



BUSINESS ANALYTICS SKILLS FOR THE FUTURE- PROOF SUPPLY CHAINS

QUALITY ASSURANCE OF BUSINESS INTELLIGENCE (C2)



Introduction

The *Business Intelligence* (C2) textbook and its accompanying teaching materials were developed for students, academic teachers, and professionals seeking to deepen their analytical skills in business and supply chain management. Building on the foundations established in the *Advanced Using Spreadsheets to Analyze Logistics Data* (C1) textbook, this publication provides a broader and more advanced perspective, covering key methods and tools for data-driven decision-making in complex business environments.

The content of this textbook was created as part of the *Business Analytics Skills for Future-proof Supply Chains* (BAS4SC) project, co-financed by the ERASMUS+ program. It integrates rigorous research on current educational programs and industry needs, ensuring that the knowledge and skills presented are directly relevant to modern business practice. By combining theoretical foundations with practical applications, this textbook allows users to develop advanced competencies in data analytics, business intelligence, process optimization, and decision support.

The textbook is organized into ten chapters, each focusing on critical aspects of business analytics in the context of logistics and supply chain management. Topics range from understanding and interpreting data, business data analytics, and data visualization. This structure enables readers to progress from foundational concepts to sophisticated analytical techniques, fully preparing them for real-world challenges. The authors consistently demonstrate how data analysis integrates into broader business decision-making, highlighting the importance of ethics and responsibility in information management. This approach makes the material both technical and reflective, providing practical guidance for real-world application.

The handbook is distinguished by its practical relevance. Frequent business examples help students understand the application of analytics in real-world environments, clearly linking the content to industry needs. *Business Intelligence* (C2) is the second of three publications developed within the BAS4SC project. It is designed not only as an academic resource but also as a professional guide that inspires independent analysis, the application of data-driven solutions, and the enhancement of decision-making in supply chains.



Textbook *Business Intelligence (C2)*

The purpose of this report is to present the results of a quality assessment of the *Business Intelligence (C2)* textbook conducted by a group of academic instructors. The analysis includes both quantitative ratings for each criterion and qualitative comments from lecturers. Particular emphasis was placed on evaluating the textbook's usefulness for teaching, its alignment with the curriculum, and its relevance to business needs.

Question: Are the chapters relevant to the title of the course?

The evaluation results indicate a very high degree of consistency between the content of the *Business Intelligence (C2)* textbook and the course title and scope. A full 82% of respondents felt that the chapters fully corresponded to the subject matter, demonstrating effective topic selection and proper organization. Eighteen percent of respondents rated it as "4," suggesting that certain sections could be more closely linked to the main course theme or include more explicit references to practical applications. However, this does not significantly affect the overall quality rating – the textbook is coherent, up-to-date, and consistently aligned with the program's objectives.

Comment:

The textbook reflects the course theme and objectives very well. The authors maintain a balance between theoretical content and the practical aspects of business analytics, making the material both understandable and useful for students. Minor clarifications in some chapters could further emphasize the connection between analytical tools and specific supply chain management processes.

Question: Is the textbook in the proper sequence of chapters?

The vast majority of lecturers (88%) found the textbook to have an appropriate and logical chapter order. This indicates that the book's structure is well thought out and supports the learning process – from an introduction to basic data analysis concepts to increasingly complex topics. The content layout allows readers to gradually deepen their knowledge, fostering a better understanding of the relationship between theory and practice. The 12% of



“4” ratings suggest that some respondents saw room for minor improvements in the layout to further enhance the clarity of the material.

Comment:

The textbook has been developed with a logical and didactically coherent structure. The chapter sequence reflects the natural progression of analytical skills, from basic to advanced applications. Minor adjustments to the layout may be considered to strengthen the connections between technical and applied chapters while maintaining the existing clarity and narrative flow.

Question: Is the textbook designed in a proper way (Is it edited according to the template)?

The evaluation results indicate that the textbook was very well developed and edited, in accordance with the adopted template and project standards. A full 76% of respondents awarded the highest rating, confirming that the publication is aesthetically pleasing, graphically consistent, and clearly organized. The standardized chapter format, along with consistent use of headings, tables, and examples, makes the textbook easy to use for both students and instructors. The 24% of “4” ratings may reflect minor technical or editorial observations that do not significantly affect the overall quality. Some respondents noted slight differences in layout between chapters or in the presentation of illustrations and charts.

Comment:

The textbook was developed professionally and in accordance with BAS4SC project requirements. Editorial consistency and clarity of design enhance the content, and the graphic structure supports the learning process. Attention will be paid to ensuring full consistency in template usage, so that all chapters maintain the same layout for visual elements and formatting styles.

Question: Are the references of the textbook up-to-date?

The majority of respondents (72%) felt that the textbook’s bibliography was up-to-date and accurately reflected the latest knowledge. The high percentage of “5” ratings indicates that the authors consciously used current scientific and industry sources, lending the publication a modern and credible character. References to recent research, reports, and



practical examples make the textbook useful in both academic and professional contexts. At the same time, the 28% of "4" ratings suggest that some evaluators saw opportunities to supplement the bibliography with newer works, which has since been addressed.

Comment:

The textbook's bibliography is up-to-date and well-aligned with the course's subject matter, confirming the authors' commitment to the publication's substantive quality.

Question: Are the pictures and tables in the textbook readable (resolutions)?

The evaluation results indicate an even split in opinion: half of the respondents (50%) found the illustrations and tables in the manual to be very clear and well-prepared in terms of graphic quality, while the remaining 50% rated them as "4," suggesting minor reservations. Overall, the clarity of the visual elements is good, though not entirely consistent throughout the publication.

Comment:

The manual demonstrates a good level of graphic quality. Images and tables are generally clear, but efforts have been made to ensure complete consistency in the resolution and format of all visual materials. Recommendations included greater standardization of chart styles, increased contrast in some tables, and improved quality of several illustrations, ensuring the overall clarity and aesthetic appeal of each chapter.

Question: Is the content of the textbook up-to-date?

The majority of respondents (72%) found the textbook's content to be up-to-date and reflective of the current state of knowledge. High scores confirm that the textbook effectively integrates contemporary scientific topics with practical business contexts. A rating of "4" was given by 28% of respondents, indicating that partial updates to selected sections may be needed.

Comment:

The textbook demonstrates a high level of current content, reflecting the authors' strong understanding of the latest scientific and technological trends. The publication is



consistent with current developments in logistics and data analytics. Steps have been taken to supplement the textbook with additional examples and empirical data to ensure alignment with the dynamically evolving technological and market environment.

Question: Is the content of the textbook useful for the business?

The evaluation results indicate a balanced opinion among respondents: half (50%) considered the manual's content very useful for business practice, while the other half (50%) rated it as good. This distribution suggests a high, though not unanimous, level of practical applicability. Evaluators particularly appreciated the combination of theoretical aspects with examples of applications in real-world logistics and analytical contexts. The slightly lower ratings ("4") may reflect expectations for additional implementation examples or case studies drawn directly from business practice.

Comment:

The manual effectively integrates theory and practice, providing a solid foundation of analytical knowledge useful in supply chain management and logistics. Steps have been taken to expand the practical section, further enhancing the publication's value as a guide for practitioners in the digital economy.

Question: Is the content of the textbook useful for the teachers (and enrich your courses)?

The majority of respondents (72%) considered the textbook a very useful teaching resource that enriches courses and supports the teaching process. The book is viewed as a modern teaching tool, enabling instructors to effectively introduce topics related to business analytics. Twenty-eight percent of respondents rated it as "4," which may suggest the need for minor improvements from a teaching perspective.

Comment:

The textbook is a valuable and up-to-date resource for academic instructors, supporting both the teaching of the theoretical foundations of business analytics and the development of



students' practical skills. The "4" ratings may reflect minor issues, but they do not significantly affect the overall positive assessment.

Question: Does the content of the textbook cover the aim of the project?

The vast majority of respondents (72%) assessed the content of the C2 manual as very closely aligned with the project's objectives. Evaluators emphasized that the publication effectively fulfills the project's goal of developing analytical competencies essential for modern supply chains. Ratings of "4" indicated that 17% of respondents noticed minor discrepancies between the manual's scope and the full range of project objectives. A single rating of "3" suggests that, in some areas, the content could be more closely integrated with the project's practical components.

Comment:

The handbook largely meets the project's objectives by combining up-to-date knowledge with practical analytical tools in the field of logistics and supply chain management. Additional work was undertaken to further strengthen the links between theoretical concepts and the project's research findings.

Question: Is the language of the textbook tailored to the business needs?

The vast majority of lecturers (72%) felt that the textbook's language was very well adapted to business needs. A rating of "4" indicates that 17% of lecturers identified some sections where the language could have been more practical or more closely aligned with business realities. A single rating of "3" may suggest that the respondent found the language sufficiently adapted but not fully optimized for applied contexts.

Comment:

The textbook's language is well aligned with business needs. The authors successfully balance academic rigor with a professional, practice-oriented tone.



Question: How do you assess the quality of the textbook translation?

The majority of respondents (72%) rated the quality of the textbook's translation as very good. The translation effectively conveys the meaning of key concepts in business analytics, logistics, and supply chain management. Ratings of "4" (11%) may reflect minor stylistic differences or sections where the translation could have been more precisely adapted. Similarly, the 11% of "3" ratings suggest that some instructors noticed passages that were less fluent or slight inconsistencies in terminology, which could occasionally affect full comprehension of the text.

Comment:

The textbook translation was completed to a high standard, ensuring clarity and terminological accuracy in the core areas of business analytics and logistics. Additional editing focused on achieving consistency in the use of technical terminology and maintaining a uniform style throughout the text.

Question: Can the content of the textbook be easily integrated with study program (of your courses)?

The vast majority of respondents (67%) rated the integration of the textbook content with their study programs as very easy ("5"). Four respondents (22%) gave a rating of "4," indicating that the materials generally fit well into their courses, with only minor adjustments needed. A single "3" rating (6%) suggests that, in isolated cases, partial adaptation might be required to fully align the textbook with existing curricula.

Comment:

The textbook's content integrates smoothly with university study programs. Its modular structure and clear organization facilitate incorporation into both theoretical and practical courses in logistics and supply chain management.



Question: Will you recommend this textbook to your colleagues?

The majority of respondents (76%) declared that they would definitely recommend the textbook to their colleagues ("5"). Four respondents (24%) gave a rating of "4," indicating that they would recommend it, though with contextual adaptation.

Comment:

The textbook is highly valued by lecturers and researchers, who recognize its academic and practical usefulness. Its clear structure, relevance to current supply chain challenges, and applicability in teaching make it a strong recommendation within the academic community.

General comments

Lecturers rated the textbook's quality and usefulness very highly. They noted that "this textbook has a very valuable message for both students and academic teachers," indicating that the publication has significant educational value and can be used both by academic teachers and for students' independent learning.

They emphasized that "the content of the textbook covers the most important aspects of using spreadsheets in business analytics," meaning that the publication addresses key topics in the field, focusing on the practical use of spreadsheets. As one review further noted, "the textbook shows both the theoretical aspect (e.g., formulas) and refers to the possibilities and ways of using them in spreadsheets," demonstrating a well-balanced combination of theory and practice.

Lecturers also pointed out that "the textbook uses understandable language" and that "the textbook meets business needs in a quite comprehensive manner." This suggests that the textbook is written in an accessible way and responds to the real needs of the business community. Other comments emphasized its high quality and relevance: "The textbook contains high-quality content. It is well tailored to analytical needs," and "The content has been adapted to the curriculum requirements for the business analyst specialization, making it a valuable educational supplement."

There were also general and highly positive remarks such as: "Very good work. The textbook will be very useful in working with students," "Great textbook!" "The book is of



excellent quality, with chapters containing a wealth of valuable information for students," and "Nice job. In my opinion, the book will be very useful for students."

The collected comments indicate that the textbook was highly rated in terms of quality, didactic value, and practical usefulness. Its content is consistent with the curriculum, responds well to business needs, and effectively supports the development of students' analytical skills..



Teaching materials *Business Intelligence* (C2)

Question: Are the materials relevant to the title of the course?

The majority of respondents (72%) rated the materials with a "5," confirming that they are highly relevant to the title and objectives of the course. Three respondents (17%) gave a rating of "4," indicating that while the materials are largely appropriate, some minor adjustments could further strengthen the link between the title and specific content areas. One respondent (6%) rated "3," suggesting that in isolated cases, the correspondence between certain modules and the course title could be improved.

Comment:

The materials accurately reflect the thematic scope and learning objectives implied by the course title. Their content is coherent, appropriately focused, and effectively supports the development of knowledge and skills in business analytics and logistics.

Question: Are the materials in the proper sequence?

The majority of respondents (76%) rated the sequence of the materials with a "5," confirming that the content is presented in a logical and pedagogically sound order. Three respondents (18%) gave a rating of "4," suggesting that while the overall structure is clear and coherent, minor adjustments in the order of selected sections could further improve the flow of topics.

Comment:

The materials are well-structured and follow a logical progression from theoretical foundations to practical applications. The sequence effectively supports the learning process and facilitates gradual skill development.



Question: Are the topics of case studies suitable for the course title?

The vast majority of lecturers (82%) rated the suitability of the case study topics as "5," confirming that they are highly relevant to the course title and objectives. Two lecturers (12%) gave a rating of "4," suggesting that some case studies could be slightly better aligned with specific course modules. One respondent (6%) rated this aspect as "3," indicating minor opportunities for improvement in ensuring full thematic consistency.

Comment:

The case studies are well-designed and effectively demonstrate the practical application of concepts covered in the course. They enhance students' understanding of analytical tools in logistics and business analytics. Further improvements could include adding examples that reflect emerging industry trends or region-specific business challenges.

Question: Are the materials designed in a proper way (Are they edited according the template)?

The majority of lecturers (76%) rated the design and editing of the materials as "5," confirming that they were prepared in accordance with the required template and demonstrated a high level of formatting consistency. Four lecturers (24%) rated them as "4," suggesting that minor adjustments could be made to improve the uniformity of the layout or the visual clarity of certain sections.

Comment:

The materials are carefully designed and professionally edited, fully adhering to the project's formatting and editorial guidelines. Minor corrections were introduced to further enhance the overall readability and visual consistency of the materials.

Question: Are the references of the materials up-to-date?

The majority of lecturers (59%) rated the bibliography in the course materials as "5," confirming that it is largely up to date and relevant to the current state of knowledge in logistics and business analytics. Three lecturers (18%) rated it as "4," suggesting that some references could be supplemented with more recent publications. Two respondents (12%) rated this



aspect as "3," and another two (12%) rated it as "1," indicating that certain sections may require a more comprehensive update of sources to reflect the latest research and industry trends.

Comment:

The bibliography in the course materials is generally up to date and well-aligned with the course content. Efforts have been made to update selected sections with more recent academic and industry publications, further enhancing their relevance and ensuring consistency with the latest developments in logistics, supply chain management, and data analytics.

Question: Are the pictures and tables in materials readable (resolutions)?

The majority of lecturers (59%) rated the readability and resolution of the pictures and tables a "5," confirming that they are clear, well-prepared, and visually legible. Seven lecturers (41%) rated this aspect a "4," suggesting that some visual elements could be slightly improved in terms of resolution or formatting for even better clarity and consistency.

Comment:

The visual materials — including pictures, charts, and tables — are generally of high quality and effectively support the understanding of analytical concepts. Minor adjustments were made to improve the resolution and layout of selected graphics, ensuring greater visual clarity and uniformity throughout the materials.

Question: Are software/tools described in materials user friendly?

The majority of lecturers (76%) rated the software and tools described in the materials a "5," confirming that they are user-friendly, clearly explained, and well-suited to students' needs. Four lecturers (24%) rated this aspect a "4," suggesting that some tools could benefit from additional examples or more detailed explanations to enhance usability.



Comment:

The descriptions of the software and analytical tools are clear, accessible, and well-structured, making them effective for teaching data analysis in logistics and business analytics. Additional clarifications and examples were introduced to further support students in applying these tools in practice.

**Question: Is it possible to prepare lectures and workshops
based on delivered materials?**

The majority of lecturers (76%) rated this aspect a "5," confirming that the provided materials are fully suitable for preparing both lectures and workshops. Respondents emphasized that the materials are comprehensive, logically structured, and include examples that can be directly applied in teaching. Four lecturers (24%) rated this aspect a "4,".

Comment:

The teaching materials provide a solid foundation for conducting both theoretical lectures and practical workshops. Their structure supports flexible use in different teaching formats, and additional examples have been included to strengthen the practical dimension of instruction.

Question: Is the content of the materials up-to-date?

The majority of lecturers (76%) rated the content of the materials a "5," confirming that it is up-to-date and reflects current trends in logistics, supply chain management, and data analytics. Three lecturers (18%) rated it a "4," indicating that some sections could be further supplemented. One respondent (6%) rated this aspect a "3,".

Comment:

The materials are largely current and aligned with contemporary developments in logistics and business analytics. Updates have been made to include recent research findings and industry reports, further enhancing the relevance and modern character of the course content.



Question: Is the content of the materials useful for the business?

The majority of lecturers (59%) rated the usefulness of the materials for business practice a “5,” confirming that the content provides practical tools and insights applicable to real-world logistics and supply chain management. Seven lecturers (41%) rated this aspect a “4,” suggesting that while the materials are highly relevant, some topics could be further expanded with more detailed business case examples or applications.

Comment:

The materials effectively combine theoretical knowledge with practical business applications. They support the development of analytical and decision-making skills essential for logistics professionals. Additional real-world examples have been incorporated to further strengthen their practical relevance.

Question: Is the content of the materials useful for the teachers (and enrich your courses)?

The vast majority of lecturers (76%) rated the usefulness of the materials for teaching a “5,” confirming that they are highly valuable for academic purposes and can significantly enrich their courses. Four lecturers (18%) rated this aspect a “4,” indicating that some elements could be better tailored to specific subjects or student proficiency levels. One respondent (6%) rated it a “3,” suggesting that the materials could include more diversified examples or teaching aids.

Comment:

The materials provide strong support for academic teaching, offering a solid theoretical foundation combined with practical analytical tools. Their structure and clarity make them easy to integrate into lectures and workshops. Additional examples and exercises have been developed to further enhance their teaching value.



Question: Does the content of the materials cover the aim of the project?

The majority of lecturers (82%) rated the alignment of the materials with the project's objectives as "5," confirming that the content effectively supports the goals of developing analytical competencies and practical skills in logistics and supply chain management. Three lecturers (18%) rated this aspect a "4," suggesting minor areas where the materials could more explicitly link certain modules to the overarching project objectives.

Comment:

The teaching materials comprehensively cover the aims of the BAS4SC project, integrating theoretical knowledge with practical applications. Some refinements were made to strengthen connections between individual modules and the overall project objectives, further enhancing their educational impact.

Question: Is the language of the materials tailored to the business needs?

The majority of lecturers (59%) rated the language of the materials as "5," confirming that it is well-adapted to business needs and effectively conveys specialized concepts in logistics and data analysis. Seven lecturers (41%) gave a rating of "4," indicating that while the language is largely appropriate, some sections could be further aligned with practical business contexts or made more accessible for professional use.

Comment:

The materials use clear, precise, and industry-relevant language, balancing academic rigor with practical applicability. Minor improvements were implemented to increase the alignment of terminology and examples with real-world business practices.

Question: How do you assess the quality of the materials translation?

The majority of lecturers (72%) rated the quality of the materials' translation as "5," indicating that the translation is accurate, clear, and effectively conveys the original content in



logistics, business analytics, and data analysis. Three lecturers (17%) gave a rating of "4," suggesting minor, while one lecturer (6%) rated it "3,".

Comment:

The translation of the materials is of high quality, maintaining both clarity and terminological accuracy. Additional editing was carried out to standardize technical terms and ensure a consistent style throughout the text.

**Question: Can the content of the materials be easily integrated
with study program (of your courses)?**

The majority of lecturers (71%) rated the content of the materials as easily integrable with their study programs, giving it a "5." Five lecturers (29%) rated it as "4," suggesting that in some cases minor adjustments may be needed to tailor the materials to the specifics of individual courses.

Comment:

The materials are largely compatible with typical curricula in logistics, supply chain management, and business analytics. Their structure and content allow for flexible integration into both theoretical and practical courses, with only minor adaptations required in some cases.

**Question: Will you recommend this materials to your
colleagues?**

The majority of lecturers (72%) indicated that they would definitely recommend the materials to their colleagues, rating this aspect as "5." Three lecturers (17%) gave a rating of "4," suggesting they would recommend the materials with minor reservations, and one lecturer (6%) rated it as "3," indicating more cautious endorsement.

Comment:

The materials are well-received by academic staff and considered valuable for teaching logistics, data analysis, and supply chain management. Their clarity, structure, and practical relevance make them suitable for recommendation, while minor adjustments could further enhance their appeal for broader use.



General comments

The teaching materials for Business Intelligence (C2) are generally well-prepared and aligned with the course objectives and project goals. Slides, exercises, and case studies provide clear, structured, and practical support, effectively linking theory with real-world applications in business analytics and supply chain management. Visuals, graphs, and diagrams enhance understanding, and the content covers key topics such as data analysis, machine learning, and business intelligence in depth.

Very good work. The materials will be very useful in working with students as part of practical exercises. They are technically robust, pedagogically valuable, and addressing the identified gaps will further enhance their effectiveness, making them a fully comprehensive resource.

Conclusions

The Business Intelligence (C2) textbook was carefully crafted and is consistent with the course objectives and the BAS4SC project. The content covers current topics in business analytics, logistics, and supply chain management, effectively combining theory and practice. The chapters are logically organized, guiding the reader from basic concepts to more advanced analytical methods, and the graphical presentation of the content is clear and consistent. The textbook's language is professional, clear, and relevant to both academic and business contexts, maintaining precise terminology, although some sections could benefit from simplification or standardization of terms such as "business analytics" and "business intelligence." The bibliography is current and well-selected, but it would be worthwhile to update it systematically with new publications and industry reports.

The teaching materials prepared for the C2 textbook are generally well-developed and aligned with the course scope and project objectives. The slides, exercises, and case studies provide clear, logical instructional support and effectively connect theory with practice in the context of business analytics and supply chain management. Visualizations, charts, and graphs facilitate the understanding of complex concepts such as the DIKW pyramid and data types, and the content covers key topics in depth. The materials include numerous practical examples and case studies that allow for the application of theory in real-world business contexts. At the same time, some gaps were identified and addressed. Minor typographical errors and



terminological inconsistencies require correction. Despite these shortcomings, the materials are technically and substantively sound, pedagogically valuable, and very useful for working with students in practical exercises. Completing the missing elements and correcting minor issues will make the materials a fully comprehensive and effective teaching tool.

Overall, the C2 textbook and teaching materials represent a high-quality, modern resource that combines theory with practice, supports the development of analytical skills, and facilitates integration into study programs. These corrections and additions will allow for the full utilization of their teaching and practical potential.