

# GTBMC

Global Technology and  
Business Management  
Conference

“Technologies changing  
the future of business”

**23**  
November  
2023

Chiang Mai Marriott Hotel  
Chiang Mai, Thailand





**GTBMC**

Global Technology and Business Management Conference

**GTBMC 2023**

Global Technology and Business Management Conference

**Global Technology and Business Management Conference  
(GTBMC 2023)**

**The 12<sup>th</sup> International Conference by Faculty of Business  
Administration, Chiang Mai University**

**22 – 24 November 2023**

**Venue: Chiang Mai Marriott Hotel  
Chiang Mai, Thailand**

**Organized by Electrical Engineering Academic Association  
(Thailand) and Faculty of Business Administration,  
Chiang Mai University**



## **Message from Dean of Faculty of Business Administration Chiang Mai University**

In representative of the Faculty of Business Administration Chiang Mai University, Chiang Mai, THAILAND proudly welcomes all participants of the Global Technology and Business Management Conference: GTBMC 2023.

In 2021, the Faculty of Business Administration Chiang Mai University and the Electrical Engineering Academic Association (Thailand) or EEAAT, agreed to expand the scope of the conference by integrating the areas of Business and Engineering and Technology (Eng & Tech) together. We believe that knowledge in business can be efficiently applied to any kind of business and industry, particularly in Engineering and Technology sectors. We are also confident that this trend is very much essential not only for academic but industry when the disruption keeps coming along with the time through the digital era. Then, the 12<sup>th</sup> International Conference by the Faculty of Business Administration Chiang Mai University becomes the Global Technology and Business Management Conference (GTBMC) for the debut in 2023.

Once again academic experts, business people, graduate students and representatives from government agencies and private organizations join us to enrich knowledge and understanding through research exchange as well as building up networks for further academic cooperation. In addition, the forum provides a venue to publish academic papers.

The conference encompasses papers including themes which are: 1) Business Management, Marketing, Finance and Accounting 2) Technology Management 3) Other related topics in Technology and Business Management

This year distinguished guest speakers, Professor Dr. Paul Gordon Patterson, School of Marketing, University of New South Wales, Australia has kindly accepted our invitation to give a keynote lecture on “Artificial Intelligence (AI) – A Case Study in a Professional Services Context”.

I would like to express my sincere gratitude to the distinguished keynote speaker, panelists, and presenters for their presence and contributions to the conference. I also thank all the program committee members for their efforts in ensuring a rigorous review process to select high-quality papers.



(Assistant Professor Dr. Khongphu Nimanandh)  
Dean of Faculty of Business Administration  
Chiang Mai University  
Chiang Mai, THAILAND



## Message from the GTBMC Program Chair

In order to disseminate knowledge and accelerate professional learning and collaboration at the 2023 Global Technology and Business Management Conference, GTBMC, in Chiang Mai, we had planned to bring together scholars' network with practitioners in the area of both technology and business management. GTBMC takes great pride in providing unparalleled and innovative interdisciplinary conference in this year. It gives me great pleasure to write this forward to congratulate the 2023 GTBMC. Especially, this is our 12<sup>th</sup> International Conference organized by Faculty of Business Administration Chiang Mai University. With very special occasion in this year, we work closely with our valued co-host, Electrical Engineering Academic Association (Thailand), EEAAT, in arranging the 2023 GTBMC on 22 – 24 November 2023 at Le Méridien Chiang Mai hotel, Thailand.

For this year, the conference brings together representatives from various sectors, and encompasses manuscripts in various topics related to business, technology, and innovation management for today's context. I would like to thank the technical program chairs and committee for their dedication and care about every step in the review process. The success of this conference falls on volunteers to leverage the talent we have. I would like to express my sincere thanks to all stakeholders especially contributing authors, GTBMC Committee, EEAAT, and Faculty of Business Administration Chiang Mai University for their passion and contribution.



(Associate Professor Dr. Narumon Kimpakorn)  
GTBMC Program Chair  
Faculty of Business Administration, Chiang Mai University  
Chiang Mai, THAILAND



## **Global Technology and Business Management Conference: GTBMC 2023 The 12<sup>th</sup> International Conference by Faculty of Business Administration Chiang Mai University**

### **Principle & Rationale**

The vision of the faculty of business administration at Chiang Mai University is to focus on enhancing the academic knowledge of business management. The faculty encourages the creation and development of ongoing research to academic scholars and students. This would lead to the expansion of new knowledge in managing a business which can provide a benefit to the profession itself, the local community, and industries nationwide. The business administration conference is one of the methods in disseminating knowledge by the Board of Administration.

Chiang Mai University has heeded to the importance of endorsing the development and propagation of knowledge. The effort is demonstrated in producing a channel to have participants from the private business sector, government institutions, and academic research centers to come together and exchange their experiences and ideas as well as collaborate on upholding the profession of business management. Under the provision of Chiang Mai University, the business management research conference has continued on from 2008. The conference has received accolades from the participants of the seminar.

Therefore, it is the aim of the institution to strengthen the academic administration line in providing leadership and knowledge in business management. Moreover, the purpose of creating this forum is to disseminate knowledge in the business management. This is to stimulate a continuation of ideas being exchanged between academics, researchers, and students who are extending their studies on the master's and doctorate in business management and other related fields.

In 2021, Faculty of Business Administration Chiang Mai University (CMU Business School (CMUBS)) and the Electrical Engineering Academic Association (Thailand), or EEAAT, agreed to expand the scope of the conference by integrating the areas of Business and Engineering and Technology (Eng & Tech) together. We believe that knowledge in business can be efficiently applied to any kind of business and industry particularly in Engineering and Technology sectors. We are also confident that this trend is very much essential not only for academic but industry when the disruption keeps coming along with the time through the digital era. Then, the 12<sup>th</sup> International Conference by Faculty of Business Administration Chiang Mai University becomes the Global Technology and Business Management Conference (GTBMC) for the debut in 2023.

### **Objectives**

- To promote the academic center's view of business management in every possible area such as Engineering and Technology, and Business itself.
- To promote the development of research which will lead to create innovation and on the application of knowledge management as a benefit for technology and business management in the community up to the international level.
- Creating opportunity to exchange knowledge, vision and experience in developing research in technology and business management.

## **Research areas**

- Business Management, Marketing, Finance and Accounting
- Technology Management
- Other related topics in Technology and Business Management

The committees will be judging the “Best Paper Award” for the articles that are presented at the forum. The work must be in accordance with article quality criteria of the experts and the seen as unique, based on assessment ratings from the experts. Final decisions will be made by the Conference Committee.

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**GTBMC 2023**

Global Technology and Business Management Conference

**Agenda****Global Technology and Business Management Conference: GTBMC 2023****23 November 2023****Venue: Chiang Mai Marriott Hotel, Thailand****Organized by the Electrical Engineering Academic Association (Thailand) (EEAAT) and  
Faculty of Business Administration Chiang Mai University****Time (BKK) UTC+7**

<b>22 November 2023 Wednesday</b>	
13.00 - 14.00 hrs.	Executive Meeting Sign-in
14.00 - 17.00 hrs.	GTBMC Executive Meeting
17.00 – 18.30 hrs.	<i>Pre-Conference Registration</i>
<b>23 November 2023 Thursday</b>	
08.30 – 09.00 hrs.	Registration (in front of the Grand Ballroom, 2 <sup>nd</sup> floor)
09.00 – 09.20 hrs.	<b><u>Welcome Remarks &amp; Group Photos</u></b> by Assistant Professor Dr. Khongphu Nimanandh Dean of Faculty of Business Administration, Chiang Mai University
09.20 – 10.20 hrs.	<b><u>Topic:</u> “Artificial Intelligence (AI) – A Case Study in a Professional Services Context”</b> <b>Keynote Speaker:</b> Professor Dr. Paul Gordon Patterson Professor at School of Marketing, UNSW Business School and Visiting Professor at CMUBS
10.20 – 10.40 hrs.	<b>Q &amp; A</b> <b>Lucky draw</b>
10.40 – 11.00 hrs.	Coffee Break (in front of the Grand Ballroom, 2 <sup>nd</sup> floor)
11.00 – 12.00 hrs.	<b>Seminar Presentation</b> (presentation 15 min., Q&A 5 min./paper) <b>GTBMC #1</b> : Excursion room, 3 <sup>rd</sup> floor
12.00 - 13.30 hrs.	Lunch
13.30 – 14.50 hrs.	<b>Seminar Presentation</b> (presentation 15 min., Q&A 5 min./paper)

# GTBMC 2023

Global Technology and Business Management Conference



## Agenda

**Global Technology and Business Management Conference: GTBMC 2023**

**23 November 2023**

**Venue: Chiang Mai Marriott Hotel, Thailand**

**Organized by the Electrical Engineering Academic Association (Thailand) (EEAAT) and Faculty of Business Administration Chiang Mai University**

### Time (BKK) UTC+7

	<b>GTBMC #1</b> : Excursion room, 3 <sup>rd</sup> floor
14.50 – 15.10 hrs.	Coffee Break (in front of breakout room, 3 <sup>rd</sup> floor)
15.10 - 16.30 hrs.	<b>Seminar Presentation</b> (presentation 15 min., Q&A 5 min./paper) <b>GTBMC #1</b> : Excursion room, 3 <sup>rd</sup> floor
16.30 – 21.00 hrs.	<ul style="list-style-type: none"> <li>• Announcement of Awards and Closing Remarks</li> <li>• Banquet and Networking</li> </ul>
<b>24 November 2023 Friday</b>	
09.00 - 09.30 hrs.	Registration
09.30 – 16.30 hrs.	<b>Cultural Experience:</b> Old-Town Chiang Mai City Tour to explore the rich history and culture (extra paid and optional)

### GTBMC 2023 Oral Presentation Schedule

Time(BKK) UTC+7	GTBMC 1 Excursion
11.00 – 11.20 hrs.	<b>Paper ID: A1</b> A Conceptual Energy Demand Forecasting Framework for Optimized Demand Management: A Systematic Review
11.20 – 11.40 hrs.	<b>Paper ID: A2</b> Application of State Space Search for an Intelligent Maintenance System in Factory Automation (Case Study of Electric Wire Factory)
11.40 – 12.00 hrs.	<b>Paper ID: A3</b> Analyzing the Value Chain of International Apparel Trade: A Case Study of Thailand-Myanmar Border Trade in the Upper Northern Region
12.00 – 13.30 hrs.	Lunch
13.30 – 13.50 hrs.	<b>Paper ID: A4</b> A Conceptual Model of Digital Content Valuation with a Multi-Criteria Decision-Making Method for P2P Lending Platforms
13.50 – 14.10 hrs.	<b>Paper ID: A5</b> Estimating the Province-Level Number of the Labor Force in Thailand and Whether Labor Shortage Occurs
14.10 – 14.30 hrs.	<b>Paper ID: A6</b> Innovation Model of Crime Mapping in Prevention and Suppression of Human Trafficking
14.30 – 14.50 hrs.	<b>Paper ID: A7</b> The Influence of Organizational Career Management on Organizational Commitment of Hotel Employees in Songkhla Province: The Mediating Role of Career Satisfaction
14.50 – 15.10 hrs.	Coffee-Break
15.10 – 15.30 hrs.	<b>Paper ID: A8 (Online)</b> Examining Consumer Satisfaction in Social Commerce of Fashion Product Shopping: An Empirical Study in Bangladesh
15.30 – 15.50 hrs.	<b>Paper ID: A9</b> CEO Duality and Firm Performance in Thai Family Firms: A Complex Relationship with Earnings Management
16.30 – 17.00 hrs.	Announcement of Awards and Closing Remarks
17.00 – 20.00 hrs.	Banquet and Networking

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**GTBMC 1 Excursion room, 3<sup>rd</sup> floor**

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**Moderators**

**A1 – A3**      Assistant Professor Dr. Warat Winit  
**A4 – A9**      Dr. Damrongsak Naparat





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# A CONCEPTUAL ENERGY DEMAND FORECASTING FRAMEWORK FOR OPTIMIZED DEMAND MANAGEMENT: A SYSTEMATIC REVIEW

*Lanchaya Chitchaitheekul\* Veera Muangsin\*\* Chupun Gowani\*\*\* and Jakkrit Thavorn\*\*\*\**

## ABSTRACT

This article explores the evolving landscape of electric energy management focusing on Demand-side Management (DSM) in the context of increasing electricity demand and the emergence of prosumers. A systematic literature review spanning 2005-2022 reveals critical factors influencing the efficiency of photovoltaic (PV) systems. The study highlights the importance of forecasting electricity demand accurately and proposes a conceptual DSM model utilizing machine learning and environmental factors. This research contributes to the efficient management of electricity demand, particularly in the era of prosumer-driven renewable energy generation.

**Keywords:** Demand-Side Management, Demand Response, Renewable Energy, Optimization, Technology Management

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# APPLICATION OF STATE SPACE SEARCH FOR AN INTELLIGENT MAINTENANCE SYSTEM IN FACTORY AUTOMATION (CASE STUDY OF ELECTRIC WIRE FACTORY)

*Nuttawan Thongtam<sup>\*</sup> Sukree Sinthupinyo<sup>\*\*</sup> and Achara Chandrachai<sup>\*\*\*</sup>*

## ABSTRACT

Intelligent maintenance systems for industrial automation (IMS) are now widely used and developed rapidly following the growth of Industry 4.0. Machine Learning Deep learning and data science technology. This enables problem-solving algorithms and can develop a variety of techniques to be applied to solve complex problems to increase business competitiveness. In this case study of electric wire factory uses a search algorithm to assist predictive maintenance (PDM) using data derived from the SCADA system that receives values from sensors. IIOT was installed on the machine and data from the spare parts database, which contains a large number of important spare parts. The result of using the state space search algorithm to optimality will help find the optimal solution and introduced Risk Priority Number (RPN) data is presented to guide quick and accurate decision-making.

**Keywords:** Intelligent Management System (IMS), Supervisory Control and Data Acquisition (SCADA), Industrial Internet of Things (IIOT), State Space Search, Optimality, Failure Mode Effect Analysis (FMEA), Predictive Maintenance (PDM), Industrial AI

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# ANALYZING THE VALUE CHAIN OF INTERNATIONAL APPAREL TRADE: A CASE STUDY OF THAILAND-MYANMAR BORDER TRADE IN THE UPPER NORTHERN REGION

*Jhirakun Laaomoor\* and Wirachchaya Chanpuypetch\*\**

## ABSTRACT

This study aims to thoroughly investigate and analyze the apparel supply chain network and value chain within the context of Thai apparel entrepreneurs operating in the Thailand-Myanmar border trade region in the upper northern area. To conduct this analysis of the international apparel trade's value chain, the researchers adopted Porter's Value Chain framework. The primary data collection involved engaging supply chain stakeholders in the Thailand-Myanmar border trade region through in-depth interviews, facilitated by a questionnaire-based design rooted in the supply chain and value chain concepts. Building upon empirical data, the study constructed an AS-IS supply chain and value chain model specific to the international apparel trade operating in the Thailand-Myanmar border trade zone. This model systematically investigates the supply chain from its upstream phase to the midstream and downstream segments of the apparel industry. Moreover, it meticulously examines the value chain activities encompassing both primary and supporting functions within the current operational context (AS-IS). Through this analysis, the challenges inherent in this business context have been identified and cataloged. This identification of challenges serves as the basis for formulating strategies and directions aimed at overcoming these obstacles. The ultimate goal is to enhance the competitive advantages and ensure the sustainability of apparel businesses operating within the Thailand-Myanmar border trade region.

**Keywords:** Value Chain, Supply Chain, Apparel Industry, International Trade, Thailand-Myanmar Border Trade

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# A CONCEPTUAL MODEL OF DIGITAL CONTENT VALUATION WITH A MULTI-CRITERIA DECISION-MAKING METHOD FOR P2P LENDING PLATFORMS

*Yaowalak Thanaphatthanapanyachot\** *Nongnuj Muangsin\*\** *Veera Muangsin\*\*\**  
*Chupun Gowanit\*\*\*\** *and Jakkrit Thavorn\*\*\*\*\**

## ABSTRACT

The primary objective of this article is to elucidate the outcomes resulting from a comprehensive review of relevant literature. Our aim is to develop a well-rounded conceptual framework for the systematic evaluation of the intrinsic value of digital content. This evaluative framework is built upon the application of a multi-criteria decision-making methodology.

The framework's principal utility lies in serving as a seminal point of reference for assessing the value of collateralized assets within the realm of peer-to-peer (P2P) lending platforms. The proposed framework sheds light on the intricate integration of digital content data in value appraisal, cross-referencing, and decision-making. This integration is strategically designed to provide essential insights to prospective lenders who are involved in P2P platform-based lending activities.

**Keywords:** Digital Content Valuation, Multi-Criteria Decision-Making Method, P2P Lending

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# ESTIMATING THE PROVINCE-LEVEL NUMBER OF THE LABOR FORCE IN THAILAND AND WHETHER LABOR SHORTAGE OCCURS

*Yuzuru Utsunomiya\**

## ABSTRACT

The purpose of this study is to estimate the province-level labor force in Thailand to consider whether a labor shortage occurs. In particular, we focus on its stability, trend, and spatio-temporal deviation. To estimate the labor force, we applied the state space method while decomposing the transition of the labor force into three components: human resource stock, trend, and spatio-temporal fluctuation. Our target period is between 1994 and 2020, including two serious socioeconomic events: the Asian financial crisis of 1997 and the Lehman shock of 2007. We obtained the following results: First, the human resource stock dominates the labor force. Second, the positive trend increases slightly. Finally, the deviation of the human resource stock is significantly smaller than that of the observable labor force. We conclude that labor shortages have occurred at least since before the Asian financial crisis and will remain from now. Moreover, the accessibility and quality of the Labor Force Survey should be improved to decrease fluctuation derived from non-sampling errors.

**Keywords:** Labor Force, Thailand, State Space Method, Dominant Stock and Slight Increase, Non-Sampling Error

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# INNOVATION MODEL OF CRIME MAPPING IN PREVENTION AND SUPPRESSION OF HUMAN TRAFFICKING

*Chaichana Suriyawong\* Sukree Sinthupinyo\*\* and Sipat Triukose\*\*\**

## ABSTRACT

The prevention and suppression of human trafficking is a crucial and challenging task for law enforcement authorities. Applying innovations such as geographic crime mapping by analyzing human trafficking case data, combined with Social Network Analysis (SNA) techniques, and using visualizations or crime mapping techniques, presents a clear understanding of data that can be effectively utilized for preventing and combating human trafficking. This research collected data on human trafficking cases that occurred in Thailand between the years 2018 and 2022. The data was then analyzed using Social Network Analysis (SNA) tools. Expert interviews were conducted with specialists in human trafficking, and data was collected through surveys from individuals involved in prevention and investigation of human trafficking cases. The results were used to develop a model that can be used to further innovation in this field. This approach leads to an enhanced ability to analyze trends in preventing and combating human trafficking, thereby strengthening the capabilities of police officers and law enforcement agencies in preventing and combating future instances of human trafficking.

**Keywords:** Social Network Analysis, Machine Learning Visualization, Human Trafficking, Crime Mapping

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# THE INFLUENCE OF ORGANIZATIONAL CAREER MANAGEMENT ON ORGANIZATIONAL COMMITMENT OF HOTEL EMPLOYEES IN SONGKHLA PROVINCE: THE MEDIATING ROLE OF CAREER SATISFACTION

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## ABSTRACT

This research aims to study the influence of organizational career management on employees' organizational commitment and the role of career satisfaction as a mediating variable that explains the relationship between organizational career management and employees' organizational commitment. This quantitative research is conducted with a sample group of 600 hotel employees selected from 20 hotels in Songkhla Province. The study gathers data from a set of questionnaires and analyzes it using structural equation modeling to examine the impact of organizational career management on employees' organizational commitment. The results show that organizational career management has a direct positive effect on employees' organizational commitment, and it also indirectly influences organizational commitment through career satisfaction as a mediator.

**Keywords:** Organizational Career Management, Career Satisfaction, Organizational Commitment

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# EXAMINING CONSUMER SATISFACTION IN SOCIAL COMMERCE OF FASHION PRODUCT SHOPPING: AN EMPIRICAL STUDY IN BANGLADESH

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## ABSTRACT

Rapid technological advancements have not merely enabled but necessitated a profound transition from market-centric commerce to a user-centered paradigm. The integration of social media into commerce is transforming various business aspects, including consumer behavior and purchase intention. This expansion has given rise to social commerce, where consumers transition from independent to collaborative shopping experiences. Therefore, this study investigates consumer satisfaction within the sphere of social commerce, with a specific focus on fashion purchases in Bangladesh, addressing a significant research gap. Using Smart PLS 4.0 and IBM SPSS 27, we analyze data from 472 participants, employing SEM to explore relationships among crucial factors like information quality, reliability, response time, social interaction ties, product quality, cost, and customer satisfaction. The results reveal that providing timely and relevant information enhances social interaction ties, while reliability and trustworthiness also contribute positively, although with a limited impact on customer satisfaction within the realm of social commerce. Quick responses positively influence both social ties and customer satisfaction, offering businesses the potential to enhance the shopping experience and boost sales through strong social connections on the social commerce platform. These findings will serve as a guiding light, aiding in the formulation of finely tuned strategies that amplify consumer satisfaction and promote well-informed decision-making. This study lays a solid groundwork for future research, particularly concerning luxury and fashion product perceptions in smart commerce.

**Keywords:** Social Commerce, Consumer Satisfaction, Fashion Product Shopping, PLS-SEM, Bangladesh

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# CEO DUALITY AND FIRM PERFORMANCE IN THAI FAMILY FIRMS: A COMPLEX RELATIONSHIP WITH EARNINGS MANAGEMENT

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## ABSTRACT

Even separation of CEO and chairman is viewed as a better corporate transparency, the efficacy of CEO duality versus CEO non-duality in enhancing firm performance remains an ongoing debate. This study examines the relationships between CEO duality, family firm, earnings management, and firm performance of listed Thai family firms by redefinition of CEO duality to include firms where the CEO is still related to the chair of the board of directors.

Our findings suggest that CEO duality in Thai family firms has both positive and negative effects. On the positive side, CEO duality is found to serve as a mechanism that mitigates real activities earnings management. However, it is associated with lower market-based performance and higher accrual-based earnings management. These findings highlight the complex nature of the CEO duality in family firm and their performance, and raise questions about the proposal to ban CEO duality in the Thai market.

**Keywords:** CEO Duality, Family Firm, Earnings Management, Firm Performance

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