

# **Understanding Key Metrics of Santropol Roulant's Meals on Wheels Program: SQL Queries and Explanations**

## **Introduction**

This document provides an in-depth explanation of the key metrics related to Santropol Roulant's Meals on Wheels program in Montreal, QC. It aims to guide future users of the dashboard in understanding how each metric is derived and what it indicates about the program's performance. The insights presented are derived from the Sous Chef and Santropol Roulant's volunteer tracking systems. This analysis has been compiled by Moiz Shaikh and Jared Balakrishnan, graduate students at McGill University. Each metric is accompanied by the corresponding SQL query used to extract the data, ensuring transparency and clarity. This comprehensive guide is designed to aid in informed decision-making and continuous improvement of the Meals on Wheels program.

Ce document fournit une explication approfondie des principaux indicateurs liés au programme de Repas sur Roues de Santropol Roulant à Montréal, QC. Il vise à guider les futurs utilisateurs du tableau de bord dans la compréhension de la manière dont chaque indicateur est dérivé et de ce qu'il indique sur la performance du programme. Les informations présentées sont dérivées des systèmes de suivi des bénévoles de Sous Chef et de Santropol Roulant. Cette analyse a été méticuleusement compilée par Moiz Shaikh et Jared Balakrishnan, étudiants diplômés de l'Université McGill. Chaque indicateur est accompagné de la requête SQL correspondante utilisée pour extraire les données, garantissant transparence et clarté. Ce guide complet est conçu pour faciliter la prise de décision éclairée et l'amélioration continue du programme de Repas sur Roues.

# Santropol Roulant Metrics Overview

## 1. Total Amount Billed This Year / Montant Total Facturé Cette Année

The total amount billed for the current year is calculated by summing the total amount from the billing records for the selected year. This metric is essential for understanding the financial health and revenue generated by the Meals on Wheels program. It provides insight into the program's capacity to generate funds, which is crucial for sustaining operations and planning future activities.

Le montant total facturé pour l'année en cours est calculé en additionnant le montant total des enregistrements de facturation pour l'année sélectionnée. Cet indicateur est essentiel pour comprendre la santé financière et les revenus générés par le programme de Repas sur Roues. Il fournit un aperçu de la capacité du programme à générer des fonds, ce qui est crucial pour maintenir les opérations et planifier les activités futures.

```
SELECT SUM(total_amount) AS total_billed
FROM billing_billing
WHERE billing_year = '${inputs.vol_year.value}'
```

## 2. Billing Trends / Tendances de Facturation

Billing trends are analyzed both yearly and monthly. The yearly billing trend showcases the total amount billed each year, providing a historical perspective on revenue growth or decline. The monthly billing trend for the selected year helps identify seasonal patterns and fluctuations in billing. These trends are significant for financial forecasting, budget planning, and identifying periods of high or low revenue generation.

Les tendances de facturation sont analysées à la fois annuellement et mensuellement. La tendance annuelle de la facturation montre le montant total facturé chaque année, offrant une perspective historique sur la croissance ou le déclin des revenus. La tendance mensuelle de la facturation pour l'année sélectionnée aide à identifier les modèles saisonniers et les fluctuations de la facturation. Ces tendances sont importantes pour les prévisions financières, la planification budgétaire et l'identification des périodes de génération de revenus élevée ou faible.

```
SELECT billing_year AS year,
       SUM(total_amount) as amount_billed
FROM billing_billing
GROUP BY 1;
```

```
SELECT billing_month as month,
       total_amount as total_billed
FROM souschef.billing_billing
WHERE billing_year = '${inputs.vol_year.value}'
```

### 3. Clients Serviced / Clients Servis

The number of clients serviced each year and month is tracked to evaluate the reach and impact of the Meals on Wheels program. This metric highlights the program's effectiveness in serving the community and helps in resource planning and allocation. Understanding the number of clients serviced can assist in scaling the program and ensuring that adequate resources and volunteers are available to meet demand.

Le nombre de clients servis chaque année et chaque mois est suivi pour évaluer la portée et l'impact du programme de Repas sur Roues. Cet indicateur met en évidence l'efficacité du programme à servir la communauté et aide à la planification et à l'allocation des ressources. Comprendre le nombre de clients servis peut aider à étendre le programme et à s'assurer que des ressources et des bénévoles adéquats sont disponibles pour répondre à la demande.

```
SELECT YEAR(delivery_date) AS year,
       COUNT(DISTINCT mc.id) AS clients_served
FROM order_order orders
LEFT JOIN souschef.member_client mc
      ON orders.client_id = mc.id
GROUP BY 1
```

```
SELECT DATE_TRUNC('month', delivery_date) AS month,
       COUNT(DISTINCT mc.id) AS clients_served
FROM order_order orders
```

```

LEFT JOIN souschef.member_client mc
    ON orders.client_id = mc.id
WHERE YEAR(orders.delivery_date) = '${inputs.vol_year.value}'
GROUP BY 1

```

#### 4. Client Profile / Profil des Clients

Key metrics related to clients include the total number of clients ever served, clients serviced in the current year, new clients, regular clients, episodic clients, low-income clients, and clients over the ages of 65 and 80. These metrics provide a detailed demographic breakdown, helping to understand the client base and tailor services to meet their needs. For example, knowing the number of low-income clients can help in securing grants or subsidies, while understanding the age distribution ensures appropriate meal planning and delivery methods.

Les principaux indicateurs liés aux clients comprennent le nombre total de clients jamais servis, les clients servis dans l'année en cours, les nouveaux clients, les clients réguliers, les clients épisodiques, les clients à faible revenu et les clients de plus de 65 et 80 ans. Ces indicateurs fournissent une répartition démographique détaillée, aidant à comprendre la base de clients et à adapter les services pour répondre à leurs besoins. Par exemple, connaître le nombre de clients à faible revenu peut aider à obtenir des subventions ou des aides, tandis que comprendre la répartition par âge permet une planification et une livraison des repas appropriées.

```

SELECT COUNT(DISTINCT id) AS customers_served_till_date
FROM souschef.member_client

```

```

SELECT COUNT(DISTINCT client_id) AS clients_serviced
FROM ${clients_orders_combined}

```

```

WITH client_delivery_date_ranked as (
    SELECT *,
        RANK() OVER(PARTITION BY client_id ORDER BY delivery_date ASC)
    AS client_appearance_rank

```

```

        FROM souschef.order_order
        WHERE status IN ('D', 'N')
    )
    SELECT COUNT(DISTINCT client_id) AS new_clients
    FROM client_delivery_date_ranked
    WHERE client_appearance_rank = 1
    AND YEAR(delivery_date) = '${inputs.vol_year.value}';

```

```

SELECT COUNT(DISTINCT client_id) AS regular_clients
FROM ${clients_orders_combined}
WHERE client_delivery_type = 'O'

```

```

SELECT COUNT(DISTINCT client_id) AS episodic_clients
FROM ${clients_orders_combined}
WHERE client_delivery_type = 'E'

```

```

SELECT COUNT(DISTINCT client_id) AS low_income_clients
FROM ${clients_orders_combined}
WHERE client_rate_type = 'low income'

```

```

SELECT COUNT(DISTINCT client_id) AS clients_over_65
FROM ${clients_orders_combined}
WHERE client_age >= 65

```

```

SELECT COUNT(DISTINCT client_id) AS clients_over_80
FROM ${clients_orders_combined}
WHERE client_age >= 80

```

## 5. Client Age and Language / Âge et Langue des Clients

The average and median ages of clients are calculated to assess the age distribution. Additionally, the number of anglophone and francophone clients is tracked to understand language preferences, aiding in effective communication and service delivery. These metrics ensure that the program is accessible and appropriately tailored to the linguistic and age-related needs of the community.

Les âges moyens et médians des clients sont calculés pour évaluer la répartition par âge. De plus, le nombre de clients anglophones et francophones est suivi pour comprendre les préférences linguistiques, aidant à une communication et une prestation de services efficaces. Ces indicateurs garantissent que le programme est accessible et adapté aux besoins linguistiques et liés à l'âge de la communauté.

```
SELECT AVG(client_age) AS average_client_age
FROM ${clients_orders_combined}
```

```
SELECT MEDIAN(client_age) AS median_client_age
FROM ${clients_orders_combined}
```

```
SELECT COUNT(DISTINCT client_id) AS anglophone_clients
FROM ${clients_orders_combined}
WHERE client_primary_language = 'en'
```

```
SELECT COUNT(DISTINCT client_id) AS francophone_clients
FROM ${clients_orders_combined}
WHERE client_primary_language = 'fr'
```

## **6. Client Gender Distribution / Répartition des Sexes des Clients**

The gender split among clients, categorized as female and male clients, provides insights into the gender demographics of those served by the program. This information can be useful for ensuring gender inclusivity and addressing any specific needs related to gender.

La répartition des sexes parmi les clients, classés en clients féminins et masculins, fournit des informations sur la démographie de genre des personnes servies par le programme. Ces informations peuvent être utiles pour garantir l'inclusivité de genre et répondre à des besoins spécifiques liés au genre.

```
SELECT COUNT(DISTINCT client_id) AS female_clients
FROM ${clients_orders_combined}
WHERE client_gender = 'F'
```

```
SELECT COUNT(DISTINCT client_id) AS male_clients
FROM ${clients_orders_combined}
WHERE client_gender = 'M'
```

## 7. Orders and Deliveries / Commandes et Livraisons

Metrics related to orders and deliveries include the total meals ordered, meals delivered, and meal orders canceled for the selected year. Weekly delivery trends and the average number of meals delivered per week are also tracked. This data helps monitor the operational efficiency and service delivery of the program. It is crucial for managing inventory, planning logistics, and ensuring that the program meets its service commitments.

Les indicateurs liés aux commandes et aux livraisons comprennent le nombre total de repas commandés, livrés et les commandes annulées pour l'année sélectionnée. Les tendances de livraison hebdomadaires et le nombre moyen de repas livrés par semaine sont également suivis. Ces données aident à surveiller l'efficacité opérationnelle et la prestation de services du programme. Elles sont cruciales pour gérer les stocks, planifier la logistique et s'assurer que le programme respecte ses engagements de service.

```
SELECT COUNT(id) AS meals_ordered
FROM souschef.order_order
WHERE YEAR(delivery_date) = '${inputs.vol_year.value}'
```

```
SELECT COUNT(DISTINCT id) AS meals_delivered
FROM souschef.order_order
WHERE YEAR(delivery_date) = '${inputs.vol_year.value}'
```

```
AND status IN ('D', 'N');
```

```
SELECT COUNT(DISTINCT id) AS meal_orders_canceled
FROM souschef.order_order
WHERE YEAR(delivery_date) = '${inputs.vol_year.value}'
AND status = 'C';
```

```
WITH weekly_deliveries AS (SELECT delivery_date,
                                WEEK(delivery_date) AS delivery_week,
                                client_id
                            FROM order_order
                            WHERE status IN ('D', 'N')
                            AND YEAR(delivery_date) =
                                '${inputs.vol_year.value}')
SELECT delivery_week,
       COUNT(DISTINCT client_id) AS meal_deliveries
FROM weekly_deliveries
GROUP BY 1
```

```
SELECT AVG(meal_deliveries) AS average_meals_delivered_per_week
FROM ${weekly_deliveries_aggregate}
```

## 8. Delivery Methods / Méthodes de Livraison

The preferred delivery methods are analyzed by tracking the number of deliveries made by foot, car, and bike. This information helps optimize delivery logistics and ensures efficient resource utilization. Understanding delivery methods is important for managing volunteer resources, ensuring timely deliveries, and reducing operational costs.

Les méthodes de livraison préférées sont analysées en suivant le nombre de livraisons effectuées à pied, en voiture et à vélo. Ces informations aident à optimiser la logistique de livraison et à assurer une utilisation efficace des ressources. Comprendre les méthodes de



livraison est important pour gérer les ressources bénévoles, garantir des livraisons ponctuelles et réduire les coûts opérationnels.

```
WITH date_method_meals_delivered AS (  
    SELECT id,  
           date,  
           vehicle,  
           client_id_sequence AS client_list,  
           (LENGTH(REPLACE(client_id_sequence, ' ', '')) -  
            LENGTH(REPLACE(REPLACE(client_id_sequence, ' ', ''), ',', '')))  
+ 1) AS number_of_clients  
    FROM member_deliveryhistory  
)  
SELECT  
    SUM(CASE WHEN vehicle = 'walking' THEN number_of_clients ELSE 0 END) AS  
by_foot,  
    SUM(CASE WHEN vehicle = 'driving' THEN number_of_clients ELSE 0 END) AS  
by_car,  
    SUM(CASE WHEN vehicle = 'cycling' THEN number_of_clients ELSE 0 END) AS  
by_bike  
FROM date_method_meals_delivered  
WHERE YEAR(date) = '${inputs.vol_year.value}';
```

## 9. Volunteer Registration Trends / Tendances des Inscriptions des Bénévoles

The dashboard also includes metrics on volunteer registration trends, both yearly and monthly. This data highlights the engagement level of the community and the effectiveness of volunteer recruitment efforts. Tracking volunteer registrations helps in planning volunteer recruitment drives and managing volunteer resources effectively.

Le tableau de bord inclut également des indicateurs sur les tendances des inscriptions des bénévoles, à la fois annuellement et mensuellement. Ces données mettent en évidence le niveau d'engagement de la communauté et l'efficacité des efforts de recrutement des bénévoles. Le suivi des inscriptions des bénévoles aide à planifier les campagnes de recrutement des bénévoles et à gérer efficacement les ressources bénévoles.

```
SELECT YEAR(VOL_CREATED) AS year,  
       COUNT(DISTINCT RECORD_ID) AS volunteers_registered
```

```
FROM airtable.FACT_VOL_CENTRAL
GROUP BY 1
```

```
SELECT DATE_TRUNC('month', VOL_CREATED) AS month,
       COUNT(DISTINCT id) AS volunteers_registered
FROM airtable.FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
GROUP BY 1
```

## 10. Volunteer Demographics / Démographie des Bénévoles

Detailed metrics on volunteers include the total number of volunteers registered, average age, number of young (12-17 years), adult (18-59 years), and senior (60+ years) volunteers, school-mandated registrations, and community or paid registrations. This data provides a comprehensive view of the volunteer workforce and helps in designing programs and initiatives that cater to the diverse age groups and motivations of volunteers.

Les indicateurs détaillés sur les bénévoles incluent le nombre total de bénévoles inscrits, l'âge moyen, le nombre de jeunes (12-17 ans), d'adultes (18-59 ans) et de seniors (60+ ans), les inscriptions obligatoires par l'école et les inscriptions communautaires ou rémunérées. Ces données fournissent une vue d'ensemble complète de la main-d'œuvre bénévole et aident à concevoir des programmes et des initiatives qui répondent aux différents groupes d'âge et motivations des bénévoles.

```
SELECT COUNT(DISTINCT RECORD_ID) AS volunteers_registered
FROM airtable.FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
```

```
SELECT CAST(AVG(VOL_AGE) AS INTEGER) AS average_age
FROM airtable.FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
LIMIT 50;
```

```
SELECT COUNT(DISTINCT RECORD_ID) AS young_volunteers_registered
FROM airtable.FACT_VOL_CENTRAL
WHERE VOL_AGE BETWEEN 12 AND 17
AND YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
```

```
SELECT COUNT(DISTINCT RECORD_ID) AS adult_volunteers_registered
FROM airtable.FACT_VOL_CENTRAL
WHERE VOL_AGE BETWEEN 18 AND 59
AND YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
```

```
SELECT COUNT(DISTINCT RECORD_ID) AS senior_volunteers_registered
FROM airtable.FACT_VOL_CENTRAL
WHERE VOL_AGE >= 60
AND YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
```

```
SELECT COUNT(DISTINCT RECORD_ID) AS School_Mandated_Registrations
FROM airtable.FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
AND VOL_SCHOOL_HOURS_FLAG = 'Yes'
```

```
SELECT COUNT(DISTINCT RECORD_ID) AS Paid_or_Community_Service_Registrations
FROM airtable.FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
AND VOL_COMMUNITY_PAID_FLAG = 'Yes'
```

## **11. Volunteer Language and Skills / Langue et Compétences des Bénévoles**

The linguistic background of volunteers is tracked to ensure effective communication and inclusivity. Additionally, the number of volunteers with prior kitchen experience is noted, which is crucial for planning and assigning volunteer tasks. Knowing the language

preferences and skillsets of volunteers helps in assigning them to appropriate roles and ensuring effective communication within the team.

Les antécédents linguistiques des bénévoles sont suivis pour assurer une communication efficace et l'inclusivité. De plus, le nombre de bénévoles ayant une expérience préalable en cuisine est noté, ce qui est crucial pour la planification et l'affectation des tâches des bénévoles. Connaître les préférences linguistiques et les compétences des bénévoles aide à les affecter à des rôles appropriés et à garantir une communication efficace au sein de l'équipe.

```
SELECT COALESCE(VOL_PRIMARY_LANGUAGE, 'Information not Provided') AS
primary_language,
COUNT(DISTINCT RECORD_ID) AS volunteers_registered
FROM airtable.FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
GROUP BY 1
ORDER BY 2 DESC
```

```
SELECT COUNT(DISTINCT RECORD_ID) AS
Volunteers_with_Prior_Kitchen_Experience
FROM FACT_VOL_CENTRAL
WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}'
AND VOL_KITCHEN_EXPERIENCE = 'Yes'
```

## **12. Volunteer Program Interests / Intérêts des Bénévoles pour les Programmes**

Volunteer program interests are analyzed by tracking the number of volunteers interested in various programs such as Meals on Wheels delivery, kitchen shifts, urban agriculture, farming, caring calls, veggie baskets, events, and collectives. This helps in aligning volunteer interests with program needs, ensuring that volunteers are engaged in activities that they find meaningful and enjoyable.

Les intérêts des bénévoles pour les programmes sont analysés en suivant le nombre de bénévoles intéressés par divers programmes tels que la livraison de Repas sur Roues, les quarts de cuisine, l'agriculture urbaine, l'agriculture, les appels de bienveillance, les paniers de légumes, les événements et les collectifs. Cela aide à aligner les intérêts des bénévoles

avec les besoins du programme, en s'assurant que les bénévoles participent à des activités qu'ils trouvent significatives et agréables.

```
WITH program_interest AS(
    SELECT vol.ID,
           vol.RECORD_ID,
           vol.VOL_STATUS,
           vol.VOL_FIRST_NAME,
           vol.VOL_LAST_NAME,
           programs.PGM_DELIVERY AS Delivery,
           programs.PGM_KITCHEN AS Kitchen,
           programs.PGM_URBAN_AGRICULTURE AS Urban_Agriculture,
           programs.PGM_FARM AS Farming,
           programs.PGM_CARING_CALLS AS Caring_Calls,
           programs.PGM_VEGGIE_BASKETS AS Veggie_Baskets,
           programs.PGM_EVENTS AS Events,
           programs.PGM_COLLECTIVES AS Collectives
    FROM FACT_VOL_CENTRAL vol
    LEFT JOIN DIM_VOL_PGM_PREFERENCES programs
        ON programs.RECORD_ID = vol.RECORD_ID
    WHERE YEAR(vol.VOL_CREATED) = '${inputs.vol_year.value}'
)
SELECT SUM(Delivery) AS Meals_on_Wheels_Delivery,
       SUM(Kitchen) AS Meals_on_Wheels_Kitchen,
       SUM(Urban_Agriculture) AS Urban_Agriculture,
       SUM(Farming) AS Farming,
       SUM(Caring_Calls) AS Caring_Calls,
       SUM(Veggie_Baskets) AS Veggie_Baskets,
       SUM(Events) AS Events,
       SUM(Collectives) AS Collectives
FROM program_interest
```

### 13. Shift Preferences / Préférences de Quart de Travail

Volunteer shift preferences, including delivery preferences such as having a car, delivering by bike, preferring to deliver in pairs, using public transit, and being licensed to drive, are tracked. This information assists in scheduling and optimizing volunteer shifts, ensuring that volunteers are assigned to tasks that match their preferences and capabilities.

Les préférences de quart de travail des bénévoles, y compris les préférences de livraison telles que posséder une voiture, livrer à vélo, préférer livrer en paire, utiliser les transports en commun et avoir un permis de conduire, sont suivies. Ces informations aident à planifier et optimiser les quarts de travail des bénévoles, en s'assurant que les bénévoles sont affectés à des tâches correspondant à leurs préférences et capacités.

```
WITH this_year_vols AS (  
    SELECT *  
    FROM airtable.FACT_VOL_CENTRAL  
    WHERE YEAR(VOL_CREATED) = '${inputs.vol_year.value}')  
SELECT SUM(DEL_HAVE_A_CAR) AS have_a_car,  
       SUM(DEL_BY_BIKE) AS by_bike,  
       SUM(DEL_AGE_GEQ_25) AS age_geq_25,  
       SUM(DEL_ACCOUNT_COMMUNAUTO) AS communauto_account,  
       SUM(DEL_IN_PAIRS) AS del_in_pairs,  
       SUM(DEL_BY_PUBLIC_TRANSIT) AS del_public_transit,  
       SUM(DEL_LICENSED_TO_DRIVE) AS licensed_to_drive  
FROM airtable.DIM_VOL_DELIVERY_PREFERENCES  
WHERE RECORD_ID IN (SELECT DISTINCT RECORD_ID FROM this_year_vols)
```

By providing detailed insights into these metrics, this dashboard aims to enhance the understanding of the Meals on Wheels program's operational and demographic dynamics, ultimately aiding in better decision-making and service improvement.

En fournissant des informations détaillées sur ces indicateurs, ce tableau de bord vise à améliorer la compréhension des dynamiques opérationnelles et démographiques du programme de Repas sur Roues, aidant ainsi à une meilleure prise de décision et à l'amélioration du service.