

Factors promoting and hindering the implementation of PUDO services related to courier services deployed at PEDi centres in Sarawak

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Introduction



- The parcel point network which is also known as PUDO is one of the initiatives in achieving industry sustainability, and a collaborative effort between all courier partners. It is a central delivery and collection system that enables consumers to pick up their parcels at their convenience, particularly if they are unable to receive their parcels at their homes.
- The provision and availability of pick-up and drop-off (PUDO) services at Pusat Ekonomi Digital (PEDi) throughout Sarawak is a key initiative to increase the national parcels per capita. It is envisaged that this will spur e-Commerce adoption and create a heightened demand for courier services in both markets.

Introduction

Customer-perceived service quality effect on competitive advantage

(Carrillat, F. A., Jaramillo, F., Mulki, J. P., 2007)

Competitive advantage is often affected by the measured business performance based on customer-perceived service quality.

- **Perceived quality** was defined as the extent to which **the service provided matches the customer expectation.**

Service adoption factors

Service quality (Gulc, A., 2021)



(Chen, Y., Yu, J., Yang, S., & Wei, J., 2018)

- ✓ Location convenience
- ✓ Innovativeness
- ✓ Expectation of the service



Marketing Theory

(Kotler, P., and Keller, K. L., 2016)



Introduction



Issues with home delivery (Bharucha, J., 2017)

- ❑ Unavailability of respondents at the time.
 - Increases costs for carriers
 - Lowers consumer satisfaction

Home
Delivery
Issue

Failed deliveries have an impact on the cost structure (Ivan, C. B, Wouter, D., Thierry, V., Smet, C. & Joris, B., 2017)

Impact on
cost
structure

Pick-up points offer solutions to failed deliveries while increasing the density of deliveries (Ivan, C. B, Wouter, D., Thierry, V., Smet, C. & Joris, B., 2017; Mangiaracina, R., Perego, A., Seghezzi, A., & Tumino, A., 2019).

Pick-Up
Points as a
Solution



Courier Service Perspective

An effective pick-up and drop-off service can mitigate many issues related to traditional home delivery;

- ❑ missing delivery
- ❑ complex routing planning
- ❑ traffic delivery

Introduction



This research aims to identify the factors promoting and hindering adoption and potential solutions for the courier service providers to effectively deploy pick-up and drop-off (PUDO) services at Pusat Ekonomi Digital Malaysia (PEDI) and recommend suitable PEDI for PUDO deployment in Sarawak.

RO 1

To identify the factors contributing to the effective deployment of PUDO services at PEDI centres located in Sarawak by courier service providers.

RO 2

To identify the factors hindering the effective deployment of PUDO services at PEDI centres located in Sarawak by courier service providers.

RO 3

To provide recommendations for the courier service providers to effectively deploy PUDO services at PEDI centres located in Sarawak.

RO 4

To identify and recommend suitable PEDI centres in Sarawak for courier service providers to deploy PUDO services.

Methodology



RESEARCH DESIGN

- ✓ Descriptive cross-sectional design
- ✓ Qualitative and Quantitative

Population:

- ✓ All PEDi in the Southern region of Sarawak.
- ✓ All PUDO@PEDi in Sarawak

Data Collection Method:

PUDO@PEDi Suitability Index Instrument

Interview: Courier service provider & PEDi Managers

Observation: Infrastructure

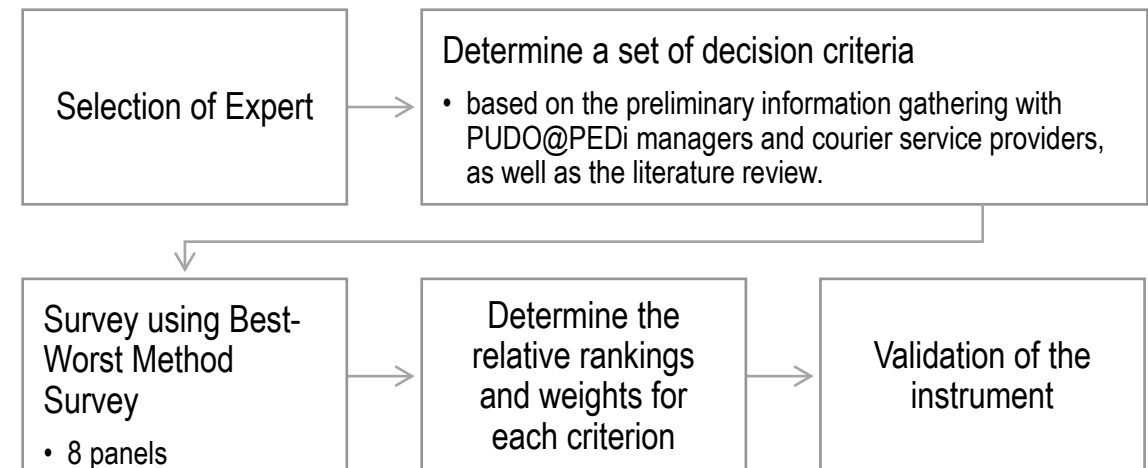
PUDO@PEDi User Survey

Online Survey: PUDO@ PEDi user

DATA ANALYSIS

- ✓ PUDO@PEDi Suitability Index
- ✓ Descriptive Analysis
- ✓ Pearson Correlation

Development of PUDO@PEDi Index Instrument Best-Worst Method



Key Findings



Factors contributing to the effective deployment of PUDO services at PEDI centres located in Sarawak by courier service providers.

RELIABILITY of the service

RESPONSIVENESS of the PUDO on user inquiries and issues related to the service

ASSURANCE given to the consumer

EMPHATY to the consumer

TRUST in the service

AFFORDABILITY of the service

Key Findings



Factors hindering the effective deployment of PUDO services at PEDI centres located in Sarawak by courier service providers.

Lack of awareness and understanding among the community about the service

Lack of digital entrepreneur

Availability of competitors in the community

Limited service that does not fulfil the community needs

Staff motivation (workload, work process, incentive)

Facilities and equipment

Key Findings



Recommendations for the courier service providers to effectively deploy PUDO services at PEDi centres located in Sarawak.

Operational Efficiency

- Establish standardized standard operating procedures (SOP) and policies for the courier services deployed in PUDO
- Resource sharing between courier services
- Ensure that the PUDO system and equipment are up-to-date and functioning properly
- Remote system maintenance
- Integrating the PUDO system so that there is no need for separate systems for different courier services and tracking

Customer Acquisition

- Deploy PUDO services in communities with a high potential for digital entrepreneurs
- Broaden the scope of services offered to encompass both inbound and outgoing deliveries (open to public)
- Offer customers enticing promotions
- Partnering with neighbourhood businesses and stakeholders
- Increase awareness of the services provided among community members
- Develop a robust marketing strategy

Staff Development and Motivation

- Enhancing staff competency for the digital age
- Review staff workload and consider redistributing it
- Competitive rewards scheme

Key Findings



Suitable PEDI centres in Sarawak for courier service providers to deploy PUDO services

The suitability of a PEDI centre to deploy PUDO services were evaluated using PUDO@PEDI Suitability Index developed by the research team.

PUDO@PEDI Suitability Index (PSI) Indicator

PSI Category	Color Indicator
Highly Suitable	>80
Suitable	<70 to <80
Not Suitable	>60 to <70
Highly Unsuitable	<60

The PEDI Suitability Index was calculated based on the construct acceptability Index comprising 8 constructs.

PEDI Suitability Index were calculated based on the construct acceptability Index that consists on 8 constructs.

Construct Acceptability Index (CAI)* Indicator

CAI Category	Color Indicator
Excellent	>80
Good	<50 to <80
Fair	>20 to <50
Poor	<20

Business Space (BS)

Security (S)

Prospective Users (PU)²

Competition (C)³

Facilities (F)

Local Product (LP)¹

Accessibility(A)

Readiness (R)

Key Findings



The initial evaluation identified 7/58 PEDI as suitable for deploying PUDO services, 27 PEDI were not suitable, and 24 PEDI were highly unsuitable based on the PUDO@PEDI suitability Index.

The PEDIs fell under the 'Not Suitable' group were re-evaluated based on the three (3) critical criteria (Local product, Competition, and Prospective Users). From the critical criteria score, 12/27 PEDIs were recommended to deploy PUDO services, and 15 of them will need improvement before deploying the services.

Key Findings



Suitable PEDi centres in Sarawak for courier service providers to deploy PUDO services

PUDO@PEDi Suitability Index Score

PSI: PEDi Suitability Index
 BS: Business Space
 S: Security
 PU: Prospective User
 C: Competition
 F: Facilities
 LP: Local Product
 A: Accessibility
 R: Staff Readiness

	PEDi NAME	PSI	BS	S	PU	C	F	LP	A	R
HIGHLY SUITABLE										
1	KAMPUNG GEDONG	85.33	77	93	83	80	80	90	80	100
2	KAMPUNG HILIR MALUDAM	81.73	73	100	73	100	68	80	70	100
SUITABLE										
1	KPG DARUL BELIMBING ISLAM	74.86	80	87	90	40	58	100	77	67
2	SIBULUH	73.25	73	87	73	40	80	80	70	93
3	KAMPUNG TANAH HITAM, SEMATAN	72.68	73	87	73	73	73	63	80	77
4	KAMPUNG NIUP PEKAN SAMARAHAN	71.15	73	77	80	40	80	70	77	80
5	TEBEDU	70.46	80	87	73	30	70	78	73	93

Key Findings



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	PEDi NAME	PSI	BS	S	PU	C	F	LP	A	R
1	KG PANDAN	69.90	80	87	60	63	63	70	80	83
2	KG SAMPADI	68.82	53	87	60	60	73	75	80	70
3	KG BIAWAK	68.24	67	87	80	23	83	68	73	80
4	SKIO	68.15	77	87	63	57	73	73	60	73
5	LUBOK ANTU	67.87	57	80	67	50	75	75	67	73
6	KG PENINJAU BARU	67.54	90	93	57	30	60	80	80	90
7	BOGAG	67.33	87	87	67	60	33	80	80	73
8	KG TGH TEBELU	67.27	63	80	67	50	63	65	80	87
9	QUOP	67.22	70	87	60	80	80	55	53	70
10	KROKONG	66.70	87	93	70	53	65	68	67	60

Key Findings



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	PEDi NAME	PSI	BS	S	PU	C	F	LP	A	R
11	KG BRAANG BAYUR	66.63	80	87	63	70	50	60	70	83
12	KAMPUNG LEBOR	65.84	73	80	57	80	63	45	73	87
13	SERASOT	65.79	80	87	73	57	40	65	80	73
14	LUNDU	65.64	87	87	77	13	75	68	80	70
15	BATU LINTANG	65.53	80	100	50	97	43	48	70	87
16	KAMPUNG PINANG	65.12	47	87	83	20	88	68	80	50
17	PEKAN ASAJAYA	64.97	80	80	47	10	88	90	80	67
18	BENGOH	64.58	73	87	27	80	73	68	80	63
19	KAMPUNG KALOK	64.28	63	73	63	27	88	63	73	77
20	TEBAKANG	63.78	53	87	67	40	88	65	80	40

Key Findings



Suitable PEDi centres in Sarawak for courier service providers to deploy PUDO services

Critical Criteria
Score

CCS

LP: Local product

C: Competition

PS: Prospective Users

No.	PEDi NAME	Critical Criteria Score	LP	C	PU
1	Bogag	70	80	60	67
2	Kg Sampadi	66	75	60	60
3	Kg Pandan	65	70	63	60
4	Skio	65	73	57	63
5	Lubok Antu	65	75	50	67
6	Serasot	65	65	57	73
7	Quop	64	55	80	60
8	Krokong	64	68	53	70
9	Kg Braang Bayur	64	60	70	63
10	Batang Maro	64	53	90	53
11	Batu Lintang	63	48	97	50
12	Kg Tgh Tebelu	61	65	50	67

Key Findings



Unsuitable PEDi centres in Sarawak for courier service providers to deploy PUDO services

Critical Criteria Score CCS LP: Local product C: Competition PS: Prospective Users	No.	PEDi NAME	Critical Criteria Score	LP	C	PU
	13	Kampung Lebor	59	45	80	57
	14	Bengoh	59	68	80	27
	15	Kampung Tanjung Bundung	59	70	20	83
	16	Kg Biawak	58	68	23	80
	17	Kg Peninjau Baru	58	80	30	57
	18	Kampung Pinang	58	68	20	83
	19	Tebakang	58	65	40	67
	20	Sungai Bandung	58	83	10	73
	21	RPR Taman Sri Wangi	56	78	20	63
	22	Lundu	54	68	13	77
	23	Pekan Asajaya	53	90	10	47
	24	Kampung Kalok	52	63	27	63
25	Melugu	51	43	67	47	
26	Kampung Tangga Plaman	49	75	10	53	
27	PPR Taman Dahlia	46	70	10	50	

PEDi Suitability Index Score

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Highly Unsuitable PEDi centres in Sarawak for courier service providers to deploy PUDO services

	PEDi NAME	PSI	BS	S	PU	C	F	LP	A	R
1	SPA OH	59.66	53	93	70	23	70	50	80	67
2	SADONG JAYA	59.22	80	73	70	10	68	70	80	43
3	KG TA'EE	59.00	80	80	57	37	43	48	83	93
4	LINGGA	58.95	73	70	17	77	58	60	80	73
5	KABONG	58.88	53	93	43	43	73	50	83	70
6	TAMAN SEPAKAT JAYA	58.81	80	87	67	57	78	10	80	70
7	PPR BATU GONG	58.21	73	77	47	37	80	35	83	80
8	PEKAN ROBAN	58.11	80	93	47	7	85	53	70	83
9	TELAGA AIR	57.87	80	77	43	83	68	48	80	17
10	KAMPUNG SRI TAJO	57.72	60	80	60	40	35	70	80	57

PEDi Suitability Index Score

Highly Unsuitable PEDi centres in Sarawak for courier service providers to deploy PUDO services



	PEDi NAME	PSI	BS	S	PU	C	F	LP	A	R
11	TG BOWANG	57.10	80	87	27	80	68	30	80	67
12	KAMPUNG BUNGEY	56.24	50	93	70	27	63	40	70	70
13	KAMPUNG BARU HILIR SRI AMAN	55.45	50	80	70	23	43	53	70	77
14	KAMPUNG PANGKAT STUMBIN	55.31	80	80	53	57	55	40	50	67
15	ENKILILI	54.23	80	80	63	10	50	45	77	77
16	PPR TAMAN MALIHAH	54.21	57	87	47	47	65	35	83	57
17	KG PASIR PANDAK	53.70	80	50	67	53	63	10	80	63
18	BAKO	53.29	80	87	60	63	50	10	80	60
19	KAMPUNG PICHIN	50.56	53	87	40	10	50	53	80	77
20	KAMPUNG SUNGAI MATA	48.90	67	70	57	20	35	40	77	67

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Highly Unsuitable PEDi centres in Sarawak for courier service providers to deploy PUDO services

	PEDi NAME	PSI	BS	S	PU	C	F	LP	A	R
20	KAMPUNG SUNGAI MATA	48.90	67	70	57	20	35	40	77	67
21	KG STUNGKOR BARU	45.62	80	60	27	23	55	38	73	60
22	BALAI RINGIN	43.93	67	80	20	80	58	0	73	43
23	PEJABAT DAERAH LAMA SIMUNJAN	43.72	47	37	23	10	88	20	80	73
24	SEBANDI ULU	42.91	40	80	47	10	45	43	80	33

Recommendations



No.	Constructs	General Recommendation
1	Business Space (BS)	To improve the business space by allocating a designated space for the parcels. For PEDis affected by the flood, it is advisable to provide a high storage space for parcels.
2	Security (S)	To ensure the security system is in place and working properly, and improve on vandalism control if there are frequent cases of vandalism.
3	Prospective Users (PU)	To develop and encourage more digital entrepreneurs and to acquire more adult users. For this, a robust marketing strategy is needed to increase awareness of the PEDi services among community members.
4	Competition (C)	To establish collaboration with the available courier service providers and local businesses.
5	Facilities (F)	To improve on internet and telecommunication network in the community.
6	Local Product (LP)	To encourage more entrepreneurs to produce their own product and to market their product digitally.
7	Accessibility (A)	PUDO can be deployed in PEDi with low accessibility index score as long as the courier services is ready to deploy the service in that particular PEDi.
8	Readiness (R)	To provide more competitive rewarding system for the staff. Apart from that, providing training for the staff especially to increase awareness and understanding of digital economy is also crucial for the staff to be able to promote the service.

Conclusion



- It is recommended to collaborate with local stakeholders to resolve challenges such as a need for more resources or infrastructure in PEDI centres.
 - This will help to leverage local knowledge and resources to overcome these challenges and ensure the sustainability of PUDO services in Sarawak.
- Further research extending the study to other divisions of Sarawak should be conducted to identify potential areas or communities for digital entrepreneurship and e-commerce growth.
 - This will help determine if other PEDI centres in the rest of the regions have a high potential for growth and to what extent PUDO services can support the Sarawak Digital Economy.
- Future research should consider incorporating community needs assessment in the PUDO suitability assessment for the service.
 - This will help to tailor the PUDO services to the specific needs and preferences of consumers in different regions, thus increasing their effectiveness and adoption.