

MRR No. 394

Research Report

Development of Assessment Framework for Courier Companies in Malaysia



Ahmad Azad Ab Rashid
Low Suet Fin
Mohd Firdaus Mohd Siam
Khairil Anwar Abu Kassim

MROS

MALAYSIAN INSTITUTE OF ROAD SAFETY RESEARCH

ASEAN ROAD SAFETY CENTRE

Development of Assessment Framework for Courier Companies in Malaysia

Ahmad Azad Ab Rashid
Low Suet Fin
Mohd Firdaus Mohd Siam
Khairil Anwar Abu Kassim



Published by:

Malaysian Institute of Road Safety Research (MIROS)

Lot 125-135, Jalan TKS 1, Taman Kajang Sentral,
43000 Kajang, Selangor Darul Ehsan, Malaysia.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Ahmad Azad Ab Rashid

Development of Assessment Framework for Courier Companies in Malaysia/

Ahmad Azad Ab Rashid, Low Suet Fin, Mohd Firdaus Mohd Siam,

Khairil Anwar Abu Kassim.

(Research Report; MRR No. 394)

ISBN 978-967-2988-17-5

1. Express service-- Malaysia.

2. Delivery of goods--Malaysia.

3. Freight and freightage--Malaysia.

4. Government publications--Malaysia.

I. Low, Suet Fin. II. Mohd Firdaus Mohd Siam.

III. Khairil Anwar Abu Kassim.

IV. Title. V. Series.

388.044

Printed by:

VISUAL PRINT SDN BHD (186281-A)

No. 47, 47-1, Jalan Damai Raya 1,

Alam Damai, 56000 Cheras,

Kuala Lumpur.

Typeface: Calibri

Size: 11 pt.

DISCLAIMER

None of the materials provided in this report may be used, reproduced or transmitted, in any form or by any means, electronic or mechanical, including recording or the use of any information storage and retrieval system, without written permission from MIROS. Any conclusion and opinions in this report may be subject to reevaluation in the event of any forthcoming additional information or investigations.

Contents

	Page
List of Tables	v
List of Figures	vi
Acknowledgements	vii
Abstract	ix
1. Introduction	1
1.1 Objectives of Study	2
1.2 Scope of Study	3
2. Literature Review	4
3. Methodology	6
3.1 Data Collection Process	6
3.2 Sampling and Data Collection	7
4. Results	10
4.1 Task 1	10
4.1.1 Interview Results – Understanding the Industry	10
4.1.2 Descriptive Results for Motorcycle Category	15
4.1.3 Descriptive Results for Lorry/Van Category	16
4.1.4 Descriptive Results for Line-Haul Category	17
4.1.5 Summary of Task 1 Results	18
4.2 Task 2	18
4.2.1 Courier Service Quality	19
4.2.2 Courier Related Road Safety	21
4.2.3 Summary of Task 2 Results	25

Development of Assessment Framework for Courier Companies in Malaysia

4.3	Task 3	26
4.4	Task 4	28
5.	Discussion	30
5.1	Framework Application for Future	31
6.	Conclusion	33
	References	34

List of Tables

	Page
Table 1 Samples of courier riders and drivers involved in the observation by vehicle category	7
Table 2 Exposure information on courier deliverers interacting with road traffic	10
Table 3 Quantity of vehicles interact with road traffic	11
Table 4 Observation results for motorcycle category	15
Table 5 Observation results for lorry/van category	16
Table 6 Gap analysis results for lorry/van category	16
Table 7 Observation results for line-haul category	17
Table 8 Risk and opportunity	18
Table 9 Key performance indicators for courier in National eCommerce Strategic Roadmap	20
Table 10 RTS performances based on ISO 39001 related to courier industry	21
Table 11 Performances measures for high quality service	25
Table 12 Performances measures for road safety	25
Table 13 Performances measures and assessment scope	27
Table 14 Performances measures for road safety	28

List of Figures

	Page
Figure 1 Statistics of courier industry – loads and deliverers	1
Figure 2 Flow of research activities	6
Figure 3 Illustration of gap analysis	9
Figure 4 Hub and spoke concept for courier service	12
Figure 5 Process flow of courier activities	14
Figure 6 High-level objectives of balanced National Postal Strategy	19
Figure 7 RSPM framework	22

Acknowledgements

Alhamdulillah. The report is complete.

We would like to thank MIROS for giving us the opportunity to conduct this study. Equally important, we would like to acknowledge the courier companies and AMEC for their co-operation and support. May this small effort mark the beginning of a bigger impactful intervention to not only uplift the courier industry but more importantly is to save lives.

And indeed, Allah knows best.

Abstract

The booming of courier industry is happening. Along with this positive development is the challenge to road safety. This is because more drivers and riders will populate the road, for a longer period of time and farther distance – higher the exposure, higher the risk. To face this challenge, the industry must be ready, and willing to uplift their safety standard. Current study proposed an assessment framework developed from the mapping between the status quo and the related available literature and guidelines. The resultant assessment framework for courier companies entails two (2) factors – quality service, and road safety. Excellent courier companies are those that can strike a balance between the two (2) to emerge as not only profitable but also responsible and caring entities. The framework may serve as a reference to identify the gap, risk and opportunity within a company, or even the industry, before focusing on intervention programmes.

1. Introduction

Courier industry is booming in Malaysia. Malaysian Commissioner of Multimedia and Communication (MCMC) as the regulatory body reported an increasing trend of demands (see Figure 1). While the positive linear trend of documents and parcels was evident from 2013 until 2015, there was a big 20.15 million jump entering 2016 (Malaysian Communications and Multimedia Commission, 2017).

Subsequently, the courier companies have to respond by increasing the supply, i.e. drivers and riders to cope with the new higher loads. The biggest number of courier deliverer was riders, followed by vans, trucks and line hauls respectively.



Figure 1 Statistics of courier industry – loads and deliverers

The development for courier industry does not stop there when the former Prime Minister, Dato' Seri Najib Tun Razak launched a new initiative by the government to further thrive the e-commerce into an important opportunity for businesses to expand – the Digital Free Trade Zone (DFTZ), on 22 March 2017 (MDEC, 2017).

Development of Assessment Framework for Courier Companies in Malaysia

The launch of DFTZ marks a significant impact to the courier industry. This is because DFTZ aims to double the growth (not output) of current e-commerce activities. With Alibaba, giant digital company, coming into Malaysian shore, the success of DFTZ seems not unlikely.

In short, by 2020, the loads that courier companies, as the first and last mile deliverers, have to attend to are possibly exponential from current figures. This may be good news from the economic point of view, but surely a challenge for social stability. The more drivers and riders are on the road, the higher the risk of collision. The longer and farther the drivers and riders stay on the road, the more likely for them to be the victim of any crash.

This poses a challenge: How to ensure the flourish of the courier industry does not wither road safety?

1.1 Objectives of Study

Therefore, from the abovementioned background, a road traffic safety (RTS) framework is required to serve as the standard for the industry and to guide the necessary intervention programmes. With it, these important questions can be addressed: what is the status quo of the industry road safety? What are the gaps? How to improve?

In the development of the framework, the following objectives are aimed:

- i. To identify role, processes, associated activities and functions of A-class license courier companies that can have an impact on RTS
- ii. To identify the legal and other requirements related to RTS to which the A-class license companies are subjected to
- iii. To determine risk and opportunities for RTS improvement
- iv. To determine the performance factors that apply to the A-class license companies
- v. To determine the scope of RTS assessment for the A-class license companies
- vi. To determine the methodology of RTS assessment for the A-class license companies

1.2 Scope of Study

The current study only focuses on courier companies that hold A-license, and POS Malaysia (special license holder). A-license company refers to any courier company that provides international services.

2. Literature Review

In relation to the statistics in Figure 1, motorcycle dominated the mode of transport among the courier vehicles, i.e. approximately 40 - 60%. Comparing this trend with the national trend is worrisome. In 2014, number of fatalities on Malaysian roads was 6,674 cases, with an addition of 4,432 victims' sustained severe injuries (PDRM, 2015). From these fatalities, 50 - 60% involved motorcyclists. The latest figure for 2016, was 7,152; an increase from previous years with the similar proportion of motorcycle (Straits Times, 2017).

Road safety is a prominent issue in Malaysia with road injury being among the top five (5) principal causes of death in Malaysia for the past two (2) decades (Institute for Health Metrics and Evaluation, 2010). With the development of courier industry, this is indeed an additional challenge. In 2014, courier dispatchers did 47,505,722 trips, with an average of 130,152 trips per day nationwide in 2014 (Malaysian Communications and Multimedia Commission, 2015). From informal conversations with some of these dispatchers, they reported that the average number of daily delivery they need to attend to is around 40 to 70 trips per day, excluding pickups. Relative to the layperson who would usually be on the road for 2 to 5 trips per day, their risk is exponential indeed.

To the best of the authors' knowledge, surprisingly, scientific published studies specifically about this segment of high-risk road users in Malaysia are scarce: there is one study directly reporting their relatively poor skill on hazard perception (Ab Rashid & Ibrahim, 2016). Because of that, there are many issues about this industry is yet to be uncovered. With their high in numbers and presence on the road, their performance on the road would not only matter to themselves but equally important is the contribution, explicitly or otherwise, to the overall safety of our roads.

One established approach to ensure safety of courier riders and drivers is thru the framework of occupational safety and health. According to the Occupational Safety and

Health Act, 1994 employers should comply with the safety, health and welfare guidelines for their employees. Consequently, the Department of Occupational Safety and Health has developed and published a specific guideline on occupational safety and health in courier services industry (Department of Occupational Safety and Health, 2015).

Despite having the guideline, which focuses on the responsibility of the employer to provide any necessary interventions, the status quo of those courier drivers and riders for road safety is under-specified. What would be their performance for basic safety issues such as helmet usage, seat-belt usage, speeding, inter alia?

From other studies (i.e. non-courier specific) Zulhaidi et al. (2015) reviewed, they highlighted the low rate of proper helmet use. Furthermore, relative to the types of helmet, proper strapping is more effective in protecting from head injuries (Ramli & Oxley, 2016), which are the majority of vital organ injuries among motorcyclists in Malaysia (Pang, Radin Umar, Azhar, Mohd Nasir & Hamdan, 2000), generally. In short, proper helmet use is the most basic safety for riders. Unfortunately, whether the courier riders comply remains unanswered.

To know the status quo is important because it helps to steer any intervention programme for them. If all of the riders comply with the helmet issue – i.e. they all wear a certified helmet properly – then time and other resources can be channelled to other problems. Moreover, beside helmet issue, what are other relevant and prominent road safety issues related to the industry?

To answer all these important questions, therefore, a framework is required to give big-picture guidance to understand the industry before any necessary intervention programmes take place.

The study aimed to propose the framework.

3. Methodology

The study employed a mix of quantitative and qualitative method. The following process flow summarises the activities involved in this project.

3.1 Data Collection Process

To address the objectives, researchers completed the following data collection process (see Figure 2).

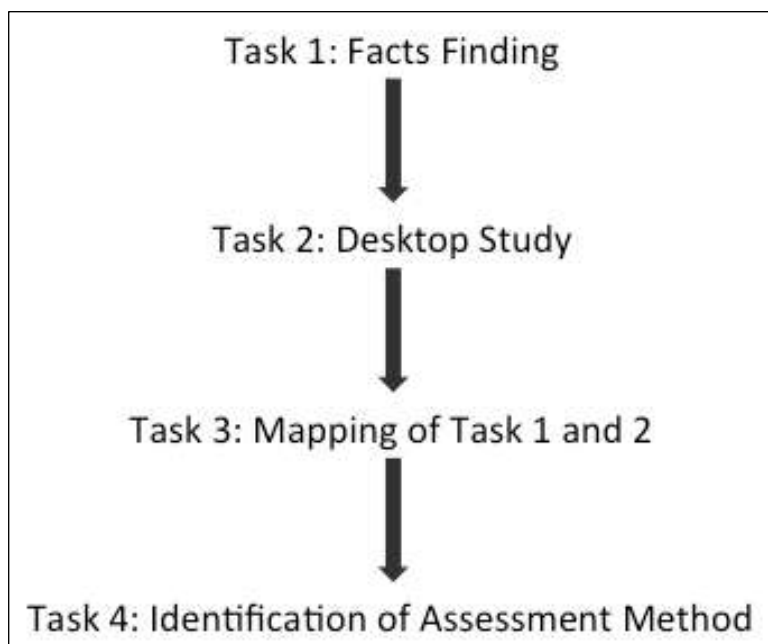


Figure 2 Flow of research activities

Task 1: This was the earliest stage of data collection to gather the status quo of courier companies. Researchers interviewed some company representatives to get information

to answer specific objectives (i) and (ii). The semi-structured interview entailed questions about current company’s policy and approaches to handling safety, health and welfare of their employees before, during, post driving and post-crash (if applicable). In addition, observations also took place to enrich the road safety performance of the companies. Analysis of this information determined potential risk and opportunity to be included in the assessment framework (objective iii).

Task 2: In this stage, researchers identified the performance factors (see section 6.3 of ISO 39001) that are applicable for courier drivers and riders. The ISO standard only provides general suggestions. Hence other literature is required to address objective (iv).

Task 3: From the information of Task 1 and Task 2, researchers compared and contrasted them to determine the scope of assessment (objective v).

Task 4: This stage addressed specific objective (vi). Based on the identified performance factors, researchers identified a suitable method to obtain results that are reflective to the real on-the-road situation.

3.2 Sampling and Data Collection

For Task 1, two (2) A class companies were interviewed, whereas eight (8) courier companies were involved in the observation. The selection of these institutes encompassed a non-probabilistic sampling method based on the logistics and resource constraints. Table 2 summarises the details.

Table 1 Samples of courier riders and drivers involved in the observation by vehicle category

Company	Sample size for each category		
	Motorcycle	Lorry/van	Line haul
C ₁	9	2	1
C ₂	-	1	4
C ₃	9	14	5
C ₄	27	17	2
C ₅	34	14	4

Development of Assessment Framework for Courier Companies in Malaysia

C ₆	-	1	2
C ₇	-	-	2
C ₈	-	-	1
Total	79	49	21

Note: Company C₃ and C₅ were involved in the interview

To observe for motorcycle, researchers identified the potential junction nearest to the company office. For companies that have many branches, the selection was made based on distance for the observers to go and also the size of the office. Bigger and closer branches had higher priority. During the observation, observers recorded the following nine (9) variables: helmet colour, helmet type, helmet strap, glove use, footwear, motorcycle colour, headlight use, backlight use and signal use. As for the last variable, because the observation always took place at a junction, observers were able to record on the use of signal when the riders turn out of the junction.

A similar method was adopted for small lorry or van category, but with different variables: headlight use, seatbelt use, and signal use. Because it was a static observation, other dynamic variables such as speed were not captured. In addition, observers used video recording to measure the gap when the van pulls out of the junction into the main road. Figure 3 illustrates the position of the observer and the definition of the gap, T_g . Based on the video, researchers computed the gap in seconds.

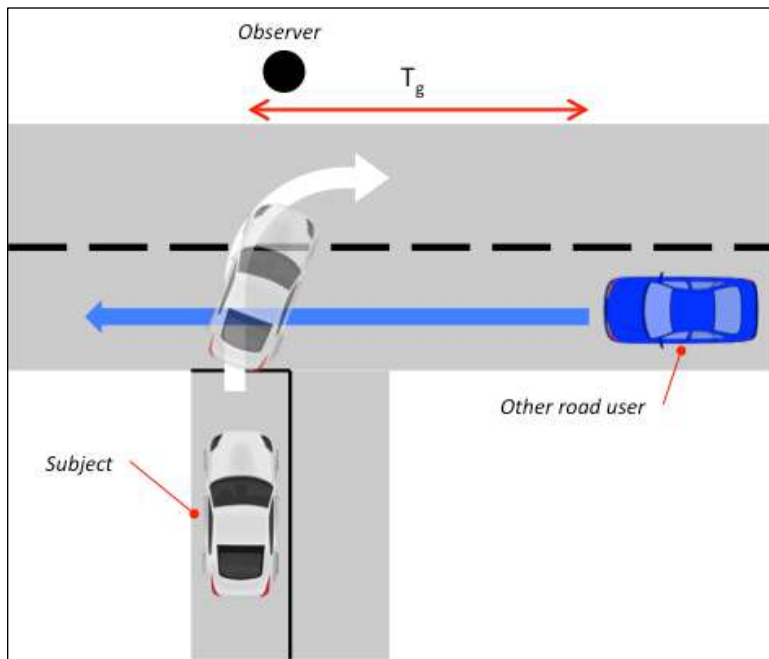


Figure 3 Illustration of gap analysis

Data collection for the line-haul category was more dynamic. The collected variables were speed, lane positioning, phone/gadget use, under-run structure, rear end reflective sticker presence. To collect these, the observation took place on PLUS highway, from Johor Bharu bound to Kuala Lumpur, as well as from Penang to Kuala Lumpur. Observers stationed themselves at Johor Bharu and Penang early of the evening and waited for line-hauliers to use the road. After a certain number of the line-hauliers travelled passed them, then they started their observation by closely following each one (1) of them for approximately 30 to 60 minutes before following the next haulier.

4. Results

This chapter is further divided into four (4) subchapters to address the four (4) tasks accordingly.

4.1 Task 1

4.1.1 Interview Results – Understanding the Industry

The interview of two companies (C₃ and C₅) revealed detailed information on the role, processes, activities and functions of the courier companies on RTS. Of course being in logistic, transportation is the core business for these companies. Table 2 however, provides detailed information on the average exposure courier deliverers to interact with road traffic for 13 branches of company C₃.

Table 2 Exposure information on courier deliverers interacting with road traffic

Average kilometre per week	Number of branches	
	Motorcycle	Van
Less than 100	5	1
101 to 200	1	1
201 to 300	1	2
301 to 400	3	1
401 to 500	0	1
501 to 600	1	2
601 to 700	0	2
Above than 700	0	3

Note: One branch did not provide the data for motorcycle; another did not provide data for van

Further, Table 3 entails information of the number of vehicles these branches have that interact with road traffic system on a daily basis.

Table 3 Quantity of vehicles interact with road traffic

Number of vehicles (unit)	Number of branches	
	Motorcycle	Van
Less than 10	3	5
11 to 20	3	5
21 to 30	3	1
31 to 40	-	1
41 to 50	-	1

Note: Four (4) branches did not provide the data for motorcycle

On a separate discussion with one (1) of the key players in the industry, the person informed that, in general, for total vehicles of 300, the average travelling (regardless of vehicle mode) for is around 2,305,000 kilometres and using 160,000 litres of diesel per month. This information highlights the high exposure of those drivers and riders.

Further discussion with them revealed the legal and other requirements to which the A-class license companies are subjected to:

1. Main legal bind: Postal Services Act 1991
2. Business registration: Suruhanjaya Syarikat Malaysia
3. Service license: Malaysian Communications and Multimedia Commission
4. Renting, renovating or constructing premise: local authority (e.g. DBKL)
5. Employment:
 - a. Employee Providence Fund
 - b. Social Security Organisation
 - c. Inland Revenue Board Malaysia
 - d. Pembangunan Sumber Manusia Berhad
6. International service: Jabatan Kastam Diraja Malaysia
7. Operator license: Suruhanjaya Pengangkutan Awam Darat
 - a. Akta Pengangkutan Awam Darat 2010
8. Vehicle and Goods Driving Licence: Jabatan Pengangkutan Jalan

- a. Road Transport Act 1987
- 9. Vehicle inspection: PUSPAKOM
- 10. Occupational Safety & Health: Department of Occupational Safety & Health
- 11. Weighing machinaries: Ministry of Domestic Trade, Co-operatives and Consumerism (KPDNKK)
- 12. Taxation: Lembaga Hasil Dalam Negara

In general, all courier companies operate using “hub and spoke” distribution concept. A simple lookup in the dictionary revealed the word “spoke” as “any of the small radiating bars inserted in the hub of a wheel to support the rim” (Spoke, 2017). From this definition, it is clear that the hub-spoke model involves a central point (hub) that is connected with many arms (spoke). It is a form of a topology optimisation adapted for logistic distribution (see Figure 4). Relative to the traditional point-to-point transit system, hub-spoke model is more efficient. This concept is not exclusive only to courier industry but has been widely adapted in other subsectors of logistics, as well as telecommunication and business investment fields.

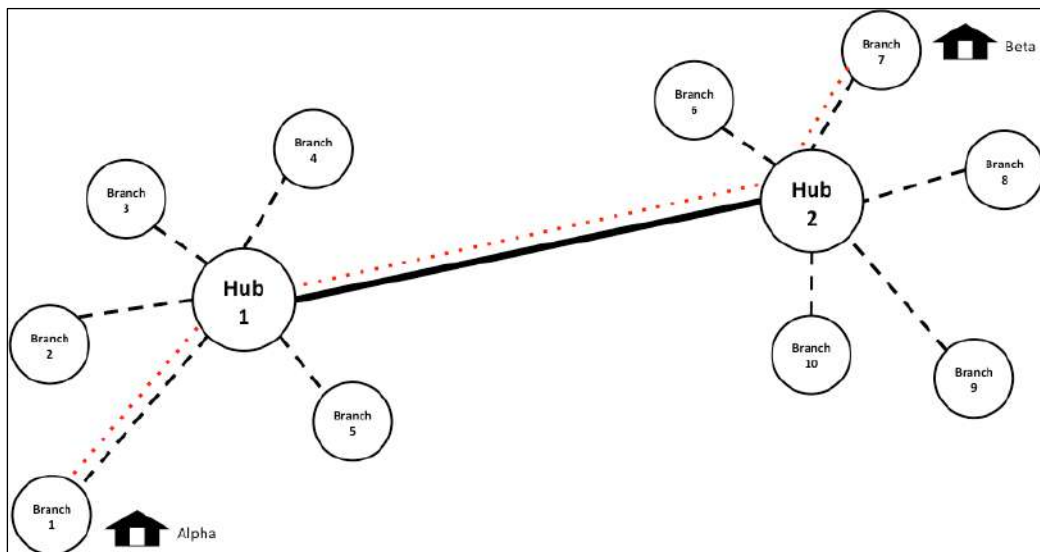


Figure 4 Hub and spoke concept for courier service

Using this model, couriers pick up packages/parcels from the point of origins (i.e. the tips of the spokes) and send it back to a central processing facility (the hub). Depending on the situation, the packages/parcels either enter the warehouse or go straight into the distribution network. Large companies operate several hub-and-spoke systems.

For example (see Figure 4), if there is a package from Alpha to Beta, depending on the size and weight of the package, either a van or a motorcycle will be dispatched from Branch 1 to go and collect it and bring it back to the Branch 1. Normally, there will be a rough sorting in the branch before the package, with other packages are transported to Hub 1. Upon arriving, all of the shipments will be sorted according to the zones (e.g. northern hub, southern hub, etc.), before the line hauliers start to move them to the destination, in this example, it is Hub 2. From there, the similar process happens, the package will be transferred to Branch 7, before a rider or a driver deliver it to Beta. Details of the process flow are captured in Figure 5, which is an excerpt from DOSH guideline.

Development of Assessment Framework for Courier Companies in Malaysia

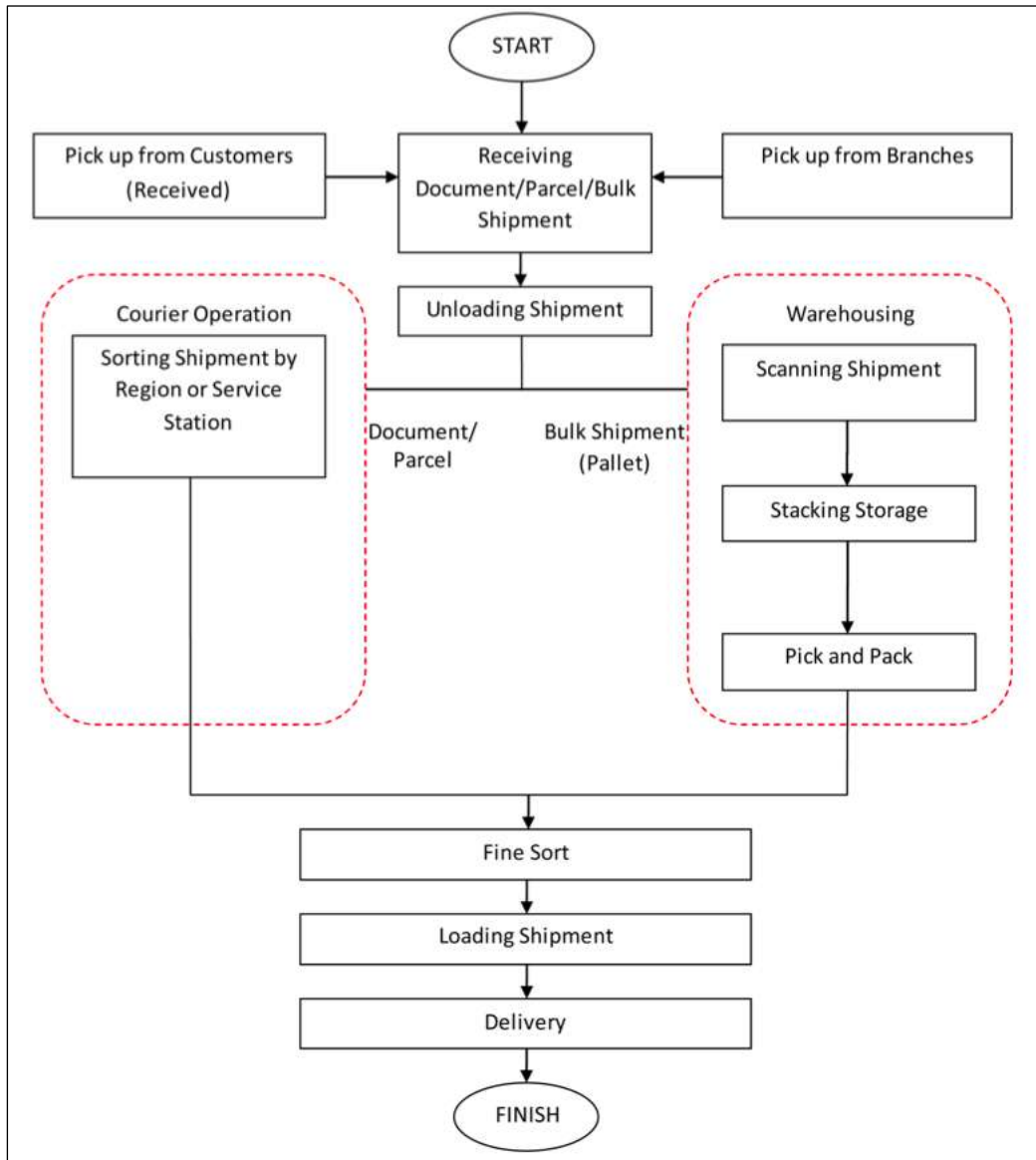


Figure 5 Process flow of courier activities – excerpted from guideline of Department of Occupational Safety and Health (2015)

4.1.2 Descriptive Results for Motorcycle Category

Table 4 Observation results for motorcycle category

Company, N	Helmet			Footwear ^b (p/i)	Motorcycle colour (b/d)	Use of (Yes/No)		
	Colour (b/d)	Type (s/t)	Strap (f/u/l)			Headlight	Backlight	Signal
C ₁ , 9	6/3	7/2	7/1/1	2/7	7/2	9/0	7/2	0/9
C ₂ , 0	-	-	-	-	-	-	-	-
C ₃ , 9	5/4	5/3	4/2/3	2/7	8/1	9/0	8/1	2/7
C ₄ , 27 ^a	14/10	19/5	15/7/2	0/27	15/12	27/0	23/4	3/24
C ₅ , 34	25/9	25/9	26/3/5	24/10	3/3	33/1	32/2	1/33
C ₆ , 0	-	-	-	-	-	-	-	-
C ₇ , 0	-	-	-	-	-	-	-	-
C ₈ , 0	-	-	-	-	-	-	-	-

Note: *b, d, s, t, f, u, and l*, in the columns, respectively, are referring to *bright helmet, dark helmet, standard (open/full face), half shell helmet, fastened, unfastened, and loose*.

^a three of the riders did not even wear a helmet

^b seven of them only wears slippers

The results of observation for motorcycle are in Table 4. Across the four (4) companies, most of the riders are from company 4 and 5. For helmet related variables, three (3) of riders from company 4 did not even wear a helmet. For the remaining riders, most of them use darker and standard type helmets with proper fastening. However, there were 24 out of 79 riders who were either unfastened the strap or only fastened it loosely.

Further, 51 of them did not use proper riding shoe with seven (7) of them only wore slippers. However, most of them (61 out of 79) use bright coloured motorcycle with headlights and backlights were active. When observed at the junction, most of the riders did not use their indicators when turning into the main road.

4.1.3 Descriptive Results for Lorry/Van Category

Table 5 Observation results for lorry/van category

Company, N	Headlight use (Yes/No)	Seatbelt use (Yes/No)	Signal (Yes/No)
C ₁ , 2	0/2	0/2	0/2
C ₂ , 1	0/1	0/1	0/1
C ₃ , 14	1/13	0/14	2/12
C ₄ , 17	0/17	0/17	5/12
C ₅ , 14	2/12	0/14	1/13
C ₆ , 1	0/1	0/1	0/1
C ₇ , 0	-	-	-
C ₈ , 0	-	-	-

Table 5 entails the observation results for lorry/van category. While there were variations across companies, most of the observations were in the ‘no’ side across recorded variables. Out of the observed 49 units, only three (3) turned on the headlights, more surprisingly non-use their seatbelts, and only eight (8) activated the signal when turning at the junction where the observation took place.

Table 6 Gap analysis results for lorry/van category

Direction of subject vehicle	Right	Right	Left
Direction of other road users' vehicles	Right	Left	Right
Gap accepted (seconds), T _g	M = 18.7, SD = 17.9, Med = 11.0	M = 30.5, SD = 11.9, Med = 33.0	M = 23.5, SD = 19.6, Med = 17.5

For the gap analysis, Table 6 contains the results. In general, most of the lorry or van drivers took a large gap before turning into the main road. Drivers mostly waited for the biggest gap in the situation where the drivers headed to the right with the other road users went to the left (M = 30.5, Sd = 11.9), whereas they accepted a smaller gap in the

situation where both vehicles headed to the right (M = 18.7, SD = 17.9). The last situation fell in between (M = 23.5, SD = 19.6).

4.1.4 Descriptive Results for Line-haul Category

Table 7 Observation results for line-haul category

Company, N	Speed (km/h)	Lane position	Mobile phone use (Yes/No)	Under-run structure (Present/Absent)	Rear-end reflective sticker
C ₁ , 1	90	leftmost	0/1	1/0	present
C ₂ , 4	80–90	leftmost	0/4	4/0	present
C ₃ , 5	80–90	leftmost	2/3	1/4	present
C ₄ , 2	70*	leftmost	0/2	2/0	present
C ₅ , 4	70–90	leftmost	0/4	4/0	present
C ₆ , 2	70–80	leftmost	2/0	2/0	present
C ₇ , 2	80–90	leftmost	0/2	2/0	present
C ₈ , 1	106	leftmost	0/1	0/1	present

Note: * The speed was based only one observation because the other unit was platooning very closely (tailgating) with its front haulier.

Table 7 summarises the observation results for line-haul category. Similar to the previous categories, the results varied across companies. Most of the hauliers drove within the permitted range, i.e. 80 to 90 kilometres per hour, except one (1) unit that reached 106 kilometres per hour (company C₈). All of them stayed mostly in the leftmost lane. Out of 21 observations made, four (4) of them were caught using mobile phone while driving. Five (5) of their vehicles, furthermore, did not equip with an under-run bar, even though all of them had the reflective stickers installed.

4.1.5 Summary of Task 1 Results

Both the interview sessions and observations of the industry gave a deeper understanding of the risk and opportunity related to RTS. Table 8 summarises these.

Table 8 Risk and opportunity

Risks and opportunities of the industry related to road safety
1. The exposure of these riders and drivers are very high
2. Inconsistencies of road safety performances even within company indicates loose on road safety management and policy
3. Safety issues are different between categories <ul style="list-style-type: none">○ Motorcycle: safety gears, lack of safe riding behaviour○ Lorry/van: seatbelt, lack of safe driving behaviour○ Line-haul: distraction and fatigue
4. The number riders and drivers are growing
5. They are receptive towards the use of technology
6. Road safety requirements are loose at the implementation level – only at high level

4.2 Task 2

The first literature that was referred to in this study was the National Postal Strategy 2010 – 2014 by Malaysian Communications and Multimedia Commission (n.d.). Despite its target year already passed, this was the latest strategy for the postal and courier industry. The document highlighted that the industry is filled up with mix of local and international players. The key domestic players include Pos Laju/Pos Malaysia (Public Listed), Nationwide Express (Public Listed), GD Express (Public Listed), City-Link Express, ABX Express and Skynet Express; whereas the latter constitutes, among others, FedEx, UPS, DHL and TNT.

Further, the National Postal Strategy sets out five (5) propulsion thrusts in the roadmap to achieve a balance between four (4) components: national interest, consumer satisfaction, environmentally friendly, and employees professionalism (see Figure 6). The first thrust focuses on the universal postal service; the second thrust concentrates

on quality of service; the third thrust is on improving the productivity; the fourth thrust pays attention on industry growth; while the fifth thrust pivots on international development. Zooming into the third thrust reveals many programmes of which one of it is to promote health and safety culture to the industry.

Taking the insight from the strategic plan, current task split the focus in reviewing two (2) sides of the literature: courier service quality; and road safety. While these two (2) components may seem to be opposing each other, they are related.



Figure 6 High-level objectives of balanced National Postal Strategy

4.2.1 Courier Service Quality

Of course, the first relevant literature would be the abovementioned National Postal Strategy – specifically on the Thurst 2: Quality of Service. This thrust aims to “provide

Development of Assessment Framework for Courier Companies in Malaysia

timely, reliable delivery, and to improve customer service across all access points”. In the document, among performance measures the thrust highlighted were courier quality performance; and conducting of customer satisfaction survey. The former measure, however, did not have any explicit definition, while the latter was only a binary measure – hence not measuring the degree of customer satisfaction survey. Nevertheless, these were measures for 2010 – 2014. Improvements were expected for the following three (3) years until 2017.

The next relevant literature is Malaysia’s National eCommerce Strategic Roadmap prepared by Malaysia Digital Economy Corporation Sdn. Bhd. (2016). The document represents the intention of the government to double the growth of eCommerce rate for Malaysia for the coming future. It contains a roadmap to help pinpoint real challenges and deliver tangible solutions to achieve the aspiration. Specifically, it defines six (6) thrust areas and 11 programmes of interventions. The sixth programme – Transform Malaysia’s last-mile delivery network with best-in-class capabilities – is directly related to courier industry. Under this programme are two (2) key performance indicators. Table 9 summarises the status quo and target of these indicators.

Table 9 Key performance indicators for courier in National eCommerce Strategic Roadmap

Key Performance Indicators	Baseline 2015	Target 2020
Fulfilment service reliability: percent of express parcels fulfilled within committed time period	Less than 75%	More than 90%
Cash on delivery, real-time track and trace, service quality provided to end customers	Nascent	Mature (Offered by all A class companies)

Besides these publications, the Malaysian Communications and Multimedia Commission (MCMC) has also organised 2017 E-Commerce Delivery Awards Night on 27th April 2017 (Bernama) to recognise outstanding courier companies. The event, which was in collaboration with the Association of Malaysian Express Carriers (AMEC) put forward two (2) service related awards – the Best Customer Service Award and the Best Delivery Performance Award. These awards further indicate the importance of customer service and delivery performance for MCMC, as the regulatory body, to the industry.

4.2.2 Courier Related Road Safety

The first literature referred to about road safety was the standard of ISO 39001 (International Organization for Standardization, 2016). It identifies elements of good RTS management practice that may apply to for courier companies. The standard, however, focuses more on the whole process (because it is meant for entities to develop RTS intervention); while the current assessment framework is more inclined towards results-oriented. The standard highlights some performance factors that courier companies can adapt to. They are in Table 10.

Table 10 RTS performances based on ISO 39001 related to courier industry

Factors	RTS performances
Risk exposure	Fleet size by mode
	Kilometres on the road
	Hours on the road
Final safety outcome	Fatality and serious injury
	Lost output cost
	Treatment and rehabilitation cost
Intermediate safety outcome	Safe speed
	Route selection
	Safety equipments
	Fitness of drivers/riders
	Journey planning
	Safe vehicles
	Competency to drive/ride
Post-crash response	

The next relevant literature for road safety side is Road Safety Plan Malaysia 2014–2020 (RSPM; Jabatan Keselamatan Jalan Raya, 2014). While the plan was high level and did not specifically referring to courier industry, the concept behind it is applicable. Having adapted the United Nation resolution 64/2551, declaring 2011–2020 the Decade of Action (DOA) for road safety, RSPM also clutches on the same five (5) pillars as the DOA plan. The guiding principle and for DOA’s action plan is safe system that accepts human

Development of Assessment Framework for Courier Companies in Malaysia

nature to err and hence focuses on systemic responsibility to accommodate the mistakes to reduce its impacts. Figure 7 contains an illustration of this idea.

The five (5) Strategic Pillars are:

1. Strategic Pillar 1 – Road Safety Management
2. Strategic Pillar 2 – Safer Mobility and Roads
3. Strategic Pillar 3 – Safer Vehicles
4. Strategic Pillar 4 – Safer Road Users
5. Strategic Pillar 5 – Post-Crash Management

To achieve the ultimate and midterm outcomes, all programmes should correspond to the pillars, which in turn depending on the solidity of the base: Stakeholders participations and commitment; and Information and data.

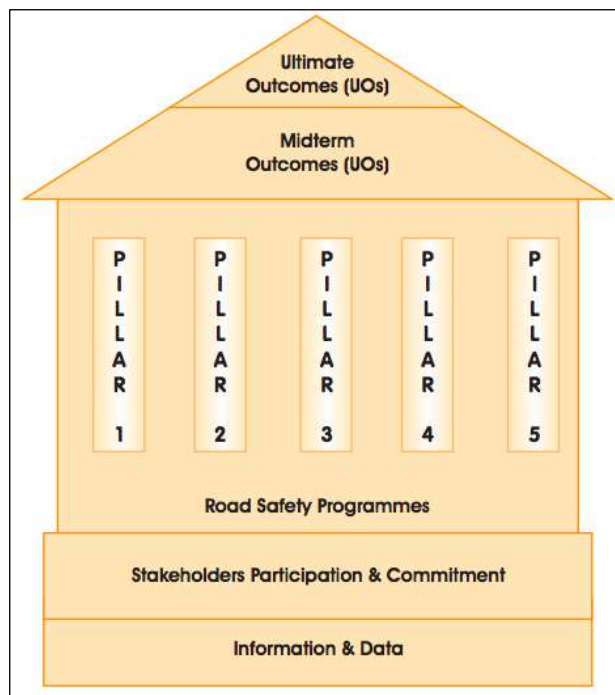


Figure 7 RSPM Framework (Jabatan Keselamatan Jalan Raya, 2014)

The third literature the study has referred to was the SPAD ICOP Safety guidelines (Suruhanjaya Pengangkutan Awam Darat, 2015). The guideline has been enforced as a licensing condition for any land public transport operators, including courier companies. The documents contain five (5) elements of safety programmes – leadership in organising, planning and implementing safety within the organisation; driver safety management; vehicle safety compliance; risk assessment and risk mitigation; efficient records management – encompassing the following 26 codes.

1. Attend SPAD training
2. SHE committee
3. Safety policy
4. SHO, SHS
5. Driver recruitment
6. Driver's training
7. 4-hours rotation
8. Sleepers cabin
9. Journey plan
10. Working hours
11. Log book
12. Driver daily inspection
13. GPS installation
14. GPS monitoring
15. Vehicle daily inspection
16. Safe loading
17. Maintenance
18. Safety equipment
19. Internal audit
20. External audit
21. Hazard identification, risk assessment and risk control
22. Emergency plan
23. Crash reporting
24. Complaint management
25. Record management
26. Traffic rules

Development of Assessment Framework for Courier Companies in Malaysia

Every operator is expected to fulfil all the 26 requirements before they are legally permitted with an operating license.

Similar to the ICOP guideline is the Guidelines on Occupational Safety and Health in Courier Services Industry, published by the Department of Safety and Health (2015). The guideline aims to provide information and recommendations on the management of the Occupational Safety and Health (OSH) in the Courier Services industry in compliance with Occupational Safety and Health Act 1994. Unlike ICOP guideline, the scope of this guideline is broader encompassing not just safety on the road but also other areas such as warehousing. It contains seven (7) chapters to cover the related occupational safety for courier industry.

Specifically for road safety is Chapter 2: Legal Requirements, and Chapter 6: Transport Management. Researchers have extracted 26 relevant points for this study, in the following list.

1. Safety policy – (2.1.1)
2. Safety committee – (2.1.2)
3. Driver recruitment – (6.1.1)
4. Driver categorisation – (6.1.2)
5. Training – (6.1.3)
6. Driving procedure – (6.1.4)
7. Defensive driving – (6.1.5)
8. Working hours – (6.1.6)
9. Driver rotation – (6.1.7)
10. Driver monitoring – (6.1.8)
11. Driver's health and welfare – (6.1.9)
12. Daily inspection – (6.2.1)
13. Faulty recording – (6.2.2)
14. Safety maintenance – (6.2.3)
15. Maintenance record – (6.2.5)
16. Vehicle maintenance training – (6.2.6)
17. Vehicle cleanliness – (6.2.7)
18. Hazard identification, risk assessment and risk control – (6.3.1)

- 19. Hazard identification – (6.3.2)
- 20. Trip schedule – (6.3.3)
- 21. Rest & recreation – (6.3.4)
- 22. Trip monitoring – (6.3.5)
- 23. Goods management – (6.3.6)
- 24. Emergency plan – (6.3.7)
- 25. Crash reporting – (6.3.8)
- 26. Complaint management – (6.3.9)

4.2.3 Summary of Task 2 Results

Firstly, there are two (2) high-level, realistic and RTS relevant factors to produce not only successful, profiting and competitive; but also healthy, responsible and noble courier companies – (i) high quality service and (ii) road safety conscious.

The keyword for these interacting determinants is none other than balance.

Each of these factors has their performance measures. Key performances for high quality service are relatively simple and straight forward (see Table 11).

Table 11 Performances measures for high quality service

Performance measures	
High quality service	1. On time delivery
	2. Reliable delivery
	3. Customer service

Table 12, on the other hand, summarises performance measures for road safety factor. In this table, the performance measures from the literature were synthesised.

Table 12 Performances measures for road safety

Sub-factors	Performances measures
Risk exposure	Fleet size by mode
	Kilometres on the road

Development of Assessment Framework for Courier Companies in Malaysia

	Hours on the road
Final safety outcome	Fatality and serious injury
	Lost output cost
	Treatment and rehabilitation cost
Intermediate safety outcome	Safe speed
	Safe route
	Safe vehicles
	Safety equipments
	Fit to drive/ride
	Competent to drive/ride
	Post-crash response
Management	Trip scheduling
	Safety policy
	Safety committee
	Driver recruitment
	Driver training
	Driver scheduling
	Driver monitoring
	Daily inspection
	Safety maintenance
	Hazard identification, risk assessment and risk control
	Goods management
	Emergency plan
	Crash reporting
	Complaint management

4.3 Task 3

The synthesis of results of Task 1 and Task 2 produced Table 13. The table entails the performance measures after taking into account the risk and opportunities for each transport mode/category. Specifically, the table includes ‘Distraction’ as another intermediate safety outcome – an insight from the line-haul observation in Task 1.

Table 13 Performances measures and assessment scope

Sub-factors	Performances measures	Motorcycle	Lorry/van	Line-haul
Risk exposure	Fleet size by mode	Complex: depending on the situation.		
	Kilometres on the road	Underlying philosophy is that it has to be a balance between package load and human resources		
	Hours on the road			
Final safety outcome	Fatality, serious injury	√	√	√
	Lost output cost	√	√	√
	Treatment and rehabilitation cost	√	√	√
Intermediate safety outcome	Safe speed	[Require research]	As per requirement: 80/90 km/h	
	Safe route	√	√	√
	Safe vehicles	Bright coloured, ABS	Roadworthy, ABS, Blindspot detection, ESC	
	Safety equipment	Helmet, conspicuity	Seatbelt	Seatbelt
	Fit to drive/ride	Fatigue, driving/riding under influence, emotional stability		
	Distraction	Internal and external distraction management (e.g. phone, wayfinding)		
	Competent to drive/ride	Good hazard perception, knowledgeable, psychomotor proficient		
	Post-crash response	In accordance with SPAD ICOP and DOSH guideline – eCall		
	Trip scheduling	Journey plan, resting place, monitoring mechanism		
	Safety policy	In accordance with SPAD ICOP and DOSH guideline		
Management	Safety committee	In accordance with SPAD ICOP and DOSH guideline		
	Driver recruitment	In accordance with SPAD ICOP and DOSH guideline		

Driver training	Defensive driving, vehicle maintenance, hazard perception
Driver scheduling	In accordance with SPAD ICOP and DOSH guideline
Driver monitoring (via GPS)	In accordance with SPAD ICOP and DOSH guideline – GPS, phone apps
Daily inspection	In accordance with SPAD ICOP and DOSH guideline – drivers/riders and vehicle
Safety maintenance	In accordance with SPAD ICOP and DOSH guideline
HIRARC (driver, vehicle, and route)	In accordance with SPAD ICOP and DOSH guideline
Goods management	In accordance with SPAD ICOP and DOSH guideline
Emergency plan	In accordance with SPAD ICOP and DOSH guideline
Crash reporting	In accordance with SPAD ICOP and DOSH guideline
Complaint management	In accordance with SPAD ICOP and DOSH guideline

As for the quality of service, the performance measures retain the same as in Table 11.

4.4 Task 4

Table 14 reports the proposed measurement methods for each of the performance measure. These methods are critical for monitoring and evaluation purposes.

Table 14 Performances measures for road safety

Sub-factors	Performances measures	Method of measurement
Risk exposure	Fleet size by mode	Audit of exposure related documents
	Kilometres on the road	
	Hours on the road	
Final safety outcome	Fatality and serious injury	
	Lost output cost	

Development of Assessment Framework for Courier Companies in Malaysia

	Treatment and rehabilitation cost	Self-report, secondary data from related agencies (e.g. PDRM, SOCSO), or research
Intermediate safety outcome	Safe speed	Observation, GPS record
	Safe route	Audit of related documents
	Safe vehicles	Observation, audit of documents
	Safety equipments	Observation, technology
	Fit to drive/ride	Technology, medical test
	Competent to drive/ride	Research (On-route test)
	Distraction	Research (Simulation)
	Post-crash response	Audit of related documents
Management	Trip scheduling	Audit of related documents
	Safety policy	
	Safety committee	
	Driver recruitment	
	Driver training	
	Driver scheduling	
	Driver monitoring	
	Daily inspection	
	Safety maintenance	
	HIRARC	
	Goods management	
	Emergency plan	
	Crash reporting	
Complaint management	Simulation (role play)	

To increase the validity of the data, all auditing exercises should be unscheduled and random.

5. Discussion

The present study provided a deeper understanding of the courier industry in terms of road traffic safety. From Task 1, the status quo of road safety among courier employees is glaringly low. Even basic issues such as helmet and seatbelt wearing are far from perfect, what is more on the complex dynamic issues such as risky driving/riding, speeding or fatigue. From the observation, furthermore, the results varied not only between companies, rather more shockingly within the same company.

This indicates the loose ends of road safety management within the company. The performance of road safety seems like an individual matter, instead of systemic. Even though this statement is clutching on limited observations; it is an indication, nonetheless. Unfortunately, the low road safety performance is coupled with high exposure on the road, inflating the criticality of the situation. The courier drivers and riders, from the interview, are three (3) to six (6) times riskier than the average road users.

Furthermore, the synthesis in Task 3 revealed that the issues of road safety in Task 1 and the guidelines in Task 2 are relatively matched. In other words, all the safety issues that are happening during the observations are addressed in the guideline (limitations are noteworthy). The question then is the degree of implementation: those issues are in the guideline, but why do the issues still happen?

With the development of this assessment framework, the authors hope that the safety of courier drivers and riders get more attention not only from the relevant government agencies, but equally important is the companies themselves. Because the framework is based on the international standard of ISO 39001 (ISO, 2016), as well as other domestic documents from regulating agencies, using the framework to evaluate the performance of courier companies reveals their status relative to the international standard and local legal requirements, accordingly. In addition, if any courier company would use this

framework for self-assessment, they are a step closer in getting the certification for ISO 39001, which would certainly uplift their standard internationally.

Another noteworthy point for the framework is the inclusion of not only road safety but also the core business of the industry, courier services. The inclusion of this factor is also important because, every courier company, as a business entity, needs to make a profit to survive, which in turn provide road safety initiatives to their employees.

Once the safety culture is established, these employees can become the agent in shifting the national road safety climate to a better one. In fact, with the big number of courier deliverers on the road, improving their safety standard would benefit not only the industry but also the public in general – the spill effect.

5.1 Framework Application for Future

The establishment of the framework can be further upgraded into a commercial assessment programme. This is among other approaches, besides the top-down Occupational Safety and Health Act of 1994 approach.

The bottom-up approach, or in other words market driven is the main concept that drives new car assessment programme (NCAP) throughout the world. Instead of having a standard regulation from the government to be enforced onto the manufacturers, NCAP makes use the power of the consumers to push these manufacturers for better cars. Consequently, these manufacturers compete among themselves to be the apple of the consumers' eyes. Because this is a self-regulatory framework, it is more likely to be sustainable.

Similarly, the framework can surely be further developed into an assessment program for courier and logistics companies. The future works for this would be the determination of threshold to define different levels of ratings – a star rating (like NCAP), for example.

Development of Assessment Framework for Courier Companies in Malaysia

Chen (2017) investigated the influence of five (5) stars rating versus other rating system such as binary on purchase behaviour online. The results of the study revealed that the five (5) star rating encourages cognitive fit of the users, i.e. users felt more intuitive when purchasing online. Researchers at Northwestern University reported that star ratings are more impactful when involving safety related products (PowerReviews, 2015).

6. Conclusion

This study developed an assessment framework for courier companies by identifying the role, processes, associated activities as well as legal and other requirements related to RTS; before determining the performance measures taking into account the risk and opportunity courier companies have on RTS; based on ISO 39001 (ISO, 2016) and other related documents.

The resultant assessment framework for courier companies entails two (2) factors – quality service and road safety. Excellent courier companies are those that can strike a balance between the two (2) to emerge as not only profitable but also responsible and caring entities. The framework may serve as a reference to identify the gap within a company or even the industry, before focusing on intervention programmes.

References

- Ab Rashid, A. A., & Ibrahim, M. K. A. (2016). *Hazard perception of high risk drivers and riders in Malaysia*. Paper presented at Conference of ASEAN Road Safety 2015, Kuala Lumpur, Selangor: MIROS.
- Bernama (2017, April 27). Pos Malaysia bags several awards at e-Commerce delivery awards night 2017. Retrieved from http://www.kkmm.gov.my/index.php?option=com_content&view=article&id=11887:&catid=233:&Itemid=541&lang=en
- Chen, C. (2017). Five-star or thumbs-up? The influence of rating system types on users' perceptions of information quality, cognitive effort, enjoyment and continuance intention. *Internet Research*, 27(3), 478-494.
- Department of Occupational Safety and Health. (2015). *Guidelines on occupational safety and health in courier services industry*.
- Institute for Health Metrics and Evaluation. (2010). *Country profiles*. Retrieved from <http://www.healthdata.org/results/country-profiles>
- International Organization for Standardization. (2016). *Road Traffic Safety (RTS) management systems — Requirements with guidance for use (ISO Standard No. 39001)*.
- Jabatan Keselamatan Jalan Raya. (2014). Road safety plan Malaysia 2014–2020. *Putrajaya: Jabatan Keselamatan Jalan Raya*. Retrieved from http://www.mot.gov.my/SiteCollectionDocuments/Darat/Road_Safety_Plan_2014-2020_booklet-EN.pdf

Malaysian Communications and Multimedia Commission. (2017). *Postal and courier service pocket book of statistics 2016*. Cyberjaya: Malaysian Communications and Multimedia Commission.

Malaysian Communications and Multimedia Commission. (2015). *Postal and courier service pocket book of statistics 2014*. Cyberjaya: Malaysian Communications and Multimedia Commission.

Malaysian Communications and Multimedia Commission (n.d.). National postal strategy 2010 – 2014. Unpublished. Retrieved from http://www.kkmm.gov.my/index.php?option=com_content&view=article&id=2550:national-postal-strategy&catid=201:komunikasi&Itemid=195&lang=en

Malaysia Digital Economy Corporation Sdn. Bhd. (2016). *Malaysia's national eCommerce strategic roadmap*. Unpublished.

MDEC (2017, March 22). *Malaysia launches world's first digital free trade zone*. Retrieved from <https://www.mdec.my/news/malaysia-launches-worlds-first-digital-free-trade-zone>

Occupational Safety and Health Act 1994, 514 Laws of Malaysia §§ 15 (1994).

Pang T. Y., R. S. Radin Umar, A. A. Azhar, M. T. Mohd Nasir, & H. H. Hamdan. (2000). *Injury characteristics of Malaysian motorcyclists by Abbreviated Injury Scale (AIS)*. (Research Report RR2/2000). Serdang, Malaysia: Road Safety Research Centre, University Putra Malaysia.

Polis Diraja Malaysia PDRM. (2015). *Statistik kemalangan trafik tahun 2013 - 2014*.

PowerReviews (2015). Retrieved from http://spiegel.medill.northwestern.edu/_pdf/Online%20Reviews%20Whitepaper.pdf

Development of Assessment Framework for Courier Companies in Malaysia

Ramli, R., & Oxley, J. (2016). Motorcycle helmet fixation status is more crucial than helmet type in providing protection to the head. *Injury*, 47(11), 2442-2449. DOI: 10.1016/j.injury.2016.09.022

Spoke. (2017). In *Merriam-Webster's collegiate dictionary*. Retrieved from <https://www.merriam-webster.com/dictionary/spoke>

Straits Times (2017, January 18). Number of fatal road accidents up in 2016, more than 7,000 lives lost. Retrieved from <https://www.nst.com.my/news/2017/01/205090/number-fatal-road-accidents-2016-more-7000-lives-lost>

Suruhanjaya Pengangkutan Awam Darat. (2015). *ICOP safety guidelines*. Unpublished.

Zulhaidi, M. J., Mohd Hafzi, M. I., Norlen, M., Azmi, A., & Mohd Rasid, O. (2015, Dec). *A systemic analysis on the usage of safety items among Malaysian private vehicle users: Where to from now?* Presented at the 3rd International Conference on Recent Advances in Automotive Engineering & Mobility Research, Melaka, Malaysia.



Research Report

Development of Assessment Framework for Courier Companies in Malaysia

Designed by: MIROS



Malaysian Institute of Road Safety Research

Lot 125-135, Jalan TKS 1, Taman Kajang Sentral
43000 Kajang, Selangor Darul Ehsan

Tel: +603 8924 9200 **Fax:** +603 8733 2005

Website: www.miros.gov.my **E-mail:** dg@miros.gov.my

ISBN 978-967-2988-17-5



9 789672 988175