

How generative IA will disrupt e-commerce

6 October 2023

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Agenda

- **GenAI and LLM : very brief introduction**
- **6 use cases and demos**
 - Content creation
 - Product Information Management
 - Online recommendations
 - Chatbots
 - Augmented experiences with GAN's
 - Avatars x deepfakes
- **3 Final thoughts and conclusion**



Brief introduction on genAI

GenAI in business



- Shadow GPT widespread
- 71% know about generative AIs
- 44% use in personal and pro settings.
- 68% of users have no approval from their supervisor.
- 50% of U.S. companies say they are updating their internal policies

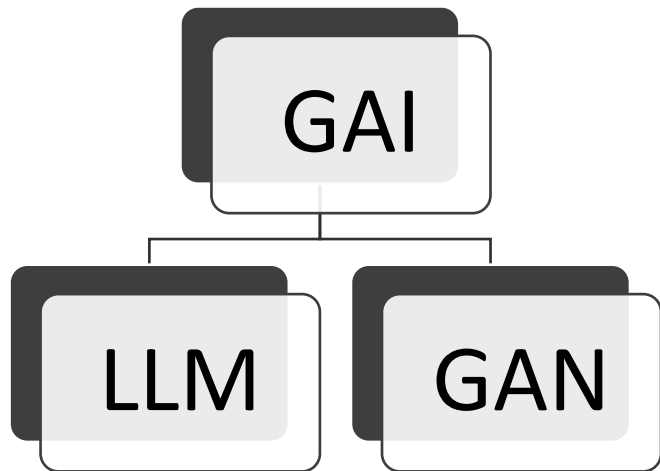
GenAI in Belgium

To replace graphic designers with AI, clients will need to accurately describe what they want.

We're safe.

- Field research ongoing by IntoTheMinds
- Ca. 25 types of use cases detected
- Mostly experiments
- Poor knowledge of tools and possibilities (beyond ChatGPT)
- Firms have a lot of difficulties identifying the added-value use cases
- 99% of firms have no plans to use genAI in their business activities
- Most companies think they are safe → **VERY WRONG**

GAI, LLM and GAN

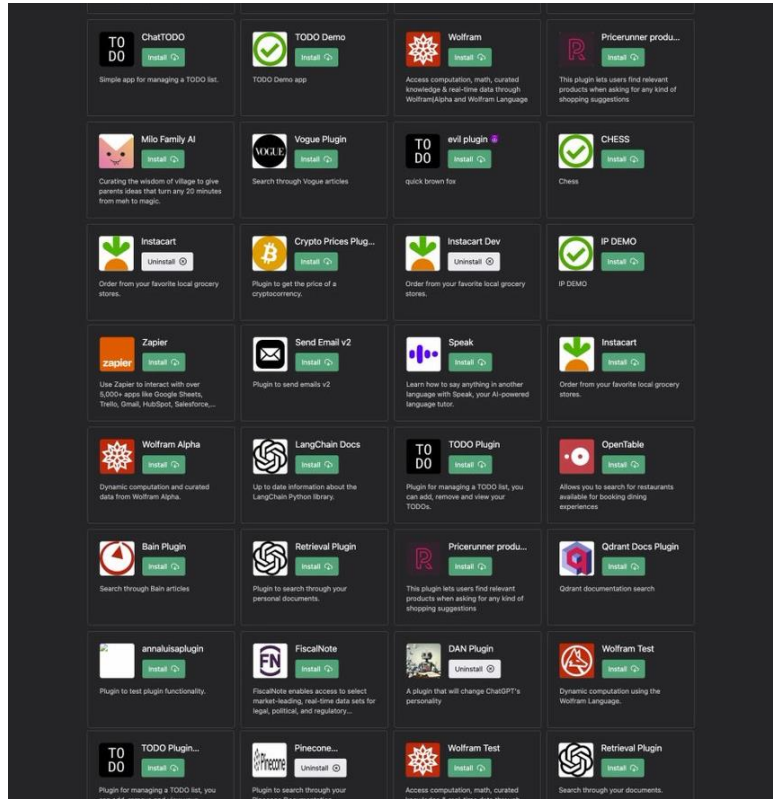


- Generative AI (GAI) : early 2000's
- Generative Adversarial Network (GAN) : 2014
- Large Language Models (LLM) > 2015

GAI, LLM and GAN



- GAN are designed to hallucinate (but not only → ViTon-GAN's)
- Useful for retailers to get new product ideas → see experiment Louis Vuitton on my blog



- ChatGPT = most famous interface to a LLM
- Plugins released in May '23 → very new and still in discovery phase (don't jump to conclusions !)
- Plugins can interface GPT4.0 (newest model) with specific fresh data
- I think **some** plugins show disruptive pattern (most plugins have low added value)



Use Case 1

Content creation

Content creation

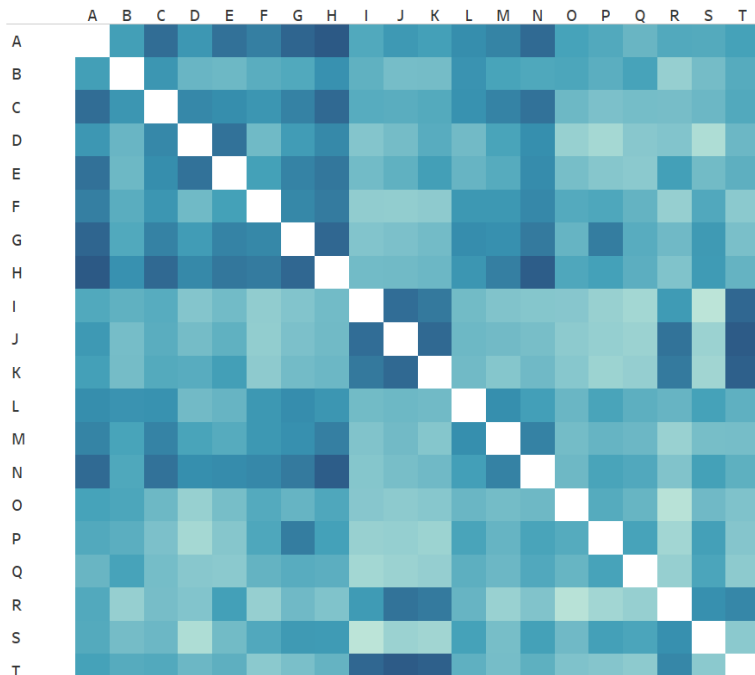


- Probably the most widespread use case
- 50% of use cases observed in Belgium are about blog article creation
- The internet is about to become a giant junkyard
- Beware of impact on SEO
 - 100% AI generated content is very uninteresting
 - Ranking penalties do apply
- Content is also highly repetitive → beware of duplicate content

GAI, LLM and GAN

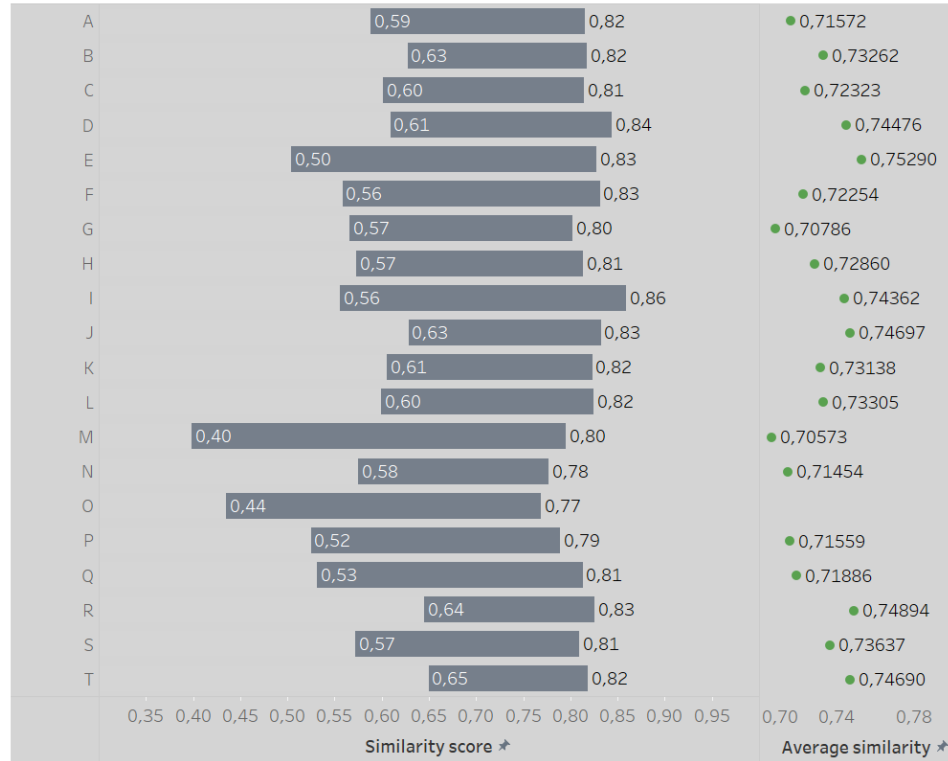
We asked ChatGPT to write 20 sets of texts (A, B, ..., T) on different topics. For each set, we generated the response 50 times. We compared the average similarity between each set. The average similarity is 65.44%. The minimum is 59.92% and the maximum is 72.26%.

Similarity
0,5992 0,7226



- LLM's designed to **predict the next word**
- Problem: content can be very similar (see my empirical results : **up to 72% similarity**)
- LLM's can hallucinate but not designed to
- Caution : autoregressive LLM's may be doomed (Y. LeCun talk, 25 May '23, Northwestern University) → errors increase exponentially
- How particular LLM's work largely unknown → **explainability issue** common to all DL models

Spreading Similarity Scores: Analyzing 50 Responses from ChatGPT to 20 Questions



Data engineering and similarity calculation performed with Anatella by Timi (Dice method). Data visualization carried out with Tableau. Creative Commons Attribution-NonCommercial-NoDerivs 2.0. To reuse this graph, please add a backlink to <https://www.intotheminds.com>.

Unpopular Opinion about AR-LLMs

- ▶ Auto-Regressive LLMs are **doomed**.
- ▶ They cannot be made factual, non-toxic, etc.
- ▶ They are not controllable

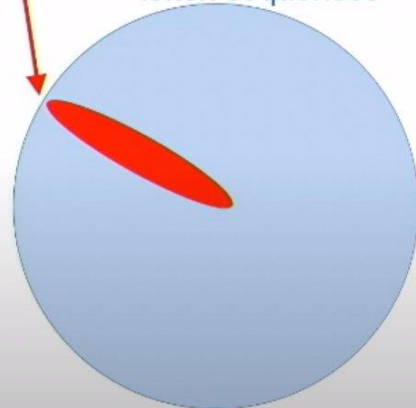
- ▶ Probability e that any produced token takes us outside of the set of correct answers
- ▶ Probability that answer of length n is correct:

- ▶ $P(\text{correct}) = (1-e)^n$

- ▶ **This diverges exponentially.**
 - ▶ **It's not fixable (without a major redesign).**

Tree of "correct" answers

Tree of all possible token sequences





Use Case 2 Product Information Management

Product Information Management



- GenAI = **huge opportunity to improve product description**
- Most product description on e-shops are poor at best
- ChatGPT can be used to generate compelling product descriptions
- ChatGPT plugins can be leveraged to create product description from :
 - Technical information (composition)
 - Picture of the product
- **Huge opportunity** for second-hand websites

LLM's can produce descriptions

Product information



Eco-score

The Eco-score indicates the environmental footprint of a food product.

[Consult the calculation](#)

Product Description

- Description**
- Region: Puglia Grapes: 100% Primitivo dried on the vine, under the sun and the sea breeze Charming, round and intense wine

[More product information](#)

Allergens

Warning, contains

Sulphites

BEFORE

Masso Antico Primitivo Appassito

Origine: Découvrez les saveurs authentiques des Pouilles, une région italienne renommée pour ses vins exceptionnels.

Caractéristiques: Ce vin est élaboré à partir de raisins 100% Primitivo, séchés naturellement sur la vigne sous le soleil méditerranéen et les brises marines.

Goût: Un vin rond et intense, reflétant parfaitement le terroir des Pouilles.

Éco-score: Faites un choix respectueux de l'environnement grâce à notre Eco-score transparent.

Avis Clients:

- **Note Globale:** 4.1/5 basé sur 33,496 évaluations.
- **Commentaires:** Les amateurs de vin apprécient sa grande concentration et sa douceur impressionnante. Il est souvent décrit comme un vin que tout le monde appréciera. De plus, il a été mis en vedette parmi les 25 meilleurs vins Primitivo du sud de l'Italie en Californie pour le millésime 2020.

Allergènes: Contient des sulfites.

AFTER

Regenerate

LLM's can produce descriptions

YAOURT SUCRÉ, AUX FRUITS
INGRÉDIENTS / Yaourt (Lait écrémé à base de poudre de lait - Lait écrémé - Crème - Poudre de lait écrémé - Ferments lactiques) - Fruits : Pêche 11.3% ou Abricot 11.1% ou Fraise 10.8% ou Cerise 10.7% ou Ananas 10.6% ou Mûre 10% - Sucre 8.9% - Jus de carotte - Amidon transformé de maïs - Jus de potiron - Epaisissant : Carraghénanes - Correcteurs d'acidité : Citrates de potassium, Citrates de sodium, Acide citrique - Arômes naturels. Lait d'origine France. Sans gluten.

**Sans colorant : la couleur est apportée par des jus de fruits ou de légumes.
 Malgré tout le soin apporté à la sélection des fruits, ce produit peut contenir des noyaux ou morceaux de noyaux de cerise.*

GESUIKERDE YOGHURT MET VRUCHTEN
INGREDIËNTEN / Yoghurt (Afgeroomde melk op basis van melkpoeder - Afgeroomde melk - Room - Afgeroomde melkpoeder - Melkfermenten) - Vruchten: Perzik 11.3% of Abrikoos 11.1% of Aardbei 10.8% of Kers 10.7% of Ananas 10.6% of Braambes 10% - Suiker 8.9% - Wortelsap - Getransformeerd maïszetmeel - Pompoensap - Verdikkingsmiddel: Carrageen - Zuurteregelaars: Kaliumcitraten, Natriumcitraten, Citroenzuur - Natuurlijke aroma's. Glutenvrije.

**Zonder kleurstof: de smaken worden gekleurd met sap van fruit of groenten.
 Ondanks onze zorgvuldige selectie van fruit kan dit product kersenpitten of stukjes van kersenpitten bevatten.*

****POUR LA BELGIQUE : CONSERVATION ENTRE 0°C ET +7°C MAX.
 VOOR BELGIË: KOEL BEWAREN TUSSEN 0°C EN MAX +7°C.**

PENSEZ AU TRI! ENSEMBLE RÉDUISONS L'IMPACT ENVIRONNEMENTAL DES EMBALLAGES

POT PLASTIQUE & OPERCULE PAPIER À JETER

ÉTUI CARTON À RECYCLER

CONSIGNE POUVANT VARIER LOCALEMENT > WWW.CONSIGNESDETRI.FR
 VALABLE UNIQUEMENT POUR LA FRANCE
 ENKEL GELDIG VOOR FRANKRIJK

FR 72.181.001 CE B
 FR 38.544.004 CE M

La lettre identifiant l'établissement qui a conditionné le produit figure à côté de la date limite de consommation.
 Het teken waaruit de productie-eenheid kan afgeleid worden, bevindt zich naast de verbruiksdatum.

YOPLAIT FRANCE - TSA 40100
 92649 Boulogne-Billancourt Cedex
 www.yoplait.fr
YOPLAIT BENELUX
 Rue de Bordeaux 50 - 6040 Charleroi
 www.yoplait.be

- <https://chat.openai.com/share/e70e9eae-57d6-4ac4-8c6f-521b3d3cdf78>

Product Information Management



Chanel mini bag small golden ball

€990 Delivery: Mondial Relay

Pay in Or from €247.50/month

09/17/2023 at 12:26

Description

Chanel mini bag small golden ball
Beautiful brand new with invoice

Criteria

State
New without label

Universe
Women

Brand
Shoulder bag

- UGC content on second-hand websites usually very poor
- GenAI can be built in to improve product descriptions
 - More attractive for prospective buyers
 - Better for SEO

Product description based on a picture

Chanel Mini Golden Ball Bag - Timeless Elegance

Get your hands on this stunning Chanel Mini Golden Ball Bag, a true treasure of elegance and sophistication. Crafted with the attention to detail that characterizes the Chanel house, this bag is designed for women who value luxury and uniqueness.

Features:

- **Material:** High-quality leather with a shimmering golden finish.
- **Design:** Mini ball shape, perfect for evenings or special events.
- **Closure:** Secure closure system with the iconic Chanel logo.
- **Interior:** Ample space for your essentials: phone, lipstick, keys, and more.
- **Chain:** Delicate golden chain, allowing the bag to be worn on the shoulder or crossbody.

Condition: In excellent condition, with slight signs of wear consistent with normal use. No notable scratches or discoloration. The interior is clean and well-maintained.

This bag is a rare and sought-after piece, ideal to complete your collection or to gift. It comes with its authenticity certificate and original box.

Don't miss this opportunity to own a piece of fashion history. Buy it now and turn heads every time you step out!

 Regenerate

- ChatGPT coupled with plugins
SceneXplain + WebPilot
- Image analysis + prompt to produce
description



Use Case 3 Recommendations

Online recommendations

- Very efficient tool to increase online sales
- ML models (e.g. collaborative filtering)
- May contain business rules
- Expensive IT infrastructure + skills
- Famous reco engines : Amazon, Netflix, Spotify, ...

Produits à la une

Fruits et légumes frais




NUTRI-SCORE
A B C D E

Delhaize
Haricots verts

500 gr
5,70 €/kg

€2,85



NUTRI-SCORE
A B C D E

Delhaize
**Pommes de Terre
Farineuses | Primeur**

2 kg
1,68 €/kg

€3,35

LLM's can produce recommendations



Xavier (Xavi) Amatriain • 1st



Leading Generative AI Engineering and Product Initiatives at Lin...

6d • A circular icon with a white arrow pointing to the right, indicating a share or repost action.

Netflix algorithms vs. GPT4. I know I am shooting myself in the foot here a bit, but I am getting much better Netflix recommendations from GPT4 than from Netflix. As a bonus, I can ask any question I want about the shows before watching them. Yeah, I know the catalog is not updated, but that is very easy to solve of course.

Demo

⚡ GPT-3.5

⚡ GPT-4

Use Case 3

ChatGPT **PLUS**

Send a message. 

ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT, May 24 Version](#)

LLM's can produce recommendations



voici la liste des produits qui sont le plus souvent dans ma liste de courses. Que pourrais-tu me recommander comme produit additionnel :

- boisson au soja Alpro
- pick up au chocolat noir
- pesto rouge Bertoli
- tomates concassées bio en boîte
- double concentré de tomates Elvea
- soya crène light Alpro cuisine
- beurre de baratte bio
- lait demi-écrémé bio
- ricotta galbani
- chocolat en poudre bio
- eau plate en bouteille de 5 litres
- eau déminéralisée en bouteille d'1 litre
- bananes fairtrade bio
- tomates cerises bio
- roquette bio en sachet de 100 grammes
- pistaches grillées en sachet de 250 grammes
- myrtilles en barquette de 600 grammes
- riz façon méditerranéenne Uncle Ben's
- lait de coco
- pâte de curry rouge
- nouilles soya

🔄 Regenerate response



Voici quelques recommandations de produits additionnels qui pourraient compléter votre liste de courses :

1. Pain complet bio : Idéal pour accompagner votre pesto rouge Bertoli et votre boisson au soja Alpro.
2. Avocats : Ajoutez une touche crémeuse à vos salades ou préparez des guacamoles savoureux.
3. Fromage de chèvre : Parfait pour agrémenter vos salades, pâtes ou tartines.
4. Yaourt grec : Un en-cas sain et riche en protéines.
5. Quinoa : Un substitut nutritif et polyvalent au riz.
6. Huile d'olive extra vierge : Ajoutez une saveur méditerranéenne à vos plats.
7. Ciboulette fraîche : Une herbe aromatique qui se marie bien avec de nombreux plats.
8. Jus d'orange pressé frais : Une boisson rafraîchissante et pleine de vitamine C.
9. Saumon fumé : Un ajout délicieux à vos salades ou comme garniture pour vos toasts.
10. Miel bio : Utilisez-le comme édulcorant naturel ou pour sucrer vos boissons chaudes.

J'espère que ces suggestions vous seront utiles lors de votre prochaine liste de courses !



Use Case 4 Chatbot

Chatbot for recipes



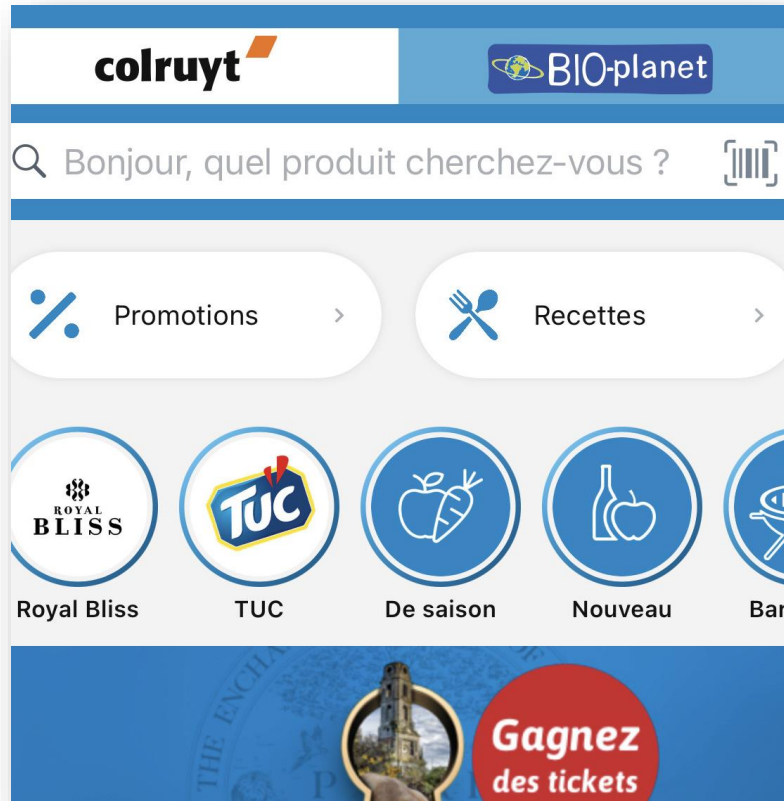
- Recipes are a good solution to
- lack of ideas
- Increase sales (cross-selling)

But

- Overconsumption (personal inventory not taken into account, no portioning → Hello Fresh)
- Not personalized (retailer decides for me)

Convenient but lack of control

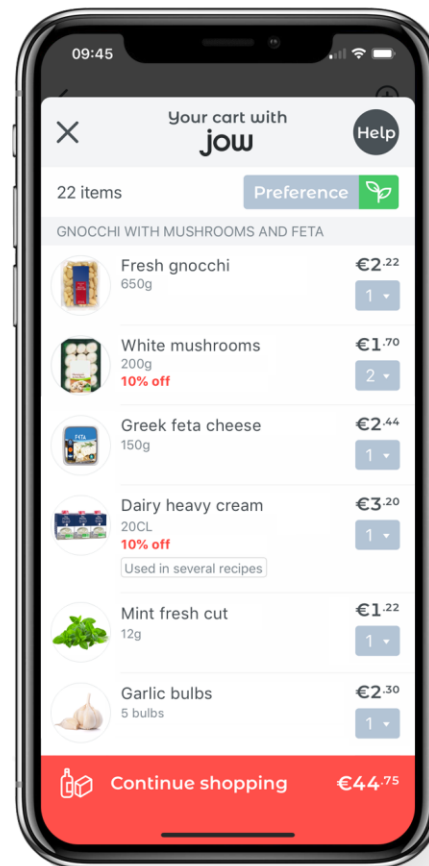
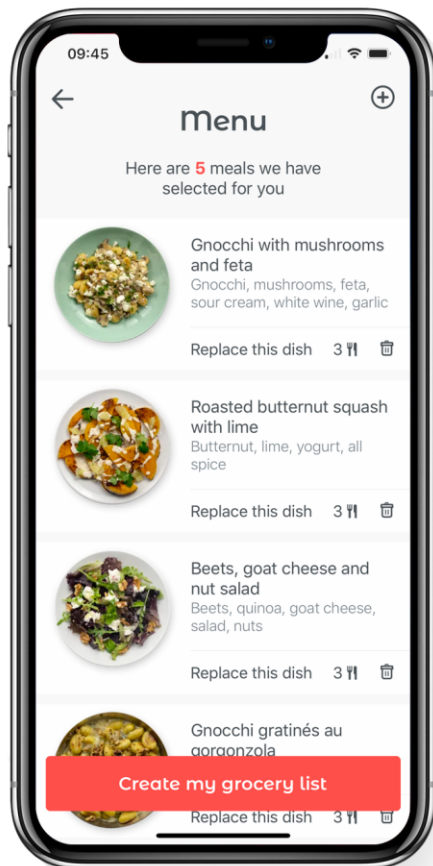
Recipes : a complex market

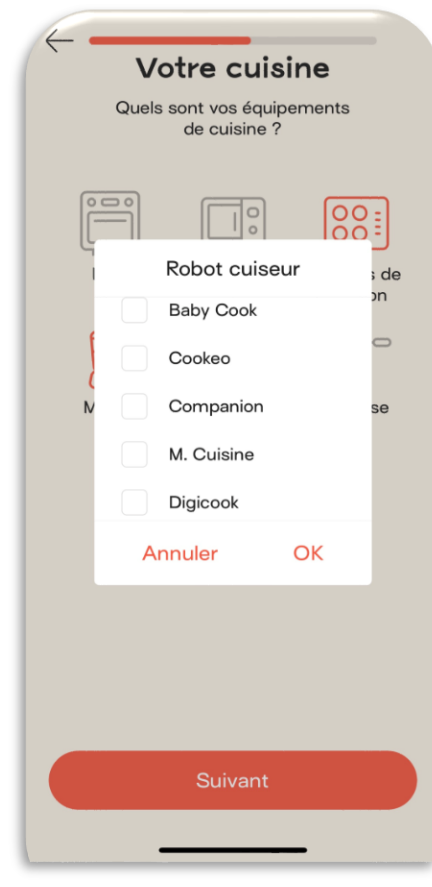
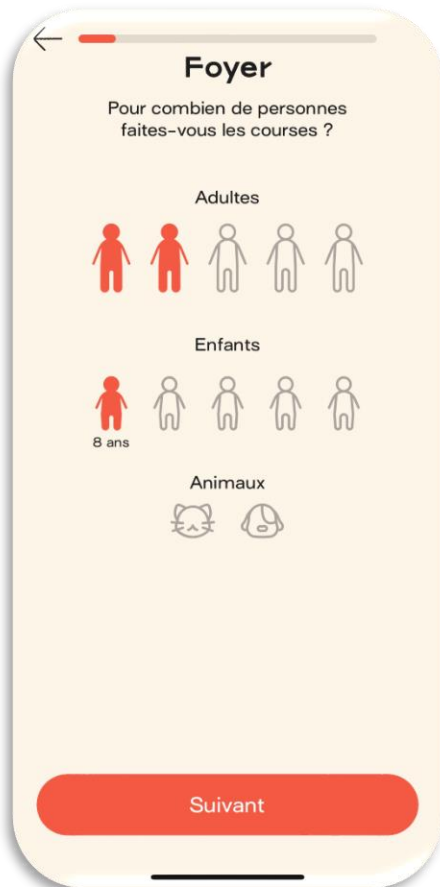


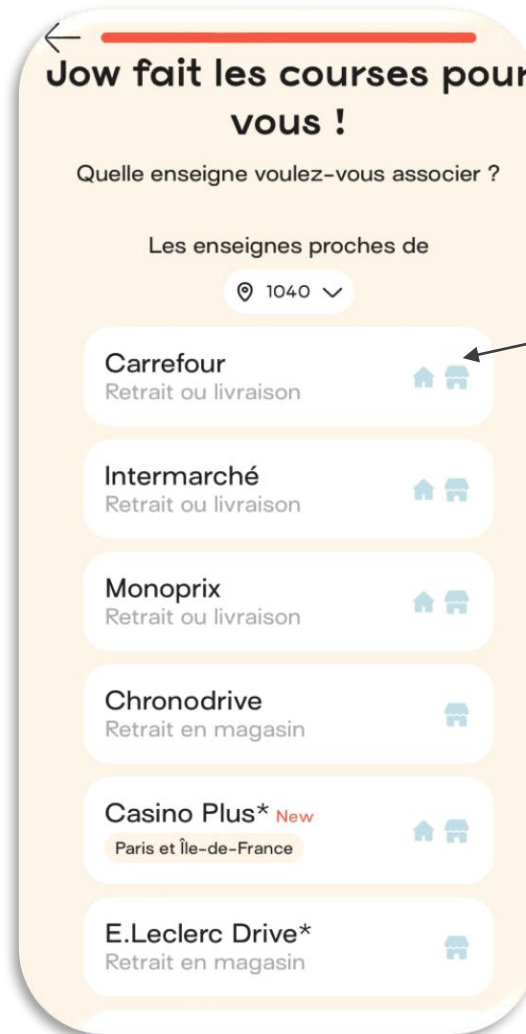
Different stages:

- No recipes
- In-retailer-app (Colruyt, Delhaize, ...)
- out-of-retailer-app (Jow)

Alternative models : Hello Fresh







So clever !
Jow owns the relationship and the data (retailer bypassed)

Recipes x Generative AI



- Consumer back in control
- Variations possible (less of this, more of that, “I already have ...”)
- Carrefour’s bot Hopla is the first attempt on the market

Demo time

⚡ GPT-3.5

⚡ GPT-4

Use Case 4

ChatGPT **PLUS**

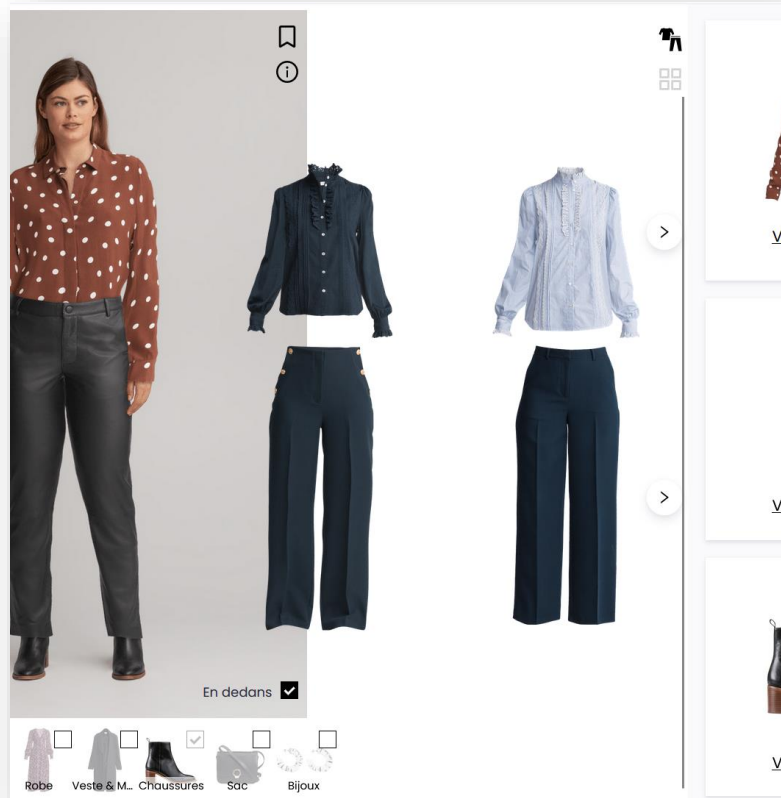
Send a message. ▶

ChatGPT may produce inaccurate information about people, places, or facts. [ChatGPT May 24 Version](#)



Use Case 5 Augmented e- commerce experience

Augmented E-commerce Experiences



- GAN's are used to hallucinate
- VIRTON-GAN's have interesting specificities for fashion e-commerce
- Product is not modified by the GAN, yet can be adapted to different types of contexts.
- E-shopping experience is more personalized

Choisir son mannequin

Mannequin Haut Bas Robe Veste & M. Chaussures Sac Bijoux

En dedans



LA REDOUTE COLLECTIONS

Chemise fluide, manches longues, imprimé à pois

34.99 € -40%

20.99 €

Choisir la taille


[Voir le détail](#)

Ajouter au panier



LA REDOUTE COLLECTIONS

Pantalon droit en cuir

199.99 € -40%

119.99 €

Choisir la taille


[Voir le détail](#)

Ajouter au panier



LA REDOUTE COLLECTIONS

Bottines en cuir Signature, fabriquées en Europe

139.99 €

Choisir la taille


[Voir le détail](#)

Ajouter au panier

<https://www.laredoute.fr/styling-experience.aspx>



Use Case 6 Deepfakes and avatars

人气榜 战斧羊排 牛羊肉卷 热门直播 >

内蒙古源头工厂

拼 关注后互相私信拼团

赠 每份都赠调料

到手4包

PKCC 承保产品责任险 消费售后包赔

立减100 C10939

假一赔百

人气爆款

内蒙直供

立即抢

发邮政和津洋水成功拼单
草原领头羊 羔羊

刚刚看过

法式羊排(煎烤) 肥牛卷(涮炒) 羊 3

公告: 欢迎来到直播间! 拼多多倡导绿色直播, 为保障购物安全, 请点击右下角“小红盒”官方渠道选购商品, 禁止第三方交易, 谨防上当受骗。直播间内严禁出现违法违规行, 若有上述情况请及时举报

慢慢喵: 羊排

草原领头羊原切...
¥86.9



38女王节特别直播

直播间买2领券立减90元

女王节专场

折扣专区
买1送1
1-50链接

新品优惠
买3免1

超级福利
抽免单
晚上20:00

可换芯

官方正品 假一罚十 无效包退

Avatars x deepfakes



- Avatars created to sell online goods
- 24/7 in China
- Low production costs : ca. 1000€
- A few minutes of sample video from a human influencer is collected.
- Scripts generated by LLM's
- Companies like Silicon Intelligence and Xiaoice use this video to train AI models



Final thoughts and conclusions

Conclusions and final thoughts



- Barriers to entry low (chatGPT) but still too high for most users
- You will be impacted: you should worry **NOW!**
- Focus on finding the right use cases and start experimenting **NOW**
- Brainstorm about the impact of GenAI on customer satisfaction and loyalty. How can you measure it?



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