

MACHINE LEARNING FOR **A LESS** **TAXING** **CHECKOUT**

HOW TAX CATEGORIZATION
SERVICES REMOVE FRICTION
FROM RETAIL EXPERIENCES

Insert or Swipe to Pay

\$8.76

Avocado Toast

Coffee

Tax

Contributor

VERTEX



How **Tax Calculation** Can Significantly Contribute To Friction

Today, there are a lot of possibilities for friction in tax calculation because **you can buy anything, anywhere—via mobile app, brick-and-mortar, third-party marketplace, etc.** as well as through a combination of these channels within the same transaction.

Adding to this complexity are the waves of recently passed laws that have a significant impact on the way retailers operate. The biggest came from the South Dakota v. Wayfair ruling in June of 2018[5] which stipulated that “states could require out-of-state businesses (commonly referred to as remote sellers) to collect and remit sales taxes even in the absence of a physical presence.”

To calculate tax, retailers can't simply just multiply a percentage rate on the price. Tax rates depend on various factors such as what type of product it is, where the product is being bought, where it's getting shipped, who are all the parties involved in the transaction, and more.

“You have to look at the decision maker in the retail seat who wants to spend as little time as possible having to worry about compliance and all of the tax issues. They would rather be doing the things that they do best...elevating the experience and driving commerce,” notes Daniel Burns, a retail industry expert and futurist.

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of respondents noted that marketplace facilitator laws have had an impact on how their company conducts business.

INTRODUCTION

The uncertainty of the coronavirus pandemic forced retailers to respond to many rapidly shifting consumer expectations,[1] the biggest of which was the need for a frictionless buying experience.[2]

What is frictionless retail? While definitions vary somewhat, it is most succinctly described as “*fully autonomous, ‘just walk out’ shopping and checkout solutions.*” [3]

To make shopping faster and easier, retailers must break down barriers to purchase—and one often overlooked, but important factor affecting a seamless checkout, is the ever-evolving web of tax calculation.[4]

“As of June 2021, all 45 states with a statewide sales tax...had adopted [these] requirements.” Further complicating things, “All but one [state] had also adopted requirements shifting primary tax collection obligations from sellers in an online marketplace to the company facilitating the sale.”

According to a recent survey,[6] “four years after the case’s ruling, 58% of respondents noted that marketplace facilitator laws have had an impact on how their company conducts business.”

In another example, California’s E-Commerce Tax Expansion[7] has

further expanded e-commerce taxes, “[scooping] tens of thousands of out-of-state online businesses onto its income tax rolls, [a decision that] will likely lead other states to do the same.”

“There is constantly new tax legislation on different types of products,” noted Pete Olanday, a consulting director with Vertex,[8] a leader in tax technology, in an interview with RETHINK Retail. “There are new taxing jurisdictions such as a city or a town that might not have had its own sales tax before,” Olanday continued, noting that the various economic pressures of COVID-19 (shutdowns, lost jobs, all resulting in reduced tax revenue) forced some local jurisdictions to introduce their own sales tax in addition to state regulations.



How Machine Learning-Powered Tax Services Can Help Retailers Navigate

To best respond, retailers need to ensure their tax calculation technology is **robust and efficient for a seamless checkout experience.**

To do this, many have increasingly turned to third-party consulting and microservice providers[9] that leverage new software to tackle some of these old-yet-increasingly-relevant problems.

“We’ll see increasing use of both AI and ML for intelligent, real-time compliance so that we have real-time tax adjustments. Auditing and taxes are going to be increasingly done in real-time using AI,” remarks Burns.

prone manual processes while helping to decrease bills from state and local tax authorities) but serve as an automated safety blanket against rapidly ongoing, tangled tax laws.

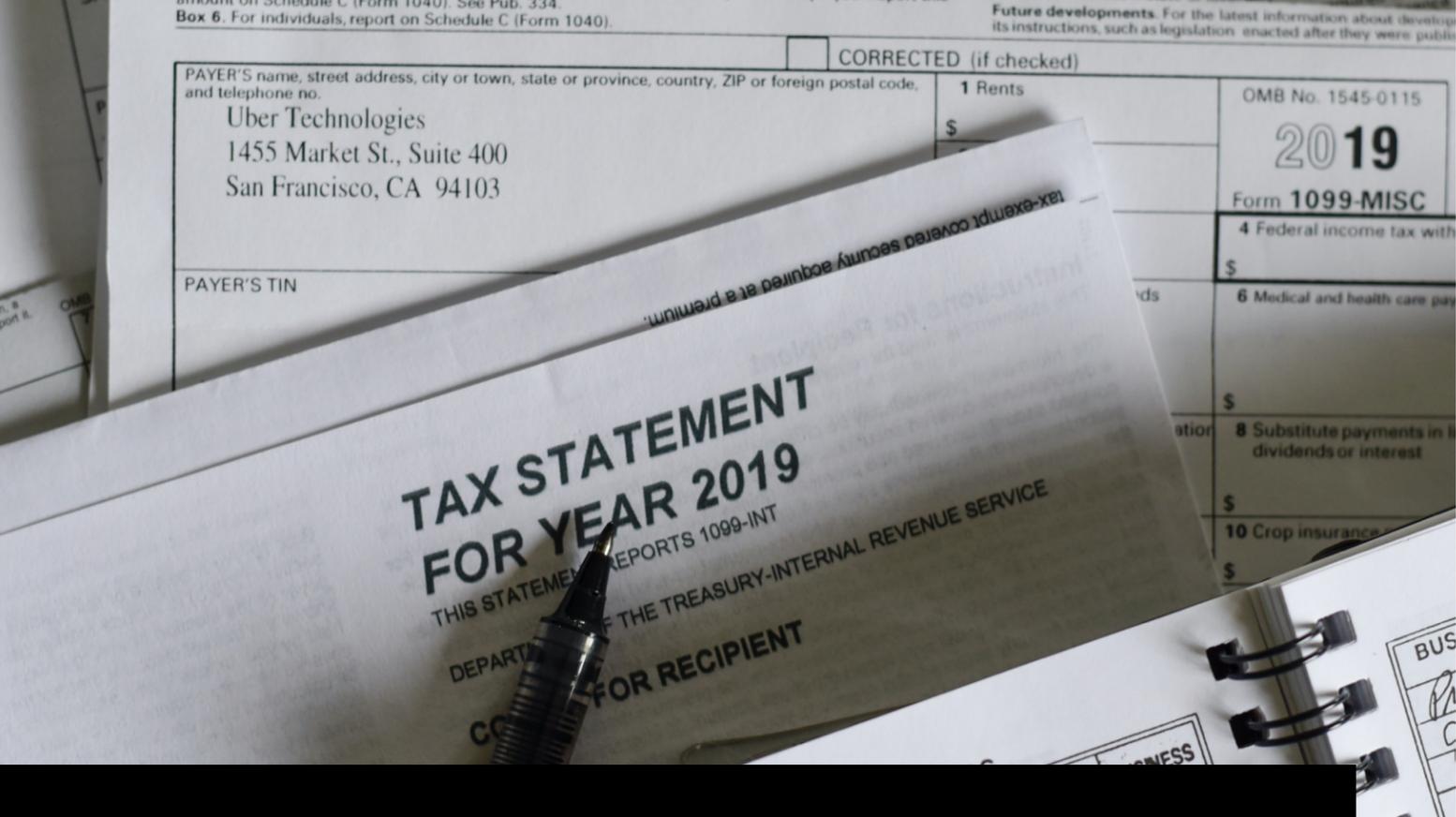
Continued Olanday, “...I think tax legislation is getting so complex right down to the jurisdiction level that e-commerce platforms don’t want to be in the business of maintaining all of that logic,” noting that, like with other areas of business in an omnichannel world,

61%

of business leaders have been using **microservices** for a year or more.

An automated tax calculation engine can help not only cut down on the burden of ensuring strict adherence to tax commitments (replacing costly and error-





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utilizing microservices to manage (e.g.) varying non-PoS functions is becoming increasingly commonplace.

Indeed, microservices have seen significant growth in the business sector in recent years. According to a survey of over 1,400 business leaders by O’Reilly,[10] microservices have reached a level of maturity that has engendered fairly widespread adoption, with 28% of respondents indicating that they had been using microservices for at least

three years while 61% indicated they have been using such a service for a year or more as of 2020 (with continued growth projected).

Furthermore, 29% of respondents indicated that their employers were “migrating or implementing a majority of their systems (over 50%) [to use] microservices.”

It seems natural, then, that if a robust tax engine microservice is available to

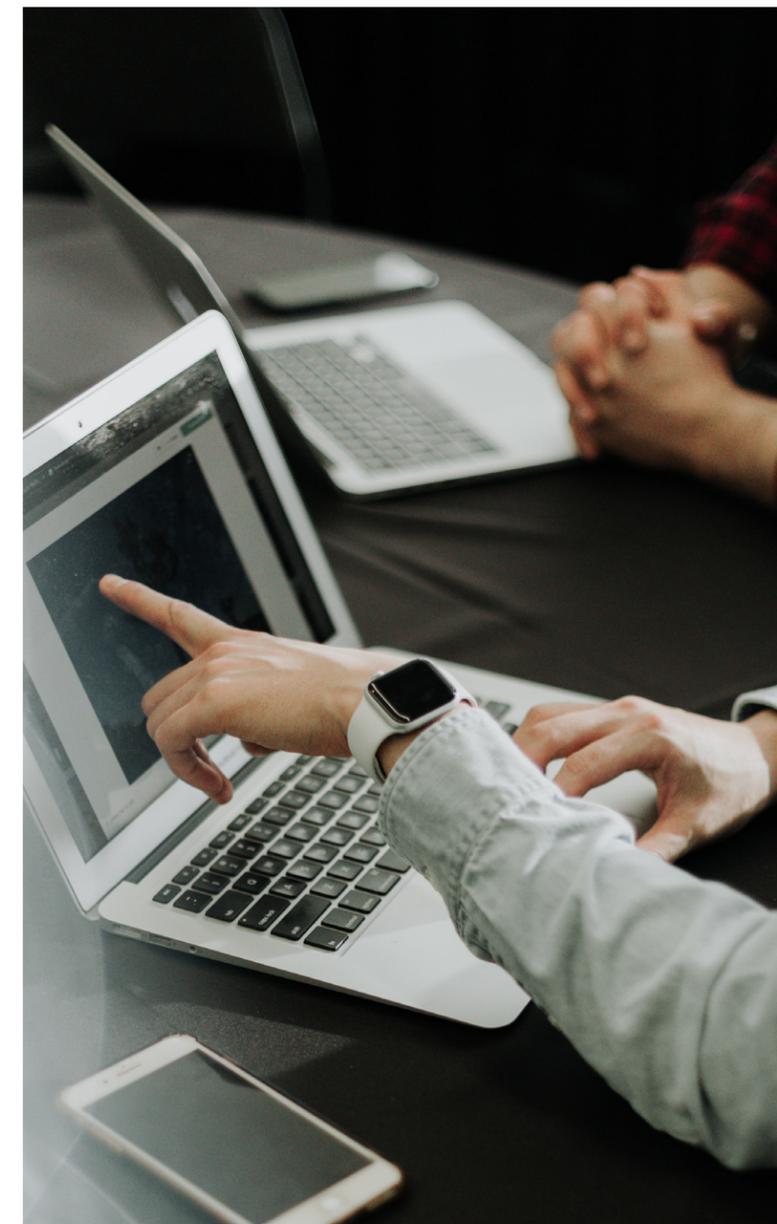
retailers operating in a wide variety of taxable jurisdictions, it behooves serious consideration when leveraging these services has become so mainstream.

Step one in using a microservice-provided tax engine, then, is to map all the products you sell to the tax categories in that engine so it can deliver an up-to-date tax calculation for every transaction. For some sellers, this can mean thousands, even millions, of products (and more new ones every week).

Vertex offers a Tax Categorization Service[11] that utilizes machine learning technology, combined with the knowledge of Vertex SMEs, to predict the correct tax category based on past tax engine mappings. This service turns a lengthy manual process into a highly automated, nearly instant, data-driven event.

It jump-starts the tax engine implementation with data-driven categorization recommendations, enabling retailers to go live faster and scale more easily as their inventory grows. The powerful data model also helps sellers to identify differences relative to the rest of the mappings which can then be reviewed and corrected. And it also serves as a resource to mitigate potential audit risk. Though simple in concept, the execution (and software) to do this is complex. However, the savings in tax accuracy can be monumental in a high-volume e-commerce landscape.

“For efficiency, microservices like a cloud-based tax engine are huge, but it also benefits consistency,” Olanday said. “If I offload tax calculation to a tax provider like Vertex, my point of sale can use that service, my e-commerce can use it, my mobile app can use it, and they’re all tied into the same engine, allowing for consistent results.”



Know What Your Battles Are and How to Approach Them



To ‘win’ in business today—particularly as a startup or mid-sized, growing business—complicated problems need to be met head-on with systems advanced enough to manage them. However, managing all of those systems in-house is often costly.

Microservices such as tax automation and tax categorization help to address these nuances cost-effectively, improving compliance while helping to facilitate the kind of omnichannel, frictionless,

diversified customer engagement that increasingly drives retail sales.

It’s a matter of picking and choosing your battles. When it comes to something as important and yet *tedious* as tax compliance, retailers should seriously consider third-party services to help their businesses remain tax compliant and as a result, their customer buying experiences remain frictionless.

Endnotes

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Contributor



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