Analysis of Web Marketplace Integration for E-Suripreneur Multi-Channel Listing Software

Azlee Zabidi^{1*}, Megat Syahirul Amin Megat Ali², Ihsan Mohd Yassin², Nooritawati Md Tahir², Zairi Ismael Rizman³

¹Faculty of Systems & Software Engineering, College of Computing & Applied Sciences, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

²School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

³School of Electrical Engineering, College of Engineering, Universiti Teknologi MARA, 23000 Dungun, Terengganu, Malaysia

Corresponding author: leeazlee@gmail.com

Article Info	Abstract
Page Number: 905 – 914	This study will provide an insight into the process of linking the web with
Publication Issue:	marketplace platforms that are accessible on the market. Many different
Vol. 71 No. 3s2 (2022)	marketplaces, including as Lazada, Shopee, Qoo10, AmazonJD, eBay,
	Zalora, Rakuten, Prestomall (India), Wish, Flipkart, ShopClues, and Etsy, are available to be integrated into the platform. Each has a distinct approach that includes listing and pricing, inventory and order administration, financial management, data and insight, data privacy and conflict of interest,
Article History	and API connectivity, as well as other features. All development techniques
Article Received: 28 April 2022	must be taken into consideration when integrating the web with all or chosen
Revised: 15 May 2022	marketplaces.
Accepted: 20 June 2022 Publication: 21 July 2022	Keywords : E-commerce, software engineering, advanced programming interface.

Introduction:

In the virtual world, a marketplace is a meeting area where vendors and buyers come together to conduct commercial transactions [1]. All company information, including product and pricing information, as well as distribution arrangements, are included in marketplace information and strategy. It is possible to find marketplaces in many categories, including retail stores, outlet flea markets, farmers markets, and warehouses. Traditionally, marketplaces served three primary functions: 1) bringing sellers and buyers together; 2) facilitating the exchange or transaction of products or services and/or information, as well as payment transactions and delivery arrangements; and 3) providing institutional infrastructures, such as the legal framework and rules for all activities [2].

Retailing has seen significant transformation in the previous two decades as a result of the introduction of the internet channel and the continuous digitization of the industry[3]. Particularly in the retail sector, the internet channel has risen to become extremely prominent, and this may be regarded a potentially disruptive trend. Many retailers' business models have

been impacted as a result of changes in the retail mix and changes in the behavior of their consumers as a result of these developments.

In today's world, there are many different e-commerce marketplaces accessible online. Several popular E-Commerce type shown in Fig. 1. All of them have a unique company approach and product to provide. It may provide additional options for both the seller and the buyer while conducting a commercial transaction. However, having a higher concentration of protocol, procedure, or method of usage may often be a disadvantage for middle-class users who are unfamiliar with such a system, particularly for sellers who wish to sell and manage their products online. Questions such as whether platform is the best for their product, how to utilize the platform, and whether or not their product is available on all platforms are examples of questions that one could ask. This will raise the problem of flexibility [4], which will be discussed throughout this paper.



Fig. 1 E-commerce logo

Multi-Channel Listing Software (MCLS) is the subject of this investigation, with the goal of gathering multiple different marketplace software and then pushing the information to our own marketplace. All product data and descriptions will be consolidated into a single location as a result of this method. Once a Goods Keeping Unit (SKU) has been created or downloaded from another channel, MCLS is meant to automate the process of relisting, adding, and updating stock on the website. Automation of restocking and product relisting, uniform product information and process across marketplaces, reduction in inventory management time investment, automation of order processing throughout the marketplace are some of the benefits of MCLS implementation.

Being familiar with the API integration is a critical component of designing the Marketplace Integration solution. API integration is the process of connecting two or more programs via the APIs, which enable data sources to be exchanged [5]. API interfaces enable operations across several sectors and layers of an organization, synchronizing data, increasing productivity, and making profit. API is an acronym for application programming interface. It is a component of nearly everything in the digital world. APIs ensure the flawless operation and performance of apps and online systems regardless of the business or organization size. When there is an extra necessity for optimizing and automating business processes and procedures that interact with and exchange essential data, this is where integration with APIs comes into play. API connection enables apps to exchange data and communicate with one another without the intervention of a person. Through APIs, connection between two online tools or apps is established. It enables organizations to automate operations, improve data exchange, and integrate existing applications. E Commerce sites are among the most frequent consumers of API connections. Some of the API's functionality for example, order management systems are used by web businesses to handle shopping and shipping orders, as well as to keep track of inventory levels. Nevertheless, in order to process, it need to connect to servers and databases that contain information on customers as well as items and inventory levels. Through API connection, companies may create a continuous data exchange that connects the online store and shopping cart. Another example is the integration of a payment gateway. When customer pay for a purchase online, they don't witness the transaction. Data is being sent to verify their credit card/debit card information in the background. Often, the payment gateway API is buried within the online store.

For this article, we will discuss some of the operations associated with the accessible marketplaces for LAZADA and SHOPEE. Then, to demonstrate the method, a straightforward integration between LAZADA APIs is carried out. Lazada and Shopee are two e-commerce platforms that operate on a customer-to-customer basis. Both offer virtual store services for users to conduct transactions with customers. Lazada and Shopee offer a wide range of necessities ranging from home necessities to business necessities, infant necessities to adult necessities[6]. Consumers will be profit from the benefits given, such as free delivery, on-site payment (COD), and discounts. The ability to trace items from purchase to receipt is also one of the item in place.

Application Programming Interface:

An application programming interface (API) is a way for computers or computer programs to communicate with one another [7, 8]. It is a sort of software interface that provides a service to other software components. An API specification is a document or standard that explains how to create such a connection or interface. APIs are frequently used to refer to web APIs, which enable communication between computers connected through the internet. Additionally, there are APIs for programming languages, software libraries, operating systems, and hardware.

Web APIs are the established interfaces that enable interactions between an organization and the apps that consume its assets[9]. It also serves as a Service Level Agreement (SLA) for the functional provider, defining the service path or URL exposed to API consumers. An API approach is a design philosophy centered on the provision of a program interface to a collection of services to a variety of applications servicing a variety of customers. When used in conjunction with web development, an API is often specified as a collection of specifications, such as HTTP request messages, and a definition of the structure of response messages, typically in the Extensible Markup Language (XML) or JavaScript Object Notation (JSON) format. A shipping business API, for example, may be integrated into an eCommerce website to enable customers to buy shipping services and to automatically include current shipping prices, without the site developer having to manually insert the shipper's rate table into a web database. Web APIs have enabled web communities to ease the sharing of content and data across communities and apps in the social media arena. Thus, material generated dynamically in one area may be published and updated in numerous locations throughout the web. For instance, Twitter's REST API enables developers to have access to core Twitter data, while the Search API enables developers to interact with Twitter Search and trend data.

Lazada API Integration:

Lazada Group is a global e-commerce company created in 2012 by Maximilian Bittner with the support of Rocket Internet and now owned by Alibaba Group. In 2014, Lazada Group operated in numerous countries and raised around US\$647 million from investors including Tesco, Temasek Holdings, Summit Partners, JPMorgan Chase, Investment AB Kinnevik, and Rocket Internet. It launched its websites in March 2012 with the business strategy of selling products to clients directly from its warehouses. In 2013, it introduced a marketplace concept, allowing third-party retailers to sell their products on Lazada's website; by the end of 2014, the marketplace accounted for 65 percent of its sales.

The Lazada Open Platform is a fully integrated platform that offers end-to-end API creation, provisioning, upgrading, and operations. It allows users to programmatically exchange Lazada seller data on products, orders, package shipment, and finance, as well as providing a development environment for integrating user applications with Lazada systems via APIs, improving development efficiency and quality, and sharing user applications among Lazada sellers.

To be able to interface with the Lazada marketplace, one option is to make use of their API. The procedure of obtaining Lazada API necessitated the user registering with the marketplace as a vendor first. After completing the registration process, users may be able to use the site under the name Lazada Open Platform. Fig. 2 shows the interfaces for LAZADA open platform.

OPEN PLATFORM	APP Carsole Documentation	baseboar metacros			88 (11)	d 😞 – keadadgeal.com
Select App Conversion	e suu v	App Name	(Q Smeth)			
App Name	Арр кеу	App Category	App Status	Hibernation Status	Action	
MySriffiliadaway	1005/6	Sellar In house APP	Tend	No	Manage	
Content Manage 810	175201	Carlied Management	• Test	No	Koneje	
EHI* 540	125644	EBP Sydien	• Test	No	Managa	
D40 Woman Ent	125668	Application for Test	🔵 tež	Nő	Manage	
Woman Entrepreteur	125128	Application for Test	Tecal	No	Managa	

Fig. 2 LAZADA open platform interfaces

In the Lazada Open Platform, users may choose from a variety of application categories, including Seller In-House APP, ERP System, Application for Test, Content Management, and Business Intelligence [10], among others. There are several various roles that may be played to assist users in the creation and integration of their own app, testing the program, managing content, data analysis, and also marketing their own app to Lazada sellers.

Mathematical Statistician and Engineering Applications
ISSN: 2094-0343
2326-9865

roduct Management	Response Parame	ters					2
	Name		турс	Demo Value	Description		
(grate/mage	III eou		Object	4	Desponse pody		
pcare Product							
etimages	Request Example						×.,
emoveProduct	JAWA PHP	NET RUBY	PYTHON	CURL			
ipadimage							
eateProduct	egent # env "hapfingents	0. 0.					
grateimages	Farman Capitan, "On	areaboontines," en	nding*1"TF 5-1	Property Change	@~fauryCotogray2Wil4s/*riteryCategory2	senne comme	serveda
grateimages ueryProductsDetails	Fair spractic sector (Parameter ("poplane"), " (2m mer, then = v(1 million sector) or "ennegoers, gestroop ();	(arestantii 0,° e. reginik accesilatei	nding*)**#7 55* 4 :	Reput Cale?	@~facryCologrey3Wi4s/PrincyCorogrey3)	्रत्याकः उत्त्याक	senneda
gratelmages leryProductsDetails al 1.Minnent create	Barringenezityender, "On Barringenezityender", "On regiment «Unen sachted er" timepter, gebege (); in	l aregionesti dy ^e en regione accondident	nding*)***** Br* *) Rogersti (Chadaer)	Primer/Cooperty/Wiki/TelesyCompery)	रन्त्री <i>कः</i> अन्यक	Skroeda
grateimagos ieryProductsDetails al Tuffment create al Tuffment update	Barn generation of a Barney constraint, "One regime + (Fine carried anti-memory anti-defil) 0	(eester") 05° ee inganag accessible	nding*) TF 5- 1	9 Bogert Canco	@naarsCuagrapWD4/ColocyCorogoy)	cente contre	sennela E
grateimages JeryProductsDetaills all fulfiment proble all fulfiment update dhyBupplerShul/JapplrgChange	Response Example	(erestavit), dyf en reginn, acrosifider) e	nding*i"Π" Ει" β	n Begerski – Chasker S	A subconserve Meri, que de la conserve	(**IId+U**IId*	(krosta *
grotermages leryProducationalis al LMmore create al LMmore update MyBupplerShufdappingChange MySupplerShufdapping	Response Example	(arcshaff)), O(" en reginal, accessible) B	ndings, TF 5.* *	i Teorrati C'anterit	A service and service and a service of the service	েশাক েশাক	Seconda *

Fig. 3 Accessing parameter

During the application development process, the user has the option to test the API procedure. However, if a user has not yet registered their company on Lazada Open Platform, they will only be able to complete the product information acquisition procedure. This means that the act of posting information such as product images, photographs, and other images, as well as any other information, is not permitted.

Several features of this platform include comprehensive documentation to assist users in understanding how to use the platform, including the processes of 'get' and 'post,' obtaining a token, and seeing response data. It also includes an API test tool (Fig. 4) to assist users in managing the development process. Users may choose from a variety of SDKs to manage and connect their apps with the platform's APIs, including JAVA, .NET, PHP, Python, and Ruby, among other languages.

	APP Console Decumentation DataMace Contact Us		🗱 Sellin 🐖 Koskegy	121	
Back to App List	11010-012		:4	Ворися:	
Databalloant	 Region (?) API Path (?) 	Malaysia Abranik Aget	Sed Statesless	1131 Hover https://apularation.com/apularet/brancs/gar? https://apularation.com/apularet/brancs/gar?	
API Lacione	- http://ethod	€ GLI		STREPENDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDEDE	
-sterau	- App Key 🔿	100152	(Defaul)		
Messge canality	Access loken 🍘	there are transitively between taken	Qet Takot	Response : Body Header	
	= offset	a.	1	1 10947 [+ 100
	- linit	(start Tess)		f Thank" (40 Germa" Thank") (41 S Tigated German") (26 germa") Thank art (28 Germa")	
				x 50K Sample: 	*

Fig. 1 LAZADA API test tool

Shopee API Integration:

Shopee Pte Ltd is a worldwide technology business headquartered in Singapore that specializes in e-commerce. Shopee was founded in Singapore in 2015 and has since spread to Thailand, Malaysia, Taiwan, Indonesia, Vietnam, the Philippines, Mexico, Brazil, Chile, and Colombia.

Additionally, mainland China, Hong Kong, Japan, and South Korea serve as seller hubs. As of 2021, it services consumers and sellers in Southeast and East Asia, as well as numerous Latin American nations, focusing in online product selling.

Shopee offers a wide range of services, including logistical and customer assistance, safe payment ways, shopping, and chatting with merchants. In comparison to Lazada, Shoppe has a comparable procedure for seeking to become a part of its platform. The platform is referred to as SHOPEE Open Platform [11] (Fig. 5), and registration is required in order to utilize it.



Fig. 2 SHOPEE open platform interfaces

While the API access method differs somewhat from that of LAZADA, it is quite comparable. Shopee Open Platform also includes an API test tool (Fig. 6) to assist users in managing the development of their applications.

Too	s > API Test Tool					
App Management +	• You need to creat	the App first, then you	can use the API test tool. G	3o To App List		
Tools +				Request		
API Tool Tool	"Farther ID	Select	<i></i>			
Personal Center +	* API Version	Belott	×			
	' API Calegory	Select	÷.			
	* API Path	Select				
				Response		

Fig. 3 SHOPEE API test tool

Integration Testing with Web Application:

In this section, we conducted an experiment to extract information from the Lazada Open Platform using the API and displaying it in Laravel. For the sake of testing, we are using POSTMAN [12] in order to retrieve the necessary information from the API. The information, particularly the query string to be used in the call of the requested action, is known from this point on. Fig. 7 illustrates how the 'get' function of the POSTMAN protocol is used to retrieve 100 available brand information from Lazada.

€ Revenue The Carl Chen Help			- 3 /
Home Workspaces - Reports Explore	-OL Sweeth Rowman	G Alinta de C	-17 🔘 Uppede
La montreferenza e martier entre e 1 m		Ha Sh	sitemati v 🛷
å – Hus Amerikada om nyterstillen eksigt folkadaliske det 1003 og Joye 1007	(215 ay gine hodiech (2008), nestan par 1626 / 922 8660 448 ay rair 109	CIRSO4466460294/1041389-094/2016889102302579960 .	5944 - 🥒 🖂 1/1
12. Bet - Nico Splanado ser no verito ando priotiva. 64 min.13	Skapp, age 1001238 pt., period i mai Skaty espep 100532539	a de protestino associativos en entrativos en entratas en entratas en entratas en entratas en entratas en entra	FEET Send -
123 Rearra • Andronautur Hondony (K) anny Principal Solar In Dury Forens	an Bellinga		Continue
9 ker	VALUE	DESCRIPTION	in Rade Balt
🖉 after:	1		
🗹 i 18:	100		
🖉 applicity	100122		
🛃 sign, vertras	44356		
Budy Crowns Houders 300 Tax Faults		🛱 some sames messares severa	ET RH Save Response of
Philip ten Diesen Wachts 1908			in a
1 conf. 1 2 1 conf. 1 3 1 conf. 1 4 1 conf. 1 5 1 conf. 1 6 1 conf. 1 7 1 conf. 1 1 6 1 conf. 1 1 6 1 conf. 1			
12 14 1 - 1240			

Fig. 4 Testing API using POSTMAN

Following the acquisition of raw information (Fig. 8), modification can be accomplished through the use of PHP to construct the needed interface and response. In this study, LARAVEL is used as a component of a web application that will be integrated with the LAZADA API, and Fig. 9 depicts the straightforward success of the integration achieved through this approach.



Fig. 5 Information retrieve using LAZADA API

Produc	Product Brand					
No	Name	Details	Action			
4	2K Cames	2k_games	Show Edit Defete			
2	эм	3m	Show Eat Delete	I.		
3	ABBA	abba.	Show Edit Delete	I.		
4	ACIP	Agip	Sixow Edit Delete			
5	AKG	akg	Bhow Eatt Delete			

Showing 1 to 5 of 99 results

Fig. 6 LARAVEL with LAZADA integration

Conclusion:

This article presents two instances of web application interaction using APIs provided by marketplace platforms. Numerous elements may be explored in further detail in order to optimize the integration process in any chosen E-Commerce platform. With the growing number of E-Commerce and social media platforms accessible today, online merchants as sellers must leverage many channels to increase client acquisition, product promotion, and market share

expansion. An E-Commerce administration portal is necessary to manage the complexity and enable merchants to deliver a Multi-channel retailing experience.

References

- [1] P. Porntrakoon and C. Moemeng, "A model for multi-dimensional trust measurement in Thailand E-marketplace," 14th International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology, 2017, pp. 73-76.
- [2] Y. Prihastomo, M. Widjaja, A. Hidayanto, and H. Prabowo, The Key Success Factors in E-Marketplace Implementation: A Systematic Literature Review. IEEE International Conference on Information Management and Technology, pp. 443-448, 2018.
- [3] P. C. Verhoef, P. K. Kannan, and J. J. Inman, "From Multi-Channel Retailing to Omni-Channel Retailing: Introduction to the Special Issue on Multi-Channel Retailing," Journal of Retailing, vol. 91, pp. 174-181.
- [4] L. Ismanto, A. R. H. Suwito, and A. N. Fajar, "SOA Integration for E-Marketplace," International Conference on Computer Science, Information Technology, and Electrical Engineering, 2019, pp. 1-4.
- [5] S. Jadhav, A. Singh, A. Upadhyay, S. Avhad, and P. P. Hole, "REST API for E-Commerce Site," International Research Journal of Engineering and Technology, vol. 6, 2019.
- [6] Alaria, S. K., A. . Raj, V. Sharma, and V. Kumar. "Simulation and Analysis of Hand Gesture Recognition for Indian Sign Language Using CNN". International Journal on Recent and Innovation Trends in Computing and Communication, vol. 10, no. 4, Apr. 2022, pp. 10-14, doi:10.17762/ijritcc.v10i4.5556.
- [7] I. D. Tinambunan, "Comparative Analysis of Shopee and Lazada Web Service," International Research Journal of Advanced Engineering and Science, 4(3), pp.385-388, 2019.
- [8] Isha, A. Sharma, and M. Revathi, "Automated API Testing," 3rd International Conference on Inventive Computation Technologies, 2018, pp. 788-791.
- [9] P. Modiya and S. Vahora, "Brain Tumor Detection Using Transfer Learning with Dimensionality Reduction Method", Int J Intell Syst Appl Eng, vol. 10, no. 2, pp. 201– 206, May 2022.
- [10] S. Jonnada and J. K. Joy, "Measure your API Complexity and Reliability," IEEE 17th International Conference on Software Engineering Research, Management and Applications, 2019, pp. 104-109.
- [11] Ghazaly, N. M. (2022). Data Catalogue Approaches, Implementation and Adoption: A Study of Purpose of Data Catalogue. International Journal on Future Revolution in Computer Science &Amp; Communication Engineering, 8(1), 01–04. https://doi.org/10.17762/ijfrcsce.v8i1.2063
- [12] Kadhim, R. R., and M. Y. Kamil. "Evaluation of Machine Learning Models for Breast Cancer Diagnosis Via Histogram of Oriented Gradients Method and Histopathology Images". International Journal on Recent and Innovation Trends in Computing and Communication, vol. 10, no. 4, Apr. 2022, pp. 36-42, doi:10.17762/ijritcc.v10i4.5532.

- [13] A. Chawla, "Phishing website analysis and detection using Machine Learning", Int J Intell Syst Appl Eng, vol. 10, no. 1, pp. 10–16, Mar. 2022.
- [14] E. Wittern, "Web APIs Challenges, Design Points, and Research Opportunities: Invited Talk at the 2nd International Workshop on API Usage and Evolution," IEEE/ACM 2nd International Workshop on API Usage and Evolution, 2018, pp. 18-18.
- [15] Chaudhary, D. S. (2022). Analysis of Concept of Big Data Process, Strategies, Adoption and Implementation. International Journal on Future Revolution in Computer Science & Amp; Communication Engineering, 8(1), 05–08. https://doi.org/10.17762/ijfrcsce.v8i1.2065
- [16] Lazada Open Platform. https://open.lazada.com/
- [17] Shopee Open Platfom. https://open.shopee.com/documents?version=1
- [18] POSTMAN Learning Center. https://www.postman.com/api-documentation- tool/
- [19] Mirghafoori S H, Sayyadi Toranlu H, Dehghani Ashkezari J. Provision of a Model to Spread the Use of Information Technology in Serving. sjis. 2020; 2 (1) :1-6, URL: <u>http://sjis.srpub.org/article-5-55-fa.html</u>