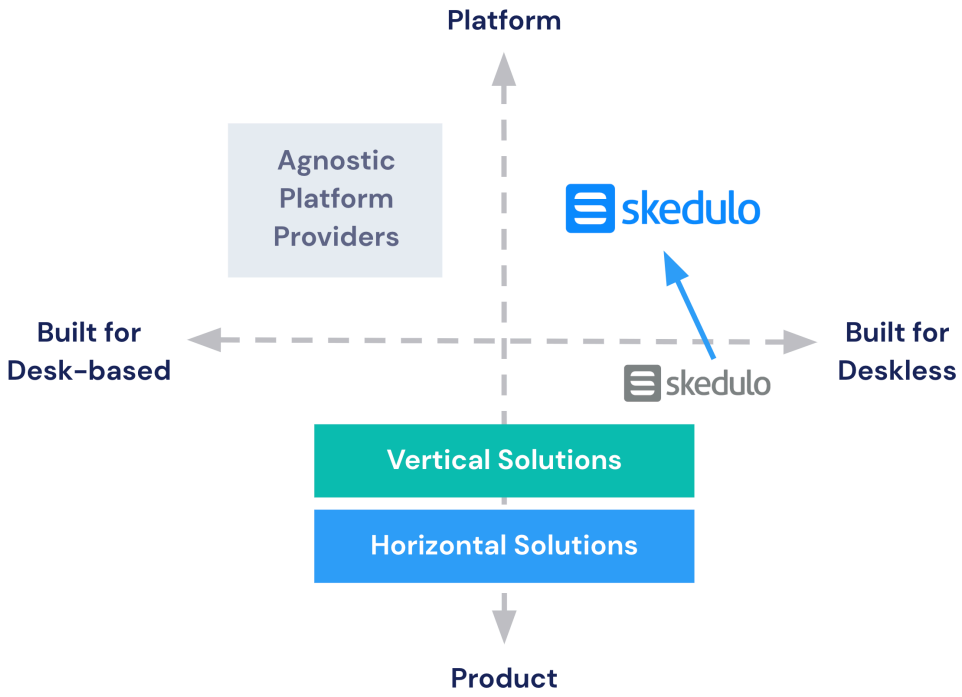


Figure 2. The current ecosystem of Deskless Productivity software solutions

Skedulo and the Deskless Productivity Could

The growing size and importance of the deskless workforce combined with maturing cloud and device technologies has ushered in the new frontier of deskless productivity.

Yet this new frontier is underserved by home-grown technology, tools and apps that focus on only one or two aspects of the deskless workflow, obsolete incumbent software, or platforms oriented around other core business concepts like CRM or ERP offering bolt-on appendages for the deskless workforce.

These conventional approaches to workforce management, field service, time and attendance and other segments of deskless workforce operations have led to crippling levels of fragmentation, complexity, inefficiency and cost.

The Deskless Productivity Cloud answers this call and helps organizations embrace this new frontier with a breakthrough solution that empowers them to manage, engage, and analyze their entire deskless workforce. The Deskless Productivity Cloud is purpose-built to allow organizations across high-touch service industries such as Healthcare, Solar, Nonprofit, and Retail to meet the needs of their business in five main areas:

1. Manage work and organize the schedules of hundreds of deskless workers both mobile and in facilities or other fixed locations;

2. Engage employees and customers through the Skedulo web and mobile applications to encourage collaboration, deliver satisfying experiences, and get more impactful work done;

3. Analyze work results and scheduling patterns to intelligently improve service delivery;

4. Configure a flexible solution tailored to existing business workstreams;

5. Extend the deskless environment to interoperate seamlessly with the surrounding technology ecosystem.

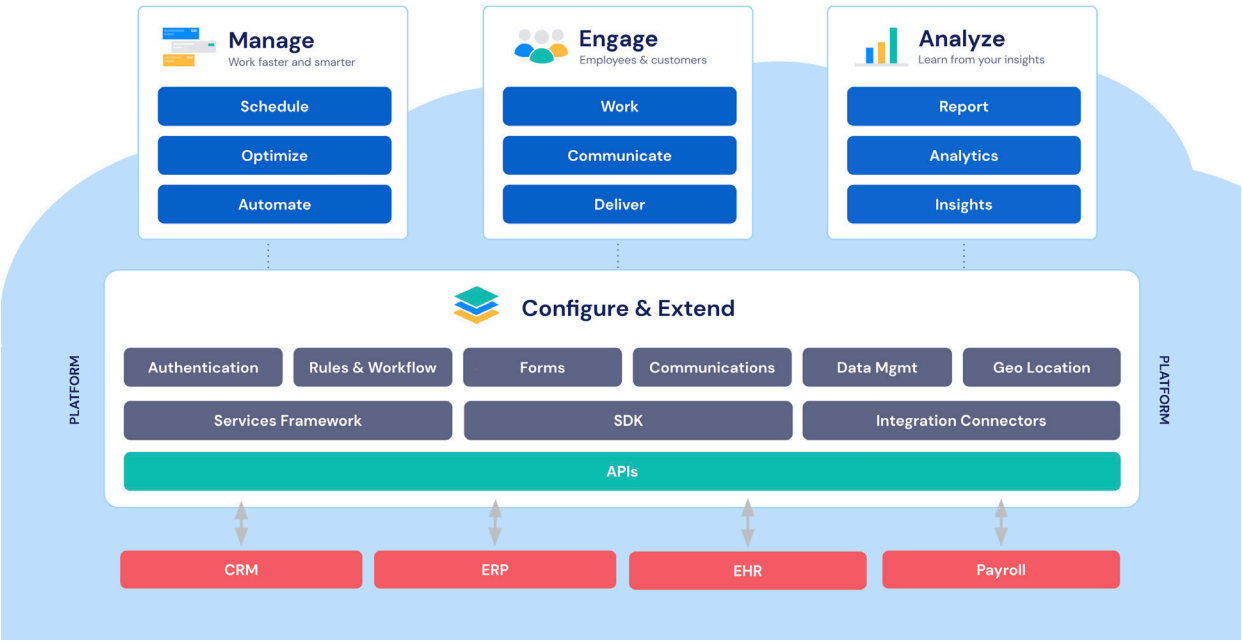


Figure 3. The Deskless Productivity Cloud High-Level Architecture

Manage

Manage is the first core pillar of The Deskless Productivity Cloud. The effectiveness of deskless teams is amplified by how well they're organized and managed. This blueprint starts with the management of deskless workers' profiles; their individual skills and constraints, location and ability to travel, their certifications, and many other unique attributes that are critical to mapping the demographics of the workforce in any organization.

Layering on top of these core demographics is the management and visibility of the deskless workforce's availability. Not simply rough timeframes of when they're available, but the intricate mesh of recurring availability, shifts, rosters and rotas that help structure the patterns of availability and demand.

Then, to complete a rich and dynamic picture of the deskless worker, one needs to be able to factor in the variable un-availabilities and activities that impact an individual's ability to perform work; this includes concepts like leave, holidays, sickness or personal absence, and the other activities that are part of working life like training, meetings, personal development or work preparation.

Once this blueprint of the worker demographic is complete, an organization can then manage work itself, and answer the questions of what, when, where, for whom, and by whom so it can be effectively performed.

There are many ways that work can be organized and allocated to the workforce that are typically closely connected to the business models and processes that have shaped the way companies get work done for decades. Whether they are optimizing for resource

efficiency, a balanced workload across all resources, speed of job completion or other business rules, The Deskless Productivity Cloud helps companies maintain the values that make them competitive and valuable, whilst exploring new and automated ways to improve the effectiveness of their deskless workforce.

With a strong foundation in the data that helps companies understand when people are available and the unique characteristics of their capabilities, the scheduling and allocation of work can be optimized through both the power of algorithms and rule application, or high-powered visual displays designed to support complex decision making. The Deskless Productivity Cloud does not make the assumption that the sequencing and scheduling of work happens in the same way for all companies - in fact the amount of variation in the timing, inputs and process of assigning both time and allocated resources to a unit of work are quite varied. Whether work is a one-off appointment, or shaped around the ongoing recurring shifts and rosters of a workforce governed by time and attendance constraints, the Deskless Productivity Cloud provides an environment and technology suitable to address the full spectrum of work management, organization and allocation.

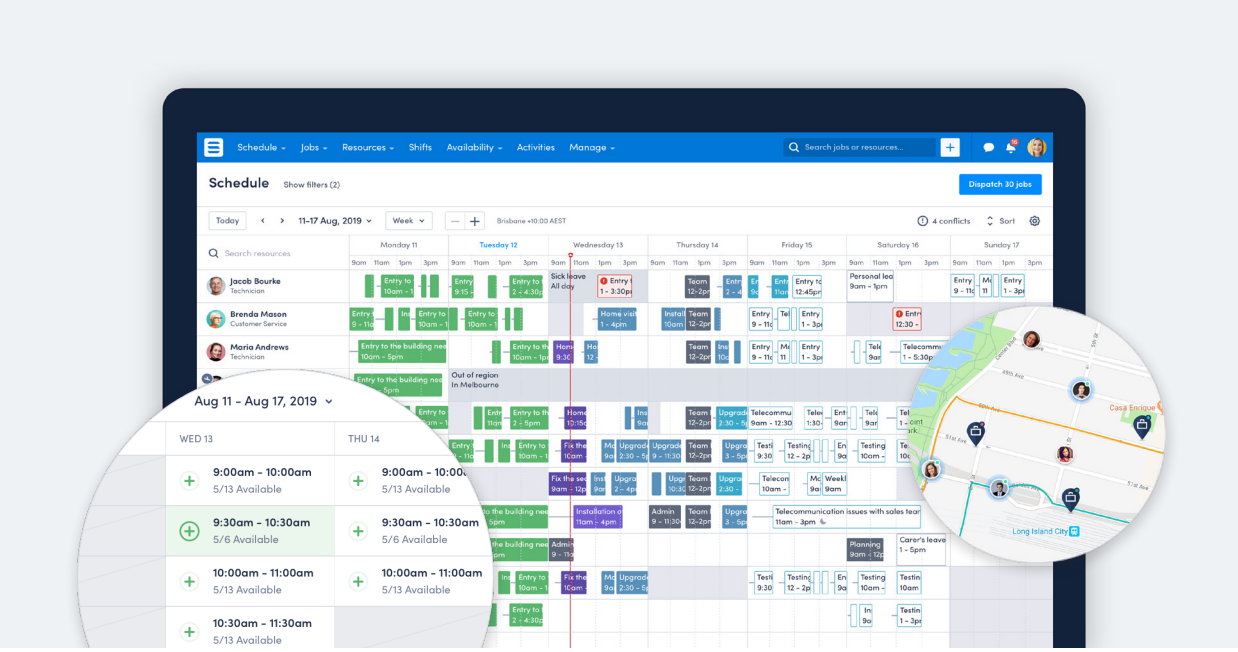


Figure 4. The Manage capability: Schedule, Optimize, Automate

Engage

With the workforce well managed and work scheduled, it can then be engaged with and performed; this forms the second core pillar of The Deskless Productivity Cloud.

Engagement with work happens in two primary ways; structured interaction and unstructured interaction. The Skedulo mobile application is the medium and operating system for both structured and unstructured interactions to occur as work is dispatched and transferred to the responsibilities of the workforce itself to perform.

Structured engagement is represented by the data and capabilities that help a worker understand what they have to do over a period of time, where they have to go, who they're doing it for and when they have to be there. The data and information that helps them execute their day/week/month from the palm of their hand and update the organization with information about when they arrive, notes and photos taken, data updates and any other information pertinent to the execution and completion of work. Forms and workflows are able to guide the worker through their day and through the various sequences and data collection processes critical to completing units of work during their day.

Unstructured engagement is represented by the many conversations, moments of collaboration and communication that can occur from worker to worker, worker to scheduler, scheduler to scheduler and worker/scheduler to end-customer. Conversation and communication is as much an amplifier of productivity as structured data updates and algorithmic optimization. It's critical to facilitating human engagement and the interaction that's necessary for any workforce - but even more critical to a deskless workforce that is inherently remote and disconnected from the valuable human engagement that shapes company culture, employee retention and job satisfaction.

As the fundamental operating system for the deskless workforce, The Deskless Productivity Cloud becomes the means in which all of this engagement and communication occurs; reducing inefficiencies and costly delays in communication or misinformation.

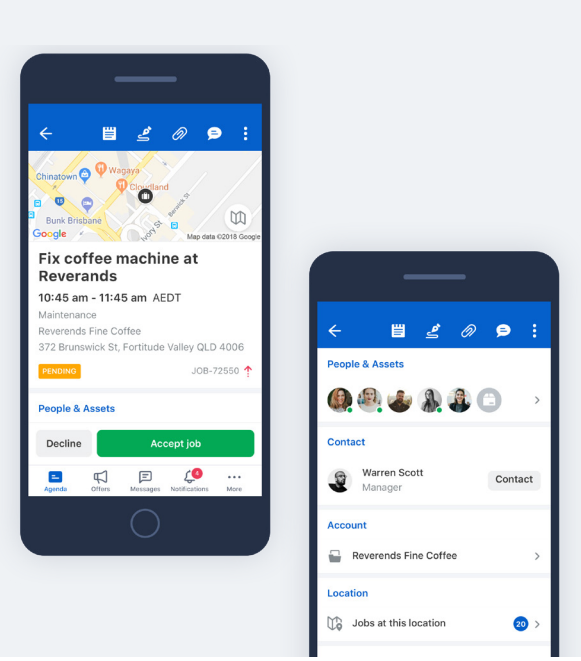


Figure 5. The Skedulo mobile application is the basis for the Engage capability: Work, Communicate, Deliver

Analyze

The third pillar of The Deskless Productivity Cloud is Analyze. Effective management and engagement of the deskless workforce introduces the opportunity to measure and analyze the meaningful change that The Deskless Productivity Cloud will introduce to any organization. Skedulo Analytics helps management, leadership and operations teams transform data into actionable insights and visually analyze performance, build dashboards and perform ad-hoc analyses instantly.

Skedulo Analytics connects decision making and data to deeper intelligence capabilities that learns the cadence of work and helps to automatically detect anomalies and abnormalities as work progresses in real-time.

The modern deskless workforce needs not just superior systems of management and engagement, but also help visualizing and understanding data in order to see the opportunities in their business to continually improve. This reinforces competitive advantages and helps companies continue to delight their end-customers.

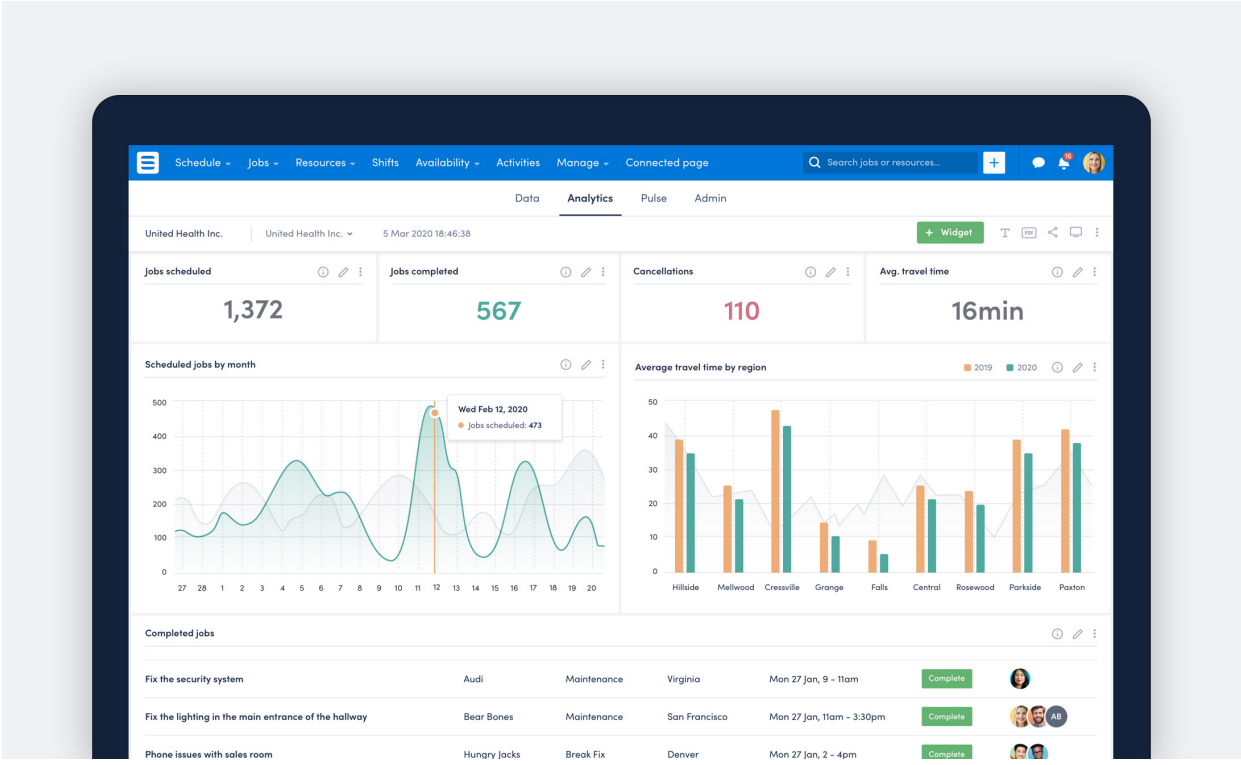


Figure 6. The Analyze capability: Reporting, Dashboards, Action

Configure & Extend

Underneath the core pillars of Manage, Engage and Analyze and their associated products that make up The Deskless Productivity Cloud application layer, there is the Skedulo Platform. The Skedulo Platform is designed to provide scalable cloud infrastructure and security, technology services anchored on the core challenges met by the deskless workforce, and a configurable, extensible and customizable environment to support organizational innovation.

This enterprise platform is able to truly support the diverse needs of the many industries, business models and processes that represent the deskless workforce. It is the unique workflows and processes that are so closely connected to the core operating functions of work that demand a platform that is both non-specialized in its ability to provide the operating environment for problem solving - but also anchored around the fundamental principles of the deskless workforce.

The Skedulo platform facilitates the development and user experience of apps and services to extend upon the value and workflows provided by the applications of manage, engage and analyze, whether web based in HQ or on the Skedulo mobile app.

All core applications, as well as ones implemented by an individual organization on this platform, can leverage the shared platform services dedicated to the functions of the deskless workforce. One such service forming part of the platform is the application of intelligence and optimization, either in robust multi-node mass-optimization processes for complex route calculation or real-time

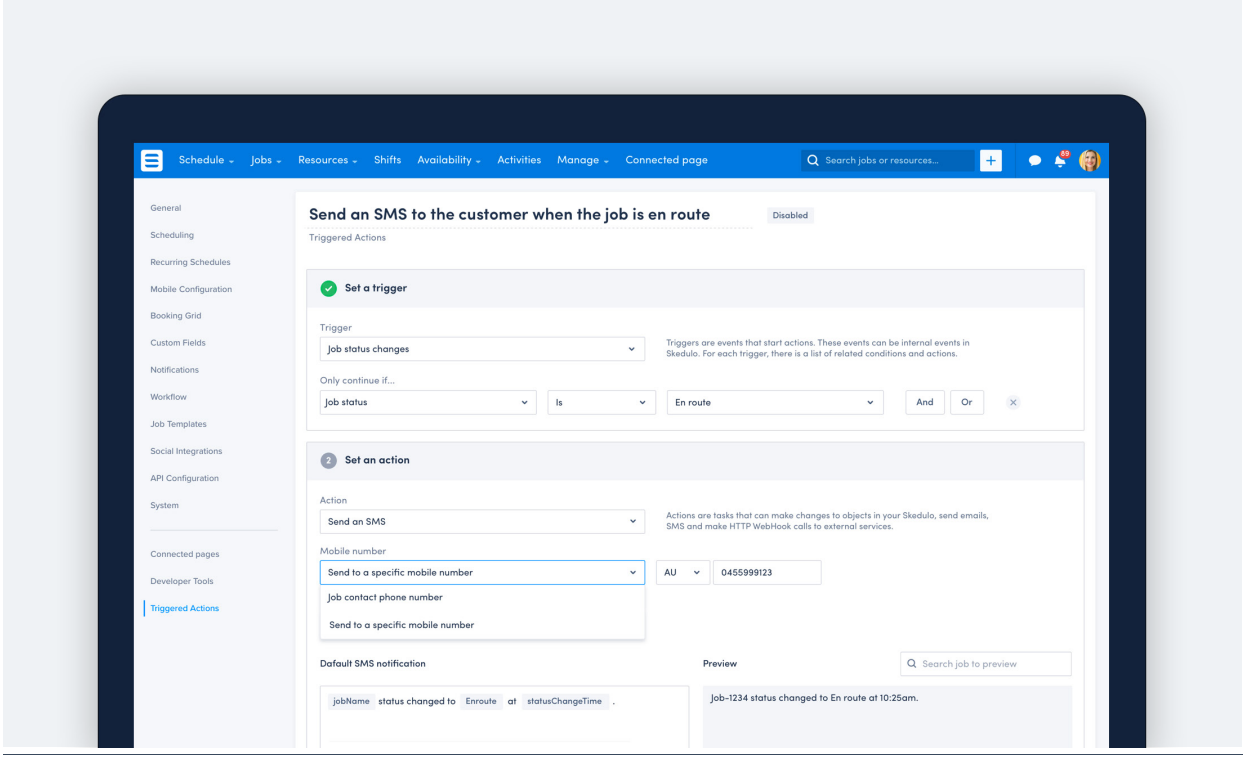


Figure 7. The Configure & Extend capabilities: Platform, Workflow, Integrations

multi-dimensional intelligent suggestions for decision making, time or appointment suggestions, resource allocation suggestions and others.

In the Skedulo Deskless Productivity Cloud, this is referred to as "purposeful optimization" and implies that optimization and automation isn't limited to large, monolithic and predominantly linear workflows, but can be applied to the sometimes messy, often non-linear workflows that represent the life cycles of the deskless workforce.

This diversity of needs in the market that we serve are the reason why a purpose-built platform must exist to support it, and we have made significant investments as a company in developing that platform.

Championing the Deskless Workforce

Skedulo's mission as a company is to "champion the deskless workforce through the power of our platform built to organize and enrich working life". We care deeply about championing this demographic that has been historically underserved and addressing the operational inefficiencies that can be solved through investing in technology.

We believe that there is an opportunity to make improvements by an order of magnitude to how these workers go about their days, and we know that by genuinely delivering value to them and the companies that they work for, everyone will be more successful.

Through the announcement of The Deskless Productivity Cloud, we are boldly stepping into the next frontier of deskless work and ushering in a new reality of what is possible for this workforce. As we continue to strengthen our own core capabilities and encourage others to build on and extend our platform even further, we will see increasing benefits accrue to our customers and their end-users.

Ultimately, we believe that the size and demands of the deskless workforce warrant their own enterprise platform for Deskless Productivity and we are proud to be delivering that to stand shoulder to shoulder with the other enterprise categories that have matured to date.

If you'd like to learn more about The Deskless Productivity Cloud and how it may be of value to your organization, please visit www.skedulo.com to view a demo or connect with our sales team.

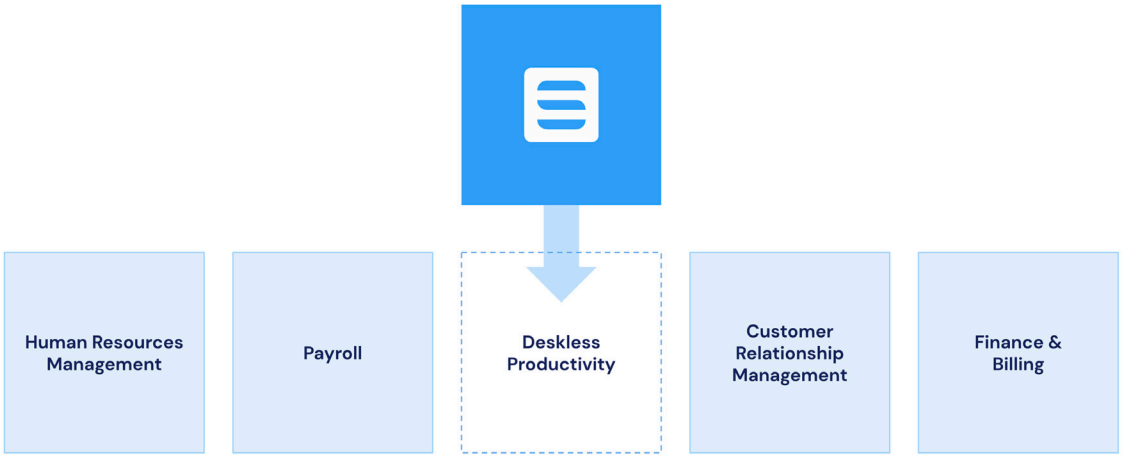


Figure 8. The size and unique demands of the deskless workforce warrant their own enterprise platform for Deskless Productivity

Skedulo

Founded in 2013, headquartered in San Francisco and with offices in Australia, Vietnam, and the United Kingdom, Skedulo has enabled over 160 organizations, including The American Red Cross, Easterseals Bay Area, and Sunrun to seamlessly schedule and service more than 5 million appointments around the globe.

Skedulo's leading Deskless Productivity Cloud solution empowers organizations to manage, engage and analyze their deskless workforce and is built to integrate with business-critical systems including Salesforce, Zendesk, ServiceNow, Workday, Epic Systems, and multiple electronic health record (EHR) solutions through a partnership with Bridge Connector.

The company has secured more than $40 million in funding to date, led by M12, Costanoa Ventures, and Blackbird. For more information, please visit www.skedulo.com, or our blog, @Skedulo, Facebook and LinkedIn pages.

Skedulo HQ

San Francisco, CA
855 753 3856

London, UK
+44 7780 437404

Brisbane, QLD
1300 558 801