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## SCALE DEVELOPMENT TO MEASURE PERFORMANCE OF PAPERLESS FOREIGN TRADE: FOREIGN TRADE OPERATION SECURITY AS A TRAIT

The purpose of this proceeding is to propose a method for developing a new scale to measure the performance of foreign trade companies to perform paperless trade operations.

Qualitative interview study was conducted in order to determine the dimensions. As a result of this study, it was found that the paperless trade performance has primary and secondary dimensions.

This study does not contain any quantitative data analysis. This study consist of scale proposal to measure paperless trade performance under the primary dimension (payment, customs, insurance, transport, archiving) from the secondary dimensions perspective (speed, errors, costs, security, predictability, tracking & tracing, reporting).

**Keywords:** Paperless Trade, Foreign Trade Operation Security.

### 1. INTRODUCTION

Paper documents are still used in most offices, and employees still encounter some problems in using such documents. Some of these problems have been defined in earlier studies. These problems have persisted despite the development of hardware and software technology that have made electronic alternatives to paper documents available. Indeed the fragmentation between paper and electronic documents cause problems, but the fragmentation of electronic documents also cause problems. This confirms the need for more integrated paper and electronic document management systems<sup>3</sup>. Some of

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<sup>3</sup> M. Jervis, M. Masoodian, *How do people attempt to integrate the management of their paper and electronic documents?*, "Aslib Journal of Information" 2014, 66(2), 134-155.

the problems in putting electronic document systems into practical use are not technical, but relate to psychological and management issues<sup>4</sup>.

Technological innovations in recent years have resulted in paper based documentation will be completely abandoned in all business processes, however the paper-based processes still prevail in foreign trade transactions due to complicated business processes. Electronic documents are the electronic records produced by a computer program which bear electronic signature confirmed by a certificate authority. They are consists of the statements, writings, figures and pictures which are integrated as electronic record. The greatest practical barrier to the promotion of electronic trade is the standardization of electronic documents<sup>5</sup>. The concerted approach in the Asia region enhances harmonization of systems and procedures, which is necessary for continuous paperless trade processes<sup>6</sup>.

In order to develop the international trade process, an e-Trade project was implemented by Korean government in 2003. In addition, to provide a single window for e-Trade, the uTradeHub was implemented in 2008. However, the evaluation of e-Trade performance was still controversial. The evaluation of e-Trade performance has both positive and negative results. Positive results were reported at the initial stage of e-Trade maturity, at the macro level, such as national, and at industrial levels. According to this view, e-Trade generally decreases transaction costs and increases productivity. However, recent literature has claimed some opposite results. Negative results were reported at the later stage of maturity as well as at the firm level. This means that the use of e-Trade is not continuously active when the benefits received do not match up with those expected. As result, both the use and net benefits of e-Trade show steady levels, but not steady enough to increase a firm's capability. In addition, empirical research has shown similar results, such as in the case of Korea, where the number of SMEs using e-Trade is low and not increasing<sup>7</sup>. To enable increases in efficiency, a major opportunity is seen in the digitalization of these documents<sup>8</sup>. In China, internet-based, third-party internet service

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<sup>4</sup> B.-C. Björk, *Electronic document management in temporary project organisations – Construction industry experiences*, "Online Information Review" 2006, 30(6), 644–655.

<sup>5</sup> M. Civelek, M. Çemberci, N. Uca, Ü. Çelebi, A. Özalp, *Challenges of Paperless Trade: Redesign of the Foreign Trade Process and Bundling Functions of Traditional Documents*, "International Business Research" 2017, 10(2), 74–81.

<sup>6</sup> E. Laryea, *Facilitating Paperless International Trade: A Survey of Law and Policy in Asia*, "International Review Of Law Computers" 2005, 19(2), 121–142.

<sup>7</sup> H.-M. Kim, H.H. Lee, *Asset specificity and capability of e-Trade performance: evidence from Korea*, "Journal of Korea Trade" 2016, 20(1), 2–20.

<sup>8</sup> M. Leyer, M. Hollmann, *Introduction of electronic documents: how business process simulation can help*, "Business Process Management" 2014, 20(6), 950–970.

provider offering electronic bills of lading facilitate international supply chain processes. But for changing user attitudes towards electronic bills of lading, there is a need to build trust<sup>9</sup>. Results regarding attitude of the users was dubious because electronic documents are conspicuously advantageous. Benefits such as cost reduction, shorter transaction time, elimination of archive problem and prevention of fraud are undeniable. Employees' negative attitude against electronic document system most probably arises from resistance to change and lack of system interoperability<sup>10</sup>. Main participants of a foreign trade transaction are exporter, importer, carrier, insurance company, customs administration and bank. For full integration all of these parties need to come together<sup>11</sup>. Electronic documents began to take the place of the paper documents that are being currently used in foreign trade. The benefits of using e-documents are classified as reduction of costs, reduction of processing time, elimination of application differences, increase of usability, reduction of the effect of the human factor, increase of the archive costs, recording of the economy, prevention of fraud, elimination of the complexity payment methods, reduction of the number of documents, facilitating the acquisition of commercial information, increase of trade volume, predictable costs and being no longer problem of language differences. The most important of these are the elimination of complexity payment methods and the reduction of the number of documents. Reduction of the number of documents required for completion of a foreign trade transaction cause simplification. The most important benefits of simplification are transaction time and cost decrease. Consequently this decrease exerts positive influence on economic growth<sup>12</sup>.

## 2. SCALE DEVELOPMENT PROCESS

In the scale development process, the items were generated by means of qualitative interview study. This qualitative interview study was conducted in order to determine the dimensions. It was found that the paperless trade performance has primary and secondary dimensions. This scale measures

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<sup>9</sup> Z. Mei, J. Dinwoodie, *Electronic shipping documentation in China's international supply chains*, "Supply Chain Management: An International Journal" 2005, 10(3), 198–205.

<sup>10</sup> M.E. Civelek, N. Uca, M. Çemberci, *eUCP and Electronic Commerce Investments:e-Signature and Paperless Foreign Trade*, "Eurasian Academy of Sciences Eurasian Business & Economics Journal" 2015, 3(1), 60–70.

<sup>11</sup> M.E. Civelek, E.G. Sözer, *İnternet Ticareti: Yeni EkoSosyal Sistem ve Ticaret Noktaları*, İstanbul: Beta Basım 2003.

<sup>12</sup> M. Civelek, N. Seçkin, *Paperless Trade: Evaluation of the Current Situation & towards the Integrated Single Foreign Trade Document*, "Journal of Management Research" 2017, 9(2), 1–10.

the paperless trade performance under the primary dimensions (payment, customs, insurance, transport, archiving) and the secondary dimensions (speed, errors, costs, security, predictability, tracking & tracing, reporting) in a matrix structure.

In the qualitative interview study, face-to-face meetings were held with 16 senior and mid-level professional managers in last quarter of 2016. These interviews were semi-structured. Managers in the sample were chosen from the foreign trade companies. Interview subjects consist of 4 females (25%) and 12 males (75%), 10 senior (62,5%) and 6 mid-level (37,5%) professional managers. As a result of the interview, 12 dimensions were appeared as 5 of them were primary, 7 of them were secondary. Each primary dimension has 5 secondary dimensions. These primary and secondary dimensions need to be handled under matrix structure. Thus 35 items measurement scale was emerged. In Table 1., proposed scale items are shown.

Table 1. Proposed Scale Items

|                |   |
|----------------|---|
| <b>Payment</b> | 1. After starting to use electronic documents, our payments processes have been accelerated.                                      |
|                | 2. After starting to use electronic documents, errors in our payments processes have been decreased.                              |
|                | 3. After starting to use electronic documents, costs of our payments processes have been decreased.                               |
|                | 4. After starting to use electronic documents, security problems arising in our payments processes have been decreased.           |
|                | 5. After starting to use electronic documents, problems in our payments processes have become to be foreseeable.                  |
|                | 6. After starting to use electronic documents, payments have become easier to trace.  |
|                | 7. After starting to use electronic documents, the processes of payment and reporting have become easier.                         |
| <b>Customs</b> | 1. After starting to use electronic documents, customs clearance transactions have been completed faster than before.             |
|                | 2. After starting to use electronic documents, errors in customs clearance transactions have been decreased.                      |
|                | 3. After starting to use electronic documents, cost in customs clearance transactions have been decreased.                        |
|                | 4. After starting to use electronic documents, security problems arising from customs clearance transactions have been decreased. |
|                | 5. After starting to use electronic documents, problems in customs clearance transactions have become to be foreseeable.          |
|                | 6. After starting to use electronic documents, customs clearance transactions have become easier to trace.                        |
|                | 7. After starting to use electronic documents, reporting of customs clearance transactions have become easier.                    |

|                  |   |
|------------------|---|
| <b>Insurance</b> | 1. After starting to use electronic documents, insurance transactions have been completed faster than before.             |
|                  | 2. After starting to use electronic documents, errors in insurance transactions have been decreased.                      |
|                  | 3. After starting to use electronic documents, costs in insurance transactions have been decreased.                       |
|                  | 4. After starting to use electronic documents, security problems arising from insurance transactions have been decreased. |
|                  | 5. After starting to use electronic documents, problems in insurance transactions have become to be foreseeable.          |
|                  | 6. After starting to use electronic documents, insurance transactions have become easier to trace.                        |
|                  | 7. After starting to use electronic documents, reporting of insurance transactions have become easier.                    |
| <b>Transport</b> | 1. After starting to use electronic documents, transport operations have been completed faster than before.               |
|                  | 2. After starting to use electronic documents, errors in transport operations have been decreased.                        |
|                  | 3. After starting to use electronic documents, costs in transport operations have been decreased.                         |
|                  | 4. After starting to use electronic documents, security problems arising from transport operations have been decreased.   |
|                  | 5. After starting to use electronic documents, problems in transport operations have become to be foreseeable.            |
|                  | 6. After starting to use electronic documents, transport operations have become easier to trace.                          |
|                  | 7. After starting to use electronic documents, reporting of transport operations have become easier.                      |
| <b>Archiving</b> | 1. After starting to use electronic documents, archiving operations have been completed faster than before.               |
|                  | 2. After starting to use electronic documents, errors in archiving operations have been decreased.                        |
|                  | 3. After starting to use electronic documents, costs in archiving operations have been decreased.                         |
|                  | 4. After starting to use electronic documents, security problems arising from archiving operations have been decreased.   |
|                  | 5. After starting to use electronic documents, problems in archiving operations have become to be foreseeable.            |
|                  | 6. After starting to use electronic documents, documents in archive have become easily accessible.                        |
|                  | 7. After starting to use electronic documents, it becomes easy to use documents in archive in reporting.                  |

### 3. CONCLUSION

To measure the performance of foreign trade companies to perform paperless trade operations is needed. Because of the paperless trade is new concept in foreign trade there is a need for a measurement scale. Qualitative analysis was conducted in this research. This model comprises primary and secondary dimensions. At the end of the analysis, a scale was proposed and a complicated matrix model was emerged. Theoretical contribution of this study is development of a measurement scale in paperless trade area. But the constraint of this study is not to be confirmed by quantitative future researches. Therefore this study is to enlighten the future researches. After repeated analyses by researchers in the future, this measurement scale would be confirmed. Managerial contribution of this research is to provide a tool for assessment of the performance of the foreign trade companies in the paperless trade perspective.

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SKALOWANIE ROZWOJU W CELU POMIARU WYDAJNOŚCI ELEKTRONICZNEGO HANDLU  
ZAGRANICZNEGO: HANDEL ZAGRANICZNY – BEZPIECZEŃSTWO JAKO CECHA

### Streszczenie

Celem niniejszego postępowania jest zaproponowanie metody opracowania nowej skali w celu zmierzenia wyników zagranicznych firm handlowych w celu wykonywania operacji handlowych bez papieru.

Przeprowadzono badanie wywiadu jakościowego w celu określenia wymiarów. W wyniku tych badań stwierdzono, że wyniki handlu bez dokumentów papierowych mają wymiary podstawowe i drugorzędne. Badanie nie zawiera żadnej ilościowej analizy danych. Składa się z propozycji skali pomiaru bezwartościowych wyników handlowych w ramach podstawowego wymiaru (płatności, cła, ubezpieczenia, transport, archiwizacja) z perspektywy wymiaru wtórnego (prędkość, błędy, koszty, bezpieczeństwo, przewidywalność, śledzenie i śledzenie, raportowanie).

**Słowa kluczowe:** handel bez dokumentów papierowych, bezpieczeństwo handlu zagranicznego.

Artykuł otrzymano: 15 sierpnia 2017 r.

Zaakceptowano do druku: 17 listopada 2017 r.