

## REVIEW

- By: *Prof. Krasimir Marinov Marinov, PhD*  
*University of National and World Economy*  
*Academic discipline: Marketing*
- Re: *Review of a doctoral thesis for the award of the academic degree of 'Doctor of Science' in Marketing at the Dimitar A. Tsenov Academy of Economics – Svishtov*
- Author of the dissertation: *Todor Borisov Krastevich*  
*Professor, PhD*  
*Dimitar A. Tsenov Academy of Economics – Svishtov*
- Thesis topic: *Customer Lifetime Value (Conceptual, Methodological and Applied Aspects)*

*Reason for submitting the review:* participation in the academic jury for the defence of the doctoral thesis in accordance with Order No. 253/25 March 2026 of the Rector of Dimitar A. Tsenov Academy of Economics – Svishtov

### 1. Information about the author

Prof. Todor Krastevich submitted his doctoral thesis for discussion to the Department of Marketing at the Faculty of Management and Marketing of Dimitar A. Tsenov Academy of Economics – Svishtov, in accordance with Article 39 of the Regulations for the Implementation of the Law on Academic Staff. The procedure for the defence of the doctoral thesis was initiated pursuant to Article 89(6) of the Regulations on the Development of Academic Staff at Dimitar A. Tsenov Academy of Economics – Svishtov and a decision of the Faculty of Management and Marketing, Minutes No. 6/25 March 2026.

Prof. Krastevich graduated with a degree in 'Economics and Industrial Management' from Dimitar A. Tsenov Academy of Economics – Svishtov in 1990. In 1997, he was awarded the academic and scientific degree of 'Doctor' in Marketing by the Higher Attestation Commission. From 1990 to 1999, Prof. Krastevich served successively as Assistant Lecturer, Senior Assistant Lecturer and Principal Assistant Lecturer at the Academy of Economics, and in 1999 he received his first habilitation – the academic title of "Associate Professor" in Marketing from the Higher Attestation Commission. In 2023, he was appointed to the

academic post of 'Professor' in Marketing at the University of National and World Economy. Since 2022, he has also been an honorary professor at the University of National and World Economy, and since 2024, an honorary professor at the University of Economics – Varna.

Prof. Krastevich's professional development has been accompanied by numerous training courses and specialisations, including those at the University of Passau in Germany (several courses of varying durations); at Christian-Albrechts-Universität zu Kiel in Germany; and at the Vienna University of Economics and Business in Austria. Among the training courses he has attended are those offered by ESSEC Business School, DATACAMP, LinkedIn, Udacity and others.

Prof. Krastevich has held a number of senior positions, including Vice-Rector for Research and Project Activities at the D. A. Tsenov Academy of Economics – Svishtov; Head of the Marketing Department at the same university; Director of the Centre for Vocational Training at the Academy; Director of the Centre for Postgraduate and Part-time Education at the D. A. Tsenov Academy of Economics – Svishtov; Member of the Standing Committee on Economic Sciences and Management at the National Agency for Academic Accreditation and Evaluation.

## 2. General description of the submitted thesis

The presented dissertation comprises 320 pages and consists of an introduction (12 pages), five chapters (209 pages in total), a discussion of the results (3 pages), an epilogue (2 pages), appendices (66 pages) and references (18 pages). In terms of its length and structure, the thesis meets parameters that are acceptable and within the usual range for such academic works.

In the introduction, the author, following good practice, has presented the rationale and methodological framework of his thesis.

As regards *the topicality of the subject and the significance of the research*, it can undoubtedly be argued that both are present. The author has very aptly organised the arguments supporting this claim into three main points. *Firstly*, customer lifetime value acts as a unique link between strategic marketing and customer relationship management, as it allows customer management decisions to be tied to the long-term return on marketing investment. *Secondly*, customer lifetime value is linked to the digital transformation of organisations, whereby the latter have access to an exceptionally wide range of data on their customers, who, moreover, exhibit multi-channel consumer behaviour. This requires the refinement of analytical models capable of handling data that is so diverse in nature and non-linear in its causal relationships. *Thirdly*, in the context of the expanding influence of machine learning on a vast number of decisions in the world around us, this study examines the impact

of this trend on the modelling of customer lifetime value.

I would summarise the author's arguments regarding the importance of customer lifetime value and link them to the growing demand for greater efficiency in marketing expenditure. It is precisely the modelling and tracking of customer lifetime value that makes it possible to manage marketing expenditure in line with the expected long-term benefit of the company's relationship with its customers.

The object and subject of the research are correctly formulated and correspond to the research contained in the thesis. *The object of the thesis* is the processes of assessing, forecasting and utilising customer lifetime value in customer relationship management, whilst *the subject of the research* is the development, testing and comparative analysis of models for forecasting customer lifetime value, with a focus on machine learning algorithms.

Formulation of *the objective* — to assess the extent to which predictive machine learning approaches can improve the predictive accuracy and business utility of models for estimating and forecasting customer lifetime value, by developing and testing a corresponding methodological framework — is precise and appropriate to the chosen subject and object of the study.

The author operationalises this objective through four sub-objectives and a number of specific tasks. Six **research hypotheses** have been developed, combining theoretical soundness, empirical testability and managerial relevance, based on the distinction between contractual and non-contractual relationships and the continuous versus discrete occurrence of transactional opportunities. *The sub-objectives* of the study, as formulated by the author, are: (1) a theoretical and conceptual understanding of customer lifetime value; (2) an analysis of methodological and theoretical diversity; (3) an assessment of empirical application and validation; and (4) the derivation of managerial conclusions.

The research hypotheses and sub-objectives are sufficiently specific; their fulfilment enables the achievement of the main objective; and they guide the research in the right direction.

*The academic literature* consulted comprises 264 sources of information and literature — books and monographs; articles in academic journals and papers from academic conferences. The literature is in English. The number of cited sources is impressive and fully meets the requirements for such a scientific work. The bibliography is entirely relevant to the object and subject of the research and reflects contemporary achievements regarding the lifetime value of the customer. The analysed academic sources attest to the author's excellent knowledge of the subject matter of the thesis.

### 3. Assessment of the scientific and applied research results

The structure of the presented work reflects the logical completeness of the research and expresses the existing links and interdependencies between the elements of the exposition – both between the individual chapters and between the points within them. The logical arrangement of the chapters enables the author to pose the precise questions regarding the research problem and to draw accurate conclusions concerning the customer's lifetime value. The author's language is characterised by a precise, highly academic style; at the same time, the exposition is elegant, easy to read and understandable, despite the complex concepts presented.

The *first chapter* lays the foundations for the entire study through an analysis and synthesis of the literature on customer lifetime value. The latter is presented as a concept representing the intersection of marketing, finance and customer relationship management. The analysis of existing understandings of customer lifetime value in published studies has enabled the author not only to construct and justify his own understanding of this construct, but also to produce one of the research findings in this chapter – the analytical typology of definitions for the concept under consideration.

This section of the work also presents the development of the concept within the context of marketing science. The author's contribution lies in linking the evolution of the concept to the development of approaches for calculating lifetime value, including the distinction made at the beginning of the 21st century between deterministic, probabilistic and econometric approaches, and, following the end of the first decade - the emergence of big data and cloud-based CRM systems.

Another scientific finding in the first chapter of the work is the argumentation regarding the managerial benefits of this concept. The use of lifetime value is advocated as a means of prioritising customers, for segmentation by economic significance, for optimising marketing expenditure, and as a basis for strategic goal-setting.

Other scientific findings in the first chapter of the thesis include the systematisation of indicators related to customer lifetime value, such as acquisition costs, retention costs, margin, return on investment, customer equity and referral value, as well as the identification of ethical and managerial considerations that impose requirements for transparency, interpretability and the responsible use of lifetime value-based models.

The *second chapter* develops a typology of customer lifetime value models. The main categories include deterministic, heuristic and rule-based models, probabilistic (stochastic) models, machine learning models, deep neural network models and hybrid models. The scientific result obtained is not limited to the typology of models, but includes a classification based on an analysis of the models according to their theoretical foundations, assumptions,

data requirements, strengths and weaknesses, as well as typical application scenarios.

A significant scientific result in this part of the thesis is the author's well-argued view that model selection is a function of the context, the data, the time horizon, the need for interpretation, and the organisation's readiness to implement one model or another. Of particular importance to this chapter is the established link between the types of models and the software solution, i.e. the clarity regarding the application of practically usable tools.

*The third chapter* contains an analysis of the applicability of customer lifetime value models in contractual and non-contractual contexts. The research finding in this section is the argumentation of the differences between contractual and non-contractual relationships and how these differences determine the identification of customer churn, the construction of the target variables and the validity of the model assumptions. It is shown that in the contractual regime, churn is observable and can be modelled as an event, whereas in the non-contractual regime, churn is latent and is inferred probabilistically, which necessitates specific models for assessing whether the customer is alive and for forecasting future transactions.

A further result in the third chapter is the conceptual clarification of purchasing processes depending on whether transaction opportunities arise continuously or discretely, which is critical when selecting an appropriate model.

*The fourth chapter* of the thesis presents the methodological framework for modelling customer lifetime value. It sets out how to construct a reliable analysis of customer lifetime value, including: what exactly constitutes a component of the model; what assumptions are made; how the data is prepared; what metrics are used to evaluate the models; and where the uncertainties lie in current scientific and applied practice.

The scientific result in this chapter is the multi-criteria logic developed for evaluating the models, which is not limited to a single forecast error but includes accuracy, calibration, uncertainty assessment, ranking efficiency and managerial interpretability.

In the final, *fifth chapter* of the thesis, the empirical- analytical findings of the thesis are put into practice through the creation of prototype models for forecasting customer lifetime value, including probabilistic modelling, extension with a monetary component, and discounting; the creation of prototypes of an ML-based model of customer lifetime value and a Bayesian model of customer lifetime value, followed by a comparative analysis of the approaches. A ready-made transaction dataset is used as the empirical basis, on which the standard modelling steps are demonstrated and a consistent protocol for training, forecasting and validation is implemented.

The main scientific result in this part of the thesis is the justification of a comprehensive and methodologically sound procedure – from the preparation of data and features, through modelling and forecasting, to diagnostics, comparison and the identification of managerial insights from the results – which allows for full reproducibility.

Everything noted above regarding the scientific and applied scientific results achieved gives me grounds to conclude that *the tasks set have been fulfilled, and with this, the aim of the thesis has been achieved.*

#### **4. Assessment of scientific and applied scientific contributions**

In the abstract, the author of the thesis has outlined seven contributions, namely:

1) Conceptual and historical consolidation of customer lifetime value as an economic and managerial construct.

2) Development of a systematic typology of customer lifetime value models and criteria for a methodologically sound selection.

3) A contextual framework for customer lifetime value in contractual and non-contractual relationships and operational implications for modelling.

4) A documented methodological framework for modelling and validating customer lifetime value, focused on time, calibration and interpretability.

5) An empirical comparison of probabilistic and machine learning approaches on a real-world dataset under uniform validation conditions.

6) Methodological validation of the Bayesian perspective as a means of managing uncertainty and diagnosing the suitability of customer lifetime value models.

7) Reproducible application protocols in two contextual environments and a reflexive framing of customer lifetime value in the era of artificial intelligence.

I accept that all the contributions listed above are present in the thesis. Their concise and synthesised formulation is impressive.

#### **5. Assessment of the publications related to the dissertation**

As evident from the materials presented, Prof. Krastovich cites 12 publications on the thesis topic. In this review, I have not reproduced the publications, as the author's draft, together with the abstract, was available and everyone has familiarised themselves with them.

The publications are on the subject of the thesis and present substantial parts of the work to the scientific community. Prof. Krastovich's publications are impressive. In terms of their type and volume, they not only meet but in fact far exceed the minimum national requirements for the award of the academic degree of 'Doctor of Science'.

The extent to which the results have been disseminated in the scientific literature is entirely satisfactory.

## 6. Assessment of the thesis abstract

The abstract is 34 pages long. It is presented in Bulgarian and English. The abstract contains all the necessary elements. It accurately, comprehensively and appropriately reflects the content of the thesis.

## 7. Critical comments, recommendations and questions

I have no critical comments or questions. I have only one recommendation, but it is not directed at the author of the thesis, but at the heads of the Marketing departments at the three main economic universities in Bulgaria: the University of National and World Economy, the University of Economics – Varna and the Academy of Economics in Svishtov. My recommendation is that the subject ‘Modelling the Lifetime Value of Customers’ be added to the list of elective modules for PhD students at the three universities, and that Prof. Krastevich’s monograph ‘The Lifetime Value of the Customer’ from 2025 to be recommended as a resource for preparation for this module. This dissertation, as well as Prof. Krastevich’s monograph, should certainly reach all colleagues with research interests in Marketing.

## 8. Conclusion

The presented dissertation is an independently conducted scientific study on a problem of current relevance to both theory and practice. It has been developed by a scholar of erudition, with unquestionable academic training and a distinguished researcher in marketing, customer relationship management, modelling and forecasting. The work contains clearly defined results and scientific contributions that meet the requirements for such a scientific work. The author has met and exceeded the minimum national requirements for the award of the academic degree of ‘Doctor of Science’.

*All of the above gives me grounds to recommend to the distinguished academic jury that the academic degree of ‘Doctor of Science’ in the academic discipline of ‘Marketing’ be awarded to Prof. Todor Borisov Krastevich.*

*I myself will vote wholeheartedly ‘Yes’.*

8 April 2026 / Sofia

Prof. Krasimir Marinov | PhD (