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Development of Dry Port Mode of Logistics Transportation Choices

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Abstract :
This paper is aims to find out the preferred behavior of logistic business actors for using dry-port with rail-transport. The methodology of research was conducted by field survey randomly to logistic entrepreneurs in big cities at around java with rail-network facilities, find the behavior of dry-port users for train reaching is less of numbers expectation, the remaining ispreferring use transport by road. This research limitation just taking respondents as many as 214 respondents, each of participants is considered to have same of knowledge about dry-port on transportedthem owned of goods, and expect of respondents to be representative the population. Finally founded the tendency of logistic business actors in java to choose road/truck-transport in goods distribution activities, so have opportunity to use trains is still open, but it takes understanding and hard work to convince logistic actors.

Keyword: Distribution, Efficient, Competitive.

1. Introduction :

Delivery of goods with containers began in about 1960's and the performance of the loading speed of container vessels was impressive (Woxenius, 2004). This makes the distribution of logistics between developing countries rapidly to date. To support logistic activities, the ports can be widened according to function, and there is a dry port. Dry-ports vary from their size, from the size of the dry port depending on the geography of each region (Gujar Girish, 2011). Dry-Port is theoretically defined as a terrestrial intermodal terminal connected directly to the port by train, where customers can leave and / or collect their container units as if directly to the port (Roso& Lumsden, 2008). Growth of dry-port will be affected by port growth and traffic growth from shipping business, with increasing traffic growth so increasing port activities will certainly require expansion by extending range with port area with dry-port (Gabriel et al, 2013). Without marketing of dry-port is not known, then it takes promotion, because it requires marketing. the factors affecting the marketing department need to pay attention to the market research information at least there are two different contributions to marketing knowledge, first, the insights gained about aspects of the market exchange process involving a product and the second is to study the elements of the knowledge system professions that can provide insights that lead to improvements in the system (Rohit & Gerald, 1982). As above illustration, the authors interested for take short research about the mode of logistics favorite by industries and the challenge, also about the mode of transport still not interest by potential market where it possible as one of competitive on tariff and time of distribution model also.

2. Literature Review :

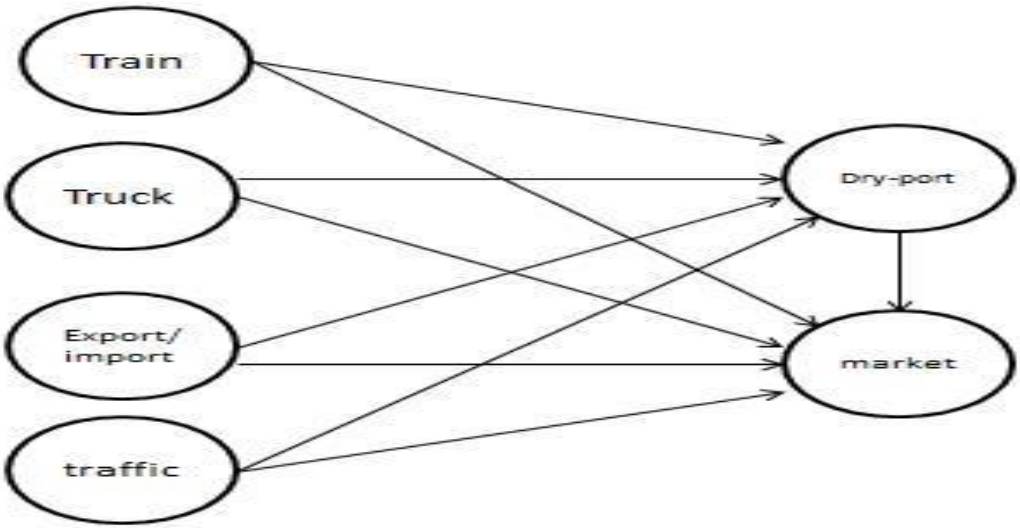
Terminal operators and shipping lines might walk different paths on a quest for higher margins and increased customer satisfaction. And more than once they change paths as the bases of competitiveness in the highly competitive markets are likely to erode sooner or later. companies try to sustain a competitive edge by building barriers to prevent competitors from entering their domains. New entrants seek to minimize these kinds of entry barriers, for example by entering from a contiguous market in which they have already gained some knowledge and experience or entering on a small scale. (Notteboom&Jacobs, 2011). These

activities start with the traditional ones (cargo loading and discharging) and end up with the establishment of a wide range of logistics and value-added activities, developed in conjunction with industrial and commercial businesses. Unfortunately, this is not the case and the external environment today comprises constant changes that are reflected in the high levels of market uncertainty. To cope with this uncertainty, it is suggested that adopt a new logistics approach, agility, which has already been employed in other industries. (Paixão& Marlow, 2003). To decolonize the field of urban transport theoretical reflection at least extremely about the limited on geographical range of has have most possibility resources (Robinson, 2002). Need stronger focus on partnership working from inception through to the supply chain, identify the optimum approaches to maintain, renew or enhance the railway, is seen as necessary. This will require, among others, industry wide adoption of best-practice frameworks to encourage whole-system, whole-life approaches,considering of trade-offs between infrastructure, rolling stock and operations in order and better select the optimum maintenance approaches and earlier involvement of suppliers and contractors as well as much wider use of partnering approaches. (Beck.et.al, 2013).For Focus on urban transportation networks in which random congestion states on each link follows an independent probability distribution. this model finds the best truck routing on a given network as to minimize the expected total cost. This problem is formulated into a mathematical model, and two solution algorithms including a dynamic programming approach and shortest path are where to proposed (Hwang and Ouyang, 2015). Efficiency process to examine themajor determinant factors in terms of participation in tradethe econometric approach, stochastic frontier production function was applied to evaluate the effects of trade, (Sun &Heshmati, 2010). Competitive freight rates will result in better revenue for operators / owners, and may cause problems such as vehicle overloading, and may also an effect on excessive working hours and difficulties in updating fleets and maintenance of vehicles financial factors). Therefore, based on a new methodology developed for life cycle assessment of road pavements, the objective of analyzing the use of more unstainable construction alternatives at both the construction and the use phase of the road (Trunzoet.al,2019). The Illustrate of applicability of model using business product examples taken from several industries including operating systems, software, and exchange model is directions for future step with implications for business to business (Gupta&Benedetto, 2007). Understanding the form of competition has at least two immediate uses. Structural models of demand and supply have recently gained popularity for analysis of mergers. These models rely on estimates of demand and assumptions about pre and post-merger equilibrium to predict the effects of model to get (Nevo,2001).

3. Model To Propose :

The summaries on above literature review, for this research to propose of model below.

Figure.1: Model To Propose



Source: Data Research By Researcher,2018

4. Research And Methodology :

Research method in this paper is using SEM-PLS analysis method, with limited data taken from the respondents in the big cities at around Java island and across the train network with the available dry-port facilities, the researcher collects open and closed questions from the respondents, respondents are business actors in the field of logistics are deemed to understand the dry-port included the problem at the field, the question of this study collected as many as 214 respondents, then it to be presented in the form of narration.

That the SEM-PLS study for exploratory in a conceptual test and practical for model, this analysis is having the same goal of maximizing the dependent variable variance contract and adding quality evaluation to the measurement model. On the basic concept of this algorithm and the purpose of PLS is to create prediction the best of model trough testing each variable

5. Finding And Discussion :

Base on the model to propose, herewith the explanation the research to find. The data research is to collect from some of respondent (entrepreneur) who's have active on distribution some of cargo both of export or import and domestic. And totally we got respondents with the spreading of location is at Cilegon, Bandung, Sukabumi, Cikampek, Cirebon, Semarang and Surabaya. The population used in this study as well as an observation unit of Industry which amounted to 214 Companies of all classes while the approach to the population is probability sampling. This consideration is made with the assumption that every member of the population has the right and equal opportunity to be the respondent especially those who already have a business license.

Below the data interested in carriage of cargo by truck versus by train at each of location,

Figure.2: Interested Of Respondent For Carriage Of Cargo

No	Location	Truck	Train
1	Cilegon	100%	-
2	Jakarta	97%	3%
3	Bandung	75%	25%
4	Cirebon	60%	40%
5	Semarang	85%	15%
6	Surabaya	89%	11%

Source: Data Research 2018

As above data, explained the developing of dry port with the train transport as supporting is still difficult due some of respondent still like carriage cargo by truck average more than 84.33 percent and who's interest carriage cargo by train average 15.67 percent only.

Herewith also to show the data potential unit of cargo per week per location (in Tons& percent).

Figure.3: Potential Of Cargo Per Location Per Tons (In %)

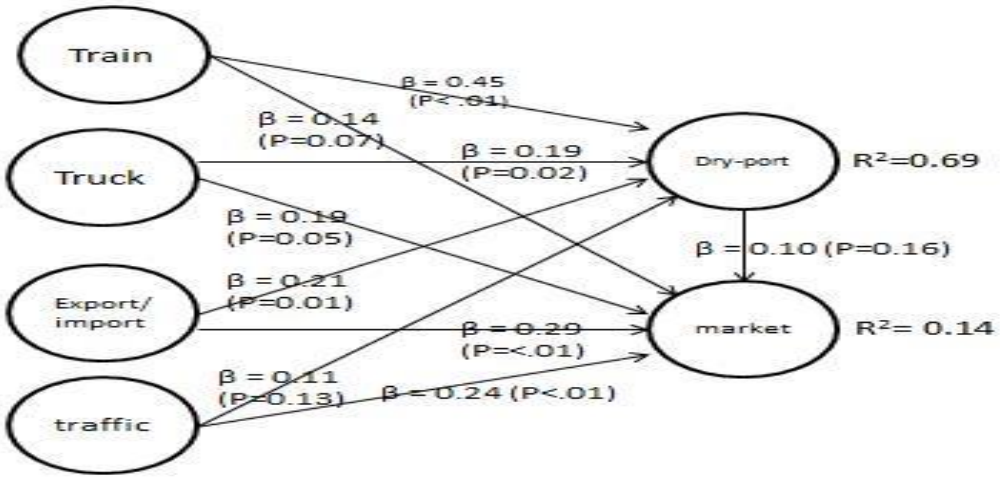
No	Location	<5 tons	6-10 tons	> 10 tons
1	Cilegon	75%	-	25%
2	Jakarta	67%	25%	8%
3	Cikampek	33%	-	67%
4	Cirebon	28.57%	28.57%	42.86%
5	Bandung	25%	-	50%
6	Semarang	-	-	100%
7	Surabaya	20.69%	-	72.41%

Source: Data Research 2018

As above for explore data on figure 3, the potential for develop of dry-port with the train as main transport is showed the volume of cargo more than 10 tons per week, and the 3 biggest one is at Semarang, Surabaya and Cirebon, but have the problem both of location the "actors" majority like to support by road transport (bytruck as example)

The following complete ofpicture on SEM-PLS test summaries

Figure 4: SEM-PLS Model



Source: data Research 2018

As above picture, then can to describe summaries on below table.

Figure.5: Sem-Pls Coefficient Each Variable To Dry Port

Variable dependent	Path Coefficient β	R^2	Remarks
Train	0.45	0.69	Train → dry-port
Truck	0.14	0.69	Truck → dry-port
Carriage of cargo (Exp/Imp)	0.19	0.69	Ex/im → dry-port
Traffic	0.15	0.69	Traffic → dry-port

Source: Data Research 2018

As Sem-Pls correlation has showed on above table. All coefficient β is positive; the biggest one is coefficient Train toDry port, with coefficient correlation 0.45 or 45 percent. It's nearly with strong enough. But looking the R^2(train, truck, export/import and traffic) gave the good correlation (0.69) or 69 percent, it indicates positive and significant (all variable has hadpositive on affectingfor dry-port variable)

For explain more effective and simpler, below showed the R square test.

Figure.6: Sem-Pls Coefficient Each Variable To Market

variable dependent	Path Coefficient β	R^2	Remarks
Train	0.21	0.14	Train → Market
Truck	0.29	0.14	Truck → Market
Carriage of cargo (Exp/Imp)	0.11	0.14	Ex/im → Market
Traffic	0.24	0.14	Traffic → Market

Source: Data Research 2018

Another Sem-Pls correlation has shown in the table above. All positive for β coefficients; the largest is the truck coefficient to market, with a correlation coefficient of 0.29 or 29 percent. But, it relatively not so good due seeing on R^2 (Train, truck, export& import and traffic) gives a score totalis 0.14 or 14 percent; it shows and indicate positive but insignificant, (maximum power of influence for variables exogenous to variables endogenous).

Figure.7:Sem-Pls Coefficient For Dry Port To Market

R^2 (Dry Port)	Path Coefficient (β) dry port to market	R^2 (Market)
0.69	0.10	0.14

Source: Data Research 2018

On SEM-PLS correlation test, has shown above table. Coefficient β dry-port to market is 0.10 or 10 percent (as showed detail on figure.4), it's not good enough. The coefficient all variable to Dry port and Market is still needs more improvement. Overall explanation can to be update: It still need and wide opening, but takes hard work to make it happen, especially in terms of changing of user behavior to switch from truck mode to rail mode model for support of dry port at the island of Java.

Conclusion:

Dry-port supporting by train transport is better, due can improve about the time frame of schedule for carriage some of cargo on logistics. in Java, to many entrepreneurs still not interest yet with the train transport model, and it have implication the dry-port not maximum on their own services and utility due some of dry-port function is sit as port actually, all activities like on port will be find at dry port normally, due supporting by truck than the delivery and carriage some of cargo is inconsistent, especially about the time, than have impact for high cost economic on logistic and delay of time on supply & demand as consequences, although the opportunity to use of trains is still open, but it takes understanding and hard work to convince logistic actors in Indonesia generally.

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