A Forrester Total Economic Impact™
Study Commissioned By Sierra Wireless
October 2019

The Total Economic Impact™ Of Sierra Wireless Octave

Rapidly develop and commercialize IoT industrial solutions efficiently

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Project Delivery:
Jan ten Sythoff
Christian Fischer

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Benefits And Cost Comparisons

Solution development cost savings:
$190K

Device management cost savings:
$108K

Reduced time to margin:
9 months

Solution evolution and maintenance cost savings:
$71K

Executive Summary

Sierra Wireless' Octave platform provides a fully integrated device-to-cloud solution that enables companies to monitor their IoT enabled connected assets by securely extracting, orchestrating, and acting on data from these edge-based assets and conveying relevant data to the cloud.

One of the key benefits of the Octave platform is facilitating development of IoT solutions, saving enterprise stakeholders time and reducing cost. Another key benefit is reduced time and cost to scale and manage the solution, which often leverages various elements of the platform's device management functionality. Furthermore, by reducing the time needed to develop and commercialize IoT solutions deployed using the Octave platform, enterprises can realize revenues and margins sooner. Octave also facilitates the evolution and ongoing maintenance required throughout the lifecycle of the IoT solution.

Sierra Wireless commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by using the Octave platform to develop and operate IoT services. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of the Octave on their organizations. To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed two customers with experience of using Octave platform.

Prior to using the Octave platform, customers could either choose to develop their IoT solution internally, at greater risk, or choose a vertical solution, which tend to lack flexibility, require different suppliers for different use cases in each geographic region and are difficult to evolve throughout the solution lifecycle. The Octave platform simplifies the complexity of deploying IoT enabled solutions by making solution development easier, requiring fewer enterprise stakeholder skillsets to manage multiple IoT suppliers and vendors; and simplifying device subscription, certification, and management processes. Because of these benefits, IoT solutions can be made available rapidly and efficiently on a global scale.

Key Findings

Quantified benefits. This analysis compares the costs of developing and operating an IoT solution on the Octave platform with doing so internally. As such, the Octave platform enables three areas of cost reduction in addition to faster time to margin benefits:

Solution development cost savings. Developing an IoT industrial solution internally, including the embedded software development, undertaking a proof of concept and developing and integrating the application typically costs around $400K-$450K. With Octave these costs were reduced by 45%.

Device management, certification and connectivity savings. Developing an IoT solution internally from scratch often requires managing multiple vendors and service providers, certifying devices on a country by country basis, and managing devices and related connectivity subscriptions on an ongoing basis. Octave consolidates all this complexity into a single end to end service for which a predictable subscription fee is charged on a per connected device basis. This analysis found that using the Octave platform reduces overall three-year device management costs

ROI
88%

Benefits PV
$955K

NPV
$446K

by $108K.

Service evolution and maintenance cost savings. The flexibility to support IoT-enabled solution at the edge and cloud enables rapid solution evolution to address various IoT use cases and evolving deployment requirements; furthermore, not having to manage multiple vendors and service providers greatly reduces the cost of maintaining the IoT solution. The reduction in costs achieved using the Octave platform rather than an internal approach came to $71K.

Reduced time to revenue and margin. Developing IoT-enabled solutions using the Octave platform is simpler, requiring only a single supplier. In addition, using the Octave platform, already integrated with cloud service providers, reduces solution development time, typically by 6-12 months. Over a three-year period, this achieves benefits of $77K.

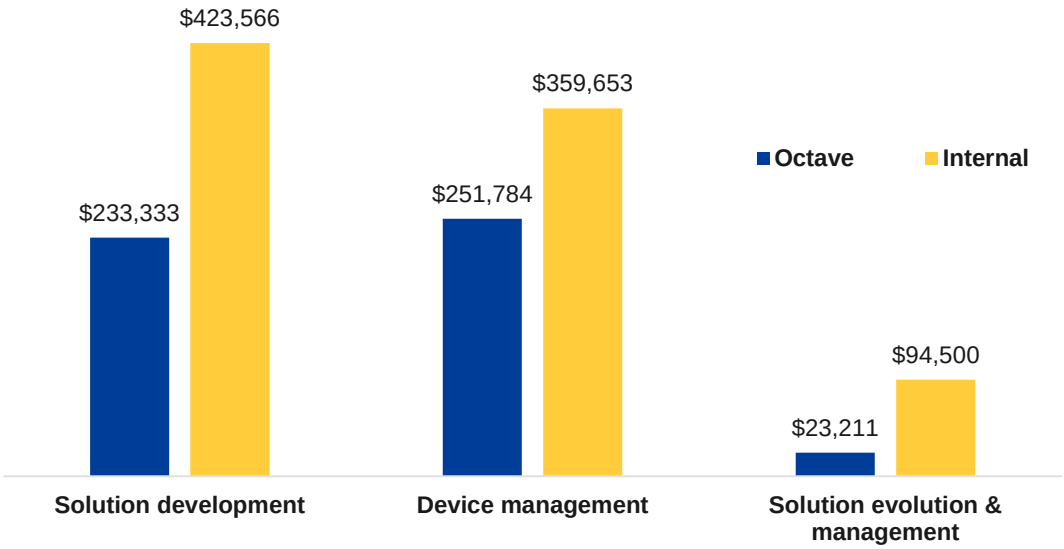
Unquantified benefits. The interviewed organizations achieved the following benefits, which are not quantified for this study:

Improved security: Integrated E2E data orchestration via a data vault and secure data transmission from edge to cloud including rotating security keys and the resilient network enhance security.

Enabled new business models and revenue streams: The data as a service model enabled via Octave offers enterprises the ability to deploy new business models and generate new revenue streams (e.g. pay per unit or pay per use models). This is in part because solution costs are predictable, and maintenance and solution evolution are simple.

Forrester's interviews with two existing customers and subsequent financial analysis found that an organization based on these interviewed organizations experienced benefits of $955K over three years versus costs of $508K, adding up to a net present value of $446K.

Comparison of Octave and internal costs



TEI Framework And Methodology

From the information provided in the interviews, Forrester has constructed a Total Economic Impact™ (TEI) framework for those organizations considering implementing Sierra Wireless Octave.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Sierra Wireless Octave can have on an organization:

The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

DUE DILIGENCE
Interviewed Sierra Wireless stakeholders and Forrester analysts to gather data relative to Octave.

CUSTOMER INTERVIEWS
Interviewed four organizations using Octave to obtain data with respect to costs, benefits, and risks.

COMPOSITE ORGANIZATION
Designed a composite organization based on characteristics of the interviewed organizations.

FINANCIAL MODEL FRAMEWORK
Constructed a financial model representative of the interviews using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organizations.

CASE STUDY
Employed four fundamental elements of TEI in modeling Sierra Wireless Octave's impact: benefits, costs, flexibility, and risks. Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The Octave Customer Journey

BEFORE AND AFTER THE OCTAVE INVESTMENT

Interviewed Organizations

For this study, Forrester conducted two interviews with Sierra Wireless Octave customers. Interviewed customers include the following:

INDUSTRY	HEADQUARTERS	INTERVIEWEE	EMPLOYEES
Industrial Product Manufacturer	Europe	Head of Engineering	4,300
Industrial Monitoring Device Manufacturer	Europe	Lead Project Manager	1,800

Key Challenges

The two organizations were looking to develop new value streams by enabling remote connectivity to their industrial assets using IoT. However, the cost of building, scaling and managing IoT capabilities internally was restrictive, risky and/ or too time consuming. DIY solutions, combining edge devices with back-end infrastructure, connectivity services and efficient SIM and device management while ensuring end-to-end security, require a range of skillsets and resources. Alternative vertical solutions offered in the market were lacking flexibility with a siloed architecture. The three key challenges were:

- **High development costs:** The interviewed companies wanted to avoid high development costs because of the range of skillsets required, which typically include embedded software development, cellular connectivity, cloud integration, system architecture and device management, as well as end-to-end security. These elements all need to come together within a commercially viable service**.**
- **Scale-up and service management risks:** An important issue was also the costs associated with scaling and managing the service. Not only are there cost, and time implications associated with certifying and managing radio frequency devices country by country (and operator by operator) but managing multiple suppliers can make problem resolution difficult and time consuming. Furthermore, it is not always clear what the impact of needing to change, reconfigure or adjust the service is. For this reason, many such services fail to gain sponsorship approval.
- **Time to revenue/ margin:** Time to market was also an important consideration for the organizations interviewed. In particular, the device manufacturer wanted to be first to market with its remote monitoring solution to gain a competitive edge. For any new service, the sooner it is commercially available, the sooner there is opportunity for revenue and margin upside.

> "When we worked internally, we had to subcontract support for a system architect; the total cost was €80,000."
>
> *Head of engineering,*
>
> *Industrial product manufacturer*

> "It's difficult because you have to find the 4G module that is compatible with the location where you are going to put the [industrial assets]. There are different frequency bands in different countries, so you have to ensure that the one you install is adapted to the local destination "
>
> *Head of engineering,*
>
> *Industrial product manufacturer*

Key Results

The interviews revealed that key results from the Octave investment included:

Lower development costs. The interviewed organizations were able to lower development costs including the firmware development, proof of concept as well as the application development and back-end integration. Octave offers integrated firmware that needs little adaption and development and regular updates are implemented automatically. Furthermore, the end to end framework and support avoids the need for third-party skillsets, such as a system architect or firmware developer. Pre-integration with cloud platforms made application development faster and easier.

Significant cost savings for device certification, management and connectivity. Since the Octave platform is optimized for cellular networks globally, it provides the organizations with the ability to scale fast with a single SKU worldwide for both device and network needs, avoiding the need for managing multiple data plans and certifying devices.

Reduced time to commercialize. With easier solution development, and globally certified devices, the Octave platform enables enterprises to launch IoT solutions much sooner. This means revenues and margins can be realized earlier; first or early mover advantages can also become relevant, better positioning those organizations making services available to customers sooner.

> "This project is time driven which is brand new for us. We want to be the first in the market."
>
> *Project Manager, Industrial monitoring device manufacturer*

Composite Organization

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization is representative of the two companies that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization that Forrester synthesized from the customer interviews has the following characteristics:

Description of composite. The global manufacturing organization is active in 50 countries and provides a range of industrial B2B products and associated services. The organization has a strong brand in its market, global operations and a large customer base.

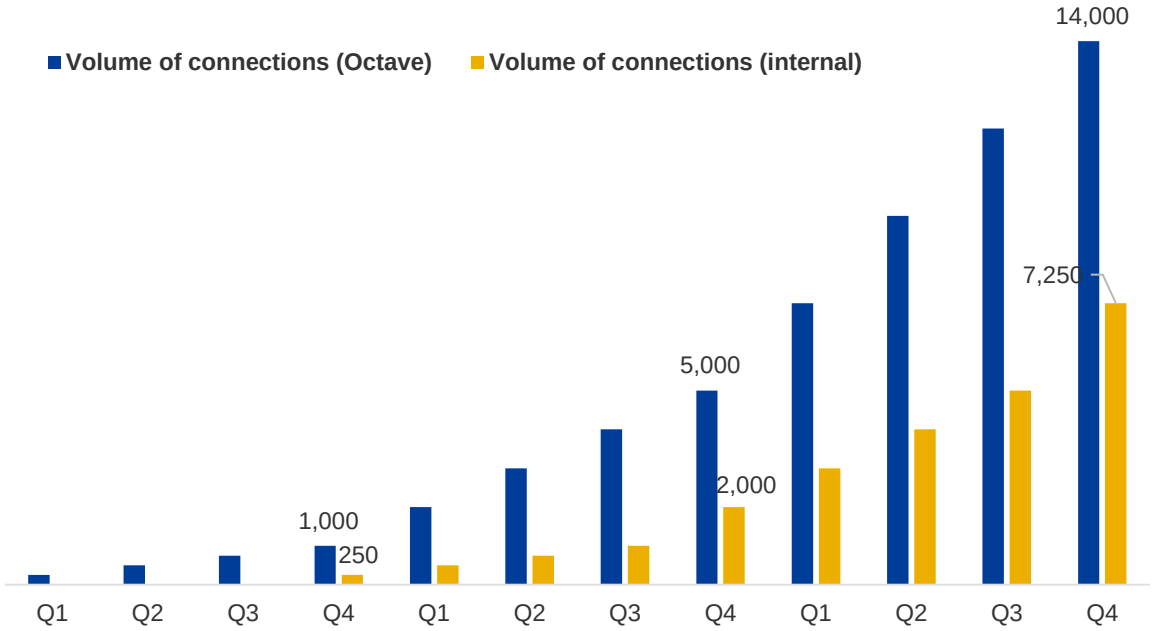
By developing its IoT remote monitoring service using Octave and the FX30 device, it was able to quickly launch a new service to remotely manage and maintain industrial assets. It had some skills in-house, including embedded software and cloud development.

Its customers, by subscribing to this service, can better monitor industrial assets, reducing maintenance costs; on average they pay $10/ per month for this service. Because the composite was able to launch 9 months sooner than if it had developed the service internally, the adoption has been significantly accelerated, as shown in the graphic below:

Key assumptions:

- Active in 50 countries
- IoT service launched 9 months earlier
- 14,000 device connections by end of year 3

Volume of IoT connections with Octave and with internally managed solution, by quarter, Q1 to Q12



The graph clearly demonstrates the benefit of being earlier to market. It has also been assumed that the IoT service was adopted in 5 countries in the first year, 10 in the second and 20 in the third.

Cost Comparison Analysis

QUANTIFIED COST COMPARISON DATA AS APPLIED TO THE COMPOSITE

This analysis compares the cost of developing the solution, managing the devices and evolving and maintaining the solution using Octave versus doing so internally. Within each of these categories, the benefit of using the Octave platform is that costs are significant lower. These cost savings are detailed in the table below:

Summary of cost comparisons (risk-adjusted)

Ref.	Benefit	Initial	Year 1	Year 2	Year 3	Total	Present Value
Atr	Solution development cost savings	$77.000	$124.556			$201.556	$190.233
Btr	Device management cost savings		$59.700	$38.367	$29.133	$127.200	$107.869
Ctr	Solution evolution & maintenance cost savings		$28.667	$28.667	$28.667	$86.001	$71.291

The table above shows the total of all cost comparisons across the areas listed below, as well as present values (PVs) discounted by an additional risk adjusted rate.

Solution Development Cost Comparison

One of the most important benefits that the interviewed organizations reported regarding the Octave platform was the reduced costs of developing the IoT solution compared to an approach of doing everything internally.

There are three key components to developing an IoT service: firmware development, proof of concept and application development and integration.

Octave makes each of these components easier and faster, therefore lowering costs and shortening the time to commercialize:

- Firmware, or embedded software, development is faster and easier: the customer can program through the Octave portal. The need to select devices and related SDKs is avoided, and device compilation and reboot requirements are reduced. Sierra Wireless offers hardware alternatives including the FX30 gateway or the mangOH module and supports different communications protocols; it can also provide support for selecting complementary hardware such as sensors. As such it provides all hardware requirements from a single source, simplifying the hardware and firmware development. In the case of the composite organization, 2 FTEs would have each had to allocate 100 days of effort for the hardware and firmware development; using the Octave platform reduces the effort to 100 days in total (or 50 days each for 2 FTEs).
- The proof of concept for the development of IoT solutions requires a range of different skillsets; this process is also made easier by using Octave platform. Without using it, the composite would have required 50 days additional internal effort, as well as around $40,000 of external

> "The software and the hardware integration were easier. For example, Sierra lets you use the snap-in base solution."
>
> *Project Manager, Industrial monitoring device manufacturer*

costs for a solution architect, a skill not available in-house; when using the Octave platform, no external support was required.

- Application development is the final component, encompassing the application coding and testing and integration with IT/ cloud back-end. Octave is already integrated with a number of different cloud platforms; because the platform is already preconfigured, the end to end integration is also easier, as is testing, validation and troubleshooting. With a DIY approach, the application development process would have required two FTEs to dedicate 125 days of effort each, as well as continued professional services support. This outside help was not required when developing on the Octave platform, and total internal effort was only 150 days (or 75 days of effort for 2 FTEs).

> "It is not necessary to have a lot of resources to make the proof of concept because the integration and the use of the platform is quite easy and quite fast."
>
> *Project Manager, Industrial monitoring device manufacturer*

Solution Development Cost Comparison: Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
A1	Number of FTEs		2	2		
A2	Fully loaded salary (daily rate)	$100,000/45/5	$444	$444		
A3	Internal firmware development time (days/ FTE)		100	0		
A4	Internal proof of concept time (days/ FTE)		100	50		
A5	Internal application development time (days/ FTE)		100	75		
A6	Internal professional services costs		$60.000	$20.000		
A7	Total solution development costs (internal/DIY)	A1*A2*(A3+A4+A5)+A6	$326.667	$131.111		
A8	Total internal solution development costs (5% risk-adjustment)		$310.333	$124.556		
A9	Octave firmware development time (days/ FTE)		50			
A10	Octave proof of concept time (days/ FTE)		125			
A11	Octave platform development time (days/ FTE)		75			
A12	Total Octave solution development costs	A1*A2*(A9+A10+A11)	$222.222			
A13	Total Octave solution development costs (5% risk adjustment)		$233.333			
At	Total solution development cost reduction	A7 - A12	$104.445	$131.111		
Atr	Total solution development cost comparison (risk-adjusted)	A8 – A13	$77.000	$124.556		

There exist potential risks that can impact the cost reduction potential of the development of the solution, including:

- Internal resource time requirements could be less because some developments or proof of concepts may be less complex
- There is less need for external support because the skillsets are internally available.

To account for these risks, Forrester adjusted the cost reductions by 5% yielding a three-year risk-adjusted total PV of €423,566.

On the other side, an increased complexity regarding the solution as well as increased salaries could impact the solution development costs using the Octave platform. Therefore, we adjusted the Octave solution

development costs by 5% yielding a three-year risk-adjusted total PV of €233.333.

The difference of $190.233 is the benefit of developing the IoT solution on the Octave platform versus doing so internally.

Device Management Cost Comparison

An important benefit of the Octave platform is the reduced cost of managing remote devices, which encompasses device certification, device management and connectivity. There are a number of different ways in which the Octave platform delivers benefits:

- Radio frequency devices must be certified for each operator network on which they are to be made available. This is a process that typically takes $10,000 per network and months to complete. It also takes some internal effort to liaise with each of the operators; Forrester estimates three days of internal effort per operator. The composite organization commercializes its solution in 5 countries in the first year, 10 in the second (i.e. five additional certifications in the second year) and 20 in the third (i.e. ten additional certifications in the third year). The Octave solution avoids the need for device certification, saving nearly $57,000 per 5 countries. There are also important time implications.
- Each of the operator relationships also needs to be managed on an ongoing basis to ensure devices are properly supported. It is assumed it takes half a day's effort per month per operator for a single FTE to manage this relationship. Working on a DIY basis, device management costs come to $13,333 in the first year, $26,667 in the second and $113,333 in the third.
- Finally, the cellular connection cost is already part of the Octave subscription and so is avoided. In the case of the composite organization, we assume a monthly cellular connection cost of $1. Using average of period connections, this is a cost avoidance of $6,000 in the first year, $36,000 in the second and $114,000 in the third.

"Clearly, the way they have structured Octave and with all cloud-based features, cloud-based configuration, it's an advantage and makes things much, much simpler for the software engineers."

Head of engineering,

Industrial product manufacturer

"The conclusion was that you must make a new certification, and the issue with that: it's a roughly €10,000 certification campaign."

Head of engineering,

Industrial product manufacturer

The total three-year present value of the avoidance of device certification, management and connectivity, following a 5% risk adjustment to accommodate for possible lower device management and/or certification effort requirement, results in a three-year present value of $359,653.

The three-year risk-adjusted present value of the cost reduction for device management, therefore, comes to $107,869.

Device Management Cost Comparison: Calculation Table					
Ref.	**Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**
B1	Device certification cost per country		$10.000	$10.000	$10.000
B2	Fully loaded salary (daily rate)	$100.000/45/5	$444	$444	$444
B3	Device certification internal labor effort (3 days per country)	3*B3	$1.333	$1.333	$1.333
B4	Number of countries		5	10	20
B5	Device certification cost	(B1+B3)*(B4(yrn)-B4(yrn-1))	$56.667	$56.667	$113.333
B6	Device management internal labor effort (half a day per month per country)	12*.5*B3	$2.667	$2.667	$2.667
B7	Device management cost	B4*B6	$13.333	$26.667	$53.333
B8	Number of connected devices		1.000	5.000	14.000
B9	Annual cellular subscription cost per device	$1/ month	$12	$12	$12
B10	Device connectivity cost	B8 (average of period connections)*B9	$6.000	$36.000	$114.000
B11	Total device certification, management and connectivity costs (Internal/DIY)	B5+B7+B10	$76.000	$119.333	$280.667
B12	Total device certification, management and connectivity costs (Internal/DIY) (5% risk adjustment)		$72.200	$113.367	$266.633
B13	Octave subscription cost per device		$25	$25	$25
B14	Total Octave device management costs	B12*B8	$12.500	$75.000	$237.500
Btr	Total device management cost reduction (risk-adjusted)	B12-B14	$59.700	$38,367	$29,133

Solution Evolution & Maintenance Cost Comparison

The final benefit that has been quantified is the reduction in costs of the evolution and maintenance of the solution. Evolving and maintaining the solution is less complicated and time consuming using the Octave platform compared to managing it internally.

Solution evolution costs refer to the internal resources needed to reconfigure the service to accommodate new capabilities, such as adding a new sensor. One of the interviewees told us that initially they just wanted to monitor their remote industrial assets, but at a later stage there was an internal request to also be able to monitor humidity and temperature. Using the Octave platform, the effort is estimated at 8 person-days per year, compared to 40 when using an internally developed solution.

Maintenance costs refer to resources required to ensure the IoT solution is running well and to address any issues. In the case of a DIY solution, , several different suppliers have to be managed. In case of an issue, it is much more difficult to clarify where the fault is, who is responsible and how it is to be fixed. With Octave, there is a single point of contact for any maintenance issues, thus reducing the internal effort required, and, typically, the time to resolve also. With an internally built solution, the annual maintenance efforts are around 50 days; using the Octave platform this is just 12 days per year.

> "So, I am pretty sure that if you want to add a new communication protocol, like CAD bus, the gains are huge. With Octave it's just half a day of work."
>
> *Head of engineering,*
>
> *Industrial product manufacturer*

For the internally developed solution, evolution and maintenance efforts come to $40,000 annually. A risk adjustment of 5% was applied because evolution and maintenance costs may be lower in some cases; this results in a three-year, risk adjusted present value of $94,500. Following the same adjustment in the case of using the Octave platform, these costs come to $23,211. The difference between the two, over the three years, comes to $71,289.

Solution Evolution & Maintenance Cost Comparison Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
C1	Number of FTEs			2	2	2
C2	Fully loaded salary (daily rate)	$100.000/45/5		$444	$444	$444
C3	Internal solution evolution time: number of days/ FTE			20	20	20
C4	Internal solution maintenance time: number of days/ FTE			25	25	25
C5	Total internal solution evolution & maintenance cost	C1*C2*(C3+C4)		$40.000	$40.000	$40.000
C6	Total internal solution evolution & maintenance cost (5% risk adjustment)			$38.000	$38.000	$38.000
C7	Octave solution evolution time: number of days/ FTE			4	4	4
C8	Octave solution evolution time: number of days/ FTE			6	6	6
C9	Total Octave solution evolution & maintenance cost	C1*C2*(C7+C8)		$8.889	$8.889	$8.889
C10	Total Octave solution evolution & maintenance cost (5% risk adjustment)			$9.333	$9.333	$9.333
Ct	Total solution evolution & maintenance cost reduction	C5-C9		$31.111	$31.111	$31.111
Ctr	Total solution evolution & maintenance cost reduction (risk-adjusted)	C6-C10		$28.667	$28.667	$28.667

Analysis of Additional Benefits

Shorter Time To Margin

Customers reported that, on average, the time to commercialize the IoT solution was reduced by 9 months by using the Octave platform versus a DIY approach.

- Using the Octave platform decreased the time required to develop the service: firmware development, proof of concept and application development are all made easier and simpler, reducing not only the cost of developing the service, but also the time taken.
- Using the Octave platform, everything is managed by a single provider, enabling efficiencies in project management. Furthermore, device certification, as described above, typically takes several months per country (and sometimes even more if more than one operator is required, which can be the case in some regions); using the Octave platform, the devices have already been certified globally, further reducing the time needed to prepare the solution for commercial availability.
- The composite organization was able to launch their IoT solution nine months sooner through their use of the Octave platform. As a result, the volume of subscriptions was nine months ahead, driving significant additional revenue: in year one revenues were $56,250 higher; in year 2 they were $258,750 higher; and in year 3 they were $641,250 higher.
- Forrester assumed IoT solution margins of 5% in year 1, 10% in year 2 and 15% in year 3.
- Given that the time to market could be delayed, or that some solutions need not be launched in so many different markets, the time to margin benefit could be reduced in some cases; Forrester adjusted these benefits down by 20% to account for these risks, yielding a three-year, risk adjusted present value of $76.967.

> "To be sure, the Octave platform is able to handle important ramp up."
>
> *Project Manager, Industrial monitoring device manufacturer*

Shorter Time To Margin: Calculation Table

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
D1	IoT service revenue (Octave)			$60,000	$360,000	$1,140,000
D2	Reduced time to revenue (months)			9	9	9
D3	IoT service revenue (internal)			$3,750	$101,250	$498,750
D4	Revenue difference	D1-D3		$56,250	$258,750	$641,250
D5	Margin			5%	10%	15%
Dt	Shorter time to margin	D4*D5		$2,813	$25,875	$96,188
	Risk adjustment	↓20%				
Dtr	Shorter time to margin (risk-adjusted)			$2,250	$20,700	$76,950

Unquantified Benefits

There are a few benefits the interviewees mentioned but that Forrester has not been able to quantify:

Improved security: Integrated E2E data orchestration via a data vault and secure data transmission from edge to cloud including rotating security keys and the resilient network enhance security.

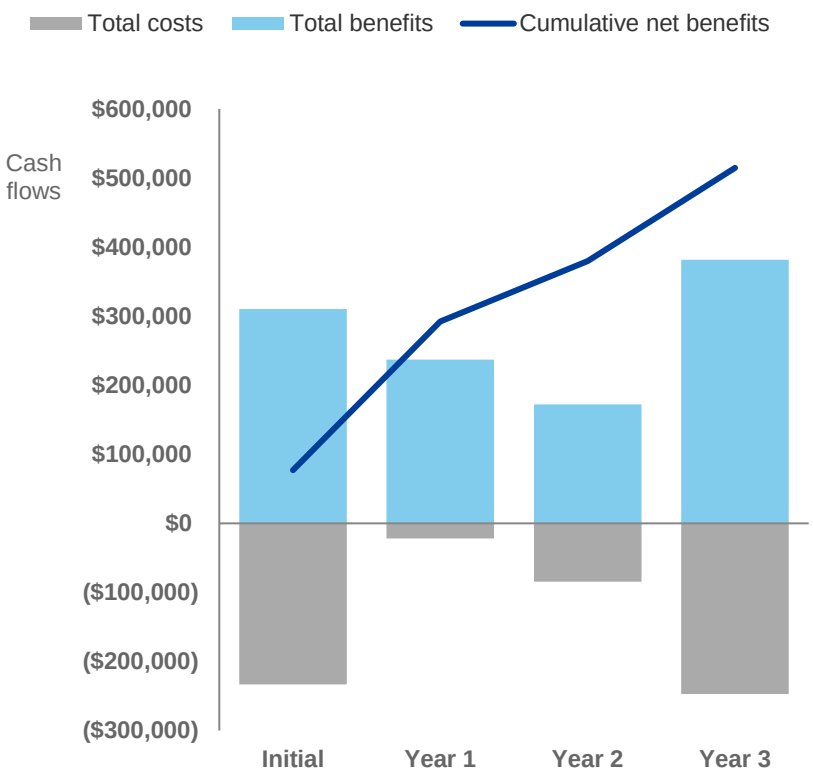
Enabled new business models and revenue streams: The data as a service model enabled via Octave offers enterprises the ability to deploy new business models and generate new revenue streams (e.g. pay per unit or pay per use models). This is in part because solution costs are predictable, and maintenance and solution evolution are simple.

> "Clearly it's a real advantage that the security from the FX30 to the Octave platform is managed by Sierra."
>
> *Head of engineering,*
>
> *Industrial product manufacturer*

Financial Summary

CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

Cash Flow Chart (Risk-Adjusted)



The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI and NPV period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

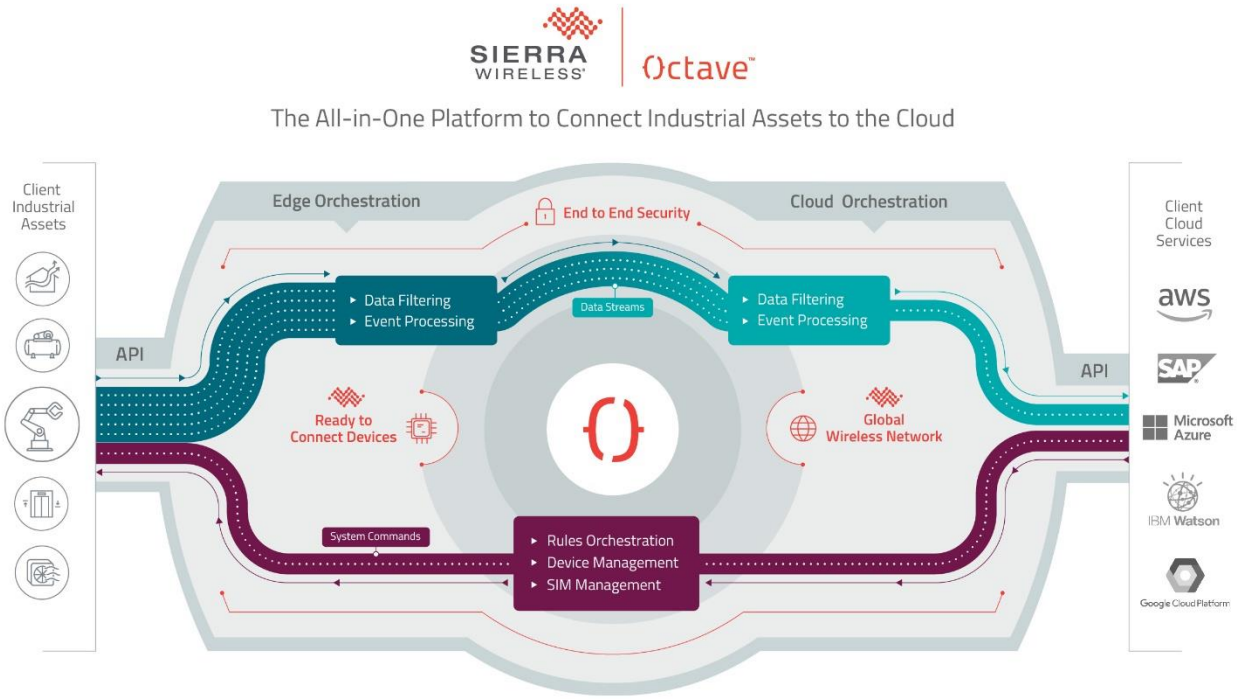
Cash Flow Analysis (risk-adjusted estimates)

	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($233,333)	($21,833)	($84,333)	($246,833)	($586,333)	($508,328)
Total benefits	$310,333	$237,006	$172,067	$381,583	$1,100,989	$954,686
Net benefits	$77,000	$215,172	$87,733	$134,750	$514,656	$446,358
ROI						88%

Sierra Wireless Octave: Overview

The following information is provided by Sierra Wireless. Forrester has not validated any claims and does not endorse Sierra Wireless or its offerings.

Octave is Sierra Wireless' all-in-one platform for connecting industrial assets to the cloud. Octave lets industrial companies securely extract, orchestrate and act on data from their industrial equipment to their cloud infrastructure, while efficiently managing their connected machines. In essence, Octave solves both the complexity challenge and the data orchestration challenge, whilst also offering reliable end-to-end security.



What makes Octave unique is that it is an all-in-one platform. This means that it integrates all the elements that companies need for their IoT applications including device modules and gateways, wireless connectivity, and cloud APIs. By choosing a pre-built, out-of-the box infrastructure, companies can focus their development away from complex device and connectivity choices, and more on innovation. Octave can also extract information from a wide variety of equipment types, using both modern and legacy communication protocols. As it is based on 'deep edge' technology, it allows companies to optimize and orchestrate data from the edge to the cloud.

Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

Total Economic Impact Approach

Benefits represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

Costs consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

Flexibility represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

Risks measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

Present value (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

Net present value (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Return on investment (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

Discount rate

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

Payback period

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.