



Minimizing returns through gamification, persuasive design principles & machine learning

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Introduction

The importance of **e-commerce** and the associated freight traffic with all its negative consequences (like congestions, noise, emissions) is constantly increasing. According to forecasts a market volume of 354 billion Euros will be achieved in terms of clothing and footwear by 2020, representing an annual revenue growth of 12%. Next to single day deliveries, CO2 intensive delivery methods and underutilized transport systems, **returned goods** are the main problem of online trading. **Up to 50% of textiles** are returned currently. Our system will animate and nudge customers to choose sustainable means of transport when shopping online.

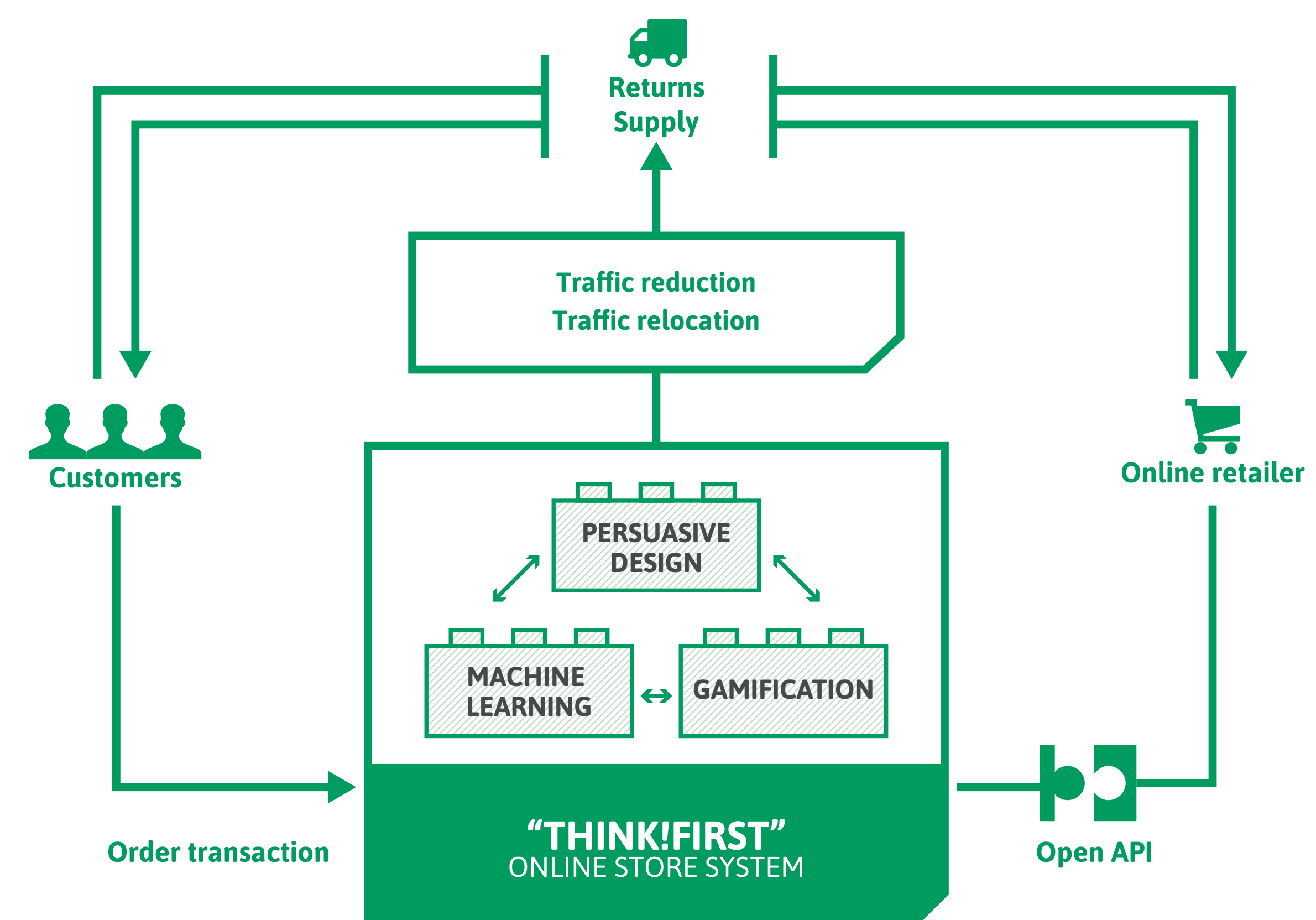
Method

We plan to tackle these problems in freight mobility by using an unique combination of

- **gamification elements** (transmedia storytelling, granting of discounts in case of compliance)
- **persuasive design principles** (highlighting of features such as group orders & environmentally friendly transportation) and
- **machine learning** (for the automatic correction of inconsistent or incorrect size information both on customer-level and manufacturer-level).

Research Design

Using a **multi-dimensional approach** which includes qualitative and quantitative methods the **impact on acceptance, usability and compliance** (reduction of returns, reduction of delivery attempts and shorter transport routes) as well as on the **modal shift** (use of alternative means of transport) will be assessed. Our project approach will provide valuable insights, whether the planned interventions are appropriate to sensitize online customers for a sustainable transport of goods.



Objectives

- I) **Traffic Reduction:** (reduction of returns, collective buying experiences, enhanced capacity utilization)
- II) **Traffic Relocation:** (using sustainable means of transport).



References

- Fogg, B. J. (2009). A behavior model for persuasive design. In Proceedings of the 4th international Conference on Persuasive Technology (pp. 40). ACM.
- Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work?--a literature review of empirical studies on gamification. In System Sciences (HICSS), 2014 47th Hawaii International Conference on (pp. 3025-3034). IEEE.
- Kim, C., Galliers, R. D., Shin, N., Ryoo, J. H., & Kim, J. (2012). Factors influencing Internet shopping value and customer repurchase intention. Electronic Commerce Research and Applications, 11(4), pp. 374-387.