



Wolt

Algorithmic Transparency Report

2023

Wolt's Algorithmic Transparency Report

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About Wolt

Wolt is a Helsinki-based technology company that provides an online platform for consumers, merchants and couriers. It connects people looking to order food and other goods with people interested in selling and delivering them. To enable this, Wolt develops a wide range of technologies from local logistics to retail software and financial solutions – as well as operating its own grocery stores under the Wolt Market brand.

On top of the consumer-facing Wolt App, Courier Partner App and Merchant App, Wolt's products include Wolt+ (subscription service for customers), Wolt for Work (meal benefits and office deliveries for companies), Wolt Drive (fast last-mile deliveries for merchants) and Wolt Self-Delivery (service for merchant partners with their own delivery staff).

Wolt's mission is to make cities better by empowering and growing local communities. Wolt was founded in 2014 and joined forces with DoorDash in 2022. DoorDash operates in 29 countries today, 25 of which are with the Wolt product and brand.

Introduction

Last year, we released the first ever Wolt Algorithmic Transparency Report to increase the understanding of the algorithms powering the Wolt platform. As it was the first of its kind, we created the report with the intention of learning and improving our ability to provide meaningful transparency so that people coming to our platform are empowered and informed when interacting with our products.

Over the past year, we have engaged in many fascinating discussions with academics, product developers, policymakers, customers, and partners. With their valuable input, we're delighted to present the latest edition of our Algorithmic Transparency Report. We hope that this report will continue to serve as a model for promoting transparency and help to demystify tech by opening up algorithms.



The fair data economy means the part of the economy that focuses on creating services and data-based products in an ethical manner. Fairness means that the rights of individuals are protected, and the needs of all stakeholders are taken into account in the data economy.

Data is the most important raw material and resource of our time. A historic technological and economic transformation is underway whereby digitalisation and the data economy could bring about better products and services and increase our welfare at societal level. We at Sitra want to ensure that this also respects human rights and freedoms.

As societies, we are only just waking up to the fact that digital platforms and marketplaces are critical infrastructure. Hence, platforms and their algorithms have a lot of power over our societies, what information we encounter and what products we buy. As individuals using these services, we often have too little visibility over how much data is collected about us and how this data is used later to profile us. Increased transparency fosters trust which is a critical component to succeed in an increasingly competitive data economy.

At Sitra, we applaud the efforts of companies like Wolt to increase transparency about their algorithms and operations.

We are confident that the first step towards a truly fair data economy is to increase our understanding about its opportunities and to engage in a fruitful conversation with all stakeholders. This helps make our data economy fairer.

Kristo Lehtonen,

Director, Fair Data Economy
Finnish Innovation Fund SITRA

SITRA

Sitra is a Finnish fund for the future who studies, researches and brings together partners from different sectors, and one of the themes in which they engage is the fair data economy.

What's new this time?

Wolt's products are constantly being developed, upgraded and improved to ensure we adapt to new situations, solve emerging problems, and incorporate feedback from our partners. Therefore, we also want to maintain the information on our products and algorithms updated to reflect these changes.

In the past year, we have for example updated our ranking and recommendation models that consumers interact with; started working with third party services to facilitate the business growth for merchants; and launched a new pricing model for the courier partners where fees better reflect the effort needed for each individual task. You can read more about these in the section 'Connecting people at Wolt – algorithms powering the platform'.

While algorithms and AI are increasingly prevalent, it is important to note that there still is a group of talented and passionate people behind the platform who build and oversee the automated tools. It is crucial to acknowledge their contributions and the value they bring to Wolt to ensure the experience is fair, transparent and impactful for the users. We've therefore chosen to include a new section on how we develop products and highlight the breadth of our product portfolio.

Furthermore, algorithms are virtually useless without the data they require. Therefore we've included a new section where we show how we handle data, privacy and security at Wolt.

Scope of report

At Wolt, we mainly use algorithms and AI as a way to reduce menial tasks, increase efficiency or simplify processes. For us, algorithmic transparency means being open about why and how we use algorithms at Wolt. For example, detailing the overview, purpose, objective, parameters and human oversight. But before we can explain the algorithmic tools that we use, we have to clarify what we mean when we talk about algorithms and AI.

Algorithms are essentially a mathematical process for solving a problem by following a sequence of steps. AI on the other hand, can be defined as sets of algorithms. The OECD provides the following definition:

AI is a machine-based system that is capable of influencing the environment by producing an output (predictions, recommendations or decisions) for a given set of objectives. It uses machine and/or human-based data and inputs to (i) perceive real and/or virtual environments; (ii) abstract these perceptions into models through analysis in an automated manner (e.g., with machine learning), or manually; and (iii) use model inference to formulate options for outcomes. AI systems are designed to operate with varying levels of autonomy.¹

Despite the growing recognition of the importance of algorithmic transparency, there are still no universal standards for how algorithms should be evaluated for transparency. In our very first Algorithmic Transparency Report we drew inspiration from the UK Government's Algorithmic Transparency Recording Standards. The Standards are developed with public sector bodies in mind, which provide helpful guidance on how to best provide transparency, but they are not universal. We believe it is crucial for policymakers, academics, and industry leaders to work together to establish clear and consistent standards for algorithmic transparency to promote accountability and fairness in decision-making processes, and we look forward to continuing the work on this.

The information on Wolt's products and algorithms in this report is based on our operations as of February 2023.



Our principles in building our products

- **Fairness** - We are focusing on building a platform that ensures fair treatment of the people that interact with it. There shall be no direct or indirect discrimination based on personal attributes, such as racial or ethnic origin, sex, religion or belief, disability, age or sexual orientation.
- **Meaningful impact** - We are building a product organization that works at scale with autonomy, all the while optimizing for meaningful impact. Impact is the biggest driver of motivation for the product team, be it from business metrics, societal, environmental influence or personal growth journeys. At the core of this approach is a focus on the value we create for our customers, partners and society at large.
- **Transparency** - We acknowledge that this industry is new and intricate. By providing accessible information about how it works, like we do in this report, we hope that it will build trust with our partners and customers, as well as the general public.



Connecting people at Wolt – algorithms powering the platform

Wolt connects people looking to order food and other goods with people interested in selling and delivering them. To enable this, we develop a wide range of technologies.



Consumers

Wolt App

From ordered to delivered in 30 minutes with 100s of great restaurants and stores to choose from, all in one app. Get delicious food, fresh groceries, last-minute gifts and so much more. It's the whole city at your fingertips.

Courier Partners

Wolt Courier Partner App

We offer our courier partners a flexible and accessible way to earn money. Logging online according to your own schedule means you can deliver whenever you want and combine it with other work opportunities.

Merchants

Wolt Merchant App

Wolt helps local businesses thrive with more customers and more orders. With the super simple Merchant App, we make it easier than ever to grow their business. They do what they do best, and we take care of the rest.

Most importantly for retailers with larger orders (e.g. supermarkets), it also offers support with picking – making it easier to pick the right items and making it possible to mark individual items as missing or replace them.

Wolt Drive

Wolt Drive lets our partners add fast and reliable last-mile deliveries to their online store checkout with easy set-up, live tracking and world-class customer support. Their customers place an order and in less than an hour it's in their hands.

Wolt Self-Delivery

Our partners use their own in-house couriers to deliver the orders while using Wolt to reach more customers and accelerate business growth.

Wolt Developer Portal

Offers merchants access to Wolt's open API to either integrate their systems with the sales platform, or connect to the last-mile delivery service Wolt Drive.

Behind the scenes at Wolt

Life in the city:

What should I order today? A burger, some groceries? Let's use Wolt!



Merchant receives the order through their Merchant App, preps the order and waits for the courier partner to pick it up

Courier partner is offered the delivery task through the Courier Partner App, accepts it and starts making the delivery



"Oh bummer, they forgot the sauce! Gotta contact support"



Meanwhile at Wolt:



We design and develop all needed tech solutions, including customer solutions and tools for merchants and courier partners.



Restaurant & retail partnership people make sure we have a good selection of venues in our app.



Local operations teams manage the partnership with courier partners and help onboard new ones.



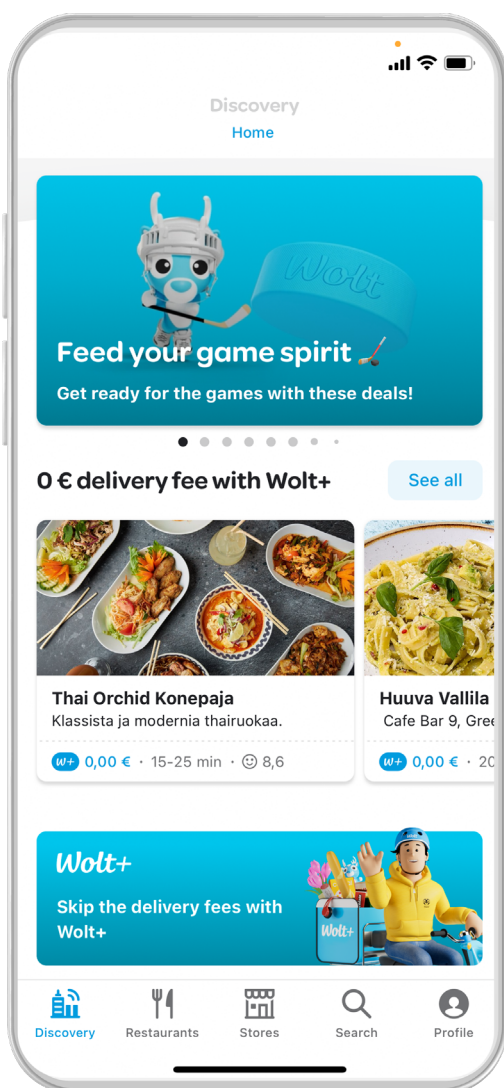
The support team handles all contacts from our users and helps customers if something goes wrong. They also provide support to courier partners and merchants.

Consumers

As a consumer yourself, you may have wondered why an app recommends a certain restaurant or product to you. With thousands of merchants to choose from at Wolt, algorithms play an important role in enhancing this process.

Discovery Ranking & Recommendation

The first thing that consumers meet in the app is the page we call 'Discovery'. With hundreds of choices between restaurants, grocery stores, boutiques, flower shops and bakeries, all of it can't fit on a mobile phone screen at the same time. Therefore, we have to help the customer to find what they are looking for by showing a variety of venues based on what we believe the customer is looking for.



Availability

Customer's needs depend on the time of the day. As an example, we humans tend to eat roughly around the same times of the day – breakfast in the morning, lunch around noon and dinner in the evening. Restaurants and stores also have different opening hours, meaning not everything is available at all times.

Availability also depends on the location of the customer. Someone looking for pizza in the city center compared to someone looking for it in the suburbs will not be shown the same venues. Locality ensures fast deliveries at reasonable prices from local businesses.

Carousel Ranking

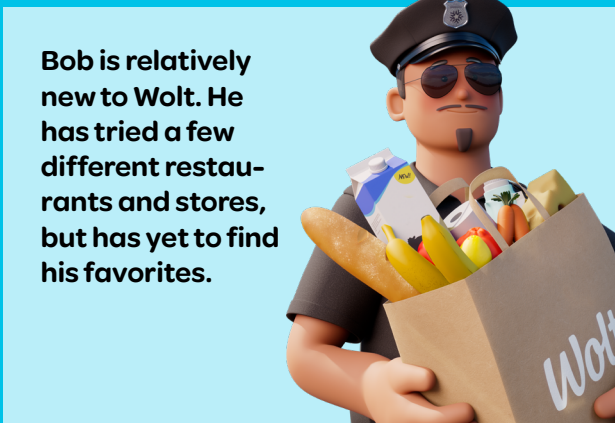
The Discovery page offers various content types, which are usually in a carousel format. The position of those is determined via different ways including an algorithm that prioritizes the best converting content per city. What converts best is usually refreshed several times per day. Accordingly, customers will see different content on different positions depending on their location and time of day. There is a manual override in place which allows local operations to push certain carousels to specific positions.

Discovery Venue Recommendation

No two customers are alike, and their experience will also be different in the app. While the content within the carousels is ranked by different rules, we show the most relevant content to a consumer by basing it on their and other similar customers' purchase behavior, or what is more commonly called 'Collaborative Filtering'.

The model makes automatic predictions (filtering) about the interests of a user by collecting preferences from many users (collaborating).

Let's take a look at how this works in practice through the lens of two fictional customers living in Wolt city – Alice and Bob. In the real world, the names of the customers would remain unknown. The user data used by the recommendation algorithm is stored and processed through randomly generated IDs, ensuring the anonymity of the people involved.

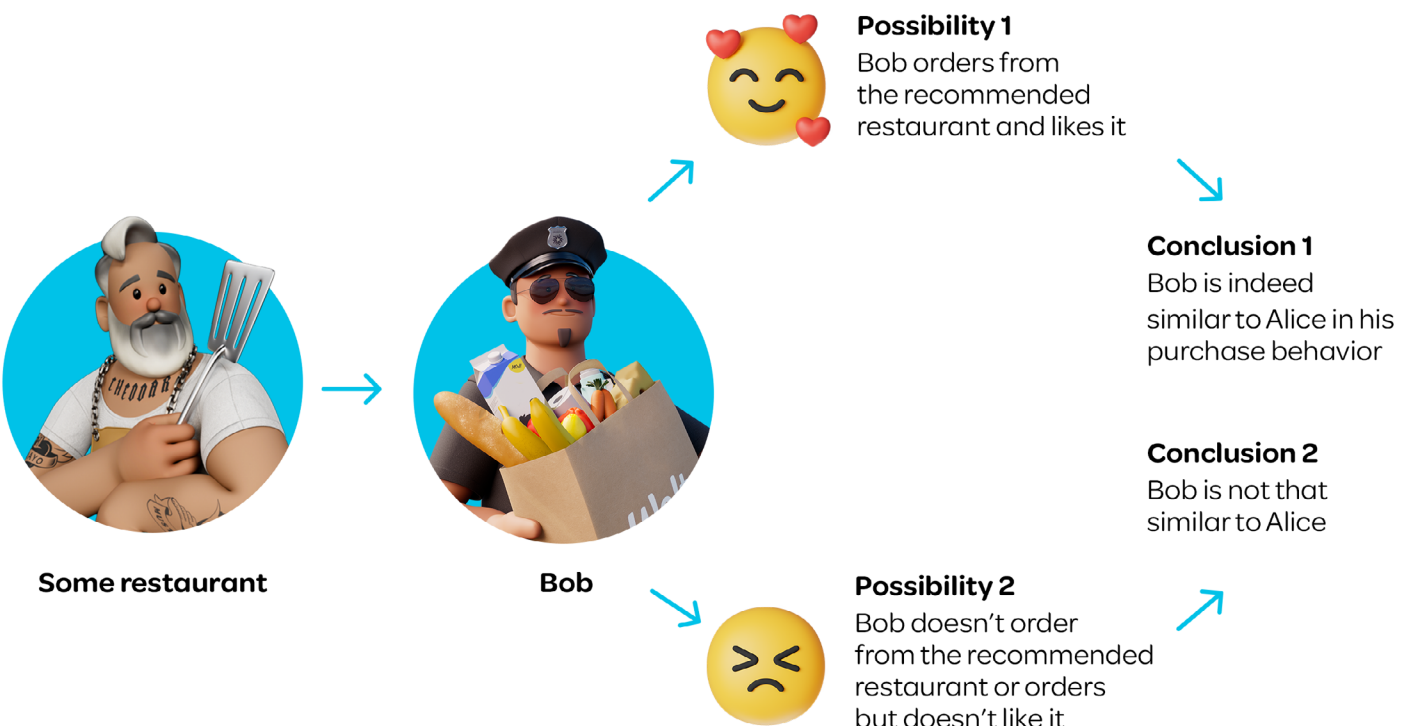


What Alice and Bob have in common is that they have both ordered and liked the food of a pizza restaurant. Liking meaning that they have either ordered from the restaurant again, opened their menu, added it to their favorites or rated it high. From this, we can assume that Alice and Bob have similar tastes (at least in pizza). If that assumption is correct, then Bob might be interested in Alice's favorite sushi place. So let's recommend it to Bob!

Now there are two different scenarios; either Bob orders from the recommended sushi restaurant and likes it (by rating it high, opening the menu, adding it to their favorites or ordering from it again). From that we can infer that indeed, Bob and Alice are similar in their purchase behavior and we can continue recommending them venues that they like.

If Bob doesn't order from the recommended sushi restaurant or he orders, but does not like it. We make the conclusion that Bob is not that similar to Alice. If that is the case, we find a new 'Alice' for Bob to make sure we can help Bob find his favorite venues on Wolt.

Recommendations are based on purchasing behavior



First-Time Users

For new users on the platform that either have not registered an account or have a registered account but with no purchases, recommendation will be based on a simple status model we call the 'First Time User' Model. The model works with aggregated data, so no personalisation is applied.

This model factors in three criteria:

- **Delivery estimate:** How far away is the venue and how quick can they deliver?
- **Venue relevancy and popularity:** How popular is the venue among other Wolt customers (number of orders and rating)? We also factor in new venues to make sure they are promoted initially to reach their first customers.
- **Venue price:** How much do menu items cost at the venue? Here we try to show a range of different options to the customer.

Recommendation on other parts of the experience:

- **In-cart:** Takes overall item popularity, user purchase, items in basket, and basket value into account when making recommendations. For example, if there is an item that a user has purchased frequently in the past 12 months, the system will recommend that item in case it is not already in the cart. How many times have you not forgotten to buy milk while going to the grocery store? If it is a frequent purchase, we've got your back! Additionally, we complement the recommendation with overall popular items.
- **Stores and Restaurants section:** similar to the Discovery page, a set of algorithms is used to tailor the experience to the respective user. As such variations of the previously described ways of recommendation and ranking are applied. If not possible these pages are ranked by venue distance to the user. However, due to the design of the pages they only determine the most relevant venues or stores for a user and try to show them on top of the page.

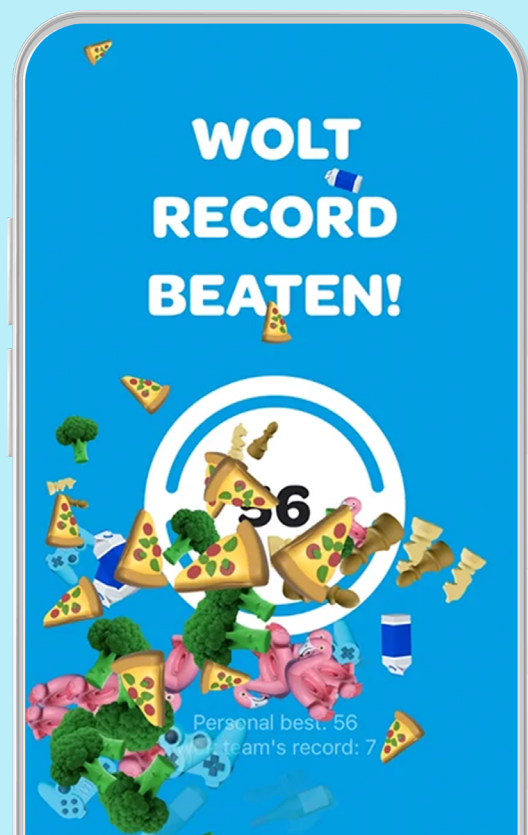
Can you find the Easter Egg in the Wolt App?

The Wolt Tapping Game was originally hacked together by one of Wolt's founders and has brought joy to millions of Wolt users since its launch – at least those who've managed to find the hidden gem within the Wolt App.

If a user inadvertently taps on the screen at a specific point, an explosion of food related emojis comes out. To make sure that you're not dreaming, the user might tap again, and again, and so begins the game. If you're able to tap just fast enough to beat the so-called 'original Wolt record' you win a free delivery!

In the summer of 2022, the game that had remained relatively untouched for the past six and a half years was given a thorough makeover during our Wolt hackathon. With up to 150 000 monthly players, there was no need to scrap the game altogether or come up with something entirely new. Instead a team of Wolt employees implemented a fresh new look to bring the graphics of the game up to the new decade to stay true to the Wolt brand.

Over the years, the game has reached a wide audience and gained a fandom that attempts to reach new records with creative methods, like using electric hand mixers to speed up one's fingers. And what is a favorite way to cheat the game? Moist q-tips on an electric toothbrush – inventive and supremely effective.



Ratings

The customer has an option to rate the venue from which they ordered from after receiving their delivery. This rating system helps us to gain insights into their experience and preferences. We calculate the average rating (on a scale of 1 to 10) by aggregating the ratings provided by all customers who have ordered from the venue in the past six months. This rating is displayed on both the Wolt App for other customers and the Merchant App for the merchant to identify the areas that require improvement. The ratings are calculated and updated daily.

Search

Another place in the consumer-facing app dedicated to help people find what they are looking for is 'Search'. Wolt's search is designed to help you quickly and easily find products and services that are relevant for you.

Note that we have two search features that work a bit differently: the global search on the Wolt App and the website and the in-venue search for a particular restaurant or a store.

Global search

The global search is available on the navigation bar in the Wolt App or through the search bar on the Wolt.com website. The global search lets you search the entire Wolt platform for products, services and venues.

When you enter a search, we match your search with our index of merchants and products. To give you the most relevant search results, we prioritize search results based on your delivery address or current location, if this information is available and you have allowed us to use it.

By default, the results are sorted by 'Recommended', which is based on several data points like venue opening times, venue distance or venue popularity and applies them by utilizing particular algorithms or business rules. For example, venues that match your search query, but are not open, will be displayed at the bottom of the search results along with venues located further away from you. You can order search results with filter options, such as delivery price and venue rating.

The order of your search results may also be affected by paid placement. In this case, such results will be marked as promoted results.

With your consent, we also save your search history and suggest searches you've used in the past. If you want to get rid of your search history, you can withdraw your consent, log out of the app or clear previous searches manually.

In-venue search

The in-venue search allows you to search for items only available at a particular venue. We match your search with the product titles, descriptions, and categories. The results you see are shown in order of appearance in the venue's product list. Again, the order of your search results may also be affected by paid placement.

Ads & Promotions

With many potential customers to reach on the Wolt platform, some merchants may want to enhance their visibility through paid advertising opportunities. Advertisements can be identified by a [Sponsored] label on a venue card. At the moment, you can only find advertising in the 'Restaurants' section of the app. Before presenting sponsored content, our algorithms ensure that the venue is open and capable of delivering to your location. Among all potential sponsored venues, our algorithms prioritize those closer to you but may also showcase other available options to provide all advertisers with an opportunity to be noticed.

Non-discrimination

Wolt's ranking and personalisation algorithms do not process or use personal information that would have been identified as potential sources of discrimination against people impacted by the automated process. In fact, we do not collect any data on gender, sexual orientation, racial or ethnic origin, national origin, religious affiliation or disability.

When training the algorithmic tools, we only use aggregated and anonymised data.

Human oversight

The ranking and personalisation algorithms are in continuous development. As described, specific sections in the app and website are manually created.

Risk management

Similarly to the task algorithm, location plays a role also on the customer side. Customers see venue options that are nearby based on their approximate or city-level location. Customers also may choose to add a delivery address to the Wolt App in order to receive their order to the location of their choice. Inaccuracies in location data could impact the selection of venues the customer sees, although this is more theoretical given we use less granular approximate data, and there are clear ways the customer can ensure that their desired delivery location is used.

We mitigate and balance the algorithms to also surface restaurants and stores that are new on Wolt to customers. This balancing for new venues is phased out after they have been on the platform for a while.

Accessibility

At Wolt, we strive to make our products accessible and usable to all users, regardless of their abilities or disabilities. For sighted users, the context and visual appearance of an item can provide sufficient cues to determine the purpose of the item. For users who are visually impaired and cannot access visual cues, appearances or text, an alternative is necessary.

One way we aid visually impaired users in getting the same experience as everyone else at Wolt is through so-called 'aria-labels'. They enable the addition of text to non-text content such as images so that assistive tools like screen readers can provide added context.

Another accessibility feature we use is the 'high contrast mode', which is specifically designed to help users who require a higher contrast between background and foreground colors to fully experience our website. Users can manually activate high contrast mode, or it can be triggered automatically by their operating system if they have requested a higher contrast content more widely during their web usage. When a user requests higher contrast, Wolt.com will detect this and automatically enable the high contrast mode for them.



Merchants

At Wolt, we partner with over 100 000 merchants, ranging from your local corner shop to bigger enterprises and franchises. Many of the merchants are small or medium sized enterprises that may not have the ability to develop their own digital tools for e-commerce to serve their existing customers even better or find new ones. We support local commerce in its transformation from an in-store shopping experience to a hybrid model (online & offline) where Wolt's platform provides the necessary digital tools and logistics.

To reduce 'low-value' work load on merchants, we mostly use AI to automate operations to allow them to focus on what they do best – run their businesses. As the macroeconomic environment becomes increasingly challenging, our tools help merchants run their business in a more capital-efficient manner by improving their operations, providing new insights, and helping them reach new customers.

The merchant's journey at Wolt can be divided into four main steps:

1. Going online
2. Selling products
3. Support
4. Providing insights.

Let's have a look at these in more detail.



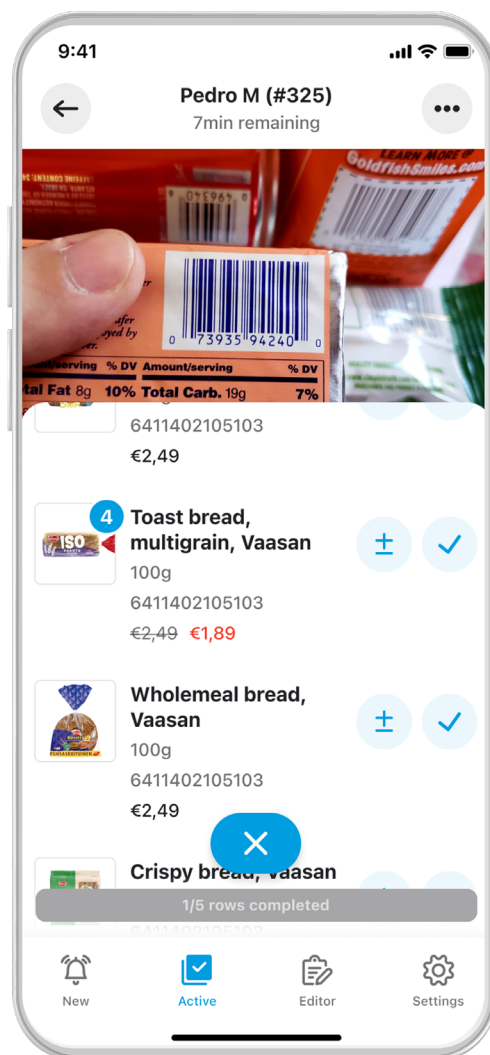
Going online

Wolt's services enable merchants to reach customers they may not have been able to with just their stores. In order to do that, we help merchants to bring their goods online via easy to use self-service tools and integrations.

Wolt Merchant App

The main tool for all merchants is the 'Wolt Merchant App'. It runs on any device and adapts to specific merchant needs. For example, restaurants use tablets to keep track of their customers' orders, seeing live forecasts for courier arrival and timed reminders for scheduled orders. Receipts are printed automatically or on demand to be shared with the kitchen and stapled to the bag – avoiding missed or wrong items.

In retail shops, like supermarkets or pharmacies, the Merchant App is used on phones. This allows for efficient and accurate 'picking' of orders supported by store-optimized routing and barcode scanning using the phone camera or the store's own scanner.



Menu

But what can people order? The list of items available in a venue we call the menu. Setting up a venue's assortment on Wolt can be a lot more effort in retail than for most restaurants, with many venues having thousands of 'stock-keeping-units'. One example of where automation has helped a lot is when a menu contains multiple images. Before automating the process, we had to upload pictures one-by-one. As a solution we built a bulk upload tool, where merchants can upload any number of images in bulk, which will be matched to the right product by checking for example the barcode or product identifier in the filename.

We also offer bulk tooling for importing menu data from text files, facilitating menu sharing across multiple venues, establishing a comprehensive catalog/product database with reusable product information, and developing application programming interface (API) integrations to enable seamless information flow from the merchant's point of sale (POS) system.

In other areas, we use some third party automation tools to help merchants go online quicker. X-Menu is one of the AI tools we use to extract restaurant menu information directly into Wolt's merchant tools. Using machine learning and AI tools, we can also extract information directly into Wolt from larger, more complex product lists used by larger retailers and merchants.

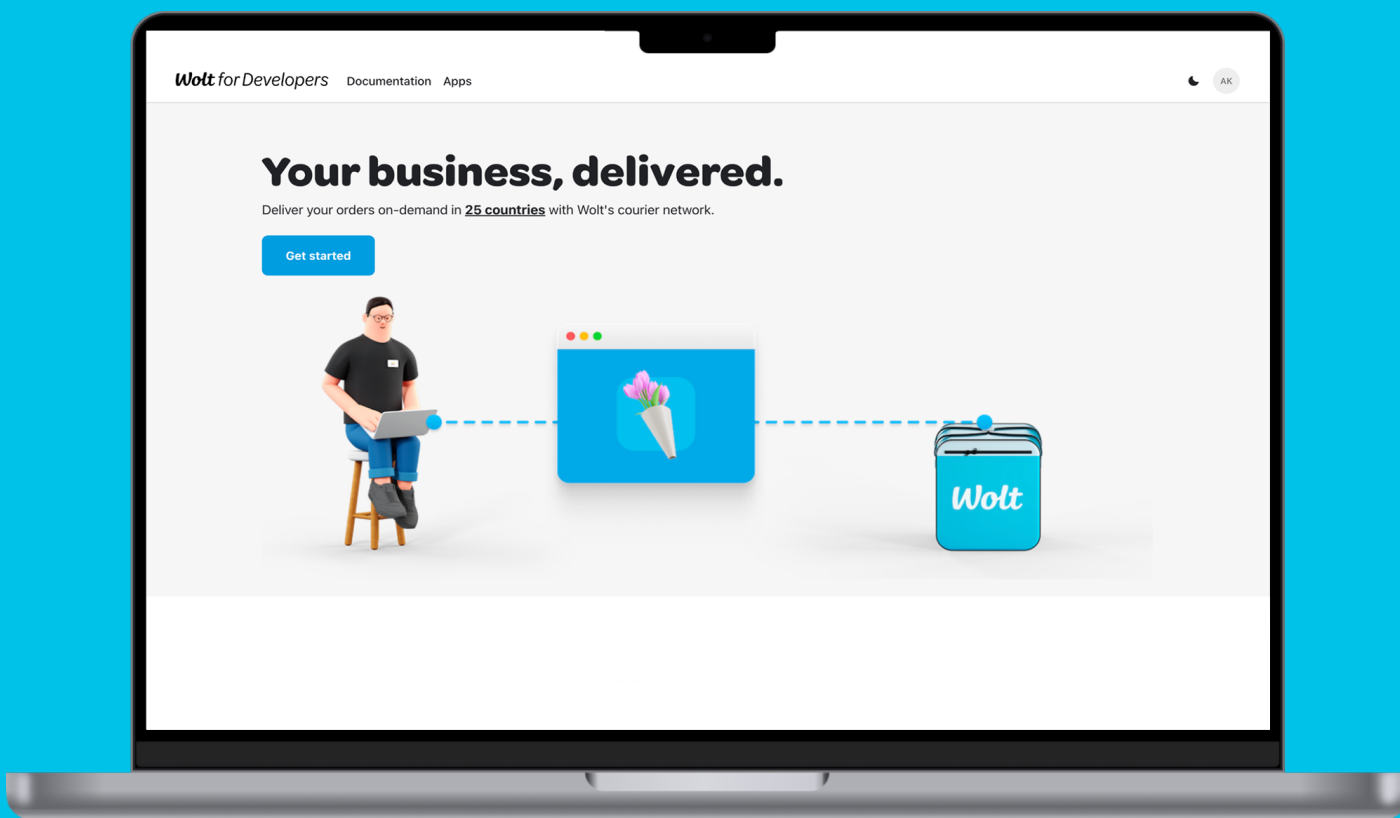
Selling products

Providing flexible ways to integrate

Merchants vary widely from single-venue mom and pop shops all the way up to major enterprises with hundreds or thousands of venues. To make sure our solutions fit such different use cases, we help merchants to integrate their existing operations and software into the Wolt platform that works with the merchant's individual needs.

With integrations, our merchant partners can run their Wolt delivery operations using their own tools such as POS software or enterprise resource planning systems. This ensures that our partners do not need to have multiple operating processes or devices across different channels. Data is securely shared between systems in real time, with little or no manual intervention leading to lower errors and a better consumer experience.

These integrations are possible through our open API platform that merchants can use to build their own integrations based on their system design and needs. The API facilitates the interaction between our software and the merchants. The Wolt Developer Portal provides partner developers with precise guidelines and tips to build a good integration using our open APIs. Partners can manage their menus, orders, and Wolt stores directly from their systems.



Our APIs

Order management API

Enables partners to get orders and put them into their POS systems. Our system sends (webhook) notifications while a partner's system pulls order details. Partners are able to accept, reject, and mark orders ready directly from their POS systems.

Menu management API

Enables our partners to push their venue/store specific menus to Wolt. This saves time and effort by preventing duplication of work. Partners manage their menus on their venue's POS or other menu management system and the same reflects on their Wolt store.

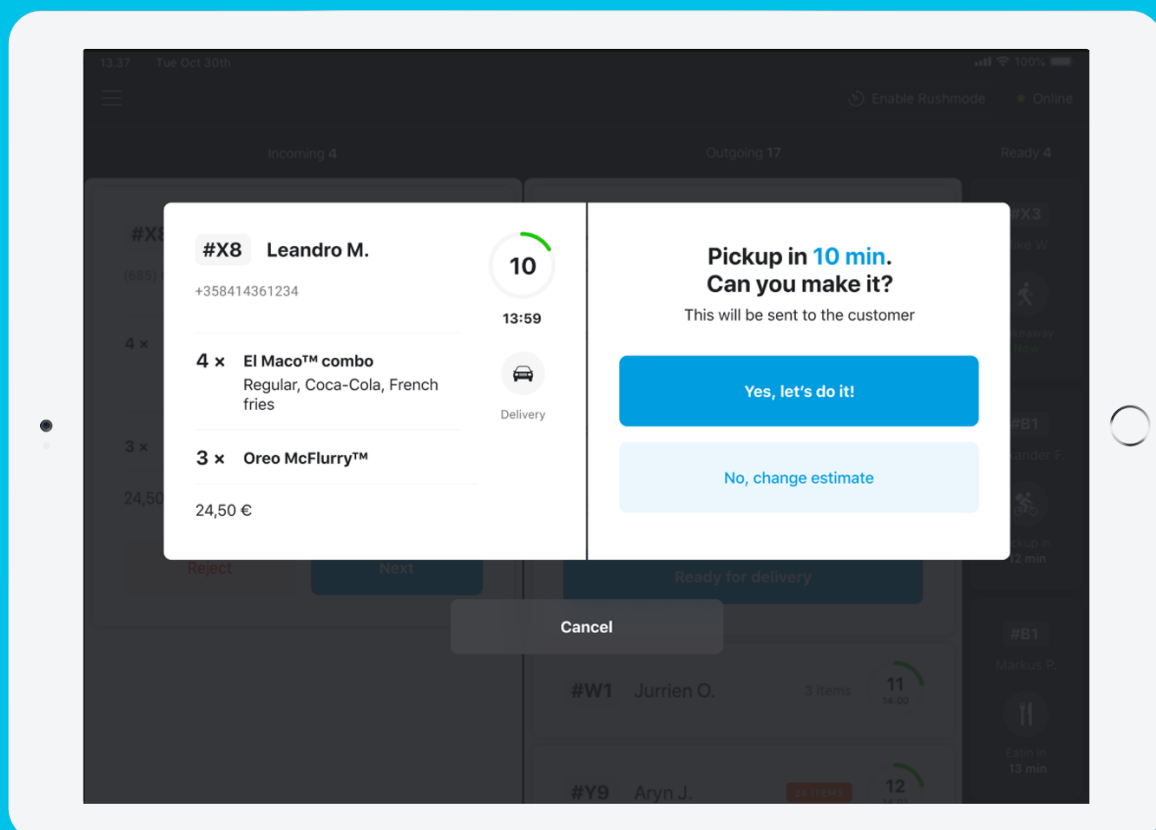
Venue management API

Enables partners to manage their venues without having to use a tablet. They can control the venue's opening hours and status.

For the merchants without sophisticated software, a robust online presence, or development teams, we have a no-code solution so that they can easily integrate their business needs with the Wolt platform.

Wolt Drive

Wolt Drive is 'delivery-as-a-service' and the way to get any online purchases delivered to the doorstep within 60 minutes from placing the order. Any merchant can offer Wolt Drive as a delivery option for their customers at checkout, and essentially plug their store into Wolt's logistics platform through the API. The Wolt Drive API offers two different endpoint solutions for venue configurations. One of these solutions can be used for C2B deliveries, like customer returns if sufficient location information is available.



Flexibility on order fulfillment times

Order preparation time estimates are used to determine the courier partner arrival time at the venue and estimates for customer delivery expectations. We provide an initial order preparation time estimate to the venue. The estimate is based on courier partner proximity and availability and the expected preparation time by the merchant (predicted based on how long they usually need, the size of the order and how busy we think they currently are). The merchant can accept our estimate or provide a new estimate that matches their ability to fulfill the order. This respects the merchant's operational capability (and in-store experience) and reduces waiting times.

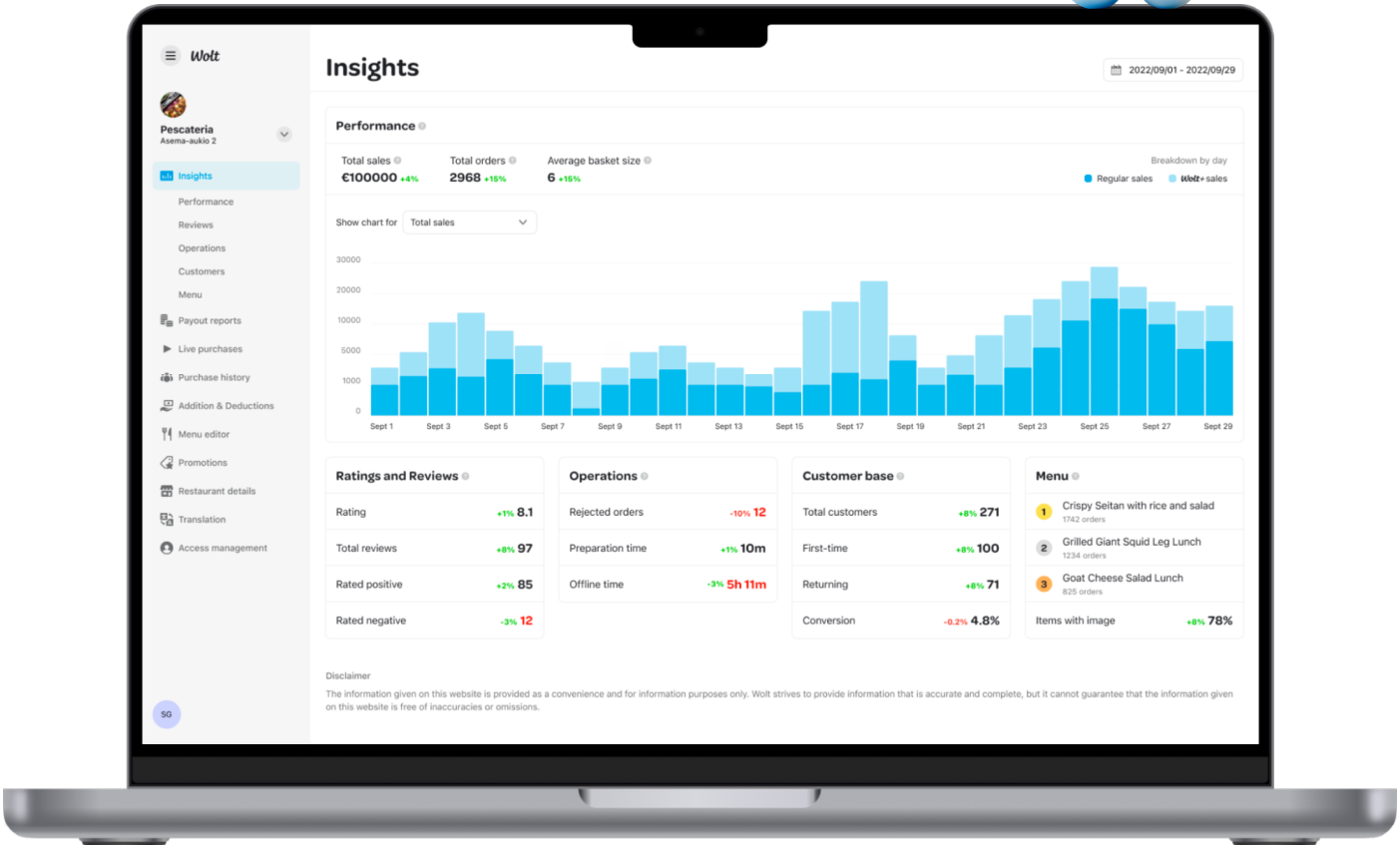
Support

Our dedicated support team is readily available to assist all our customers and partners in the local language. This ensures that merchants, in particular, have access to a team of people who can provide assistance in case they encounter any issues with their orders or require technical support throughout their journey with Wolt.

Providing insights

Wolt helps merchants grow their business by providing data and insights.

Merchants have access to all their data at the click of a button. From data about their sales to the anonymised reviews from consumers of their services. It allows merchants to make informed decisions about their operations and business. For example, showing the times and days when the venue receives most orders, or their average preparation time.

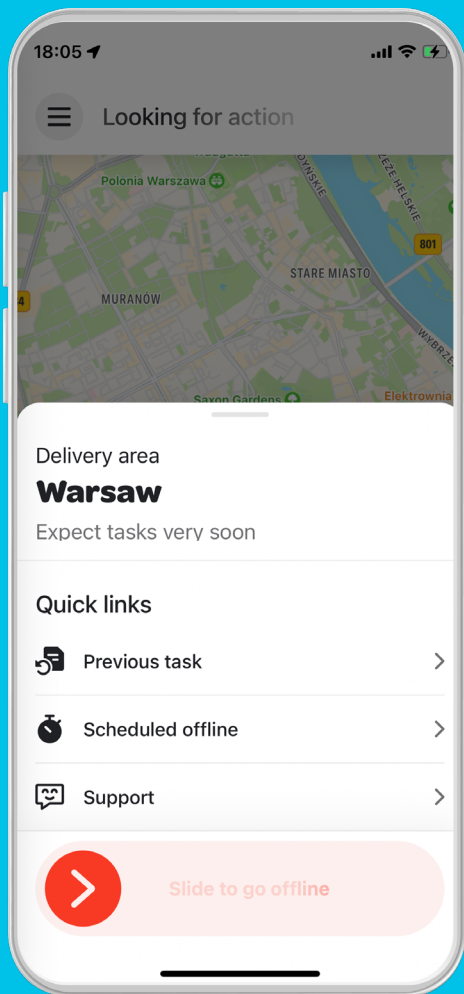


Courier Partners

At Wolt, we partner with more than 180 000 self-employed courier partners, who can freely decide when, where and how they want to perform delivery services. The following section explains the technology that the courier partners interact with and how the delivery process works.

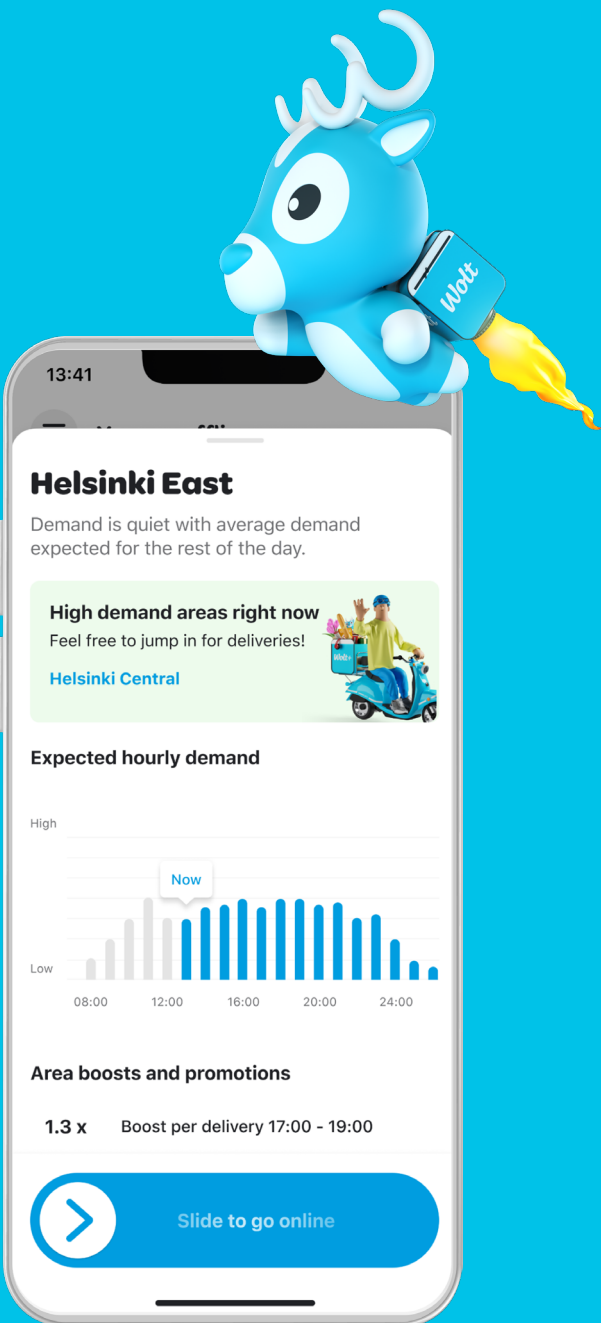
The Courier Partner App

The Wolt Courier Partner App is the central hub for courier partners. In the app they can not only access delivery task offers, but also get insights on when a city is more busy with deliveries and see their real-time earnings totals.



Once logged in to the app, courier partners can decide if they want to make themselves available for delivery tasks by choosing to go online. They are completely free to choose when they can go online and are only limited by the opening hours of Wolt in their location as there are no delivery tasks when the platform is closed. Similarly, they can also choose to make themselves unavailable for delivery tasks by deciding to go offline. Additionally, they can set a pre-determined time in the app when they will go offline automatically.

The app also provides courier partners with access to data and information that can help them in determining the optimal time to go online. For example, we have a histogram displaying times and days when the location is usually busy with orders. This feature is particularly advantageous for new courier partners who may be unaware of the peak hours, enabling them to make the most of their earnings.



Task algorithm

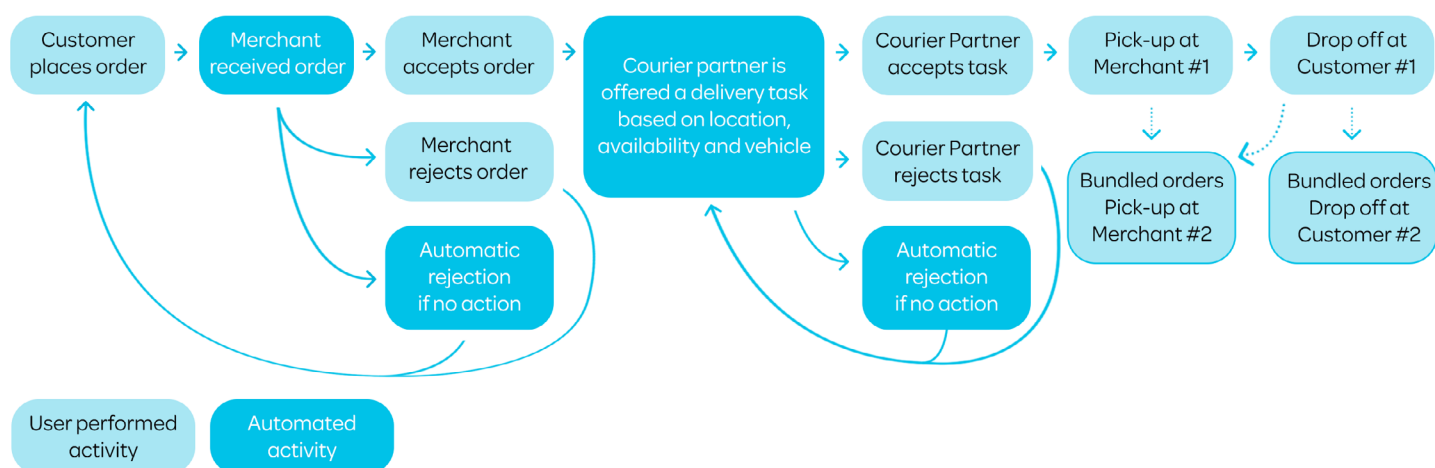
When it comes to ensuring a smooth operation and experience for the hundreds of thousands of courier partners interested in making deliveries through the Wolt platform, we depend on a task algorithm. It is the task algorithm's task (see what we did there) to offer the most suitable courier partner a delivery task between the merchant and consumer. The delivery tasks are offered equally to couriers based on three criteria:

- **Location:** We need to know the courier partner's proximity to the pick-up location to ensure a quick delivery to the customer.

- **Availability:** We need to know that a courier partner is online and ready to accept delivery tasks or that the courier partner is not already busy making another delivery.
- **Vehicle:** We need to understand what delivery vehicle the courier partner is using to understand the capacity for larger orders and the speed of the vehicle.

At Wolt, we do not use any type of performance monitoring or rating to factor into the task algorithm. In fact, courier partners are anonymised in connection to the automated task offering so that no type of subjective criteria, like personal characteristics or traits, could be factored in the algorithm.

Delivery task flowchart



Fun fact: During busy hours, our courier partners handle more than 40,000 orders at the same time.

Once the algorithm has worked out which courier partner to offer a delivery task to, the courier partner is free to accept or reject that task. To help inform the courier partners about the delivery task at hand, the following information is visible in the app:

- Venue name
- Pick-up location
- Drop-off location
- Delivery distance
- Offered fee (estimation which can be corrected upwards)



Accepting a delivery task

If the courier partner chooses to accept the task, they will start making the delivery.

However, courier partners are still free to decline an already accepted task by contacting our support team and asking them to be unassigned from the task. They don't have to provide an explanation for why they want to be unassigned from the task. The task will then be offered to the next most suitable courier partner according to the task algorithm's parameters.

Rejecting a delivery task

If the courier partner chooses to reject the offered task, it automatically is offered to the next potential courier partner based on the task algorithm's criteria.

If the courier partner does not act on the offer, it will automatically be rejected after 30 seconds*.

If no courier partner accepts the delivery offer, the offer will be canceled and the merchant and customer informed.

Rejecting a task has no effect on the courier partner's capacity to access delivery tasks in the future.

**30 seconds is the default setting across Wolt, but it is possible to manually adjust this depending on the location.*

The delivery journey

Once a courier partner accepts an offered delivery task, the delivery journey begins. The first step is to go to the address to pick-up the order from the merchant. Once at the merchant, courier partners mark in the Courier Partner App that they have all the items that are part of the order. Once the order is marked as picked-up and the courier partner has packed it into their delivery bag, they are off to the delivery address to drop off the order or to pick up another order in case of bundled deliveries.

At Wolt, it is up to the individual courier partner to choose their own delivery route from the merchant to the customer. We do not require courier partners to take a particular route. If a courier partner wants to use a map service to decide on the best route, they always use external apps for that, such as Google Maps, Waze or Apple Maps.

Once the courier partner arrives at the delivery address, they can finish the delivery task and hand off the order to the customer. In case there would be any issue, our support team is always on hand. If the courier partner needs to get in contact with the customer directly, we offer a proxy service in available markets that anonymises the calls. In that way, neither the customer, nor the courier partner can see each other's actual phone numbers.

Delivery modes

At Wolt, courier partners have the option to choose if they want to accept orders in 'Single Task Mode' or 'Bundled Task Mode'. If they choose 'Single Task Mode', they will only be offered delivery tasks one at a time. In 'Bundled Task Mode', courier partners can be offered multiple or combined delivery tasks at the same time. This is especially helpful when there are, for example, multiple orders located at a single pick-up point but destined for separate customers located in the same general direction. By bundling these tasks together, the delivery process becomes more efficient, eliminating the need for additional trips between pick-up and drop-off locations.



Third party algorithms: For document verification

Prior working experience or language proficiency is not a prerequisite to become a Wolt courier partner. All that is required is a phone, a delivery vehicle, a delivery bag meeting the food safety requirements, and the necessary legal documents. At Wolt, we have a dedicated team specifically assigned to manage the partnership with courier partners and help onboard new courier partners. To complement our team's document verification process, we have partnered with a third-party provider that employs image recognition technology and machine learning models to check for the authenticity of documents, such as photo IDs. They also have human experts who oversee the automated models to eliminate any mistakes.

Delivery time estimates

According to surveys, punctuality is usually of greater importance to our customers than an order arriving either too early or too late. As a result, we place great emphasis on providing precise delivery time estimates so that customers know when they can expect their order to arrive. How do we determine these estimates? We use a mix of data sources, which include:

- Delivery distance between venue and customer
- The ratio of current delivery tasks and active courier partners
- Average delivery time in the city in the past 30 mins
- Average venue order fulfillment time in the city in the past 30 mins
- Average venue order fulfillment time in the city based on different aggregations of historic data
- Pickup estimate in the city based on the past month's pickups

It's important to note that courier partners are not obliged to complete the delivery within the estimated time frame. Delayed deliveries are often due to circumstances outside the control of the courier partner, such as difficult traffic or weather conditions.

Data

Once an order is delivered, its specific attributes, such as delivery time, are stored within our data warehouse. Subsequently, this data is harnessed for various purposes, such as training our models and generating real-time estimates.

Non-discrimination

The task allocation process anonymizes all courier partners, so a courier partner's identity, personal characteristics or traits have no bearing on how delivery tasks are offered. Additionally, each delivery task is offered to only one courier partner at a time, thereby eliminating any competition for accepting tasks first or quickest.

Human oversight

We have a dedicated support team of humans that help both our customers and partners in the local language in a matter of seconds across our 25 markets. Courier partners can access the support team directly via the Courier Partner App. The support team can for example always unassign delivery tasks from courier partners in case they regretted accepting it in the first place.

Risk management

Our task algorithm relies heavily on accurate location data. This can cause differences in task offers between courier partners using devices with varying geolocation accuracy. To ensure accuracy, we have implemented technical and organizational measures, including regular review of the necessity, granularity and retention of such data.

To mitigate risks associated with courier partners being on the move and to limit the notifications from the app, new tasks are only offered when they are not already on a task. This way, courier partners can choose to accept the next task after delivering an order to a customer. If a courier partner is unable to interact with their device safely when being offered a task, the task is automatically offered to the next best available courier partner after the time limit. A courier partner that is not able to respond to the task offering is never penalized.

Earnings

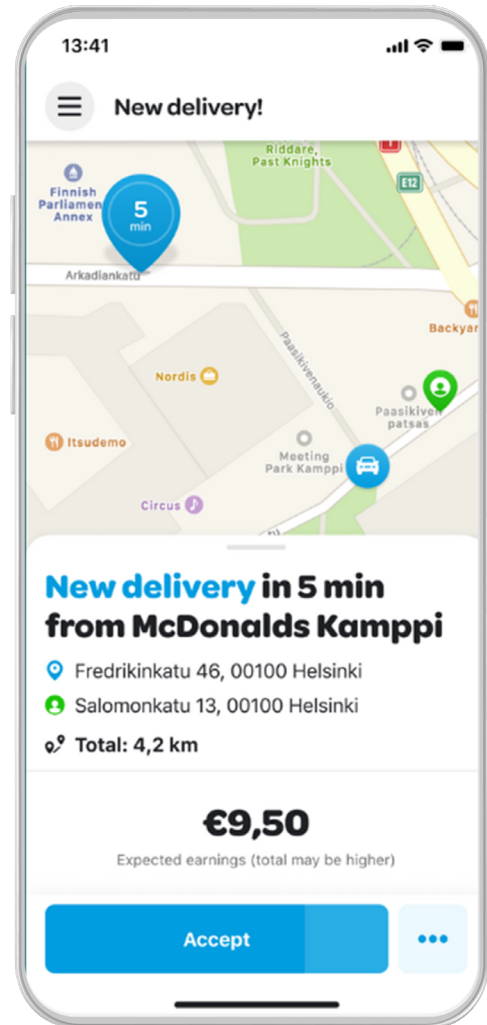
Courier partners invoice us for each completed delivery task. But no one delivery task is the same – the same trip can be very different on different days due to traffic conditions, weather and so on. Our ambition is therefore to offer a delivery fee for each delivery task that is worthwhile accepting by pricing them based on the individual factors that could potentially impact the delivery.

The model for pricing each individual delivery task is based on the following factors:

- **Estimated route distance:** The distance fee is based on the actual estimated traveled distance, and not the straight line distance.
- **Pick-up distance:** Courier partners are also paid for the distance traveled to reach the pick-up location.

Moreover, to make the estimation even more accurate, the model may also take into account:

- **Customer and merchant location:** The locations might be difficult to reach (e.g. limited parking space).
- **Weather:** Difficult weather conditions may also impact the delivery. In case of severe weather, operations will be closed.
- **Type of order:** Bigger orders in terms of volume and weight, such as large grocery orders, usually impact the delivery and should therefore be reflected in the pricing.
- **Other factors:** Other conditions, such as difficult terrain, may also influence the estimation.



With the pricing model, the task fee includes a pickup fee plus a fee for each distance the courier partner travels from the merchant to customers 1, 2, 3 and so on. This means that Wolt pays for the distance to the pick-up spot plus for the distance from the pick-up spot to customer 1, plus for the distance from customer 1 to customer 2, plus for the distance from customer 2 to customer 3, and so on. All distances are paid based on estimated route distance (also called navigated distance).

Up-front earnings estimates

To help courier partners in making informed decisions about an offered task before choosing to accept or reject it, they are shown the estimated fee for the delivery up-front. This is the minimum the courier partner will receive for the task as the estimated fee does not include tips from customers or any additional bonuses. This feature helps to simplify the decision-making process for the courier partner when deciding to accept or reject a task.



The people behind the algorithms

Behind the scenes of Wolt lies an awesome bunch of over 550+ product builders and enthusiasts. We call them Product+, as they are at the heart of our Wolt products.

Product Leads

Outcome owners

- Voice of the user in the Product team
- Responsible for the feature specifications, collaborating with various stakeholders, product prioritization, and delivery

Engineers

Build tangible things

- Build scalable, accessible, and glorious products
- Divided roughly into engineers focusing on the visible (frontend) and the unseen (backend) part

Analysts & Data Scientists

Enabling smarter data-driven decisions

- Provide new viewpoints and proof through love of data
- Ensure we do the right things with the right proof. Make the complex simple

Product Designers

Turn ideas into products

- Know what our customers want and make it tangible
- Make the visible pretty things, as well as interactions and overall user experience

Product+ build world-class products for our customers, merchants, courier partners and internal teams at Wolt. Each team is centered around a customer problem and has a selection of engineers, designers, data scientists & analysts, and product leads – whatever is needed to solve the problem at hand.



Demystifying Tech

As a tech company, autonomous digital tools, or algorithms, play a vital part in the delivery process and facilitate millions of decisions everyday. To help bridge the gap between policymakers, platform workers, merchants, and consumers, we need to make information about these tools more accessible. This report is one way of improving that transparency. Another is to help facilitate the conversations between the people building the products and the people building the law.

In 2022, Wolt launched a new workshop series called 'Demystifying Tech', which provides policymakers with an opportunity to hear directly from Wolt's product team about the technology they are building. Each workshop in the series has focused on one partner on the platform and the algorithms they interact with.

The benefits of our series extend to both parties, as product developers who typically have limited opportunities to interact with policymakers gain a better understanding of their perspectives. We are excited to continue the series and foster these valuable exchanges also in the future.



A snapshot of one of our Demystifying Tech workshops held in Brussels.

How we do things differently

Efficiency at scale

Operating in relatively small countries has meant we've productized and automated everything we can. We've built all our technology with scaling in mind.

This allows us to operate sustainably in countries as small as one million people and cities as small as 10,000 people living in our delivery area.

World-class, localized support

We know that real-time delivery has lots of moving pieces. If something goes wrong, we genuinely want to fix it.

Our local support teams answer in-app messages from our customers and partners in under 2 minutes globally. And that's real humans answering in the local language in any of our 25 countries.

Mastering the user experience

We're all about building delightful experiences for everyone, whether it's for our customers, merchant partners, courier partners or internal users.

We're humbled and proud to say our apps have the industry's highest ratings on the App Store (4.8) and Google Play (4.6).*

**global average based on more than half a million ratings in March 2023*

Privacy and security at Wolt

Privacy and information security are at the heart of Wolt. We want to make sure that our customers, partners and employees all have a great experience that is secure, reliable and responsible and respects their privacy.

In today's digital landscape, privacy is important for all of us, regardless of the services we use. At Wolt, we have prioritized data privacy and crafted our approach to align with our own personal privacy preferences, ensuring that we uphold and respect all individual's right to privacy.

We are firm believers of Privacy by Design and Privacy by Default. In practice this means we ensure that privacy is taken into account already at the planning stage of a new product, service or other personal data processing operation. This helps us to ensure that privacy is not an afterthought but the individuals' privacy is really on our mind when building up something new or amending existing offerings or operations.

We have a robust model to govern and manage privacy across the autonomous and independent product teams enabling streamlined decision-making and overall visibility on privacy matters.

We are on top of data flows on our platform and have a rigorous vendor onboarding and management process in place. This way we ensure that all our subcontractors and subprocessors comply with our privacy requirements and applicable legal rules. We also respect individuals' legal rights and provide them easy, secure and privacy-friendly ways to ensure they can access their data or execute their other legal rights. We can always be contacted and are happy to help individuals and other stakeholders with privacy related matters.

Our vision: Privacy and security are built in with every Wolt order

At Wolt, the mindset is one of proactive risk management, where security is an integral part of the business strategy. This approach has created a culture of trust and collaboration, where security is not seen as a burden, but rather a necessary component of success. The organization proactively does risk assessments to identify potential vulnerabilities and implements measures to mitigate them. By prioritizing security as an enabler, Wolt has been able to respond to new threats and emerging risks quickly and effectively.

ISO WHO?

Privacy and security goes hand-in-hand and is an essential part of securing the trust of all our partners on the platform. In 2022 we became certified for ISO 27001, the world's best-known standard for information security management systems. This is a big deal for us for many reasons, primarily because we're one of the first companies in our industry to acquire this certification. It is our commitment to keep working hard to maintain the trust and expectations that our customers and partners place in us.



Application Security

At Wolt, development teams are empowered, encouraged and supported to discover and document possible security threats throughout their development process in an iterative fashion; in particular throughout the design stages before any code is written.

Production code is placed under version control, for which an industry-leading collaborative platform is used. This platform allows the security and development teams to have visibility on metrics representing the code's quality and security. Such metrics are produced by a variety of tools that teams can choose depending on their product's technology stack. These tools may automatically subject the code to linting, security anti-pattern scans, static application security testing and to software composition analysis enriched with Common Vulnerabilities and Exposures (CVE) information. Based on their continuous integration and work management practices, teams are free to choose when and how the output of these tools shall be addressed. Additionally, the aforementioned version control platform allows teams to consciously review and judge their own code before it's integrated to the codebase. Critical repositories are subject to the four-eyes-principle before any code is integrated.

To complement our existing automated efforts to find security defects, development teams are encouraged to request technical security audits from the security team or from external consultancy companies, where such audits may be executed in a white-box fashion. Additionally, Wolt runs a security bug bounty program, where we encourage hundreds of ethical hackers to report any security bugs to us in exchange for monetary bounties.

Additional information and disclaimers:

This Wolt Algorithmic Transparency Report is limited to the relevant subject matter. For more information, please review Wolt.com and DoorDash.com, including the information that we have provided in our interim and annual reports.

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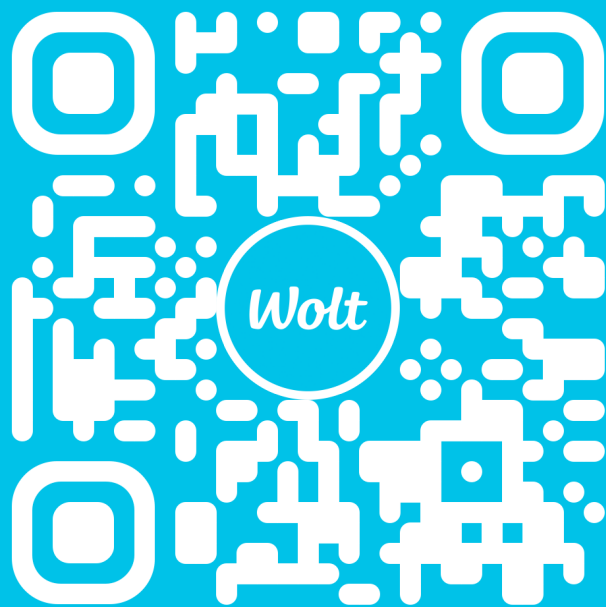
Thank you!

Wow! Thank you for making it all the way to the end of the second edition of the Wolt Algorithmic Transparency Report! We hope you found the report interesting and informative, and that it helped explain how we build our products at Wolt.

One goal of writing this report was to learn how to best share about the way things work at Wolt. Feedback is therefore much appreciated, as we strive to improve and refine our algorithms and processes continually. Your perspectives and insights are critical in helping us identify areas of the report that were particularly compelling, where further explanation is warranted, and what additional perspectives should be included. So, if you have any ideas, please don't hesitate to reach out and let's have a chat!

You can get in touch with us via the dedicated point of contact for all things algorithms and transparency: **transparency@wolt.com**. The alias is managed by Wolt's Public Policy team, who will liaise internally to gather the right people for questions, feedback and other input you might be interested in sharing with us.





Wolt