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## Appendix – Literature Review Details

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### **1. Methodology**

In this section we describe our methodology for reviewing the literature related to predictive analytics and the supply chain. We begin by establishing the fields related to predictive analytics and the supply chain, namely; information systems, artificial intelligence, interdisciplinary applications of computer science, industrial engineering, operations research, supply chain, decision sciences, business and management.

For each field, a top twenty list of journals was selected based on journal impact and other measures of academic relevance. This selection is based on the AIS Senior Scholars' Basket of Journals (Association for Information Systems, 2014), the Journal Citation Report of the ISI (Thomson Reuters, 2014), the University of Sydney Journal Rankings (Hensher, 2011), SCImago (SCImago Journal & Country Rank, 2014) and several peer reviewed scientometric publications on journal rankings (Fry & Donohue, 2013; Menachof, Gibson, Hanna, & Whiteing, 2009; Meredith, Steward, & Lewis, 2011; Mylonopoulos & Theoharakis, 2001; Serenko & Dohan, 2011; Stonebraker, Gil, Kirkwood, & Handfield, 2012). We used only journals, as we are interested in those papers that are considered the best in this field, and journals are usually considered a field's primary archival type of contribution.

Using the list of journals, we executed the following query on Scopus and Web of Science: (“*supply chain*” OR *scm* OR *logistics*) AND (*analy\** OR “*big data*” OR “*data mining*” OR “*business intelligence*” OR “*decision support*”) AND *predict\**, resulting in 626 papers.

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The abstract inclusion criteria are the following: they are related to one or more aspects of the supply chain, and that they mention some type of prediction using data. Two reviewers analyzed the abstracts using these criteria and decided whether the abstracts were relevant. Upon comparing the reviewer's decisions, it was noted that the reviewers had sufficient inter-rater-reliability (Cronbach's  $\alpha$ :0.80, Krippendorff's  $\alpha$ :0.67)

In the final round of review, we reviewed the full text of the highly relevant papers. The inclusion criteria are that the paper discusses prediction related to the supply chain, and that empirical data was used to make those predictions. After this round, 50 papers remained.

Next, we investigated the complexity of the domains in each paper, using an assessment tool based on Jackson & Keys' definition of complexity (Jackson & Keys, 1984) (and implemented in a spreadsheet). The assessment tool, which consists of eight questions, is in Appendix ??, including a formula to calculate a complexity score. The first author answered the questions for all 46 papers. Another author did the same for a randomly selected subset of 6 papers to rule out rater bias. The sufficient inter-rater reliability (Cronbach's  $\alpha$ : 0.87, Krippendorff's  $\alpha$ : 0.72) indicates that both reviewers were in agreement.

## 2. Results

| <i>Analysis type</i>  | <i>Domain type</i>  |   |
|-----------------------|---|---|
|                       | <i>Simple</i>   | <i>Complex</i>  |
| <i>Soft-exclusive</i> | 2/50:(Chatzidimitriou & Symeonidis, 2009; Ketter, Collins, Gini, Gupta, & Schrater, 2009) | 42/50: (Bagchi, Lejeune, & Alam, 2014; Bendoly, Bharadwaj, & Bharadwaj, 2012; Boyer & Frohlich, 2006; Buckinx & Van den Poel, 2005; Chae, Olson, & Sheu, 2013; Chen & Blue, 2010; Cheng, Chen, & Lin, 2010; Chi, Ersoy, Moskowitz, & Ward, 2007; Doganis, Aggelogiannaki, & Sarimveis, 2008; Figliozzi, 2011; Hosoda, Naim, Disney, & Potter, 2008; Hyndman, Kraiselburd, & Watson, 2013; Jain, Wadhwa, & Deshmukh, 2007; Jula & Leachman, 2011; Kamarianakis, Oliver Gao, & Prastacos, 2010; Kapuscinski, Zhang, Carbonneau, Moore, & Reeves, 2004; Ketter, Collins, Gini, Gupta, & Schrater, 2012; Khaleghei Ghosheh Balagh, Naderkhani, & Makis, 2014; Kone & Karwan, 2011; Korpela & Tuominen, 1996; Kouvelis, Munson, & Yang, 2013; Larrain, 2007; Lau, Ho, & Zhao, 2013; Leachman & Jula, 2011; Li, Sun, Wu, & Wu, 2012; Lu & Wang, 2010; Monczka, Petersen, Handfield, & Ragatz, 1998; Moon, Simpson, & Hicks, 2013; Oke & Szejczewski, 2005; Pearson, Masson, & Swain, 2010; Rajagopalan, 2013; Sezen, 2008; Simroth & Zahle, 2011; Sun, Li, Huang, & He, 2014; Vahdani, Zandieh, & Roshanaei, 2011; van der Spoel, Amrit, & van Hillegersberg, 2015; Warren Liao & Chang, 2010; Williams, Waller, Ahire, & Ferrier, 2014; J.-Z. Wu, 2013; S. D. Wu, Aytac, Berger, & Armbruster, 2006; Xu, Tarko, Wang, & Liu, 2013; Yu & Abdel-Aty, 2013) |
| <i>Soft-inclusive</i> | 0/50  | 6/50: (Cao & Zhang, 2010; Hashemi, Le Blanc, Rucks, & Shearry, 1995; Rabelo, Helal, Lertpattarapong, Moraga, & Sarmiento, 2008; S. D. Wu, Aytac, Berger, & Armbruster, 2006)  |

**Table 1.** Results of the literature review and domain complexity analysis