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Partner

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BAS4SC – Business Analytics Skills for the Future-proof Supply Chains

*Report: review of survey regarding the business analytical skills*

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**BAS4SC – Business Analytics Skills for the Future-proof Supply Chains**

*Report: a review of survey answers regarding the business analytical skills*

# Introduction

Fig 1. demonstrates the methodology for classifying the BAS skills to the three courses:

* C1: Advanced using of spreadsheet to analyse logistics data
* C2: Business Intelligence
* C3: Statistical method to analysing a logistics data.

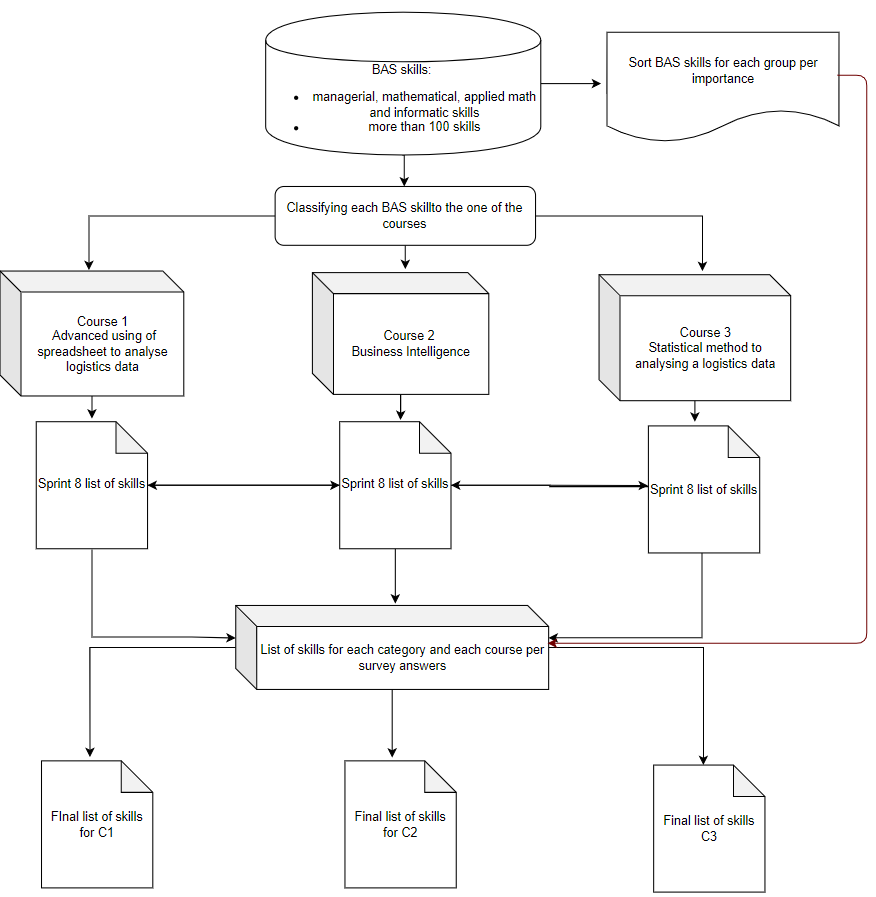


Fig 1. Methodology for classifying the BAS skills.

*Table 1. Ranking for each BAS skill.*

|  |  |  |
| --- | --- | --- |
| **Nu.** | **BAS skills** | **Category** |
| 77 | Informatic skills (business intelligence tools) [Microsoft Excel] | A |
| 96 | Informatic skills (Management systems) [Integrated enterprise management (SAP, ERP)] | A |
| 95 | Informatic skills (Management systems) [Enterprise Resource Planning Systems (ERP)] | A |
| 2 | Managerial skills [Data Management and Business Intelligence] | A |
| 76 | Informatic skills (business intelligence tools) [Software tools in logistics] | A |
| 73 | Informatic skills (business intelligence tools) [Spreadsheet analysis] | A |
| 5 | Managerial skills [Cost-Benefit Analysis for Business] | A |
| 75 | Informatic skills (business intelligence tools) [Big Data Systems] | A |
| 54 | Applied math & stat [Business Data Analytics] | A |
| 52 | Applied math & stat [Optimization in Supply Chain Management] | A |
| 4 | Managerial skills [Strategic Analyses] | A |
| 10 | Managerial skills [Supply Chain and Sourcing] | A |
| 100 | Informatic skills (Other IT tools) [Systems for automatic identification (RFID, barcodes)] | A |
| 11 | Managerial skills [Supply Chain Risk Management] | A |
| 99 | Informatic skills (Other IT tools) [Information security] | A |
| 74 | Informatic skills (business intelligence tools) [Big Data Research Methods] | A |
| 18 | Managerial skills [e-logistics] | A |
| 13 | Managerial skills [Inventory Management] | A |
| 87 | Informatic skills (Different software tools) [Software tools in logistics] | A |
| 1 | Managerial skills [Information Systems & Business Process Management] | A |
| 71 | Informatic skills (simulations) [Simulation of Logistics and Supply Chains] | A |
| 98 | Informatic skills (Other IT tools) [Data protection] | A |
| 36 | Mathematical skills (theoretical aspects) [Transport Optimization] | A |
| 14 | Managerial skills [Sales and service management] | A |
| 53 | Applied math & stat [Forecasting Techniques] | A |
| 51 | Mathematical skills (theoretical aspects) [Understanding and interpreting the data] | A |
| 55 | Applied math & stat [Data Visualisation Methods] | A |
| 3 | Managerial skills [Controlling in Supply Chain Management] | A |
| 23 | Mathematical skills (theoretical aspects) [Optimization Methods and Tools] | A |
| 92 | Informatic skills (Databases) [Software tools for data management] | A |
| 86 | Informatic skills (programming) [Artificial Intelligence and Machine Learning] | A |
| 89 | Informatic skills (Databases) [Data Mining and Data Warehousing] | B |
| 61 | Applied math & stat [Vehicle routing] | B |
| 8 | Managerial skills [Data Security Management] | B |
| 67 | Applied math & stat [Creation of Reports and Dashboards] | B |
| 56 | Applied math & stat [Statistics for Business Analytics] | B |
| 88 | Informatic skills (Different software tools) [GIS in logistics] | B |
| 85 | Informatic skills (programming) [General programming] | B |
| 90 | Informatic skills (Databases) [Designing the databases] | B |
| 82 | Informatic skills (data analytics) [Business Analytics Foundations including R, SQL, and Power BI software] | B |
| 9 | Managerial skills [Knowledge Management] | B |
| 16 | Managerial skills [Outsourcing (Make of Buy)] | B |
| 101 | Informatic skills (Other IT tools) [Blockchain Technologies] | B |
| 91 | Informatic skills (Databases) [SQL] | B |
| 70 | Informatic skills (simulations) [Business Process Modelling] | B |
| 35 | Mathematical skills (theoretical aspects) [Network Optimization] | B |
| 45 | Mathematical skills (theoretical aspects) [Statistics for Business Analytics] | B |
| 15 | Managerial skills [Lean Management] | B |
| 60 | Applied math & stat [Data Ethics and Data Security] | B |
| 7 | Managerial skills [Quality management] | B |
| 22 | Mathematical skills (theoretical aspects) [Operations Research] | B |
| 27 | Mathematical skills (theoretical aspects) [Large Scale Optimization] | B |
| 47 | Mathematical skills (theoretical aspects) [Discovering regularities in data] | B |
| 12 | Managerial skills [Mathematical models for Supply Chain Management] | B |
| 79 | Informatic skills (data analytics) [Data mining] | B |
| 93 | Informatic skills (visualisation) [Power BI] | B |
| 81 | Informatic skills (data analytics) [Python for Data Science] | B |
| 63 | Applied math & stat [Last Mile Delivery: data analytics and models] | B |
| 97 | Informatic skills (Other IT tools) [IoT and SCADA Technologies] | B |
| 17 | Managerial skills [Digital economics] | B |
| 80 | Informatic skills (data analytics) [Social Network Analysis] | B |
| 57 | Applied math & stat [Optimization models and heuristic methods for managing production systems] | B |
| 26 | Mathematical skills (theoretical aspects) [Advanced Mathematics for Decision Making] | B |
| 66 | Applied math & stat [Lean Six Sigma Statistical control] | B |
| 46 | Mathematical skills (theoretical aspects) [Correlation analysis] | B |
| 21 | Managerial skills [Six Sigma Techniques] | B |
| 78 | Informatic skills (data analytics) [Data analysis and R software packages] | C |
| 58 | Applied math & stat [Sampling and Experimental Design] | C |
| 59 | Applied math & stat [Spatial Statistics] | C |
| 40 | Mathematical skills (theoretical aspects) [Decision trees] | C |
| 64 | Applied math & stat [Game theory applied in logistics] | C |
| 6 | Managerial skills [Econometrics] | C |
| 20 | Managerial skills [Principles of Macroeconomics] | C |
| 43 | Mathematical skills (theoretical aspects) [Algorithm design] | C |
| 19 | Managerial skills [Principles of Microeconomics] | C |
| 83 | Informatic skills (data analytics) [Statistical data processing SPSS] | C |
| 48 | Mathematical skills (theoretical aspects) [Multivariate analysis] | C |
| 41 | Mathematical skills (theoretical aspects) [Pattern recognition] | C |
| 72 | Informatic skills (simulations) [Agent-based modelling and simulation] | C |
| 44 | Mathematical skills (theoretical aspects) [Introductory statistics] | C |
| 39 | Mathematical skills (theoretical aspects) [Neural networks] | C |
| 49 | Mathematical skills (theoretical aspects) [Hypothesis testing] | C |
| 84 | Informatic skills (data analytics) [Statistical Data processing SAS EG] | C |
| 37 | Mathematical skills (theoretical aspects) [Optimization using metaheuristics] | C |
| 38 | Mathematical skills (theoretical aspects) [Complex Systems] | C |
| 33 | Mathematical skills (theoretical aspects) [Modelling and Simulation of Dynamic Systems] | C |
| 34 | Mathematical skills (theoretical aspects) [Integer Programming] | C |
| 62 | Applied math & stat [Heuristics in analytics] | C |
| 65 | Applied math & stat [Stochastic Simulation] | C |
| 42 | Mathematical skills (theoretical aspects) [Genetic algorithms] | C |
| 68 | Informatic skills (simulations) [Discrete event simulation] | C |
| 94 | Informatic skills (visualisation) [Tableau] | C |
| 69 | Informatic skills (simulations) [Stochastic Modeling] | C |
| 25 | Mathematical skills (theoretical aspects) [Combinatorial optimization and metaheuristics] | C |
| 28 | Mathematical skills (theoretical aspects) [Inference fuzzy] | C |
| 50 | Mathematical skills (theoretical aspects) [Linear Regression with Single and Multiple Regressors] | C |
| 24 | Mathematical skills (theoretical aspects) [Process analysis and Petri nets] | C |
| 32 | Mathematical skills (theoretical aspects) [Dynamic Simulation of closed-loop systems] | C |
| 29 | Mathematical skills (theoretical aspects) [Game Theory] | C |
| 31 | Mathematical skills (theoretical aspects) [Latent Semantic Analysis] | C |
| 30 | Mathematical skills (theoretical aspects) [Latent Dirichlet Allocation algorithm] | C |

*Table 2. Top 10 BAS skills for Course 1(Advanced using of spreadsheet to analyze logistics data).*

|  |  |  |  |
| --- | --- | --- | --- |
| **Nu.** | **BAS skills** | **Competence** | **Course 1: Advanced using of spreadsheet to analyze logistics data** |
| 1 | Informatic skills (business intelligence tools) | Microsoft Excel | A |
| 2 | Informatic skills (business intelligence tools) | Spreadsheet analysis | A |
| 3 | Managerial skills | Supply Chain and Sourcing | A |
| 4 | Managerial skills | Inventory Management | A |
| 5 | Mathematical skills (theoretical aspects) | Transport Optimization | A |
| 6 | Applied math & stat | Optimization in Supply Chain Management | A |
| 7 | Applied math & stat | Forecasting Techniques | A |
| 8 | Applied math & stat | Data Visualisation Methods | A |
| 9 | Informatic skills (simulations) | Simulation of Logistics and Supply Chains | A |
| 10 | Managerial skills | Cost-Benefit Analysis for Business | A |
| 11 | Managerial skills | Controlling in Supply Chain Management | A |
| 12 | Managerial skills | Outsourcing (Make of Buy) | B |
| 13 | Mathematical skills (theoretical aspects) | Network Optimization | B |
| 14 | Applied math & stat | Optimization models and heuristic methods for managing production systems | B |
| 15 | Mathematical skills (theoretical aspects) | Dynamic Simulation of closed-loop systems | C |
| 16 | Mathematical skills (theoretical aspects) | Modelling and Simulation of Dynamic Systems | C |

*Table 3. Top 10 BAS skills for Course 2 (Business Intelligence).*

|  |  |  |  |
| --- | --- | --- | --- |
| **Nu.** | **BAS skills** | ***Competence*** | ***Course 2: Business Intelligence*** |
| *1* | *Informatic skills (Management systems)* | *Enterprise Resource Planning Systems (ERP)* | *A* |
| *2* | *Managerial skills* | *Sales and service management* | *A* |
| *3* | *Managerial skills* | *e-logistics* | *A* |
| *4* | *Mathematical skills (theoretical aspects)* | *Understanding and interpreting the data* | *A* |
| *5* | *Applied math & stat* | *Data Visualisation Methods* | *A* |
| *6* | *Informatic skills (simulations)* | *Simulation of Logistics and Supply Chains* | *A* |
| *7* | *Applied math & stat* | *Business Data Analytics* | *A* |
| *8* | *Informatic skills (business intelligence tools)* | *Big Data Research Methods* | *A* |
| *9* | *Informatic skills (business intelligence tools)* | *Big Data Systems* | *A* |
| *10* | *Informatic skills (business intelligence tools)* | *Software tools in logistics* | *A* |
| *11* |  |  |  |
| *12* | *Informatic skills (Databases)* | *Software tools for data management* | *A* |
| *13* | *Managerial skills* | *Data Management and Business Intelligence* | *A* |
| *14* | *Informatic skills (Management systems)* | *Integrated enterprise management (SAP, ERP)* | *A* |
| *15* | *Mathematical skills (theoretical aspects)* | *Statistics for Business Analytics* | *B* |
| *16* | *Managerial skills* | *Digital economics* | *B* |
| *17* | *Applied math & stat* | *Data Ethics and Data Security* | *B* |
| *18* | *Applied math & stat* | *Statistics for Business Analytics* | *B* |
| *19* | *Applied math & stat* | *Creation of Reports and Dashboards* | *B* |
| *20* | *Informatic skills (simulations)* | *Business Process Modelling* | *B* |
| *21* | *Informatic skills (data analytics)* | *Data mining* | *B* |
| *22* | *Informatic skills (Different software tools)* | *GIS in logistics* | *B* |
| *23* | *Informatic skills (Databases)* | *Data Mining and Data Warehousing* | *B* |
| *24* | *Informatic skills (visualisation)* | *Power BI* | *B* |
| *25* | *Managerial skills* | *Information Systems & Business Process Management* | *C* |
| *26* | *Mathematical skills (theoretical aspects)* | *Process analysis and Petri nets* | *C* |
| *27* | *Mathematical skills (theoretical aspects)* | *Neural networks* | *C* |
| *28* | *Mathematical skills (theoretical aspects)* | *Decision trees* | *C* |
| *29* | *Mathematical skills (theoretical aspects)* | *Pattern recognition* | *C* |
| *30* | *Mathematical skills (theoretical aspects)* | *Genetic algorithms* | *C* |
| *31* | *Applied math & stat* | *Stochastic Simulation* | *C* |
| *32* | *Informatic skills (simulations)* | *Discrete event simulation* | *C* |
| *33* | *Informatic skills (visualisation)* | *Tableau* | *C* |

*Table 4. Top 10 BAS skills for Course 3 (Statistical method to analysing a logistics data).*