



# Robotics-as-a-Service: Accounting for Robots Just Like Any Other Operational Expense

EXPLORE MAINTENANCE, UPTIME, AND COSTS FROM  
INDUSTRY EXPERTS AT FORMIC.



# Brief Overview of RaaS

Just as Salesforce™, IBM™, and thousands of companies provide Software-as-a-Service (SaaS), the “as-a-Service” model has expanded to include hardware and equipment. From the residential solar power industry, to internet service providers, and now industrial automation, Software-as-a-Service and Hardware-as-a-Service are starting to merge into one single offering. User organizations are benefiting with boosted productivity from the abstraction away from tasks that fall outside their core business, freeing up more resources for core business activities and growth.

In the world of automation and manufacturing, that service is commonly called Robotics-as-a-Service, or “RaaS”.



**With zero capital investment, manufacturers can reap the benefits of automation typically at a rate that is lower than costly labor and without the headaches of high-turnover**

To compare, just as Salesforce provides all the cloud hardware, infrastructure, tools, services, and support for CRM, similar-ly, RaaS provides a similar all-in-one service model. For one monthly rate, RaaS includes the project design scope, the system engineering, the procurement and financing of the system, the installation and implementation, the maintenance and the upkeep of the robot. The emerging model of RaaS has raised a lot of questions due to its new, unprecedented nature. One major question asked by many manufacturing leaders- How should RaaS be accounted for? In other words, is it a lease or is it something else? This paper dives into those important questions.

# Accounting Guidance for Robotics-as-a-Service with ASC

**Disclaimer:** Formic is not an accounting firm and we do not give accounting advice (which we recommend should come from a company's own accountants); however, we can share observations on how others approach and account for services similar to RaaS. Generally, for questions regarding accounting standards, including how to determine whether a contract is a lease for accounting purposes, one would consult the Accounting Standards Codification ("ASC") from the Financial Accounting Standards Board ("FASB").



# All Signs Indicate that RaaS is *Not* a Lease

At its simplest form, if a RaaS agreement is found not to be a lease then it is likely to be a service contract which is governed by ASC 606. Therefore, to arrive at the accounting treatment for RaaS, the first step is to determine if it is a lease.

## SOCIAL DEFINITIONS OF A LEASE

One common misconception about RaaS is that it is “just like a lease”. Before getting into the financial accounting definitions, it is important to understand the philosophical definitions of a “lease”. In laymen’s terms, there are a couple reasons why RaaS is not a lease:

1. A lease is strictly a financial tool and does not include any of the benefits of SaaS or RaaS. The option of leasing automation equipment has been available for a long time, but in that case, companies are working with financial institutions to simply finance an asset. The manufacturer does not get any of the automation services that maximize the asset’s productivity in their business; namely, performance services, monitoring, maintenance, support equipment insights, upgrades, and more. The only service component of a lease is the financial lending service.
2. RaaS does not allow for purchasing the equipment at the end of the service contract or the retention of any intellectual property typically found in capital leases and purchases for system design — just as businesses cannot purchase any part of Salesforce’s cloud equipment at the end of a CRM contract, the same is true for the robots in RaaS.

RaaS is designed for companies who are focused on the economies of scale of their core business and don’t want to build robotics expertise — which may include hiring full time robotic engineers. Both RaaS and leasing may involve a similar underlying asset, however, with RaaS the asset is incidental to the experience of the customer whereas with a lease the asset is the focus of the customer’s experience. For example, when ordering a ride from Uber or Lyft, the focus is the transportation provided (in a clean, safe, on-time manner, where gas, insurance and maintenance are provided as part of the service) and the vehicle (Ford, GM, Tesla) providing the service is tangential to the transportation service provided. In contrast, when getting a lease or a loan on a car from a dealership, the focus of the customer is on the specific vehicle they are getting (in the case of a loan, they own the asset at the end of the loan, and in the case of a lease, they have the right to purchase the car at the end of the lease).



# “Lease” by Accounting Terms

Formic believes the facts, circumstances, and rules do not lead one to determine that RaaS (at least Formic’s RaaS offering) should be accounted for as a lease — however, to better understand that view, it is helpful to begin by looking at what lease accounting is designed to address. Thus, we will begin with a brief background on lease accounting.

In 1977, the FASB developed ASC 840, which governed accounting for leases. This was necessary in order to implement and differentiate leases from normal contracts.<sup>1</sup> ASC 840 covered both capital leases and operating leases and defined the differences in capital and operating leases, how they needed to be accounted for, and delineated for accounting purposes, whether the customer “owned” leased equipment. Under ASC 840, operating leases were not included on a company’s balance sheet as an asset with an accrued liability; whereas capital leases were required to be carried on a company’s balance sheet as an asset with an accrued liability.<sup>2</sup> In 2016, the FASB changed the rules for lease accounting by releasing ASC 842 to increase stakeholder’s visibility into a company’s financial picture.<sup>3</sup> ASC 842 took a more marked approach by requiring all leases to be carried on the balance sheet. This change means that companies now add all leased equipment to their balance sheets as both an asset and liability.<sup>4</sup> In turn, this change has caused companies to have to carefully evaluate leases, since many creditors and equity partners have stringent debt covenants that one could unwittingly run afoul of under the new accounting standards.

In looking at the requirements of a lease, we must understand the definitions of the terms and phrases used. An asset is typically considered “identified” if it is explicitly specified in the contract,<sup>5</sup> although implicit identification may also be made in some circumstances. However, this language is not dispositive as one must also keep in mind “all of the relevant facts and circumstances”<sup>6</sup> — meaning that one must look at the underlying substance of the transaction rather than simply the form shown.

**The new FASB lease accounting rules, specifically ASC 842, defines a contract as a lease if it “conveys the right to control the use of the identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration.”<sup>7</sup>**

1. Wikimedia Foundation. (2022, August 8). Accounting for leases in the United States. Wikipedia. Retrieved September 20, 2022, from [https://en.wikipedia.org/wiki/Accounting\\_for\\_leases\\_in\\_the\\_United\\_States](https://en.wikipedia.org/wiki/Accounting_for_leases_in_the_United_States)

2. Changes to lease accounting standards: Deloitte US. Deloitte United States. (2020, April 24). Retrieved September 20, 2022, from <https://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/changes-to-lease-accounting-standard.html>

3. Id.

4. Id.
















5. ASC 842-10-15-9

6. ASC 842-10-15-7

7. ASC 842-10-15-1 and 842-10-15-3

# Exploring Formic's RaaS Model, Specifically

Formic's agreement with its customers is to provide start-to-finish "results" for the customer based on a service level agreement around the system performance and output metrics. Manufacturers only pay for the final productivity results. Formic provides the upfront design, implementation, and installation of the system and all ongoing maintenance and parts. Formic monitors the system in real time with a goal of identifying and remedying any issues before a problem occurs.

	Without Formic	 FORMIC
Application Scoping	 Review Fees	 NO Review Fees
Engineering Design	 Design Fees	 NO Design Fees
Implementation	 Implementation Fees	 NO Implementation Fees
System Upgrades	 Upgrade Fees	 NO Upgrade Fees
Downtime	 Emergency Maintenance Fees	 NO Emergency Maintenance Fees
Unforeseen Expenses	 Maintenance Fees	 NO Maintenance Fees
Recurring Payments	 Lenders, Maintenance, and Insurance	 Flat Monthly Payment

Although Formic's RaaS agreement lists the assets being installed for the customer (one of the aspects that may make a contract a lease) it is not a lease because the assets are not "controlled" by the customer — from the customer perspective, setting out the assets Formic intends to use (but could change) is to make sure Formic's RaaS solution will fit into the customer's facility (space requirements, utility needs, interface with existing machines, structural requirements, etc.).

Under ASC 842, a customer receives “the right to control the use of an identified asset” if the customer has both “the right to obtain substantially all of the economic benefits from use of the identified asset” and “the right to direct the use of the identified asset”.<sup>1</sup>

In order to control the use of an identified asset, the customer must also have the “right to obtain substantially all of the economic benefits from use of the asset throughout the period of use.”<sup>2</sup>

The customer has the right to direct the use of an identified asset if “the customer has the right to direct how and for what purpose the asset is used throughout the period of use”<sup>3</sup> or “the relevant decisions about how and for what purpose the asset is used are predetermined”<sup>4</sup>, and “the customer has the right to operate the asset ... throughout the period of use without the supplier having the right to change those operating instructions”,<sup>5</sup> or “the customer designed the asset in a way that predetermines how and for what purpose the asset will be used throughout the period of use.”<sup>6</sup> In determining whether the customer has a right to direct the use of the asset, the customer must only assess whether it has “rights to make decisions about the use of the asset during the period of use unless the customer designed the asset (or specific aspects of the asset)...”<sup>7</sup>

Under the Formic RaaS, the customer generally has the right to obtain at least some of the economic benefits from the use of the assets which Formic has selected and identified. However, Formic retains the exclusive right to control the use of the asset within the parameters of the service agreement that Formic and the customer enter into — for example, the customer does not have the right to “change how and for what purpose”<sup>8</sup> Formic’s robotic systems are used.

- |                        |                           |
|------------------------|---------------------------|
| 1. ASC 842-10-15-4     | 5. ASC 842-10-15-20(b)(1) |
| 2. ASC 842-10-15-17    | 6. ASC 842-10-15-20(b)(2) |
| 3. ASC 842-10-15-20(a) | 7. ASC 842-10-15-22       |
| 4. ASC 842-10-15-20(b) | 8. ASC 842-10-15-23       |

## ASC 842: TRANSITIONING TO THE NEW LEASE ACCOUNTING STANDARD

Effect on	Income Statement	EBIDTA	Balance Sheet
Finance (Capital) Leases	No change from topic 840	No change from topic 840	No change from topic 840
Operating Leases	No change from topic 840	No change from topic 840	Asset and Lease Liability put on the balance sheet

Under the Formic RaaS, the customer generally has the right to obtain at least some of the economic benefits from the use of the assets which Formic has selected and identified. However, Formic retains the exclusive right to control the use of the asset within the parameters of the service agreement that Formic and the customer enter into — for example, the customer does not have the right to “change how and for what purpose”<sup>1</sup> Formic’s robotic systems are used. Once Formic and the customer agree on the output and the output metrics — chiefly the amount and type of output over a period of time — the customer loses the ability to control the “how” of how the system achieves the output metrics. The customer does not design, engineer, install, or maintain the system — thus the customer retains no right to make any “relevant decisions about how and for what purpose an asset is used.”<sup>2</sup>

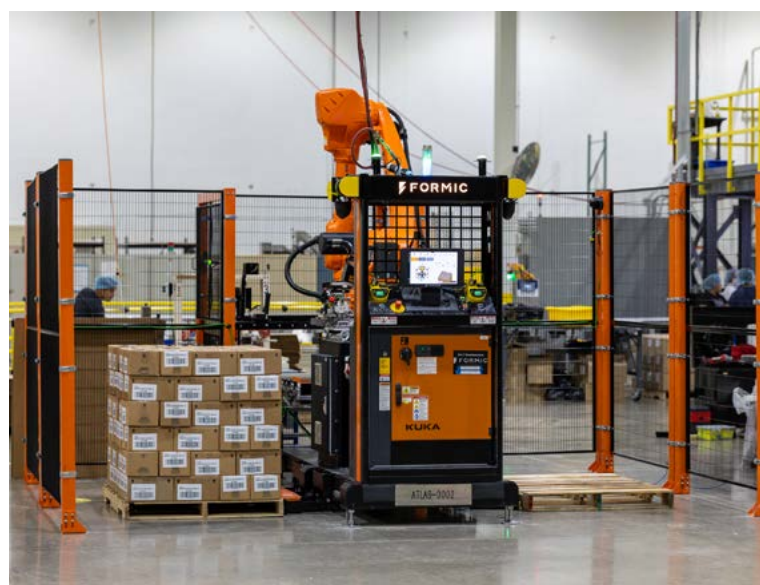
ASC 842-10-15-22 gives an example of a situation where the customer does not retain the “right to direct the use of an asset”.<sup>3</sup> The situation given in the example is as follows — the “customer is only able to specify the output of an asset before the period of use, the customer does not have the right to direct the use of that asset. The ability to specify the output in a contract before the period of use, without any other decision-making rights relating to the use of the asset, gives a customer the same rights as any customer that purchases goods or services.”<sup>4</sup>

Much like that example, under Formic’s RaaS, the customer only has the right to direct the output of the robotics systems, including the metrics to be achieved, prior to the use period; it does not dictate how that output and metrics are achieved, so long as the system achieves the desired output and output metrics agreed upon in the contract with Formic. Formic’s terms and conditions further prohibit the customer from interacting with, modifying, or manipulating the robotic system in any way, other than agreed upon operations necessary to achieve the desired outputs (e.g. loading bottles, pressing a button to activate a component, etc.).

**Thus, Formic’s customers only have the “ability to specify the output in [the] contract before the period of use...”,<sup>5</sup> which gives them “the same rights as any customer that purchases goods or services”<sup>6</sup> and further differentiates Formic’s RaaS offering from a lease.**

Whether a customer has a “right of use” is usually determined by whether or not the supplier has a “substantive right to substitute the asset throughout the period of use”.<sup>7</sup> The ASC indicates that the supplier has a substantive right to substitute if “the supplier has the practical ability to substitute alternative assets throughout the period of use”<sup>8</sup> (substitution not prohibited), and “the supplier would benefit economically from the exercise of its right to substitute the asset”<sup>9</sup> (economic benefit outweighs cost of substituting asset).

1. ASC 842-10-15-23
2. ASC 842-10-15-21
3. ASC 842-10-15-25 lists several examples of situations where a customer may have the right to direct how and for what purpose an asset is used. These include the right to change when and where the output is produced and changing the type of output produced. In Formic’s RaaS, the design is created by Formic to achieve a specified output metric.
4. ASC 842-10-15-22
5. ASC 842-10-15-22
6. Id.
7. ASC 842-10-15-10
8. ASC 842-10-15-10(a)
9. ASC 842-10-15-10(b)



Whether a substitution right is substantive is “based on facts and circumstances at the inception of the contract and shall exclude consideration of future events that, at inception, are not considered likely to occur.”<sup>1</sup> If a supplier only has a right to substitute when something happens; such as during a specified period of time, upon the occurrence of an event,<sup>2</sup> or a right of substitution for repairs, maintenance or technical upgrade;<sup>3</sup> the customer is still considered to have the right to use.

In the case of Formic’s RaaS contract, Formic has the sole right to make changes, substitutions, upgrades, and updates to the hardware and equipment for any reason, including to allow the Services to continue to be performed and the RaaS system to continue to achieve the service level agreement (“SLA”) metrics. In the past, Formic has made changes to its systems, at no cost to the customer, in order to facilitate better metrics and accommodate customer’s requests for additional outputs from the same system. For example, Formic programmed additional pallet patterns in its palletizers for one customer in order to allow the customer to have additional pallet patterns, without this being a requirement or being done for repair, maintenance, or a requirement to achieve contractual obligations.

ASC 606-10-15-2 says that all contracts are governed by the rules under ASC 606 unless it falls under one of the exceptions (Leases are listed as an exception).<sup>4</sup>

Formic’s RaaS offering is a contract because it consists of “an agreement between two or more parties that creates enforceable rights and obligations.” Therefore, if Formic’s RaaS offering is not a lease, since it is still a contract, it should be governed by the rules of ASC 606. In general, expenses related to service contracts can be expensed as they become due and are not usually required to be capitalized and amortized or depreciated. Because Formic retains the right to direct the control and use of its systems, and Formic’s customers only have a right to determine the system output and output metrics, it is Formic’s belief that its RaaS offering is not a lease as defined in ASC 842. This is based on the totality of the services it is providing to its customer, and the rights and obligations of each party under its RaaS contract.

Applying the principles above, this means that unlike a lease or a purchase of a robot, Formic’s RaaS payments are generally expensed as incurred and have no impact on the balance sheet.

In general, expenses related to service contracts can be expensed as they become due and are not usually required to be capitalized and amortized or depreciated.

1. ASC 842-10-15-11    2. ASC 842-10-15-13    3. ASC 842-10-15-14    4. ASC 606-10-15-2

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## The 5-step model of New Revenue Recognition in ASC 606

ASC 606 specifies the accounting treatment for all revenue arising from contracts with customers.  
It affects all entities that enter into contracts to provide goods or services to their customers.



# Conclusion

It is important to note that not all “RaaS” companies provide the same contracts and terms. While this paper explored how accounting governance applies to Formic’s RaaS contract, manufacturers should apply the same scrutiny to contracts that stem from other RaaS providers. More importantly, final accounting decisions should be made with the consultation of a Certified Public Accountant, not based on the contents of this paper alone.

Based on our analysis, there are important indications for our Formic RaaS model:

- Formic’s RaaS is not a lease.
- Since it is not a lease, applying definitions of ASC imply that RaaS expenses should be expensed as incurred.
- Since it is not a lease, applying definitions of ASC imply that automation equipment used with RaaS contracts should not be on a company’s balance sheet.

**If you have any questions about Formic or our RaaS model, please contact us. Our mission is to transform American manufacturers’ productivity and unlock maximum potential.**





Have questions about the content in this document? Contact:

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### **ABOUT FORMIC**

FORMIC is an automation service provider, focused on unlocking robotic automation for small to mid-sized American manufacturers. Our innovative “Robotics-as-a-Service” model combines financial innovation with a firm understanding of robotics to enable manufacturing customers to deploy and scale automation quickly and with minimal risk.

Our mission is to make “building things” trivial and easy. Every factory should have access to unlimited “labor” through automation without the traditional barriers to entry.

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