

THE IMPACT ON FREIGHT FORWARDER INDUSTRY AND THE DIGITALIZATION ON DHL COMPANY

Dalia Younis, Arab Academy of Science Technology

ABSTRACT

The digitalization represents the implementation and enhancement of the relationship between people, organizations, and objects in the industry and community of digital. While digitization covers the technical process of translating analog signals into a digital form, digitalization is commonly referred to as digitalism in wider organizational and society contexts as multiple social-technical phenomena and processes of adoption and use of digital technologies. The key driver of digitalization is digital technologies. Digital technologies include both new technologies such as the internet of things (Iot) and the block chain, and more developed technologies such as social media, mobile computing, data analytics, and cloud computing (smac). A freight forwarder is traditionally an entity that acts as an intermediary between the actual shipper, or importer, and the carrier. The object of this research is to explore the relationship between digitalization and performance of freight Forwarder Company. The output of the prospective study will shed light on the current status of digitalization in freight forwarder companies. This descriptive, cross-sectional study will utilize questionnaires to collect data of interest and descriptive statistical methods will be used to analyze the data.

Keywords: Customer Demand, Control Approach, Information Technology Implementation, Supply Chain Innovation, Public Companies

INTRODUCTION

This research tries to understand the relation between digitalization and performance of freight forwarder company. It tries to give an idea of how various researchers and management experts have defined digitalization. It also covers some basic digitalization activities and how these activities affect the decisions that managers have to make on a regular basis in their company. This research is a comprehensive study of digitalization and freight forwarder industry in Egypt, and the purpose is to examine the current status of digitalization in freight forwarder companies (DHL). The research questions to achieve the purpose as follows:

- What is the importance of digitalization?
- What is the impact of digitalization and their ability to support freight forwarder organizations?
- Is there an impact of digitalization with customer satisfaction and customer loyalty?

The main objective of this research is to explore the impact of digitalization management on the freight forwarder in DHL company in Egypt: identify the extent of applications of digitalization and its benefits to the DHL company in Egypt, clarify the methods of implementing digitalization system and major process improvement and make recommendations and proposals with regard to strengthening the role of digitalization so as to support DHL company in Egypt.

The Importance of the Research

The discoveries of this research will profit organizations that have not yet grasped the act of digitalization. Since the examination additionally means to take a gander at the diverse digitalization procedures, organizations will discover the investigation accommodating while picking which techniques to receive and expect positive result. The importance of research springs, as well, from its probable findings and recommendations benefiting the officials in the sectors of management and it leads to improving the performance levels, raising the efficiency of workers, and supporting their experiences and abilities.

Research Boundaries and Limitations

The boundaries of research are confined to the following:

Human boundaries: Represented in the employee in DHL company in Egypt.

Spatial boundaries: Represented in the DHL company in Egypt.

Time limits: 2020

Research Methodology

The current study utilized qualitative method, which combines informal interview with primary and secondary data analysis. Base on the existing literatures, informal interviews were conducted with some employee in DHL Company to validate the digitalization system and its impact on freight forwarder industry in DHL Egypt. The researcher used questionnaire as a research instrument. The type of questionnaire used was a self-administered questionnaire, in particular, a 'delivery and collection questionnaire'. The questionnaire was delivered by hand to each respondent and collected later. The study embarked on this type of questionnaire because it gave respondents enough time to answer questions at their free time so that they may have an enough time to go through the questionnaire and answer questions accordingly. To overcome the shortfalls of the questionnaire, an interview was used in order to collect more information that can be sufficient in answering research question and attain research objective. The interview was done at DHL Company for with MR Mohamed Ragab were probed to provide information regarding to the digitalization system in DHL Company, which gave more information regarding to research questions.

LITERATURE REVIEW

Digitalization Defined

The English language allows the two concepts of digitization and digitalization to be distinguished, which already inserts two dimensions applicable to manufacturing. Following the definitions of the Oxford English Dictionary (OED) the term "digitization" can be traced back to the 1950s in conjunction with computers as "the activity or procedure of digitizing; the transformation of simple information (esp. in later use pictures, video, and text) into advanced structure". In the interim, the expression "digitalization" is characterized as "the appropriation or increment being used of computerized or PC innovation by an association, industry, nation, and so on." In view of this OED definition, Brenner and Kreiss allude to "digitization" as "the material procedure of changing over individual simple floods of data into computerized bits" and they comprehend digitalization as "the manner by which numerous spaces of public activity are rebuilt around advanced correspondence and media foundations". The expression "automation" is as of now conspicuous in its mechanical use

and is characterized as "the utilization or presentation of programmed hardware in an assembling or different procedure or office". A more technological view by Groover refers to automation as "the technology by which a process or procedure is accomplished without human assistance." The following table summarizes aspects of digitization, digitalization and automation we extracted from literature.

Table 1			
ASPECTS OF DIGITIZATION, DIGITALIZATION AND AUTOMATION			
Aspects	Digitization	Digitalization	Automation
Description	Describes the conversion of continuous analog, noisy and smoothly varying information into clear bits of 1s and 0s.	Describes the social ramifications for the economy, community and culture from increased computer assistance, digital media and networking networks.	Describes the implementation of technology, software and programs to accomplish a procedural outcome with little or no human interference.
areas / level of analysis	Micro level, analogue and digital signals; binary states, signal sampling; algorithms, signal interpretation; signal storage material, electrical components	Macro level; digital media infrastructure; communication platforms; social structure; cultural aspects, networked society; human centered; knowledge production and management,	Systemic view; automation of analyses/decision processes or actions; program instructions; control and monitoring; utilization of electrical/mechanical/thermal and light-power for automation; sensor/actuators for process control
General implications / effects	Dematerialization of information; loss of information due to sampling; limitless transfer of information between two points; transfer of information only through copying; nearly no costs for reproduction of information; simultaneous utilization of same information; convergence of transfer media for information; universality of information through conversion; additional control of information; enabling of data manipulation; existence of different levels of data; classification and indexation of information; higher degree of interaction between user and information	Linkage of all activities in society; connection and circulation of cultures; information as organizing mode of social life; convergence of all aspects of life (connected life); Convergence of media infrastructure towards universal communication platforms; non- physical market economy emerges; new media as main determinant of economy; reciprocal effects of digital communication and globalization; increased participation of individuals in decision making; collective action in decentralized systems; increased monitoring and surveillance; jurisdiction and governance of knowledge	Empowering of processes to act without human interference; automation of physical tasks or information handling automated monitoring and decision making; partly or full substitution of human labor; increased human-machine interaction; automation as enabler of integration; problem of process transparency and understanding

The Importance of Digitalization

The absolute most important qualities of computerized content is that its very plan doesn't decide the manner in which writings are composed on a report. Computerized writings are neither last nor restricted, and are fixed neither fundamentally nor in form except when a printed version is printed, since they can be changed effectively and without any sign of eradication or emendation. Adaptability is one of the main resources of computerized data and correctly what we like about content filled a word preparing program.

It is anything but difficult to alter, to reformat, and to resolve to print in an assortment of cycles without the exertion required to create printed copy from a typewriter. That is the reason visual architects like pc helped configuration program. It is anything but difficult to call up rapidly any number of varieties of significant worth, shade, and position to see, as opposed to envision, what distinctive visual choices resemble. Besides, we can make an interminable number of indistinguishable duplicates from a computerized record, on the grounds that the document doesn't rot by righteousness of replicating. The potential advantages of internal efficiency digitalization include improving the efficiency, quality and consistency of business processes through manual elimination and greater accuracy. In addition, digitalization will offer a clearer view of operations and performance in real-time by combining structured and unstructured data, offering a better view of organizational data and incorporating data from other sources. Furthermore, digitization can lead to better employee satisfaction by automating routine work, thereby giving time for new skills to develop. Digitalization also increases compliance by means of records and recovery through simpler storage and backup. outside incentives include faster response time and customer support, and incentives for new ways to do business. New digital technology can build incentives for consumers to get new services or innovative deals. Problematic changes remember changes for the working condition of the organization activated by digitalization; for instance, in the changed circumstance, the current business of an organization may get excess (for example manual receipt checking supplanted by electronic receipt). In the other hand, digitalization can create entirely new industries, such as the implementation of an e-invoice operator for example, the introduction of an e-invoice operator.

Freight Forwarder

“A freight forwarder’s services that vary from one business to another, but the main role of the freight forwarder is to serve as an intermediary between the client paying them and different transportation companies involved in bringing the cargo to the client overseas, including airlines, customs, consolidating and distributing”.

Depending on the final destination and the type of the goods being transported, various transport firms can be involved in transporting the goods from the manufacturer to the consumer, the freight forwarder is hired:

- To get the product to the customer by a specific date
- Have experience in all modes of transportation
- Provide costs effective and efficient cargo shipping solutions
- Able to arrange storage for the cargo
- Able to arrange customs clearance
- Have the capability to negotiate freight rates with shipping line

The freight forwarder must provide the consumer compensation coverage to ensure that they are reimbursed and not responsible for the losses if the goods do arrive damaged.

DHL Competitor

According to sara arrhenius, the main competitors are ups and Fedex. Dirk klasen sees TNT as yet another major rival. Therefore, the comparison is made between these four companies by considering the characteristics of the logistics industry, some important issues are picked up to make a comparison, such as: health & security, company operation, environmental policy and company structure.

Table 2
THE COMPARISON BETWEEN DHL, UPS, FEDEX AND TNT

	Size/No of employees	Position	Safety/ Insurance	Service/ Logistics	Environmental policy/ Sustainable strate2'V	Organization/ Company structure
DHL	International large logistics company with 285,000 employees in 220 countries	No. 1 in logistics industry	Customs- Trade Partnership Against Terrorism (C-TPAT); a growing network of highly secured locations worldwide; satellite	Shipping; tracking; export & import service; freight and etc.	DHL GOGREEN; DHL in-house Carbon Management; environmental management	DHL Express DHL Global Forwarding DHL Supply chain DHL Mails
UPS	International large logistics company with 426,000 employees in more than 200 countries	a leading global freight provider with access to almost any kind of aircraft or vehicle around the world	Auto Liability Insurance; property insurance; cargo insurance and etc.	Shipping; tracking; export & import service; freight and etc.	Carbon impact analysis; package design and test lab; transportation management	U.S.Domestic Package International Package Supply chain & Freight
FedEx	International large logistics company with 80,000 employees in 220 countries	A younger logistics company	Auto Liability Insurance; property insurance; cargo insurance and etc.	Package, envelope or freight express; freight shipment; provide special supplies etc.	Earth Smart Solutions; Earth Smart @ Work; Earth Smart Outreach	FedEx Express FedEx Ground FedEx Freight FedEx Custom Critical
TNT	TNT Express employs over 75,000 people in 200 countries	the world's leading business to business express delivery company	Claim programme; 'Lifting Safely' training programme	Time critical service special handling etc.	PlanetMe Programme	TNT Express

DATA RESULTS & ANALYSIS

The questionnaire was divided into three items:

- Company supporting digitalization: include question 1-4
- Customer and human resource support: include question 5-6
- Company economic support digitalization: Include question 7-8 From this, the research hypotheses can be constructed as follows:

H1: There is a significant relationship between company supporting digitalization and customer and human resource support

H2: There is a significant relationship between company supporting digitalization and company economic support digitalization

H3: There is a significant relationship between customer and human resource support and company economic support digitalization

H4: There is a significant effect of sociodemographic data on digitalization

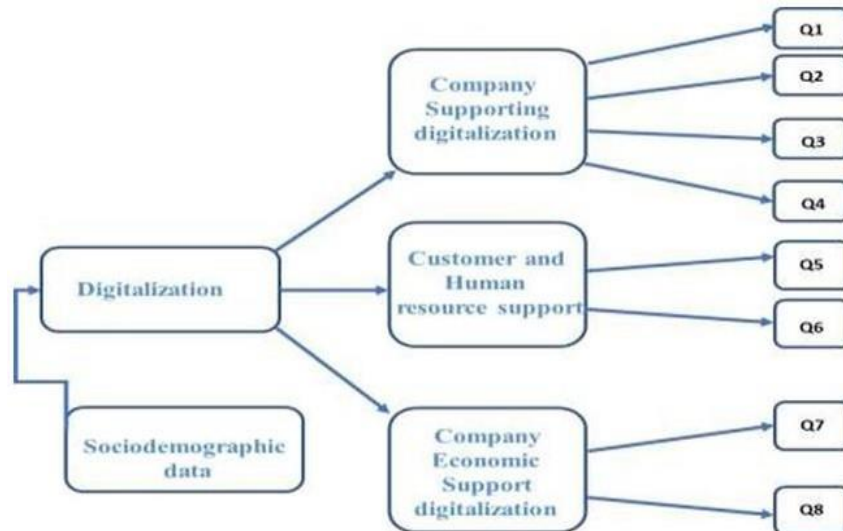


FIGURE 1 FRAMEWORK OF HYPOTHESIS

**Table 3
CHARACTERISTIC FEATURE OF THE STUDIED SAMPLE**

Frequency Table	Number	Percent
< 30	9	30
30-40	11	36.7
40+	10	33.3
Sex		
Male	13	43.3
Female	17	56.7
Duration Of Experience		
<5 Years	9	30
5-10 Years	11	36.7
>10 Years	10	33.3
Total	30	100

**Table 4
DATA VALIDATION**

Variables	Kmo	Cronbach's Alpha	Items	Factor Loading
Company Supporting Digitalization	0.823	0.901	Q1	0.801
			Q2	0.725
			Q3	0.725
			Q4	0.811
Customer and Human Resource Support	0.792	0.872	Q5	0.801
			Q6	0.721
Company Economic Support Digitalization	0.807	0.911	Q7	0.697
			Q8	0.712

Table 5 FORMAL TESTING OF NORMALITY						
Items	Kolmogorov- Smirnova			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Si g.
Company Supporting Digitalization	0.302	28	0.001	0.801	28	0.001
Customer and Human Resource Support	0.352	28	0.001	0.621	28	0.001
Company Economic Support Digitalization	0.402	28	0.001	0.636	28	0.001

Table 6 INFORMAL TESTING OF NORMALITY					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Company Supporting Digitalization	28	0.241	0.105	0.729	0.162
Customer And Human Resource Support	28	0.074	0.124	0.415	0.208
Company Economic Support Digitalization	28	0.016	0.111	0.392	0.252

Table 7 DISCRIMINANT VALIDITY OF THE RESEARCH VARIABLES										
		Total Score of Questionnaire	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Total Score Of Questionnaire	Pearson Correlation	1	0.542**	0.546**	0.684**	0.422*	0.722**	0.401*	0.576**	0.308
	P-Value		0.002	0.002	0	0.02	0	0.028	0.001	0.098
Q1	Pearson Correlation	0.542**	1	0.269	0.216	0.311	0.491**	0.217	0.061	0.425*
	P-Value	0.002		0.151	0.253	0.094	0.006	0.25	0.75	0.019
Q2	Pearson Correlation	0.546**	0.269	1	0.449*	0.246	0.344	0.057	0.336	0.099
	P-Value	0.002	0.151		0.013	0.19	0.063	0.764	0.07	0.603
Q3	Pearson Correlation	0.684**	0.216	.449*	1	0.279	0.370*	0.035	0.648**	0.196
	P-Value	0	0.253	0.013		0.135	0.044	0.853	0	0.299
Q4	Pearson Correlation	0.422*	0.311	0.246	0.279	1	0.231	0	0.283	-
	P-Value	0.02	0.094	0.19	0.135		0.219	1	0.129	0.558
Q5	Pearson Correlation	0.722**	.491**	0.344	0.370*	0.231	1	0.341	0.287	0.26
	P-Value	0	0.006	0.063	0.044	0.219		0.065	0.125	0.166
Q6	Pearson Correlation	0.401*	0.217	0.057	0.035	0	0.341	1	-0.037	0.271
	P-Value	0.028	0.25	0.764	0.853	1	0.065		0.848	0.148
Q7	Pearson Correlation	0.576**	0.061	0.336	0.648**	0.283	0.287	-	1	0.228

	P-Value	0.001	0.75	0.07	0	0.129	0.125	0.848		0.227
Q8	Pearson Correlation	0.308	.425*	0.099	0.196	-	0.26	0.271	0.228	1
	P-Value	0.098	0.019	0.603	0.299	0.558	0.166	0.148	0.227	
**. Correlation Is Significant At The 0.01 Level (2-Tailed).										
*. Correlation Is Significant At The 0.05 Level (2-Tailed).										

Table 8
ANSWERS OF QUESTIONNAIRE CLOSE ENDED

	Strongly Agree		Agree		Natural		Disagree	
	No	%	No	%	No	%	No	%
Is the senior management committed to supporting the digitalization system at DHL company?	15	50	10	33.3	5	16.7	0	0
Is the strategic planning of the process of transition to digitalization system in the DHL company?	18	60	6	20	4	13.3	2	6.7
Is the development of integrated plans for comprehensive communications between the customs authority and all departments of DHL company?	12	40	14	46.7	3	10	1	3.3
Is there an administrative unit at a high organizational level responsible for strengthening and enhancing the use of the internet and networks within DHL company?	19	63.3	8	26.7	3	10	0	0
Is the focus on studying the needs of the DHL company customers and satisfying them with accuracy and speed through electronic management?	16	53.3	8	26.7	6	20	0	0
Are the human resources responsible for providing digitalization system services and developing the skills of their employees?	17	56.7	11	36.7	2	6.7	0	0
Is the emphasis on technical requirements through the internal and external networks of DHL company?	14	46.7	11	36.7	5	16.7	0	0
Is there an integrated strategy to fund the electronic transformation in the services? provision of digitalization system	12	40	16	53.3	2	6.7	0	0

Table 9
MULTIPLE LOGISTIC REGRESSION ANALYSIS OF DIFFERENT FACTORS AFFECTING THE DIGITALIZATION

Anova ^a

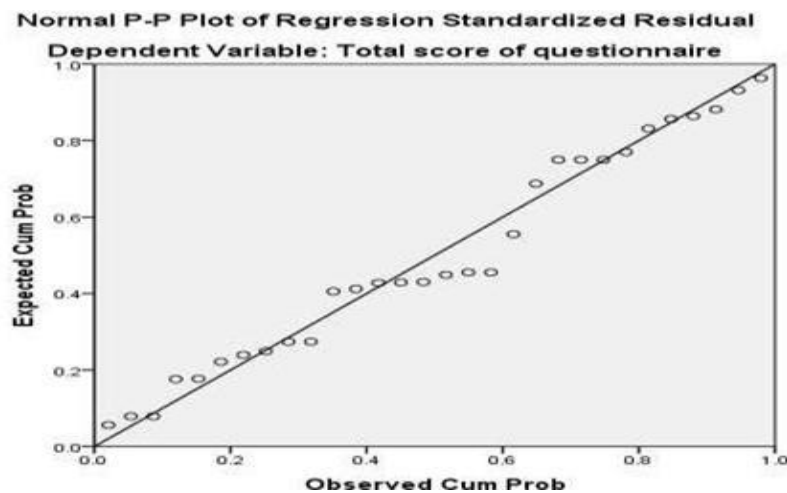
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.813	6	1.469	15.69	.000b
	Residual	2.153	23	0.094		
	Total	10.967	29			

A. Dependent Variable: Total Score of Questionnaire

B. Predictors: (Constant), Company Economic Support Digitalization , Sex, Company supporting Digitalization , Customer And Human Resource Support, Age, Duration Of Experience.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-0.496	0.482		-3.029	0.004
	Age	0.01	0.019	0.124	2.501	0.021
	Sex	-0.007	0.138	-0.005	-2.048	0.032
	Duration of Experience	-0.011	0.222	-0.014	-3.048	0.0162
	Company Supporting Digitalization	0.384	0.127	0.4	3.035	0.006
	Customer and Human Resource Support	0.471	0.132	0.45	3.577	0.002
	Company Economic Support Digitalization	0.217	0.128	0.214	1.692	0.104

A. Dependent Variable: Total Score Of Questionnaire



**FIGURE 2
NORMAL P-P PLOT OF REGRESSIO STANDARDIZED RESIDUAL**

Variables			Estimate	P	R Square
Company Supporting Digitalization	<---	Digitization	0.428	0.002	0.26
Customer And Human Resource Support	<---	Digitization	0.412	0.001	0.304
Company Economic Support Digitalization	<---	Digitization	0.387	0.006	0.411

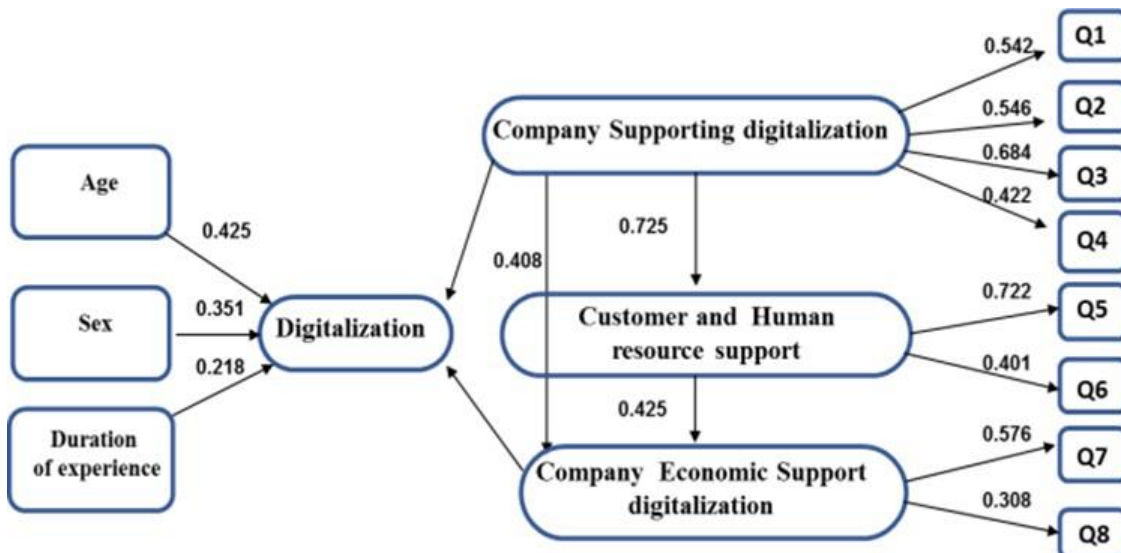


FIGURE 3
SEM ANALYSIS OF THE EFFECT OF DIFFERENT FACTORS ON
DIGITALIZATION CONCLUSION

As the society and the economy are becoming increasingly digital, the rules governing the market demand and supply are entirely changing. While digitization is affecting the business environment and the competitive landscape of every industry and sector, the digitalization of the business aims at not only surviving, but at thriving in this new social and business reality. However, becoming a digital business is not just digitized marketing or digitized operations! Accordingly, the leverage of digitalization opportunities implies creating of new customer value propositions, remodelling business operations and enlarging business model scope and scale by identifying new customer channels and entering new markets. Therefore, digital transformation is complex, particularly in the case of existing companies whose core services.

T study contributes to the supply chain integration literature over and above the contribution by generic ict driven digitally enabled supply chain integration significantly associated with supply chain performance and in turn the performance of the freight forward company. From organizational capability theory perspective, the adoption of Iot helps achieving organizational integration capability.

RESEARCH RECOMMENDATIONS

The first step in installing a digital system should be to define its purpose. In the case of the DHL company in Egypt, the main aim is to speed up the dispatch of services, and it is on that basis that priorities have been assigned to the procedures to be optimized. One important consideration concerns the specific nature of the company environment that is, all the companies and organizations involved in transport there. What most distinguishes company from other environments employing some form of digital system is the lack of any clear customer-supplier relations, which means that companies of very different kinds must agree among themselves on volumes and objectives. In addition, because these agents cannot be forced to adopt a particular system, paper and electronic media exist side by side in organizations such as the company authority, which further complicates administrative procedures. Lastly, the need for some agents to interchange documents with foreign shipping lines makes it necessary to envisage solutions allowing access to other systems. It is also

important to consider what technical and administrative models to use when defining a digital program. In European freight forwarder with their own network, the administrative solution applied in most cases involved the creation of an association of all companies, while the technical solution applied in each case involved the establishment of a digital framework to support the group of freight forwarder companies. many firms, such as in New York, with a newer method than that of European companies, have opted to contract the clearing service to a private business whose performance is actively tracked by the community of consumers, and the technical support is a network of public value added. The service that can now be offered by public value added networks and the effectiveness of their interconnections raises the possibility of companies establishing systems based on third-party services rather than setting up their own infrastructure, which generally demands high initial investment. There are a myriad factor to be considered in terms of the advantages and disadvantages of each possible model, but the best solution will always be the system that most closely matches the needs and specific features of each case.

DHL should try to implement the digital system and Iot through the following:

1. Identify the hardware and software which are involved in the linked solution
2. Identify the participating hardware and software in the linked solution.
3. Prepare the data points and measurements aligned with the result
4. Define the connectivity of the computer and the data format
5. Implement security, governance and policies across every stratum
6. Identify the reference datasets required to turn sensor data
7. The machine learning factor and predictive analytics
8. Defines hot route analytics to process in near real time
9. Defines cold path analytics for long term processing of batches
10. Build an intuitive user interface for policy-makers

REFERENCES

- Antorini, Y.M., Muñiz, A.M., & Askildsen, T. (2012). 'Collaborating with customer communities: Lessons from the lego group'. *Mit Sloan Management Review*, 53(3), 73–79.
- Atzori, L., Iera, A., & Morabito, G. (2010). The internet of things: A survey. *Computer Networks*, 54(15), 2787-2805.
- Ashcroft, J. (2014). The lego case study, john Ashcroft and company.
- Haradwaj, A., El Sawy, O.A., Pavlou, P.A., & Venkatraman, N. (2013). 'Digital business strategy: Toward a next generation of insights'. *Mis Quartely*, 37(2), 471–482.
- Bianchi, R., Cermak, M., & Dusek, O. (2016) More than digital plus traditional: A truly omni channel customer experience. Mckinsey & Company.
- Ben-Daya, M., Hassini, E., & Bahroun, Z. (2017). Internet of things and supply chain management: A literature review. *International Journal of Production Research*, 1-24.
- Bharadwaj, A.S. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. *Mis Quarterly*, 169-196.
- Borgia, E. (2014). The internet of things vision: Key features, applications and open issues. *Computer Communications*, 54, 1-31.
- Byrne, B.M. (2013). Structural equation modelling with Amos: Basic concepts, applications, and programming. Routledge.
- Huh, S., Yook, K.-H., & Kim, I.-W. (2008). relationship between organizational capabilities and performance of target costing: An empirical study of Japanese companies. *Journal of International Business Research*, 7(1), 91.
- Whitmore, A., Agarwal, A., & Da Xu, L. (2014). The internet of things—A survey of topics and trends. *Information Systems Frontiers*, 17(2), 261-274.
[Http://De.Slideshare.Net/Accenturen/](http://De.Slideshare.Net/Accenturen/)
[Http://Www.Licensemag.Com/License-Global/Lego-Growing-Brick-Brick](http://Www.Licensemag.Com/License-Global/Lego-Growing-Brick-Brick)

<p>Received: 28-May-2022, Manuscript No. ASMJ-22-11804; Editor assigned: 30- May -2022, PreQC No. ASMJ-22-11804 (PQ); Reviewed: 12- Jun - 2022, QC No. ASMJ-22-11804; Revised: 24-Jun-2022, Manuscript No. ASMJ-22-11804 (R); Published: 07-Jul-2022</p>
