**From:** Garg, Alok (NonEmp) <alok.garg@kroger.com>   
**Sent:** Thursday, January 25, 2024 11:05 AM  
**To:** Opinder Sardana <Opinder\_Sardana@infosys.com>; Ajith George <Ajith\_George@infosys.com>; Amit Kumar Garg <AmitK\_Garg@infosys.com>; Neeraj\_dixit <Neeraj\_dixit@infosys.com>; Nair, Deevraj (NonEmp) <deevraj.nair@kroger.com>; Muthyala, Vishy (NonEmp) <vishy.muthyala@kroger.com>; Bhagavatula, Prasant (NonEmp) <prasant.bhagavatula@kroger.com>; Divakar, Kiran Karthika (NonEmp) <kirankarthika.divakar@kroger.com>; Vikram Chopra <Vikram\_YC@infosys.com>; Srinivas Gopal Sugavanam <Srinivas\_Sugavanam@infosys.com>; alok\_garg <alok\_garg@infosys.com>  
**Cc:** Chakraborty, Shiladitya (NonEmp) <shiladitya.chakraborty@kroger.com>; M N, Mallik (NonEmp) <mallik.mn@kroger.com>; V Ray, Shashank (NonEmp) <shashank.vray@kroger.com>; Yue, Sophia (NonEmp) <sophia.yue@kroger.com>; Sarkar, Suman (NonEmp) <suman.sarkar@kroger.com>; Dua, Prateek (NonEmp) <prateek.dua@kroger.com>; Anand, Neena (NonEmp) <neena.anand@kroger.com>; Agarwal, Vivek (NonEmp) <vivek.agarwal@kroger.com>; Stephen Ponniah <Stephen\_Ponniah@infosys.com>  
**Subject:** Re: KTD Release Announcement - Increased Flavor, Color & Scent on 579k Products leveraging AI / ML

Great achievement team! This is very timely as it will be very relevant for Item Harmonization for the upcoming merger.

Congratulations!

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Congratulations!

**From:** Opinder Sardana <[Opinder\_Sardana@infosys.com](mailto:Opinder_Sardana@infosys.com)>  
**Date:** Wednesday, January 24, 2024 at 11:48 PM  
**To:** Ajith George <[Ajith\_George@infosys.com](mailto:Ajith_George@infosys.com)>, Amit Kumar Garg <[AmitK\_Garg@infosys.com](mailto:AmitK_Garg@infosys.com)>, Neeraj\_dixit <[Neeraj\_dixit@infosys.com](mailto:Neeraj_dixit@infosys.com)>, Nair, Deevraj (NonEmp) <[deevraj.nair@kroger.com](mailto:deevraj.nair@kroger.com)>, Muthyala, Vishy (NonEmp) <[vishy.muthyala@kroger.com](mailto:vishy.muthyala@kroger.com)>, Garg, Alok (NonEmp) <[alok.garg@kroger.com](mailto:alok.garg@kroger.com)>, Bhagavatula, Prasant (NonEmp) <[prasant.bhagavatula@kroger.com](mailto:prasant.bhagavatula@kroger.com)>, Divakar, Kiran Karthika (NonEmp) <[kirankarthika.divakar@kroger.com](mailto:kirankarthika.divakar@kroger.com)>, Vikram Chopra <[Vikram\_YC@infosys.com](mailto:Vikram_YC@infosys.com)>, Srinivas Gopal Sugavanam <[Srinivas\_Sugavanam@infosys.com](mailto:Srinivas_Sugavanam@infosys.com)>  
**Cc:** Chakraborty, Shiladitya (NonEmp) <[shiladitya.chakraborty@kroger.com](mailto:shiladitya.chakraborty@kroger.com)>, M N, Mallik (NonEmp) <[mallik.mn@kroger.com](mailto:mallik.mn@kroger.com)>, V Ray, Shashank (NonEmp) <[shashank.vray@kroger.com](mailto:shashank.vray@kroger.com)>, Yue, Sophia (NonEmp) <[sophia.yue@kroger.com](mailto:sophia.yue@kroger.com)>, Sarkar, Suman (NonEmp) <[suman.sarkar@kroger.com](mailto:suman.sarkar@kroger.com)>, Dua, Prateek (NonEmp) <[prateek.dua@kroger.com](mailto:prateek.dua@kroger.com)>, Anand, Neena (NonEmp) <[neena.anand@kroger.com](mailto:neena.anand@kroger.com)>, Agarwal, Vivek (NonEmp) <[vivek.agarwal@kroger.com](mailto:vivek.agarwal@kroger.com)>, Stephen Ponniah <[Stephen\_Ponniah@infosys.com](mailto:Stephen_Ponniah@infosys.com)>  
**Subject:** Re: KTD Release Announcement - Increased Flavor, Color & Scent on 579k Products leveraging AI / ML

**\*\* [EXTERNAL EMAIL]:** Do not click links or open attachments unless you recognize the sender and know the content is safe. **\*\***

Congrats, team!! This is marvelous! This proves many things for us.

Neeraj, I am assuming you are already thinking ahead of additional areas we can help solve very quickly given the outcome with this. Thanks for summarizing the use case, approach, and output below.

Deevraj and team members that are doing this, we all need to learn from you. I suggest we setup a call for all members of Kroger team onsite & offshore and present this example of what we achieved in Kroger. Please invite me as well.

Opinder

**From:** Ajith George <[Ajith\_George@infosys.com](mailto:Ajith_George@infosys.com)>  
**Sent:** Wednesday, January 24, 2024 10:41 PM  
**To:** Amit Kumar Garg <[AmitK\_Garg@infosys.com](mailto:AmitK_Garg@infosys.com)>; Neeraj\_dixit <[Neeraj\_dixit@infosys.com](mailto:Neeraj_dixit@infosys.com)>; Nair, Deevraj (NonEmp) <[deevraj.nair@kroger.com](mailto:deevraj.nair@kroger.com)>; Muthyala, Vishy (NonEmp) <[vishy.muthyala@kroger.com](mailto:vishy.muthyala@kroger.com)>; Garg, Alok (NonEmp) <[alok.garg@kroger.com](mailto:alok.garg@kroger.com)>; Bhagavatula, Prasant (NonEmp) <[prasant.bhagavatula@kroger.com](mailto:prasant.bhagavatula@kroger.com)>; Divakar, Kiran Karthika (NonEmp) <[kirankarthika.divakar@kroger.com](mailto:kirankarthika.divakar@kroger.com)>; Vikram Chopra <[Vikram\_YC@infosys.com](mailto:Vikram_YC@infosys.com)>; Opinder Sardana <[Opinder\_Sardana@infosys.com](mailto:Opinder_Sardana@infosys.com)>; Srinivas Gopal Sugavanam <[Srinivas\_Sugavanam@infosys.com](mailto:Srinivas_Sugavanam@infosys.com)>  
**Cc:** Chakraborty, Shiladitya (NonEmp) <[shiladitya.chakraborty@kroger.com](mailto:shiladitya.chakraborty@kroger.com)>; M N, Mallik (NonEmp) <[mallik.mn@kroger.com](mailto:mallik.mn@kroger.com)>; V Ray, Shashank (NonEmp) <[shashank.vray@kroger.com](mailto:shashank.vray@kroger.com)>; Yue, Sophia (NonEmp) <[sophia.yue@kroger.com](mailto:sophia.yue@kroger.com)>; Sarkar, Suman (NonEmp) <[suman.sarkar@kroger.com](mailto:suman.sarkar@kroger.com)>; Dua, Prateek (NonEmp) <[prateek.dua@kroger.com](mailto:prateek.dua@kroger.com)>; Anand, Neena (NonEmp) <[neena.anand@kroger.com](mailto:neena.anand@kroger.com)>; Agarwal, Vivek (NonEmp) <[vivek.agarwal@kroger.com](mailto:vivek.agarwal@kroger.com)>; Stephen Ponniah <[Stephen\_Ponniah@infosys.com](mailto:Stephen_Ponniah@infosys.com)>  
**Subject:** RE: KTD Release Announcement - Increased Flavor, Color & Scent on 579k Products leveraging AI / ML

Just too good…I agree.  Really exciting to see the direct value delivered. Superb stuff.

Thanks a lot Infosys “Finding Nemo” team and thank you Deevraj for driving this entire initiative!

Rgds,

Ajith.

**From:** Amit Kumar Garg <[AmitK\_Garg@infosys.com](mailto:AmitK_Garg@infosys.com)>   
**Sent:** Thursday, January 25, 2024 8:44 AM  
**To:** Neeraj\_dixit <[Neeraj\_dixit@infosys.com](mailto:Neeraj_dixit@infosys.com)>; Nair, Deevraj (NonEmp) <[deevraj.nair@kroger.com](mailto:deevraj.nair@kroger.com)>; Muthyala, Vishy (NonEmp) <[vishy.muthyala@kroger.com](mailto:vishy.muthyala@kroger.com)>; Garg, Alok (NonEmp) <[alok.garg@kroger.com](mailto:alok.garg@kroger.com)>; Ajith George <[Ajith\_George@infosys.com](mailto:Ajith_George@infosys.com)>; Bhagavatula, Prasant (NonEmp) <[prasant.bhagavatula@kroger.com](mailto:prasant.bhagavatula@kroger.com)>; Divakar, Kiran Karthika (NonEmp) <[kirankarthika.divakar@kroger.com](mailto:kirankarthika.divakar@kroger.com)>; Vikram Chopra <[Vikram\_YC@infosys.com](mailto:Vikram_YC@infosys.com)>; Opinder Sardana <[Opinder\_Sardana@infosys.com](mailto:Opinder_Sardana@infosys.com)>; Srinivas Gopal Sugavanam <[Srinivas\_Sugavanam@infosys.com](mailto:Srinivas_Sugavanam@infosys.com)>  
**Cc:** Chakraborty, Shiladitya (NonEmp) <[shiladitya.chakraborty@kroger.com](mailto:shiladitya.chakraborty@kroger.com)>; M N, Mallik (NonEmp) <[mallik.mn@kroger.com](mailto:mallik.mn@kroger.com)>; V Ray, Shashank (NonEmp) <[shashank.vray@kroger.com](mailto:shashank.vray@kroger.com)>; Yue, Sophia (NonEmp) <[sophia.yue@kroger.com](mailto:sophia.yue@kroger.com)>; Sarkar, Suman (NonEmp) <[suman.sarkar@kroger.com](mailto:suman.sarkar@kroger.com)>; Dua, Prateek (NonEmp) <[prateek.dua@kroger.com](mailto:prateek.dua@kroger.com)>; Anand, Neena (NonEmp) <[neena.anand@kroger.com](mailto:neena.anand@kroger.com)>; Agarwal, Vivek (NonEmp) <[vivek.agarwal@kroger.com](mailto:vivek.agarwal@kroger.com)>  
**Subject:** RE: KTD Release Announcement - Increased Flavor, Color & Scent on 579k Products leveraging AI / ML

Congrats Deevraj & Team. This is really great and foundational capability to elevate consumer experience.

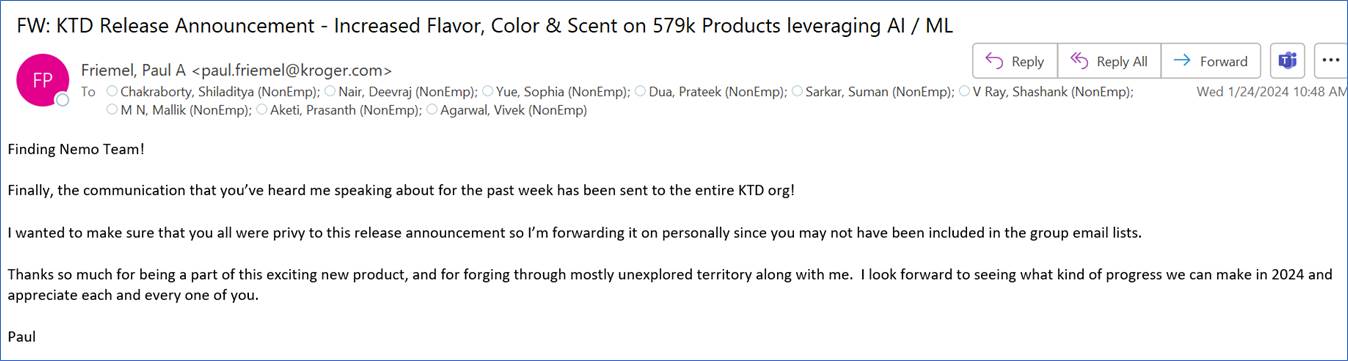
**From:** Neeraj\_dixit <[Neeraj\_dixit@infosys.com](mailto:Neeraj_dixit@infosys.com)>   
**Sent:** Wednesday, January 24, 2024 8:18 PM  
**To:** Nair, Deevraj (NonEmp) <[deevraj.nair@kroger.com](mailto:deevraj.nair@kroger.com)>; Muthyala, Vishy (NonEmp) <[vishy.muthyala@kroger.com](mailto:vishy.muthyala@kroger.com)>; Garg, Alok (NonEmp) <[alok.garg@kroger.com](mailto:alok.garg@kroger.com)>; Ajith George <[Ajith\_George@infosys.com](mailto:Ajith_George@infosys.com)>; Bhagavatula, Prasant (NonEmp) <[prasant.bhagavatula@kroger.com](mailto:prasant.bhagavatula@kroger.com)>; Divakar, Kiran Karthika (NonEmp) <[kirankarthika.divakar@kroger.com](mailto:kirankarthika.divakar@kroger.com)>; Vikram Chopra <[Vikram\_YC@infosys.com](mailto:Vikram_YC@infosys.com)>; Opinder Sardana <[Opinder\_Sardana@infosys.com](mailto:Opinder_Sardana@infosys.com)>; Srinivas Gopal Sugavanam <[Srinivas\_Sugavanam@infosys.com](mailto:Srinivas_Sugavanam@infosys.com)>; Amit Kumar Garg <[AmitK\_Garg@infosys.com](mailto:AmitK_Garg@infosys.com)>  
**Cc:** Chakraborty, Shiladitya (NonEmp) <[shiladitya.chakraborty@kroger.com](mailto:shiladitya.chakraborty@kroger.com)>; M N, Mallik (NonEmp) <[mallik.mn@kroger.com](mailto:mallik.mn@kroger.com)>; V Ray, Shashank (NonEmp) <[shashank.vray@kroger.com](mailto:shashank.vray@kroger.com)>; Yue, Sophia (NonEmp) <[sophia.yue@kroger.com](mailto:sophia.yue@kroger.com)>; Sarkar, Suman (NonEmp) <[suman.sarkar@kroger.com](mailto:suman.sarkar@kroger.com)>; Dua, Prateek (NonEmp) <[prateek.dua@kroger.com](mailto:prateek.dua@kroger.com)>; Anand, Neena (NonEmp) <[neena.anand@kroger.com](mailto:neena.anand@kroger.com)>; Agarwal, Vivek (NonEmp) <[vivek.agarwal@kroger.com](mailto:vivek.agarwal@kroger.com)>  
**Subject:** RE: KTD Release Announcement - Increased Flavor, Color & Scent on 579k Products leveraging AI / ML

Dear Team,

What an amazing accomplishment. You have improve Kroger taxonomy through Machine learning, improving the item master data for e-commerce and in-store pricing, promotion, campaigns etc. This is very foundational capability for any retailer. Against target of 50K items, you have delivered 500K items in production. What an achievement, take a bow.

Deevraj,

Please create 2 slider case study.



We are excited to announce that the Item Experience team has increased the We are excited to announce that the Item Experience team has increased the Flavor, Color, and Scent attributes on our Products from 10,000 to 579,000 in Q4 2023.

**This effort aligns to the Category Taxonomy Standards Tracker where these Product attributes will benefit top selling categories such as Ice cream, Pantry, Beverages, Beauty, and Personal Care.**

**Problem Summary / Why it matters**

Gathering and entering product attribute data is largely a manual effort. The result of this is that many Kroger product attribute fields are empty or have inconsistent values populated, which makes consumer adoption of the data meaningless because it lacks completeness.

When customers search for products on banner.com, their results are limited by the types of data we have available to retrieve relevant products the customer wants to find. The key driving factor for Product Search and Discoverability in banner is item attribution.

By completing or expanding the flavor, color, scent attributes on products, Kroger search results will better connect and enrich the customer's experience to find the exact products they are looking to purchase ideally increasing add to carts, conversion rates and average order value.

**Business Value / How this data can be used**

1. The initial pilot data for ice cream flavors published Q3 2023 (available in PIM DESP) is projected to create a 20-35% revenue lift in search-related conversion for Ice Cream products.
2. This effort increased the coverage of ice-cream products having a flavor attribute from 4% to 99% (7000+ GTINs) having it, which equates to $6M in revenue.
3. Customer organic searches for Ice Cream products containing flavor attribute strings will allow CX Search to present search results in new and impactful ways to drive conversion.
4. Supplying accurate non-normalized attribute values to Product Variant Group (PVG) fields saves manual data entry hours and will increase efficiency for creating future Product Variant needs.
5. Eliminates manual Item setup tasks to complete Kroger attribution on Products due to the ability to generate the same number of attributes in a fraction of the time.

**Solution Overview**

Using a small subset of existing attributes, the Item Team “Finding Nemo” successfully extracted attribute values for flavor, color, scent using Generative AI (GPT 3.5/GPT 4).

This Item team is the **first Merchandising team**to navigate the Responsible AI board **to leverage a generative AI model** to accurately fill in missing attributes for products using existing item data.

The Finding Nemo team was established in Q4 of 2023 to accurately grow the quality and completeness of Kroger's product attributes to improve the Kroger experience.

We chose to take a more cutting edge approach to solving our problem and are turning to Artificial Intelligence and Machine Learning data science automations to complete our product data faster and more accurately than could've been achieved manually.

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**From:** Nair, Deevraj (NonEmp) <[deevraj.nair@kroger.com](mailto:deevraj.nair@kroger.com)>   
**Sent:** Wednesday, January 24, 2024 7:43 PM  
**To:** Muthyala, Vishy (NonEmp) <[vishy.muthyala@kroger.com](mailto:vishy.muthyala@kroger.com)>; Garg, Alok (NonEmp) <[alok.garg@kroger.com](mailto:alok.garg@kroger.com)>; Ajith George <[Ajith\_George@infosys.com](mailto:Ajith_George@infosys.com)>; Neeraj\_dixit <[Neeraj\_dixit@infosys.com](mailto:Neeraj_dixit@infosys.com)>; Bhagavatula, Prasant (NonEmp) <[prasant.bhagavatula@kroger.com](mailto:prasant.bhagavatula@kroger.com)>; Divakar, Kiran Karthika (NonEmp) <[kirankarthika.divakar@kroger.com](mailto:kirankarthika.divakar@kroger.com)>  
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**Subject:** FW: KTD Release Announcement - Increased Flavor, Color & Scent on 579k Products leveraging AI / ML

[\*\*EXTERNAL EMAIL\*\*]

Below are the appreciations emails received from business team on the attribute extraction work that we just delivered in MX domain.

Attached is the appreciation from the Kroger Product Manager to Infosys team( in cc ) who was instrumental in successfully delivering **over and above** the expectation( target 50K items, delivered 500K items).

Best Regards

Deevraj Nair