eCommerce Platforms Evaluation Framework for Government

Rukanova, B.D.; Tan, Y.; Ubacht, J.; Molenhuis, Marcel; Heijmann, Frank; Bosch, Han ; Palaskas, Zisis; Chen, Hao; Männistö, Toni; Ratnasari, Ade

Citation (APA)
Rukanova, B. D., Tan, Y., Ubacht, J., Molenhuis, M., Heijmann, F., Bosch, H., Palaskas, Z., Chen, H., Männistö, T., & Ratnasari, A. (2021). eCommerce Platforms Evaluation Framework for Government. In H. J. Scholl, J. R. Gil-Garcia, M. Janssen, E. Kalampokis, E. Kalampokis, I. Lindgren, & M. P. Rodríguez Bolívar (Eds.), *Electronic Government - 20th IFIP WG 8.5 International Conference, EGOV 2021, Proceedings: Electronic Government* (pp. 103-116). (Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics); Vol. 12850 LNCS). Springer Nature. https://doi.org/10.1007/978-3-030-84789-0_8

Important note
To cite this publication, please use the final published version (if applicable).
Please check the document version above.

eCommerce Platforms Evaluation Framework for Government

Boriana Rukanova[1(✉)], Yao-Hua Tan[1], Jolien Ubacht[1], Marcel Molenhuis[2], Frank Heijmann[2], Han Bosch[2], Zisis Palaskas[3], Hao Chen[4], Toni Männistö[5], and Ade Ratnasari[6]

[1] Delft University of Technology, Jaffalaan 5, 2628 BX Delft, The Netherlands
{b.d.rukanova,y.tan,J.Ubacht}@tudelft.nl
[2] Customs Administration of The Netherlands, Rotterdam, The Netherlands
[3] Inlecom BV, Brussels, Belgium
zisis.palaskas@inlecomsystems.com
[4] Innovation Exchange, IBM Ireland, Dublin, Ireland
Hao.Chenii@ibm.com
[5] Cross-Border Research Association, Epalinges, Switzerland
toni@cross-border.org
[6] State Islamic University (UIN) Sunan Kalijaga, Yogyakarta, Indonesia
ade.ratnasari@uin-suka.ac.id

Abstract. The international trade flow of e-commerce goods have reached unprecedented volumes. Ensuring undisrupted flow of cross-border eCommerce goods has become one of the top priorities for customs administrations around the world. Customs has a role in safeguarding public values such as safety and security, revenue collection, and stimulation of the economy. Customs administrations are now looking into innovative ways to be able to fulfil their duties for controlling the trade flows while at the same time not hindering trade. But in a broader sense, other government agencies also have responsibilities for safeguarding public values such as product and consumer safety or sustainability and are currently confronted with these eCommerce flows. While eCommerce is a phenomenon that is widely studied in business literature, it is largely unexplored both in research and practice how governments can understand and engage with these eCommerce developments. In this study we focus on the issue revenue collection related to cross-border eCommerce goods. Empirically, our paper builds on insights from the PROFILE EU project, which focuses on the use of data analytics for customs. Theoretically we build on research on control mechanisms in eCommerce platforms and digital trade infrastructures. We present an eCommerce platforms evaluation framework for customs. The evaluation framework consists of two distinct perspectives (i.e. a data analytics and a partnership perspective) that customs can explore when defining their engagement strategies with eCommerce platforms. We limited our study to the interactions of customs with eCommerce platforms and the issue of revenue collection. Further research can study the safeguarding of a wider range of public values by a range of government organisations to account for effects of the vast growth in international flows of goods via eCommerce platforms, such as monitoring product safety and sustainability effects.

1 Introduction

With the emergence of the Internet, we have seen the rise of eCommerce and eCommerce platforms. More than two decades ago researchers have turned attention to understanding the eCommerce phenomenon. Now we live in a world where eCommerce platforms like Amazon, eBay and Alibaba have become dominant players in the global arena. eCommerce has so far been largely business driven and has received limited attention in eGovernment research and practice. Over the last years, however, this has changed. eCommerce is now a key priority for governments across the world due to the unprecedented growth of cross-border eCommerce. In the Netherlands alone, eCommerce has led to an increase from 26 million customs import declarations in 2018, to 61 million in 2019, to 161 million in 2020, and to expected 740 million import declarations of goods below € 150 in 2021. Many governments administrations are confronted with eCommerce; but the eCommerce challenge has become particularly pressing concern for customs, due to their key role in the logistics processes. Operating directly in the logistics flows, customs needs to safeguard public values such as safety and security, and revenue collection, which requires stricter control. At the same time customs also needs to safeguard the economic competitiveness: delays of packages at the border have direct negative economic consequences. eCommerce is regarded as one of the key areas for customs in the newly published Customs Union Action Plan of the EU [4] that outlines the strategic activities of customs in the EU for the coming years. Of particular interest is the value added tax (VAT) collection form eCommerce transactions. This VAT revenue is a substantial source for funding the national budgets of EU Member States. If customs is not able to efficiently and effectively collect the VAT this means loss of revenue for the Member States, which is very needed so that governments can provide citizens and businesses with public services and benefits. For countries with large eCommerce flows this loss can amount to hundreds of millions of euros per year. At the same time, allowing goods for which VAT has not been included in the price on the European market is a disadvantage for businesses operating in the EU. Hence, customs also plays a key role in establishing a level playing field in the eCommerce market.

While customs is currently heavily affected by the eCommerce flows as it acts at the front line when goods cross borders (in our case the EU borders), the effect of eCommerce on government is much broader. Other government agencies are also responsible for safeguarding public values such as consumer and product safety of products sold on the EU market, or public values related to sustainability such as CO_2 footprints, and assurances that no child labor was used in products entering the EU market. While traditionally governments have established mechanisms (or are in a process of establishing such mechanisms) to address these issues in a business-to-business setting, it is an open question how to address these concerns in the eCommerce context. With these enormous flows of small eCommerce packages addressed directly to consumers, it is very hard for governments to assure that the product hidden in the package complies with EU product

safety standards, and that no child labor was used in its production. Such eCommerce packages also come with a considerable cost for the environment and increased CO_2 footprint. Therefore, while Customs is the first to experience the eCommerce impact, the consequences for other government inspection agencies is equally far-reaching.

Central to customs in their operations is the availability in advance of data to execute their tasks related to risk analysis in differentiating the trusted from less-reliable trade flows. Researchers in the domain of e-government research advocate that government organizations have the opportunity to create more public value if they go beyond the use of data from governmental organization by also using data provided by business actors and develop collaborative relationships with them [5]. Recent research addresses how business-to-government (B2G) information sharing and collaboration can contribute to the public value creation (see e.g. research on data collaboratives [e.g. 19, 23] and research focusing on the use of business data to create public value [17]). However, so far there is very limited research that explores how government (and in particularly customs) can profit from the large amount of data available in eCommerce platforms.

Therefore, the objective of this paper is to develop an eCommerce platforms evaluation framework for customs. Empirically, this work builds on a case study conducted in the context of the PROFILE project, focusing on the use of data analytics for customs, and specifically the Dutch Living Lab, which focusses on eCommerce. Theoretically we build on research on control mechanisms in eCommerce platforms [15] and digital trade infrastructures [7, 12, 17].

The remaining part of this paper is structured as follows. In Sect. 2 we discuss our theoretical background. In Sect. 3 we present our interpretative case methodology and we describe the iterative process that we followed for developing our eCommerce platforms evaluation framework for customs. We present and demonstrate our framework in Sects. 4 and Sect. 5 respectively. We end the paper with discussion and conclusions.

2   Theoretical Background

2.1   Conceptualizing the eCommerce Business Setting, the Role of Government, and Public Values Safeguarded by Government

In order to understand how government organization can engage with the eCommerce phenomenon, it is important to provide a conceptualization that clarifies the role of business and government in eCommerce transactions. Figure 1 captures the business eCommerce context (marked with (1)), and the government level (marked with (2)), as well as public values that governments pursue (marked with (3)). On a business level, we capture typical actors[1] of a business transaction (i.e. the seller (marked with A), and the buyer (marked with B)), as well as the delivery provider such as express couriers (marked with C), and the payment service providers (marked with D). eCommerce platforms (marked with E) have also emerged as important actors who act as intermediaries between the buyer and the seller. Due to their digital nature, eCommerce platforms now are major hubs containing data about eCommerce transactions. The role of a platform can be a

---

[1] Although in some cases other actors may also play a role (e.g. customs brokers), in view of reducing complexity in this general model we include only the key actors.

reseller (goods owned by other suppliers) or a retailer (own goods). This difference is crucial for the level of data availability, data quality, control mechanisms, etc. In Fig. 1 we also included a vertical line to denote the concept of border crossing (in our case entering the EU). This border crossing aspect is very important, as it triggers involvement and responsibilities of government, related to various public value functions that government performs.
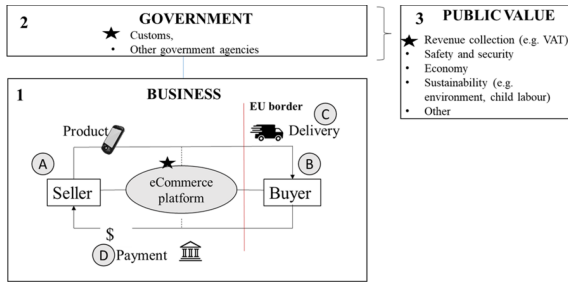

Fig. 1. eCommerce context and the role of government.

Whereas we are interested in the role of customs in this paper, our conceptualization shows that other government organizations can also have an interest in eCommerce flows (see 2 in Fig. 1).

Government organizations have the mandate to perform various tasks to deliver public value (see 3 in Fig. 1). While there are various classifications of public values in the literature [1], for the purpose of our research we are interested in public values that are directly related to international trade flows. These include, but are not limited to: ensuring safety and security (e.g. safety and security checks on goods performed by customs), revenue collection (e.g. collection of VAT and import duties), and facilitation of the economy (e.g. faster goods clearance and trade facilitation arrangements that customs offers to companies). But, as discussed earlier, government organizations have a broader mandate including product safety, values related to sustainability such as ensuring that products involving child labour do not enter in the EU market, or values related to climate goals and CO_2 reduction. While in the eCommerce developments that we see at the moment governments are mainly focussed on revenue collection (mainly VAT), the broader spectrum of responsibilities that governments have in relation to the traditional trade flows is also very relevant to consider in the context of eCommerce.

For the purpose of this paper we will focus on exploring the relationship between customs and eCommerce platforms, and taking the specific focus on fiscal matters (VAT collection). These choices are marked with stars in Fig. 1.

2.2 Customs Interactions with eCommerce Platforms in the Context of VAT Collection

In order to address the issues of eCommerce, the EU develops a diversity of measures and scenarios. Some of these measures refer to legislative changes. For example, for

small packages that were previously exempt from VAT (e.g. in the Netherlands: value is max € 22), VAT will be due by July 2021. Next to that, the EU legislation also allows (on a voluntary basis) the use of a new system called Import One Stop Shop (IOSS)[2], which enables eCommerce platforms to collect the VAT for consignments with a value of max € 150, transfer this to a EU tax administration, which will then distribute the VAT to the respective EU Member State where the buyer resides. In this case, the VAT collection is ensured via relationships with eCommerce platforms and in return the sellers on these platforms can receive facilitation in terms of faster import clearances. The participations of platforms in the IOSS is still voluntary. The IOSS procedure allows all eCommerce platforms to participate if they meet certain legal requirements (e.g. having a registered legal representative in the EU). Initial case studies on IOSS developments and challenges have already been reported in literature [14]. Other models of engagement have also been envisaged, where the burden for VAT collection is not put on the intermediaries (the eCommerce platforms) but on the parties that are directly engaged in the eCommerce transaction like the buyer and the seller [8]. Even in such scenarios, it is likely that platforms will play a role in providing services to facilitate payment of VAT between the buyer/seller and customs (possibly in partnership with other payment provider platforms)[3], even though not being the direct responsible party for the VAT payment, such as in the IOSS scenario.

Other countries in the world have developed other approaches. For example, the Australian government has introduced a "Vendor Collection Model" to enhance the country's capacity to collect the Goods and Services Tax on overseas e-commerce imports[4]. In the Australian scheme, foreign vendors of e-commerce goods that sell goods worth more than 75000 AUD a year, must collect the Goods and Services Tax at the point of sale, that is from Australian online shoppers, and pay this tax to Australian authorities eventually. To detect fraudulent overseas e-commerce operators who try to evade the tax collection responsibility, the Australian Tax Office makes use of "data matching, conducts investigations, receives information from industry and the public, and uses import data to monitor compliance"[5]. The media report on other examples of customs-eCommerce cooperation that can someday lead to a direct exchange of data from eCommerce platforms to customs. Alibaba, the Chinese e-commerce giant, is currently building the first European logistics hub in the Belgian city of Liège[6]. The Belgian government and

---

[2] Import One Stop Shop scheme (IOSS) as set out in Title XII, Chapter 6, Section 4 of the VAT Directive as amended by Council Directive (EU) 2017/2455 See also: https://ec.europa.eu/taxation_customs/sites/taxation/files/guidance_on_import_and_export_of_low_value_consignments_final.pdf.

[3] Different scenarios may be considered if platforms are to play a role in facilitating VAT payments of buyers/sellers to Customs, where for the actual VAT payment platforms may also need to develop partnerships with global payment providers, or that some dedicated VAT payment platforms may emerge to which the eCommerce platforms may link to.

[4] https://mag.wcoomd.org/magazine/wco-news-88/australias-vendor-collection-model-explained/.

[5] World Customs Organization (2019). Cross-border e-commerce. Available at: http://www.wcoomd.org/en/topics/facilitation/activities-and-programmes/ecommerce.aspx.

[6] https://www.theguardian.com/business/2021/feb/14/open-sesame-alibabas-push-into-europe-a-mixed-blessing-for-liege.

Alibaba have formed a partnership that will promote digitalisation of customs processes and facilitated clearance of goods, especially for the benefit of small and medium-size companies (AP 2018)[7]. Although these international examples are diverse, they indicate some kind of relationship or partnership between eCommerce platforms and customs.

Alternatively, other custom administrations regard eCommerce platforms as sources of external data. This is a more data analytics-driven approach to eCommerce platforms, where the goal is to use external data (e.g. price data for specific products) available on eCommerce platforms [see e.g. 15, 16, 18]. These data analytics approaches aim to obtain additional external (non-customs) data to help customs cross validate customs declarations and identify possible undervaluation of goods. Despite these practical examples, the eCommerce world is still new to customs and customs has limited knowledge on eCommerce platforms, the data they contain, as well as how to engage with them to handle the enormous increase in eCommerce transactions. In the next section we explore approaches that customs has been developing in the context of the traditional business-to-business trade to deal with the increase in trade volumes.

2.3   Digital Trade Infrastructures and Trusted Traders

Customs administrations have been facing challenges with increased volumes of traditional trade for decades. In order to keep up with these challenges, customs administrations have been looking into innovative technologies and how to deploy them. Heijmann et al. [7, 8] discuss the vision of Dutch customs of how to deal with the large volumes of trade by looking at different innovative technologies such as the use of detection technology, big data analytics, as well as partnership with companies for sharing data. In the enforcement vision of Dutch Customs[8] [2], a differentiation is made among trusted traders, trusted trade lanes, and flows of goods of traders that are less known [7]. The more visibility customs has on the trade flows and the traders, the more facilitation it can provide to these businesses (e.g., faster clearance time and less delays when crossing borders). In the traditional trade flows over the last decades, a series of research projects advocated the idea of the data pipeline [9, 12, 17, 20] as a digital trade infrastructure that allows voluntary information sharing among businesses and government. The data pipeline can be seen as a sort of internet for logistics, which allows supply chain partners to make their business data available to customs (on a voluntary basis), while customs can provide these companies with trade facilitation in return (see e.g. [17]). For those streams of trade that are less known to customs (also referred to as blue streams), customs relies more on physical inspection of the imported goods. In these cases, the use of data analytics and external business data allows customs to gain more information into less-transparent flows.

At the moment, eCommerce flows lack in visibility; customs would need to find other sources to be able to better assess the eCommerce declarations and to cross-validate them. Regarding concepts like trusted traders and trusted trade lanes, which heavily rely on trust relationships between customs and businesses, these have been receiving attention

---

[7] https://apnews.com/press-release/pr-businesswire/01e863a2183244f8bfa03dfb00869243.
[8] See https://youtu.be/iiNKkIBO99k.

in the context of the traditional trade but have been of very little applicability so far in the eCommerce context.

2.4 Trust and Control Mechanisms Applied in e-Marketplaces: Insights from the Literature on eCommerce and Customer

While currently customs is looking at eCommerce transactions from the control perspective from the point of view of undervaluation, in eCommerce research studies have examined the eCommerce transactions from the point of view of customers. In this area already decades ago research examined issues like trust [11] and control mechanisms, such as third party guarantees as mechanisms to mitigate risk and uncertainty [13], as well as customer reviews as a control mechanism on the quality of the goods or services [22]. Building on earlier research on trust and control mechanisms in eCommerce, a recently published study [15] proposes an evaluation framework for assessing eCommerce platforms. This framework was developed in the context of customers buying hand-made products. Both customers as well as customs share an interest in particular types of information, such as knowing the seller and their trustworthiness. When customers buy goods from an eCommerce platform they want to ensure that they can trust the seller and the quality of the product before committing to pay and they want to avoid fraudulent behaviour at all costs. Similarly, customs also wants to prevent fraud in eCommerce. The framework of Ratnasari and de Reuver [15] builds on control mechanisms as discussed by Tiwana [21]. These control mechanisms help platforms to define criteria for parties to join the platform (gatekeeping), as well as other control mechanisms such as process control (related to compliance of participants on the platform), metrics control (relates to the involvement of participants on the platform) and relational control that reflects on shared values and norms that influence the behaviour. In [15] dimensions and control mechanisms of eCommerce platforms are identified. The framework is used to compare and evaluate eight e-marketplaces (local in Asia, as well as international, including Amazon and Alibaba). The framework identifies four dimensions: (1) *Trustworthiness of the platform*: control mechanisms in this dimension include on-line credit card guarantee, escrow services, privacy protection, intermediary protection, third party guarantees and third party trust seals; (2) *Reputation system*: control mechanisms in this dimension include reputation, on-line product reviews, rating, feedback, word-of-mouth, transaction history and reviewer photos. These control mechanisms enable the on-line platform to collect signals from customers and to have a better indicator for the quality of the products, as well as the performance of the sellers operating on the platform; (3) *Product*: control mechanisms in this dimension include product information, product quality information, control quality product, and user generated photos. (4) *Other*: this dimension includes various control mechanisms such as seller identity/profile, legal status of the seller, high quality delivery services, historical sales records, shop and product tagging.

These control mechanisms attributed to eCommerce platforms brings interesting insights in the context of customs in a number of ways. First, the idea to evaluate the trustworthiness of a platform can be interesting for customs, as some platforms may have embedded more control mechanisms than others to ensure a higher degree of trustworthiness. Second, it seems that the platforms have implemented a number of

control mechanisms related to the sellers as well as to the products. In risk management of traditional trade flows, knowledge on the true seller and correct information on the product as well as the value of the product is of key importance for customs. Therefore, the platform control mechanisms related to the seller and the product can be also of interest to customs and we will explore this in this paper. In the next section we discuss the empirical context of our investigation and we briefly explain the method used.

3   Method

For the development of our eCommerce platforms evaluation framework for customs we used an interpretative and contextualist case study approach [24], as in our study we were interested in examining how customs approaches eCommerce platforms. In terms of theory types [6], the framework that we developed is aimed at developing theories for: (1) analysis, and (2) explanation. As an empirical context we used the Dutch Living Lab, part of the PROFILE project. The Dutch Living Lab focusses on using data analytics and external data from eCommerce platforms to address the issue of undervaluation in eCommerce declarations. The Living Labs research approach examines innovation in a complex real-world setting [10]. For this study the Dutch Living Lab provided rich access to the empirical setting with regular bi-weekly calls with the key involved parties to follow the progress. For the development of our detailed eCommerce evaluation framework we followed an iterative approach. Using an iterative approach helps to develop theories that are deeply informed by the empirical context [3]. In our study the empirical context guided us in search for relevant theories, which in turn helped us to structure our observations.

The framework development progressed through a number of phases. Phase one was empirically driven, where we engaged with the Living Lab, followed closely the data retrieval and data analytics technical work that was performed by the data analytics experts related to API access to price and product data from the platform and related analytics.

Subsequently in Phase 2 we engaged with existing theories to better understand the role of platforms. We identified a recently published study that took a trust perspective in the context of eCommerce from the perspective of the customer [15]. Based on these insights the scope of the Living Lab was expanded to include the exploration of seller data and trust mechanisms in eCommerce platforms, which provided a bridge to the EU developments and engagements like with platform (i.e. IOSS) and enabled us to make the link to the partnership perspective. Subsequently in Phase 3 this resulted in our final framework, which we present in the next section, and which combines data analytics and partnership perspective.

4   eCommerce Platforms Evaluation Framework for Customs

In Fig. 2 we present our eCommerce platforms evaluation framework for customs. We briefly explain here the components of the framework; the further discussion and elaboration will follow in the next section with case examples.
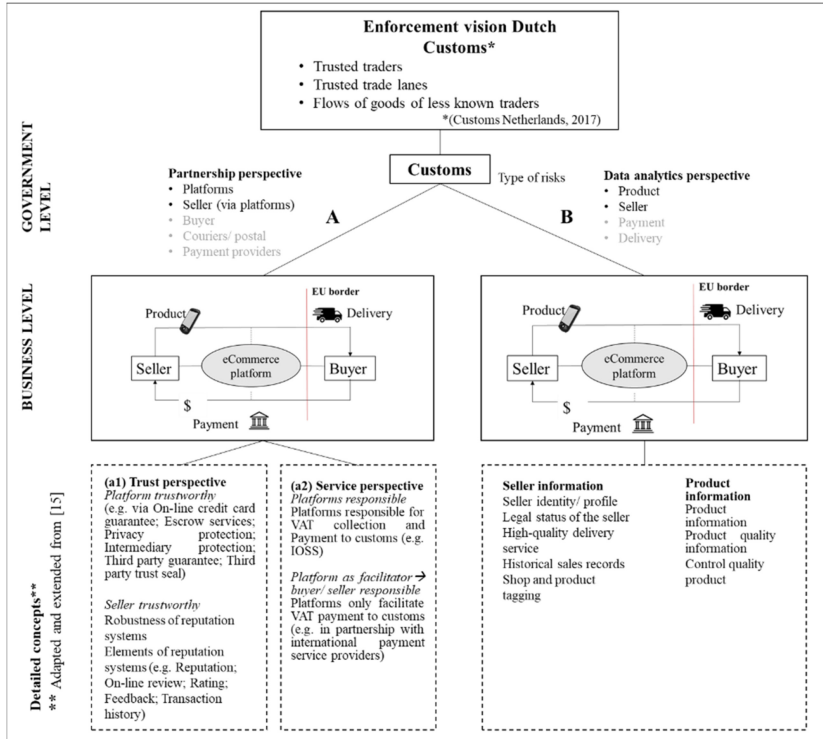
Fig. 2. eCommerce platforms evaluation framework for customs.

On the top of Fig. 2 we capture key elements from the enforcement vision of Dutch Customs. As discussed, key in this vision is the possibility to differentiate among trusted traders and trusted trade lanes and less trusted trade flows. At the moment, for many of the eCommerce shipments little information is known to customs beyond the declaration data that customs receives (i.e. they would fall under the less trusted trade flows in the enforcement vision).

Subsequently, our framework distinguishes two engagement strategies that customs can pursue when engaging with eCommerce platforms, i.e. the *partnership* perspective (indicated with arrow A in Fig. 2) and/or the *data analytics* perspective (arrow B in Fig. 2). In Fig. 2 we repeat two times the basic image of the commercial eCommerce transaction discussed in Sect. 2, as both the data analytics and the partnership approach that Customs may follow refer to the same basic eCommerce transaction. The differences between the partnership and data analytics perspectives (reflected in the bottom part of Fig. 2) is the kind of information customs would need and the approach customs would take.

Under the partnership perspective (A), we distinguish between *trust perspective (a1)* and a *service perspective (a2)*. The *trust perspective* examines control mechanisms related to trust in the platform or trust in the sellers on the platform. The *service perspective* looks at services that the platform implements to facilitate VAT payment.

In the service perspective, we could further differentiate services whether the *platform is responsible* for the VAT payments to customs (as in the case of IOSS). Alternatively, the platform may play a *facilitating role* where the obligation remains with the seller or the buyer, but the platform *facilitates* the VAT payment. Introducing such a facilitation service may also require other partnerships (with global payment providers for example). In the data analytics perspective that customs can take towards platform, the focus of the engagement is data-driven (arrow B). Aspects that are more relevant for a data-driven approach include information on the product (e.g. product information) and information on the seller (e.g. seller identity, legal status of the seller).

5   Demonstration of the Framework

In this section we demonstrate the framework by means of examples. We start with the data analytics perspective and examples from the PROFILE project in Sect. 5.1, and then move to the partnership perspective in Sect. 5.2.

5.1   Data Analytics Perspective

In the PROFILE project a key issue was to address a specific type of risk, namely under-valuation in eCommerce declarations. This type of risk was leading in searching for relevant data on the eCommerce platform. The Dutch Living Lab focussed on one specific eCommerce platform (Platform X). Next to that the immediate data of relevance was for specific key product types (e.g. mobile phones) and the goal was to search for price information. API access and web-data retrieval to search for real-time price information on specific product categories on different national branches of the eCommerce platform yielded average price ranges per product per country. However, in customs declarations goods are not described in such simple terms as the key categories defined for the search assignment (e.g. mobile phones). Customs declarations, but also the product descriptions found on the eCommerce platform, often come with vague text descriptions. Therefore, as a next step, Natural Language Processing (NLP) techniques were used to improve the accuracy of the search result. As a next iteration, also inspired by the eCommerce trust research (see Phase 2 of our framework construction in the method section), the seller information was identified by customs as an important element for the risk analysis. By browsing through the eCommerce platform that was selected for the analysis (Platform X) it was possible to identify that the platform contained (at least for some sellers) rich information on sellers, including information on Seller user name, Seller feedback percentage, Seller feedback score, Seller account type (business), Seller legal info in terms of name and legal contact, its legal address, VAT details and VAT ID, and the issuing country. Furthermore, additional search revealed that at some moment in time, Platform X published a list of top sellers. This entails that customs can potentially tap into a carefully measured and maintained reputation system of eCommerce platforms if the right incentives are in place. This brings us to the second view in our framework, i.e. the partnership view with which customs can approach eCommerce platforms.

5.2 Partnership Perspective

Customs taking a partnership perspective for engaging with eCommerce platforms is different compared to when taking a data perspective. In the data analytics perspective the focus is on the available data on the eCommerce platforms and how customs can use data analytics to create value in terms of better detecting undervaluation fraud. In contrast, in the partnership view the focus is on the relationship between the platform and customs and how it can be of value. Within the partnership view we identified two perspectives, i.e. the *trust perspective* (a1) and the *service perspective* (a2) (see Fig. 2).

When taking a *trust perspective (a1)* customs can evaluate platforms in terms of the trustworthiness of the platforms and in terms of the control mechanisms that the platforms have put in place to control their sellers. Tapping into these control mechanisms may open further opportunities for customs to develop trusted relationships with platforms and a sub-set of their sellers that are trustworthy and turn these eCommerce flows into trusted flows which require limited inspections and allow for trade facilitation. This would mean allowing customs to move some of the unknown eCommerce flows (blue flows) towards trusted eCommerce flows, i.e. yellow or green flows in the enforcement vision.

Platform X that we studied had clear rules for engagement, as well as a system for rating the sellers, based on buyer's feedback on issues like: item description or how accurately the goods were described; communication with the buyers, the shipping time and whether the shipping handling charges were reasonable. Next to that, sellers that score well are offered privileges and the top list of sellers is published, which provides additional publicity for these sellers. Platform X also managed a network of preferred partners related to the delivery services and offers managed payment services. In this way Platform X keeps more control over the complete transaction, knowing the sellers, the delivery partners, and offering payment services. The closer the seller is involved in the managed network of Platform X, the more knowledge the platform has on this seller. In some cases Platform X can even act in approaching sellers in case copyright infringements are identified and request them to solve the infringement. While it is clear that Platform X has a variety of sellers and it will not have the same knowledge about the whole population of sellers, there is a particular sub-set of sellers with high reputation and which are well trusted by the platform. Looking at this sub-set, the situation becomes similar with situations in traditional trade flows, where one party with deep knowledge of a trusted network and embedded control mechanisms in the network is able to play the role of an orchestrator of a trusted trade lane. For example, in an earlier study of traditional business-to-business trade flows on trusted trade lanes [17], a cooperative of growers was in principle able to take up such an orchestration role due to the trusted relationship with their growers, as well as its strong position in facilitating the payment and logistics processes. In that case [see 17], the cooperative of growers was the orchestrator of the trusted trade lane: documents such as invoices and packing lists were made available by the grower to customs via the cooperative of growers. Similarly eCommerce platforms in principle can adopt the role of an orchestrator in a trusted eCommerce flow in a business-to-consumer context.

Alternatively, the partnership between customs and eCommerce platforms can be considered from a *service perspective* (a2) when platforms are willing to implement

services to facilitate VAT collection for customs. As discussed earlier, this service perspective is to some extent already inherent in IOSS developments at the EU level. In IOSS, eCommerce platforms can develop extra services (compliant with pre-defined requirements) to collect VAT and to transfer it to the EU to further distribute it to the respective Member States via established mechanisms.

However, as argued by Heijmann [8], other perspectives can be taken, e.g. when customs puts the VAT collection burden on the buyer or the seller. In this case, the platforms can still provide services related to VAT payments but in a more facilitative role (and possibly in partnership with other payment service providers), rather than being direct responsible for the VAT collection.

6 Discussion and Conclusions

eCommerce is a challenge for customs for two reasons. First due to the huge volumes; second due to the lack of visibility for customs on who is behind these streams of packages, what the packages contain, and the value of the goods that are shipped. Customs administrations are now looking for solutions in order to collect the VAT due and to ensure a smooth import process. In this paper we present an eCommerce platforms evaluation framework for customs. Theoretically the framework that we developed is based on literature on control mechanisms of eCommerce platforms, as well as work on digital trade infrastructures in the context of trusted traders and trusted trade lanes. Our eCommerce platforms evaluation framework for customs proposes (A) a *partnership*, and (B) a *data analytics* perspective, which customs can take when defining their strategies of engagement with eCommerce platforms. These two elements are crucial parts in the system-based approach from Dutch Customs. Taking a *data perspective* allows customs administrations to see what kind of data of value can be found on the eCommerce platforms depending on the risk they would like to address. Taking a *partnership perspective*, customs can look at platforms in terms of how to establish relationships with these platforms. The partnership perspective is further refined into (a1) a *trust* (a2) a *services* perspectives.

Further research can proceed in a number of directions. Regarding the data analytics view, follow-up research can conduct a comparative study by examining different eCommerce platforms and providing an overview of which data can be of value for customs risk assessment purposes. Such an overview can lead towards a knowledge base on the eCommerce platform data sources. Second, taking a partnership perspective, a follow-up study can focus on cross-case comparison on how different countries/regions engage in partnerships with platforms or other actors in the eCommerce transaction. This allows to identify different partnership engagement models between customs and eCommerce platforms.

A limitation of our study was that we focussed specifically on examining the link between customs and eCommerce platforms and the focus on fiscal matters. Looking at our broader conceptualization of how government can view the eCommerce phenomena (see Fig. 1) allows to identify additional research opportunities as follows. First, customs can examine in detail other possible scenarios of customs engaging with eCommerce actors. This entails not only looking at the platforms, but also at sellers and buyers, as well

as possible partnerships with the delivery and payment providers, or other intermediaries like declaration service providers. Second, further research can go beyond customs to include other government agencies interested in controlling other public values in eCommerce flows. Further research can look at eCommerce from a wider range of public values and wider range of governments to account for effects of the vast growth in international flows of goods via eCommerce platforms, such as monitoring product safety and sustainability effects.

References

1. Bannister, F., Connolly, R.: ICT, public values and transformative government: a framework and programme for research. Gov. Inf. Q. **31**(1), 119–128 (2014)
2. Customs Netherlands: Pushing boundaries: the Customs Administration of The Netherlands' point on the horizon for the enforcement on continuously increasing flows of goods. White paper. Customs Administration of The Netherlands (2017)
3. Eisenhardt, K.M., Graebner, M.E.: Theory building from cases: opportunities and challenges. Acad. Manag. J. **50**(1), 25–32 (2007)
4. European Commission: Taking the Customs Union to the Next Level: a Plan for Action (2020). https://ec.europa.eu/taxation_customs/sites/taxation/files/customs-action-plan-2020_en.pdf
5. Gil-Garcia, J.R.: Towards a smart State? Inter-agency collaboration, information integration, and beyond. Inf. Polity **17**(3, 4), 269–280 (2012)
6. Gregor, S.: The nature of theory in information systems. Manag. Inf. Syst. Q. **30**(3), 611–642 (2006)
7. Heijmann, F.: Supply chain management. In: The EU Customs Union @ 5O Concept to Continuum. European Commission (2018). https://ec.europa.eu/taxation_customs/sites/taxation/files/01_2019_the_eu_customs_union_50th_book_en.pdf
8. Heijmann, F., Tan, Y.H., Rukanova, B., Veenstra, A.: The changing role of customs: customs aligning with supply chain and information management. World Customs J. **14**(2), 131–142 (2020)
9. Hesketh, D.: Weaknesses in the supply chain: who packed the box. World Customs J. **4**(2), 3–20 (2010)
10. Higgins, A., Klein, S.: Introduction to the living lab approach. In: Tan, Y.H., Björn-Andersen, N., Klein, S., Rukanova, B. (eds.) Accelerating Global Supply Chains with IT-Innovation, pp. 31–36. Springer, Heidelberg (2011). https://doi.org/10.1007/978-3-642-15669-4_2
11. Jøsang, A., Ismail, R., Boyd, C.: A survey of trust and reputation systems for online service provision. Decis. Support Syst. **43**(2), 618–644 (2007)
12. Klievink, B., et al.: Enhancing visibility in international supply chains: the data pipeline concept. Int. J. Electron. Gov. Res. **8**(4), 14–33 (2012)
13. Liu, Y., Tang, X.: The effects of online trust-building mechanisms on trust and repurchase intentions. Inf. Technol. People. 666–687 (2018)
14. Liutkevičius, M., Pappel, K.I., Butt, S.A., Pappel, I.: Automatization of cross-border customs declaration: potential and challenges. In: Viale Pereira, G., et al. (eds.) EGOV 2020. LNCS, vol. 12219, pp. 96–109. Springer, Cham (2020). https://doi.org/10.1007/978-3-030-57599-1_8

15. Ratnasari, A., de Reuver, M.: Control mechanisms for assessing the quality of handmade and artistic products in e-marketplace platforms. In: Pucihar, A., Borstnar, M.K., Bons, R., Seitz, J., Cripps, H., Vidmar, D. (eds.) 32nd Bled eConference Humanizing Technology for a Sustainable Society, BLED 2019 - Conference Proceedings, pp. 345–365 (2019)

16. Rukanova, B., et al.: Value of big data analytics for customs supervision in e-commerce. In: Lindgren, I., et al. (eds.) EGOV 2019. LNCS, vol. 11685, pp. 288–300. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-27325-5_22

17. Rukanova, B., Tan, Y.H., Huiden, R., Ravulakollu, A., Grainger, A., Heijmann, F.: A framework for voluntary business-government information sharing. Gov. Inf. Q. **37**(4) (2020). https://doi.org/10.1016/j.giq.2020.101501.

18. Rukanova, B., et al.: Identifying the value of data analytics in the context of government supervision: insights from the customs domain. Gov. Inf. Q. **38**(1), 101496 (2021). https://doi.org/10.1016/j.giq.2020.101496

19. Susha, I., Gil-Garcia, R.J.: A collaborative governance approach to partnerships addressing public problems with private data. In: Proceedings of the 52nd Hawaii International Conference on System Sciences (2019). https://hdl.handle.net/10125/59726

20. Tan, Y.-H., Bjørn-Andersen, N., Klein, S., Rukanova, B.: Accelerating Global Supply Chains with IT-Innovation: ITAIDE Tools and Methods. Springer, Heidelberg (2011). https://doi.org/10.1007/978-3-642-15669-4

21. Tiwana, A.: Platform Ecosystems: Aligning Architecture, Governance, and Strategy, pp. 117–151. Morgan Kaufmann, Burlington (2014). https://doi.org/10.1016/B978-0-12408066-9.00006-0

22. Trenz, M.: The effect of consumer reviews on vendor-related and market-related price sensitivity. ECIS 2013 Research in Progress (2013)

23. Verhulst, S., Sangokoya, D.: Data collaboratives: exchanging data to improve people's lives. Medium (2015)

24. Walsham, G.: Interpreting Information Systems in Organisations. Wiley, New York (1993)