BDI reputation system

basic data infrastructure

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Summary

In the BDI network, a reputation system within a BDI Association is integral for assessing the trustworthiness of visitors or outsiders: members of another BDI Association.

Two viable methods currently exist for evaluating continuously the trustworthiness of visitors or outsiders: the 5-star model, as seen in platforms like Uber or online marketplaces, and the thumbs up/down system employed by Steam.

The Steam model's simplicity aligns well with the BDI's automated data-sharing processes. Ratings can be easily automated, and the resulting ratio should offer sufficient information for providers to make judgments on consumer reputation. It's important to note that trust verification encompasses various aspects beyond reputation, including other agreement systems and the usage of specific trust schemes. Reputation, in this context, serves as an additional tool to assess trust levels, particularly crucial for facilitating cross-branch data exchange.

While the 5-star rating system offers detailed insights into the user experience with a data consumer, such granularity might prove unnecessary within the BDI framework. The process of data sharing in BDI is inherently straightforward, with outcomes generally falling into the categories of success or failure.

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1 Reputation system

In the BDI network, a reputation system within a BDI Association is integral for assessing the trustworthiness of visitors or outsiders : members of another BDI Association.

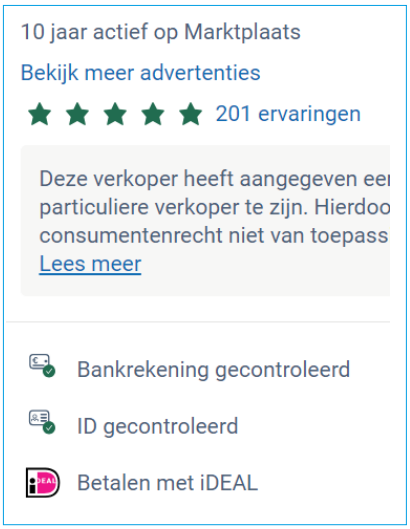
While the BDI facilitates digital communication among a network of BDI Associations, establishing trust within a BDI Association through mutual agreements is relatively straightforward. However, evaluating trustworthiness from participants in other BDI Associations can pose a challenge. Although the core trust framework in the BDI provides a foundation for determining trust, additional systems are necessary to enhance trust evaluation for external data sharing. Consequently, the BDI introduces a reputation system to enable more nuanced trust judgments.

Two viable methods currently exist for evaluating the trustworthiness of visitors or outsiders: the 5-star model, as seen in platforms like Uber or online marketplaces, and the thumbs up/down system employed by Steam. This document explores both systems, outlining their respective pros and cons.

2 5-star reputation system

On various platforms, the 5-star review system is implemented for assessing goods and services provided to consumers. While variations exist, such as rating on a scale from 1 to 10 (as seen on booking.com), the essence remains the same. This ranking system evaluates the quality of goods and services, with a low score indicating poor quality and a high score indicating good quality. Essentially, this ranking correlates with trust. If a provider gathers multiple negative reviews, potential buyers may reconsider engaging with that provider and opt for alternatives with higher ratings.

For instance, on platforms like Marktplaats, a buyer can evaluate a seller on multiple criteria, including the duration of the seller's activity on the platform, their rating, the legitimacy of the bank account, and the verification status of the person selling the goods. Buyers can make informed decisions based on these factors, aligning with their priorities.



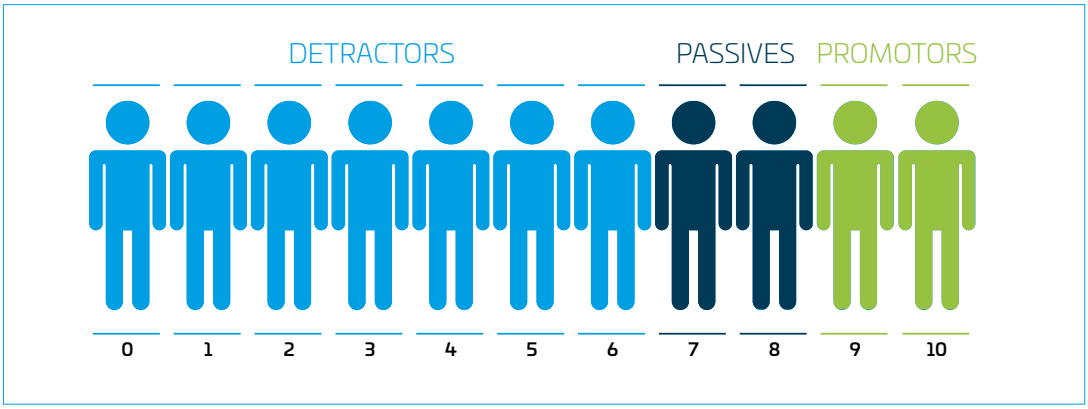
Translating this system to the BDI implies that Members rank visitors and outsiders based on their interaction experiences. As the data provider, Member assesses the data consumer. After a transaction, the provider can rank the experience based on 5 stars (equivalent), allowing future data providers in the same BDI Association to assess the ranking and decide whether trust the consumer (not considering other trust systems in place). This incentivises data consumers to seek positive rankings, securing their 'license to operate' with other data providers.

Upsides

One significant advantage of this rating system is that data providers can assess reputation in detail. While a perfect five-star rating might be optimal, providers may accept lower ratings, depending on the nature of the accessed data. Furthermore, when a data provider assesses a data consumer, the provider can choose four stars instead of five stars when the experience was good but not perfect.

Downsides

However, there are two notable downsides to this ranking system. Firstly, the interpretation of given ratings can vary among reviewers. This challenge is evident in Net Promoter Score (NPS) ratings, where scores between 1 and 10 are given, with only scores of 9 and 10 considered positive. Cultural differences, as seen between American and Dutch reviewers, necessitate education on the rating system.



Secondly, for a seamless data exchange system in the BDI, the rating system's granularity (1 to 5) requires either strict automated rules or a manual process for rating data consumers. Manual processes may reduce the number of ratings, introducing potential interpretation biases and errors.

3

Positive/Negative rating system

The Positive/Negative (P/N) rating system offers an alternative approach to evaluating provided goods and services. It operates on a straightforward principle where experiences are categorised as either positive or negative, resulting in a ratio that consumers can use for judgment.

An illustrative example of the Positive/Negative (P/N) system is evident on Steam, a prominent gaming platform. On Steam, players can make informed decisions about purchasing a game based on the experiences of past users. The system takes into account both the quantity and timing of reviews. The timing of reviews is crucial, as the quality of games can evolve over time due to patches and updates. This necessitates flexibility in the ratings over time to accurately reflect the current state and user satisfaction with the game.

RECENTE RECENSIES	VERDEELD (33)
ALLE RECENCIES	GROTENDEELS POSITIEF (2.614)

Steam uses the following rules to determine the label given to reviewed gams

- After 10 reviews, you will get a visible label.
- 80% or more: Positive.
- After 50 reviews, if it's still 80% or more: Very Positive.
- After 500 reviews, if it's 95% or more: Overwhelmingly Positive.

Seemingly how Steam ratings work - chart by @runevision Sep 2020

Positive %	10-49 reviews	50-499 reviews	500+ reviews
95%-100%			Overwhelmingly Positive
90%-94%	Positive	Very Positive	Very Positive
85%-89%	80%-100%	80%-100%	80%-94%
80%-84%			
75%-79%	Mostly Positive		
70%-74%	70%-79%		
65%-69%	Mixed		
60%-64%	40%-69%		
55%-59%			
50%-54%			
45%-49%			
40%-44%			
35%-39%	Mostly Negative		
30%-34%	20%-39%		
25%-29%			
20%-24%			
15%-19%	Negative	Very Negative	Overwhelmingly Negative
10%-14%	0%-19%	0%-19%	0%-19%
5%-9%			
0%-4%			

Translating this system to the BDI implies that Members rank visitors and outsiders based on their interaction experiences. As the data provider, the Member assesses the data consumer. After a transaction, the provider can rank the experience based a positive or negative experience allowing future data providers in the same BDI Association to assess the ranking and decide whether to trust the consumer (not considering other trust systems in place). This incentivises data consumers to seek positive rankings, securing their 'license to operate' with other data providers.

Upsides

One significant advantage of the P/N system is its ease of use within an automated network. Rules can be set up relatively easily, for instance, automatically assigning a positive review when no disturbances or unsanctioned data use is noted.

Another positive aspect is the absence of review bias, as positive and negative terms are universally understood.

The creation of a ratio still provides detailed information akin to the system used by Steam.

Downsides

However, a significant drawback of this system lies in its lack of detail regarding the user experience. While an experience may not be flawless, it could still be considered positive. The system's binary nature lacks individual nuance in describing a given experience.
Additionally, multiple reviews are necessary to obtain a comprehensive picture of a visitor or outsider. This requirement may pose a challenge for users seeking to assess a party thoroughly.

4 Conclusion

While the 5-star rating system offers detailed insights into the user experience with a data consumer, such granularity might prove unnecessary within the BDI framework. The process of data sharing in BDI is inherently straightforward, with outcomes generally falling into the categories of success or failure. Adopting a reputation system modelled after the Steam approach, where data consumers are ranked based on either positive or negative experiences fits more to the BDI.

The Steam model's simplicity aligns well with the BDI's automated data-sharing processes. Ratings can be easily automated, and the resulting ratio should offer sufficient information for providers to make judgments on consumer reputation. It's important to note that trust verification encompasses various aspects beyond reputation, including other agreement systems and the usage of specific trust schemes. Reputation, in this context, serves as an additional tool to assess trust levels, particularly crucial for facilitating cross-branch data exchange.

Questions to be answered:

- How many times can a Member review a guest or outsider?
- How can we automate ratings?
- Is the rating system for data exchange with one BDI Association only or is it federated with other BDI Associations?

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