



**UNIVERSITAS
NAROTAMA**



Nomor: 074/ICBLP-NR/CO/II/2019

CERTIFICATE

We hereby express our sincere appreciation to:

Arief Rahmawan

For your participation in:

**THE 1st INTERNATIONAL CONFERENCE OF BUSINESS, LAW AND PEDAGOGY
AS: PRESENTER**

13 - 14 FEBRUARY 2019 | THE SUN HOTEL SIDOARJO



Rector
of Narotama University

Assoc. Prof. Dr. Arasy Alimudin., SE., MM.



Chair of the OC

Dr. Reswanda, S.Pi, M.M

ICBLP 2019

Proceedings of the 1st International Conference on
Business, Law And Pedagogy

Sidoarjo, Indonesia
13-15 February 2019,

EDITORS

Zulidiana Rusnalasari
Rony Wardhana
Heri Nurdiyanto



Proceedings of 1st International Conference on Business, Law, And Pedagogy

13-14 February 2019, Universitas Narotama, Surabaya, Indonesia

ICBLP 2019

General Chairs

Dr. Reswanda, S.Pi., M.M (Universitas Narotama, Indonesia)
Dr. Arasy Alimudin, S.E., M.M (Universitas Narotama, Indonesia)

Technical Programme Chair

Rony Wardhana, M.Ak., CPA (Universitas Narotama, Indonesia)
Zulidyana D. Rusnalsari, M.Hum (Universitas Narotama, Indonesia)
Andini Dwi Arumsari, M.Psi, Psikolog (Universitas Narotama, Indonesia)
Putri Zanufa Sari, S.E.,M.S.A, Ak (Universitas Narotama, Indonesia)
Rudi Harianto, S.E., M.A (Universitas Narotama, Indonesia)
Avi Sunani, S.E., M.S.A (Universitas Narotama, Indonesia)
Tahegga Primananda Alfath, S.H., M.H (Universitas Narotama, Indonesia)
Mohammad Wasil, S.Pd, M.E (Universitas Narotama, Indonesia)
Ariyani, S.E., M.S.A (Universitas Narotama, Indonesia)

Conference Organization

Steering Committee

Prof. Dr. Soebandi, S.E., Ak., CPA, CA
Dr. H. Heru Tjaraka, S.E., M.Si., BKP., Ak., CA
Dr. Ahwan Sri Kustono, S.E., M.Si., Ak., CA., CTA., CPA., CSRS
Dr. Wahyudiono, S.E., M.M
Wahyu Agus Winarno, S.E., M.Sc., Ak., CA., CPA., CSRS
Prof. Dr. Afdol, S.H., M.S
Dr. Rusdianto Sesung., S.H., M.H
Dr. Habib Adjie, S.H., M.Hum
Ahmad Munir, M.A., P.hD
Dr. Aric Suwastini, M.Hum
Andrezj Chirocki, P.hD

Universitas Narotama, Indonesia
Universitas Airlangga, Indonesia
Universitas Jember, Indonesia
Universitas Narotama, Indonesia
Universitas Jember, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Negeri Surabaya, Indonesia
Universitas Pendidikan Ganesha, Indonesia
University of York

Organizing Committee

General Chair

Dr. Reswanda, S.Pi., M.M

Universitas Narotama, Indonesia

General Co-Chairs

Zulidyana D. Rusnalsari, M.Hum

Universitas Narotama, Indonesia

TPC Chair and Co-Chair

Rony Wardhana, M.Ak., CPA

Universitas Narotama, Indonesia

Sponsorship and Exhibit Chair

Putri Zanufa Sari, S.E.,M.S.A, Ak

Universitas Narotama, Indonesia

Local Chair

Ariyani, S.E., M.S.A

Universitas Narotama, Indonesia

Workshops Chair

Tahegga Primananda Alfath, S.H., M.H

Universitas Narotama, Indonesia

Publicity & Social Media Chair

Mohammad Wasil, S.Pd, M.E

Universitas Narotama, Indonesia

Technical Program Committee

Rony Wardhana, M.Ak., CPA
Zulidyana D. Rusnalasari, M.Hum
Andini Dwi Arumsari, M.Psi, Psikolog
Putri Zanufa Sari, S.E.,M.S.A, Ak
Rudi Harianto, S.E., M.A
Avi Sunani, S.E., M.S.A
Tahegga Primananda Alfath, S.H., M.H
Mohammad Wasil, S.Pd, M.E
Ariyani, S.E., M.S.A

Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia
Universitas Narotama, Indonesia

Preface

We are delighted to introduce the proceedings of the First edition of the 2019 European Alliance for Innovation (EAI) The International conference on business, law, and pedagogy (ICBLP 2019). The International conference on business, law, and pedagogy accepts the papers in the three thematic areas with multiple research approaches and methodologies. The conference provides a platform for wide-ranging issues, which captures contemporary developments in business, law and pedagogy within which a wide range of networking opportunities can be nurtured for the advancement of future research and global collaboration. This approach is now vital in research endeavours as business, law and pedagogy practices are increasingly prone to an era of cross-fertilization through meaningful multi-disciplinary collaborations

We strongly believe that ICBLP conference provides a good forum for all researcher, developers and practitioners to discuss all science and technology aspects that are relevant to smart grids. We also expect that the future ICBLP 2019 conference will be as successful and stimulating, as indicated by the contributions presented in this volume.

Dr. Reswanda, S.Pi., M.M

Contents

Pecking Order Theory as a Strengthening Capital Structure <i>Marista Oktaviani, Mochamad Mochklas, Ezif Moh Fahmi</i>	1	Employee Perspective on Deviant Workplace Behavior and Organizational Climates <i>Anita Maharani</i>	117
Metacognitive Skills Analysis of Students with High Mathematics Ability to Solve the Problems of Polya Based Mathematical Stories <i>Sunyoto Hadi Prayitno</i>	8	Literature-Based Character Education <i>Abdul Hasim, Agus Hamdani, Arief Loekman, Iin Indriyani</i>	125
Effect of health care Service on BPJS Health Patient Satisfaction in Padang's Hospitals <i>Faisal Marzuki, Atika Pradana Yuntarisa, Miftachus Sholikah</i>	16	Improving Creativity through Social Media for Rural Women's Empowerment <i>Lina Siti Nurwahidah, Cecep Dudung Julianto, Zoni Sulaiman</i>	129
Effective Technical Business In Agricultural Food Crops In Lamongan Regency <i>Sabilar Rosyad, Yunni Rusmawati DJ, Abid Muhatarom</i>	21	Genetic Algorithm and Particle Swarm Optimization on Fertilizer Production Planning Optimization <i>Muhammad Yusak, Teguh Herlambang, Dinita Rahmalia</i>	135
Constitutionality Of Simultaneous Regional Head Elections Through E-Voting According To The Constitutional Court Decision <i>Moh Saleh, Sukardi Sukardi, Mohammad Ferdian Rizal</i>	28	A Pre-Eclampsia Guidance Program in the Community Based on the Pre-Eclampsia Community Guide <i>Rahmawati Rahmawati, Woro Tri Utami, Detty Siti Nurdianti, Abdul Muhith</i>	146
Reactualization of the Pancasila Law Ideals in the Flow of Globalization <i>Achmad Irwan Hamzani, Mukhidin Mukhidin, Sanusi Sanusi, Havis Aravik</i>	34	Curriculum Development in Hospitality and Tourism Higher Education: challenges and gaps <i>Indra Kusumawardhana</i>	155
The Noble Values Contained from Shape and Space of Traditional Malay Residence of Pontianak City <i>Dada Suhaida, Siswandi Siswandi</i>	44	Using the Power of Two Model in Teaching Science in Primary School <i>Widdy Sukma Nugraha, Eko Fajar Suryaningrat, Muhammad Nurjamiludin</i>	166
Impact of Outbound Training in Organization Mission Statement: A Managerial Implication <i>Rita Ambarwati, Gogor Arif Handiwibowo, Rizky Eka Febriansah</i>	59	The Impact of Organization Forgetting and Organization Culture on Knowledge Management in Electro Manufacture Industry <i>Gromyco Bongso, Ma'ruf Akbar, wibowo Wibowo</i>	175
Applied Behavior Analysis Approach In The 2013 Curriculum <i>Didin Sahidin, Ari Kartini, Umi Kulsum, Deasy Aditya Damayanti</i>	69	Effects of Internet Literacy on Cognitive Capabilities of Middle School Students <i>Istyarini Istyarini, Fitriani Fitriani, Ghanis Putra Widhanarto</i>	181
Practicum-Based Science Teaching: Building Students' Concept Mastery, Practicum Skills, and Scientific Attitudes <i>Rohani Rohani, Yennie Indriati Widyarningsih, Abdul Hakim</i>	75	Distributive Justice and Perceived Organization Support in Indonesian Port Employee <i>Jimmy Nikiuluw, Syarifudin Tippe, Mahmuddin Yasin</i>	189
Hypothetical Learning Trajectory: Whole Number Multiplication in Primary School <i>Ejen J Mutaqin, Lutfi Asyari, Neni N Muslihah</i>	82	The Influence of Work-life Balance and Achievement Motivation on Athlete Satisfaction <i>Guntur Pawoko, Wibowo Wibowo, Hamidah Hamidah</i>	195
Policy in providing Guided Textbooks: Voice of Principals and Teachers <i>Asep Nurjamin, Ninah Hasanah, Zainah Asmaniah</i>	88	Analysis Of Quality Of Services, Relational Marketing And Handling Switching Cost As A Force Marketing To Improve Bank Customers's Loyalty In West Surabaya <i>Woro Utari, Mei Indrawati</i>	201
Love of Money and Fraud Tendency: Religiosity as Moderating Variable <i>Veni Nopeanti, Bambang Hariadi</i>	93	Decision To Buy In The Pusat Grosir Surabaya: The Effect of Price and Product Diversity <i>Mei Indrawati, Woro Utari</i>	216
Muslim Micro Entrepreneurs' Competency to Face Challenges in The Industrial Era 4.0 <i>Royyan Djayusman, Fajar Anggara, Nur Hadi Ihsan, Dhika Amalia Kurniawan</i>	102	Family Support and Family Economic Status With Depression Level on Patients End Stage Renal Disease <i>I Made Sundayana, I Dewa Ayu Rismayanti, Putu Dian Prima Kusuma Dewi, Muhith Abdul, I Putu Gde Santika, Lutfi K</i>	228
Environmental aspects of Micro, Small and Medium Enterprises (MSMEs) <i>Hartomi Maulana, Khoirul Umam, Rahma Yudi Astuti, Eko Nur Cahyo, Roghiebah Jadwa Faradisi</i>	110	Waste Management And Education Model In The Margosaras Waste Bank; An Islamic Development Perspective <i>Mufti Afif, Ahmad Lukman Nugraha, Ahmad Setiyono, Suyanto Suyanto</i>	234

Student Moral Guidance Trough Islamic Education System on Pesantren Institution <i>Taufik Riski Sista, Abu Darda, Muhammad Hudaya, Safrudin Al Baqi, Dian Nasrul Munif</i>	243	Maqâsid Al-Syari'ah As A Guide In Establishing The Law <i>Abdurrahman Abdurrahman</i>	372
Professionalism Concept of Work Ethic in Islamic Perspective <i>Mohammad Ghozali, Syamsuri Syamsuri, Agung Eko Purwana, Luthfi Ditya Cahyanti</i>	253	The Effects Of Tax Sanction, Fiscal Services, Tax Knowledge, And Tax Amnesty On Taxpayer Compliance <i>Novi Darmayanti</i>	380
Opportunities or Challenges? Building Student Social Character through WhatsApp-Based Project Citizen in Disruptive Era <i>Tetep Tetep, Jamilah Jamilah, Endang Dimyati, Odang Hermanto</i>	260	Translation as a Pedagogical Device for Improving Students' Reading Comprehension in the ESP text <i>Lia Novita, Bachrudin Mustafha</i>	387
Connecting Learning Outcomes to Professional Life: Better Educational Policy for Better Professionals <i>Muhamad Taufik Hidayat, Wahid Hasim, Asep Suparman, Rajji K Adiredja</i>	266	The Establishment Of Village Business Enterprise Based on UU No.6 / 2014 About Village <i>Amiek Soemarmi, Etty Susilowati, Siti Mahmudah</i>	394
The Role of Mediating the Publication on the Influence of Corporate Governance on Performance <i>Suwardi Bambang Hermanto</i>	272	The Role of the State in Upstream Oil and Gas Gross Split Contracts <i>Muhammad Fajri</i>	399
The Impact of Audit Committee's Effectiveness, Gender, and Tenure on Audit Report Lag: Indonesian Evidence <i>Kayleen Kayleen, Senny Harindahyani</i>	289	Willingness of Tax Amnesty Participation Based on Financial Audit Quality <i>Permata Ayu Widyasari, Celina Tashya Evangelista, Yie Kie Feliana</i>	408
The Determinant of Capital Structure in Mining and Metal Company <i>Anita Roosmawarni, Nurul Laili Mauliddah</i>	301	Developing Critical Skills of Management Students in Operational Research's Course <i>Triman Juniarso, Ninik Murtianingsih, Bisma Arianto, Lydia Lia Prayitno</i>	418
Self-Esteem And Celebrity Worship In Social Network Bollywood Mania Club Indonesia Members In Jakarta <i>Novendawati Wahyu Sitasari, Yuli Azmi Rozali, Andini Dwi Arumsari, Dedi Setyawan</i>	310	The Effect of Free Trade and The Economic Globalization toward Rupiah's Stabilization <i>Andi Triyawan, Hamidah Tussifah, Syahrudin Syahrudin, Ri'fat Husnul Ma'afit, Harda Armayanto</i>	424
Ideality Versus Reality of Minimum Wage in Indonesia's Labor Law Regulation <i>Andreas Andrie Djatmiko, Ahmad Izzul Ito</i>	316	The Indonesian Islamic banking: interrelation between intellectual capital performance, intellectual capital disclosure, and financial performance <i>Ihyaul Uluma, Oky Bon Amarullah, Eny Suprapti</i>	430
Population Projection Using The Implementation of Differential Equation of Logistic Models <i>Dewi Anggreini, Dian Septi Nur Afifah, Hayuhantika Hayuhantika, Ratri Candra Hastari, Ratih Puspasari</i>	326	Encouraging Student with Selective Mutism through ABA Approach <i>Didin Sahidin, Ari Kartini, Umi Kulsum, Desy Aditya Damayanti</i>	441
Pesantren as Heart Knowledge Management <i>Fandy Adpen Lazzavietamsi</i>	339	Product Innovations and Business Relationships: Impact on Leather Industry Performance <i>Nizar Alam Hamdani, Sukma Nugraha, Teten Mohamad Sapril Mubarak</i>	446
Analysis of Accounting Information System For Raw Material in PT Jadimas-Gresik <i>Zeni Rusmawati, Rieska Maharani</i>	346	Intensive Strategy Model and Implications for SME Business Performance <i>Nizar Alam Hamdani, Sukma Nugraha, Galih Abdul Fatah Maulana</i>	451
The Students' International Community Service (ICS) as an Internationalization strategy for facing Global Challenges <i>Naeli Rosyidah, Matin Matin, Unifah Rosyidi</i>	352	Web-Based Learning Personalization of Sequential Learning Style Type to Foster Students' Mastery on Concept in Learning <i>Abdul Haris Indrakusuma, Punaji Setyosari, Sulton Sulton, Waras Kamdi, Tomi Listiawan, Nurna Listya Purnamasari</i>	457
The Educational Thinking of Hasyim Asy'ari about Student Ethics Against to the Teachers in the Digital Era <i>Supriyanto Supriyanto, Elly Malihah, Helius Sjamsudin, Erlina Wiyanarti</i>	359	The Effect of Prophetic Leadership on Employee Engagement At sufism-based Islamic Boarding School <i>Irfan Budiyono, Hamidah Hamidah, Mahmuddin Yasin</i>	469
Cost Benefits Analysis And Feasibility For Office Relocation In The Public Service Agency <i>Budi Wahyu Mahardhika, Phonny Aditiawan Mulyana, Asyidatur Rosmaniar</i>	366	The Influence of Work-life Balance and Achieve-ment Motivation on Athlete Satisfaction <i>Guntur Pawoko, Wibowo Wibowo, Hamidah Hamidah</i>	475
		Improved 800 Meter Running Results Through The Use of Exercise Methods and Endurance <i>Jhoni Melvin Tahapary, Moch Asmawi, James Tangkudung</i>	481

The Influence of Management Effectiveness, Work Cul-ture, Trust, and Engagement, towards Work Effective-ness of Employees PT. Megapolitan Developments Tbk <i>Dewi Tridasawarsa, Ma'ruf Akbar, Thamrin Abdullah</i>	489	Boarding School that provide community-based mental health services <i>Eko Mulyadi, Nelyta Oktavianisya, Gabriella Gabriella, Imaniyah Imaniyah, Suraying Suraying, Abdul Muhiith</i>	590
The Linkage Between Entrepreneurship Education and Entrepreneurial Success for Young Entrepreneurs in Central Java Indonesia <i>Suripto Suripto, Hayyu Vidia Utami, Ghanis Putra Widhanarto</i>	495	Estimation of Profitability of a Company in PT. ABC Using Kalman Filter <i>Mohammad Yusak Anshori, Teguh Herlambang, Denis Fidita Karya, Dinita Rahmalia</i>	596
Social Network System For Accounting Students <i>Nujmatul Laily, Eka Ananta Sidharta</i>	500	Application of Analytic Hierarchy Process (AHP) on Constrained Pairings Selection from Flight Schedule <i>Mohammad Yusak Anshori, Teguh Herlambang, Dinita Rahmalia</i>	603
The Effectiveness Of Election Silence According To PKPU (Regulation Of The General Election Comission) NO. 23 of 2018 Concerning Election Campaigns On Social Media <i>Nynda Fatmawati, Anisatul Ulfa</i>	507	People's Unawareness of the Importance of Marriage Certificate <i>Jamilah Jamilah, Mega T Puspita, Endang Dimiyati, Tetep Tetep, Prima Melati</i>	610
Cost Benefit Analysis of Victims, Offenders, Child Communities In The Criminal Justice System <i>Ani Purawti, Farida Gandryani</i>	516	Determination of Bankometer and RGEC Models to Predict Financial Distress on Sharia Banks in Indonesia <i>Laely Aghe Africa</i>	615
Declarative Principles Registration Of Copyright Rights In Disruption Era <i>Andy Usmina Wijaya, Rihantoro Bayu Aji</i>	521	Justice in the law of Prostitution in Indonesia; Human Rights Perspective <i>Mulyono Jamal, Sujiat Zubaidi, Rashda Diana, M Kholid Muslih, M Lathif, Ria Rahmawati</i>	625
Chopsticks as a Typical Dayak Borneo Weapon <i>Hamid Darmadi</i>	527	The Role of Learning in Forming Students Career Choices of Islamic Economics Major <i>Abdul Latif, Azidni Rofi'qo, Muhammad Alfan Rumasukun, Iqbal 'Imari, M Qoshid Al Hadi</i>	629
Teacher Professional Development in Education 4.0: Awareness of Digital Literacy <i>Rosanita Tritias Utami, Nia Roistika, Umdatul Khoirot, Moh Hanafi, Dwi Ima Herminingsih</i>	544	Conceptualizing Waqf Insan on i-HDI (Islamic Human Development Index) Through Management Maqashid Syariah <i>Miftahul Huda, Imam Haryadi, Adab Susilo, Achmad Fajaruddin, Fadhila Sukur Indra</i>	636
Students Assessment of Teacher's Ability and Knowledge, Attitude & Economic Skill of Students Based on the Indonesian Economy <i>Nanis Hairunisya, Imam Sujono, Hari Subiyantoro, Sulastrri Rini Rindrayani</i>	550	Micro Enterprise (MEs) Upgrading in Indonesia: Why MEs are not Growing? <i>Atika Rukminastiti Masrifah, Setiawan Bin Lahuri, muhammad Ridho Zakarsyi, syamsul Hadi Untung</i>	644
An Analysis Of Big Five Behavior Model Factors On Computer Self-Efficacy Teachers <i>Nurleila Jum'ati, Tri Siwi Agustina</i>	559	Adab and Akhlaq in the Islamic Scientific Tradition: Reflection on Curriculum at UNIDA Gontor <i>Fitri Awali Rahmawati, Nurul Salis Alamin, Neneng Uswatun Hasanah, Iman Nur Hidayat, Umi Mahmudah</i>	654
Electronic Word of Mouth Source (Tourism Social Media) towards Domestic Tourists' Attitudes <i>Sutopo Sutopo, Akbar Sutawidjaja, I Nengah Parta, Cholis Sa'dijah</i>	570	The Efficacy of Boarding System University in Producing Competent Graduates for the Era of Industry 4.0 <i>Hamid Fahmy Zarkasyi, Ihwan Mahmudi, Ahmad Saifulloh, Heru Saiful Anwar, Saymsudin Arief, Syarifah Syarifah</i>	661
Coaching Competency as a Solution for Indonesian Headmaster of Elementary School in Disruption Era <i>Zahara Tussoleha Rony, Sani Aryanto</i>	576	Towards Industry 4.0: Determining Agro-industrial Technology Graduate Competencies in Higher Education <i>Arief Rahmawan, Mohammad Mushlih, Jarman Arroisi, Dwi Rifianto, Adib Fuadi Nuriz</i>	669
Match Fixing Gratification In Football <i>Endah Lestari, Woro Winandi</i>	585		

Traceability and Tracking Systems of Halal Food Using Blockchain Technology to Improve Food Industry Competitiveness <i>Devi Urianty Miftahul Rohmah, Shinta Maharani, Muhammad Nur Kholis, Saiya Umma Taqwa, Haris Setyaningrum</i>	680	Indonesian EYL Curriculum Issues: Between Education Policy and Classroom Practices <i>Anne Ratna Sminar, Pipih Setiawati, Lucky Rahayu Nurjamin, Yustika Nur Fajriah</i>	806
Implications of Indonesian Occupational Safety and Health Management System Award to the Safety Culture <i>Sisca Mayang Phuspa, Andini Rachmawati, Imam Kamaluddin, Wahyudi Bakri, Asif Trisnani</i>	689	Life Skill Training and Entrepreneurship Mentoring: Effort to Maintain Functional Literacy <i>Masykur Masykur, Asep Supriyatna, Ana Maulana, Arik Darajat</i>	811
ASEAN's Regional Business Innovation Through Digitization of Supply Chain <i>Tian Nur Ma'rifat, Amal Fathullah Zarkasyi, Muhamad Fajar Pramono, Yoyok Suyoto Arief, Dihin Murriyatmoko</i>	697	Think first or just do writing? <i>Lucky Rahayu Nurjamin, Yustika Nur Fajriah, Anne Ratna Sminar</i>	816
The Effectiveness of Public Sector Innovation in Improving Local Competitiveness (Studies in Surabaya Single Window: Innovations for Business License Services) <i>Falih Suaedi</i>	706	Engaging Students of English Program in a Real Business Activity as an Effort to Create New Millennials Entrepreneurs <i>Setia Muljanto, Eva Devy S, Pipih Setiawati, Amir Hamzah</i>	820
A Test on Adverse Selection of Farmers Decision to Purchase Crop Insurance <i>Rizky Yanuarti, Joni Murti Mulyo Aji</i>	719	Rural Women's Creativity in Using Social Media to Maintain Life <i>Lina Siti Nurwahidah, Cecep Dudung Julianti, Zoni Sulaiman</i>	826
Factors That Have the Potential to Cause of Street Child Violence at Ambengan Surabaya <i>Naili Sa'ida, Anisa Yunitasari</i>	726	Public Awareness Study to Have Marriage Deed <i>Jamilah Jamilah, Mega T Puspita, Endang Dimiyati, Tetep Tetep</i>	832
The Innovation Model of Educational Technology to Strengthen Boarding University Education in Disruptive Era <i>Rila Seryaningsih, Ahmad Hidayatullah Zakarsyi, Agus Budiman, Muhammad Badrun Syahir, Samsirin Samsirin</i>	733	Reading and Sharing WhatsApp Forwarded Messages <i>Wahid Hasim, Muhammad Taufik Hidayat, Amir Hamzah, Nuraeni Nuraeni</i>	838
'Simple Evidentiary' That Is Not Simple <i>M Fauzi</i>	740	Teaching Techniques Pursue Government Regulation in Education <i>Irsyad Ngraha</i>	843
Forecasting Public Services Maladministration in Local Government <i>Tatiek Sri Djatmiati, Tahegga Primananda Alfath, Tresna Maulana Fahrudin</i>	748	What Makes an Effective Lecturer? Voices from Students and Implication for Policy Makers in Indonesia <i>Asep Suparman, Muhamad T Hidayat, Wiguna A Ilyas, Hany Apriliani</i>	849
Hoax and The Principle of Legal Certainty in Indonesian Legal System <i>Sholahuddin Al-Fatih, Zaka Firma Aditya</i>	759	How is English Language Policy Translated to Classroom Practice? (A Case Study in an Indonesia Primary School) <i>Yustik Nur Fajriah, Anne Ratna S, Lucky R Nurjamin</i>	855
Trend of Business Continuity Plan: A Systematic Literature Review <i>Silmie Vidiya Fani, Apol Pribadi Subiadi</i>	771	Social Media and Changes in Students' Learning and Social Behaviors <i>Tetep Tetep, Triani Widyanti, Yopi Nugraha</i>	860
Ownership of The Archery Based on Legal Policy in Indonesia <i>Tahegga Primananda Alfath, Dellie Threesyadinda</i>	779	Literary Learning as Character Enlightenment of Students <i>Abdul Hasim, Agus Hamdani, Arief Loekman, Iin Indriyani</i>	868
Planning and Development Strategy of Fishery Product Processing Business Based on Pesantren <i>Ramli Ramli, Budi Setiawan, Imam Santoso, Siti Asmaul Mustaniroh</i>	784	Human Capital: Demographic Dimensions as Triggers the Survival of Small and Medium Enterprises (SMEs) <i>Agus D Sasono, Arief D Atmoko, Nurul Aini, Elok Damayanti</i>	873
Good Corporate Governance And Intellectual Capital Determinant Earnings Response Coefficient <i>Nurul Aini, Rudi Harianto, Febrina Ramadhany</i>	792	Literature Review – Using Multi-Criteria Decision-Making Methods in Information Technology (IT) Investment <i>Anggraeni Widya Purwita, Apol Pribadi Subriadi</i>	884
Does Accounting Conservatism Still Exist in Disruptive Era? The Mars Approach <i>Avi Sunani, Rony Wardhana, Putri Zanfa Sari, Rudi Harianto</i>	798	Accounting for Fishermen Tribe Using (An Ethnographic Approach) <i>Dian Pratama, Indah Prastiwi, Riski Isminar Ardianti</i>	897
		The Identification Characteristic about Charismatic Leadership on Islamic Non-Profit Oriented Organization in Indonesia <i>Dimas Agung Trisliatanto, Suryanto Suryanto</i>	902

The Problematic and Urgency About Scientific Research of Knowledge Development in Indonesia <i>Dimas Agung Trisliatanto, Cholichul Hadi, Sri Iswati, Falih Suaedi, Andre Fahreza</i>	908	The Impact of Analytical Skill of Teacher Book on Teacher's Competence in Compiling Lesson plan for Elementary Schools in Cicalengka Sub-District <i>Abdul Mu'min Saud, Ade Mulyati</i>	1003
The New Literacy of Technopreneurship and Its Relation with Students' Entrepreneurial Spirit <i>Agung Winarno</i>	919	Evaluation of Teacher Performance in Teaching and Learning Process <i>Ratna Khairunnisa, Nurul Hikmah, Juan Vicki Ada'Komnan</i>	1010
A New Model of German Literacy Comprehension: A Multidimensional Representation <i>Desti Nur Aini, Kisyani Kisyani, Agus Ridwan</i>	925	Strengthening the Supervision on Liaison of The Judicial Commission in The East Kalimantan: A Study to Create a Clean and Responsible Judiciary <i>Mufti Afif, Ahmad Lukman Nugraha, Arie Rachmat Soenjoto, Achmad Setiyono, Suyanto</i>	1015
Contents Analysis On TEFL Workshop Course Book For Pre Service Teachers <i>Endang Mastuti Rahayu, Wahyu Bandjarjani</i>	933	Naturalness in Translating The Jakarta Post Article by Students of English Department of Widya Gama Mahakam University <i>Widi Syahtia Pane, Dedi Rahman Nur, Abdul Rohman</i>	1023
New Students Admission Management Analysis In Sdit Ki Hajar Dewantoro, Tambun Selatan, Kab. Bekasi <i>Diyah Yuli Sugiarti</i>	937	The Analysis of Using Picture Sketch to Improve Drawing Ability of Preschooler Students <i>Hanita, Mahkamah Brantasari</i>	1033
Development Of Interactive Digital Learning Materials On Nutrition Science Course in Adi Buana University Surabaya <i>Diana Evawati, Susilowati Susilowati</i>	943	Realistic Mathematic Education (RME) Model in Primary School <i>Gamar Al , Desi Novi Al Safitri, Arbain</i>	1040
E-Commerce Implementation By Small Business That Is Influenced By Planned Behavior Factors And Economic Motivation <i>Endang Siswati, Siti Rosyafah, Anggraeni Rahmasari</i>	952	A Study of Community and Regional Potential Tende Village, Bentian Besar District, West Kutai Regency, East Kalimantan Province <i>Abd. Rachim AF, Muhammad Habibi</i>	1046
Application of Role Play Learning Method In Increasing Morality Of Islamic Integrated Primary School Students in the Subject of Islamic Religious Education <i>Yuli Asma Rozali, Novendawati Wahyu Sitasari, Ikbal Rahmat, Abdur Rahman</i>	961	EFL Students Perception on Mendeley Reference Manager in Thesis Writing <i>Ariyanti, Rinda Fitriana</i>	1053
Lack of Legal Protection for Beneficiary Creditors of Fiduciary in The Bankruptcy of Debtor in Indonesia <i>Siti Malikhatus Badriyah, Siti Mahmudah, Kashadi Kashadi</i>	966	The Relationship between Learning Environment and Students Achievement <i>Afdal, Eka Selvi Handayani, Yoppi Indriani</i>	1060
Legal Certainty Against Halal Certification Of Investment Fund <i>Shohibul Khoir, Andre Meiryandy Sugesty, Shandy Aldo Hamonangan</i>	974	Identification of Enabling Factor of Early Smoking Behavior towards Students <i>Rosdiana, Nur Agus Salim</i>	1068
Waste Management And Education Model In The Margosaras Waste Bank; an Islamic Development Perspective <i>Mufti Afif, Ahmad Lukman Nugraha, Arie Rachmat Soenjoto, Achmad Setiyono, Suyanto</i>	981	Internet Usage and Its Impact on The Academic Writing Performance of EFL Student at Tertiary Level <i>Dzul Rachman, Dedi Rahman Nur, and Arbain</i>	1074
The Workload of Female Workers Has Very Little Effect On Career Development <i>Mochamad Mochklas, Didin Fatihudin</i>	989	The Attributes of Customer Needs Tenun Ikat SME for Competitive Market in Indonesia <i>Rita Ambarwati, Andre Saputro, Wiwik Sulistiyowati</i>	1078
Management of Jibing Springs Based on Community in Prawoto Village, Sukolilo District, Pati Regency <i>Lalik Fatmawati, Moh Gamal Rindarjono, Ahmad Ahmad</i>	998	Estimation of Packed Red Cells (PRC) Blood Stock Using Extended Kalman Filter as Management of Blood Transfusion at Blood Bank of PMI Surabaya <i>Abdul Muhith, Teguh Herlambang</i>	1084
		Cognitive Conflict of IAIN Tulungagung Students with Independent Cognitive Style in Solving Integral Problems <i>Sutopo, Akbar Sutawidjaja, Cholis Sa'dijah, I Nengah Parta</i>	1090
		The Limited Partner Position in bankruptcy Limited Partnership (CV) in Indonesia <i>Siti Mahmudah, Siti Malikhatus Badriyah, Kashadi</i>	1098

Towards Industry 4.0: Determining Agro-industrial Technology Graduate Competencies in Higher Education

Arief Rahmawan¹, Mohammad Muslih², Jarman Arroisi³, Dwi Rifianto⁴, Adib Fuadi Nuriz⁵
arief.rahmawan@unida.gontor.ac.id¹, muslih@unida.gontor.ac.id², jarman@unida.gontor.ac.id³

University of Darussalam Gontor, Jalan Raya Siman Km. 6, Ponorogo, Indonesia^{1,2,3,4,5}

Abstract. The emergence of Industry 4.0 has a significant impact for many organizations such as higher education particularly in managing their knowledge of the curriculum. Nowadays, the world has shifted to more advanced technology, and this must be fulfilled by increasing human resources capacity. Meanwhile, many universities are unaware of this transition to re-manage their curriculum of knowledge for better adjustment of core competencies as the stakeholders expected. This research aims to determine the voice of stakeholder from Agro-industrial Technology enterprises by implementing House of Quality Matrix as the main tools. Besides, attempt to identify the main issues of the latest industrial revolution and match graduates' abilities as the company needed. The methodology applied was investigating selected stakeholders by utilizing questionnaire to gather information comprises graduate abilities, graduate competencies and technical skills. To sum up, this article generating customer need which contains Industry 4.0 characteristics as the beginning phase of curriculum design.

Keywords: *Curriculum, Knowledge Management, Learning Outcomes, Quality Function Deployment*

1 Introduction

Nowadays, the world has been entering a new era namely Industry 4.0 which began in Germany formally by the Federal Ministry of Education and Research in the year 2010. The terminology of Industry 4.0 or commonly named as the fourth industrial revolution was referring to the continued industrial development since began in the middle of the 18th century as the first pioneer industrial mechanization era. Many scholars attempted to analyze this latest manufacture revolution whether it wanted or not and what was the implication for society. For instance, the emergence of Smart Manufacturing (SM) shall fit Small and Medium-sized Enterprises (SMEs) particular requirements by yielding maturity model and determining assessment toolkit to develop their vision and roadmap [1].

On the other hand, utilization of Smart Industry elements such as industrial internet, cloud computing, big data, industrial network security and 3D prototyping are successfully implemented in the food industry by utilizing mass customization model [2]. Those elements are defined as the

core platform of SM that already in the industry. The necessity of connection and integration between management function, production lines, suppliers and customers somehow will be more in sophisticated ways, and smart manufacturing is one of the promising solutions. Meanwhile, some developed countries have been intrigued to gradually accelerate the transformation of future manufacturing such as Japan with the concept of Society 5.0 strategy, China with manufacturing 2025 and Europe 2020 strategy. Eventually, we have to embrace this phenomenon rather than denying the great purpose of humankind.

Future industries are originally digitalized, and decentralized organization functions through the network platform. The output of the future industry is the so-called smart product, refers to the new generation of physical product embedded with the particular sensor to collect, transmit and transfer data to the environment. Furthermore, the smart industry is the shifting from traditional to digital and intelligent enterprises as the service orientation by utilizing interconnectivity between factory and network technology such as Industrial Internet of Things (IIoT) and Cyber-Physical Production System (CPPS). More importantly, the smart factory is defined as the integration of physical resources and human resources through IIoT. In the context of intelligent manufacturing, it is essential that human resource as the paramount assets in the industry must respond adequately to proficient on these technologies. Within the fourth industrial revolutions, automated manufacture and robotics will sorely impact job opportunities in most future-oriented enterprises. It can be appointed that the enormity of Industry 4.0 will influence the particular fulfilment prowess in employee recruitment. Scholars argued whether future manufacturing more likely creating the job than diminish the job, particularly in computer engineering, artificial intelligence, cloud engineering and so forth. To fulfil this position, the job applicants must be eligible to meet enterprises requirement to do their job in digitizing production lines.

The education system needs to be redesigned to meet the updated concept of Factory 4.0 and manufacturer as the stakeholders of universities. More importantly, higher education institution plays an essential role to produce their alumni as current industry needed. Many researchers have been encouraging to propose a scientific model in terms of transferring stakeholder need through curriculum design in a higher education institution. For instance, There were strong relationships between graduate abilities and core competencies by the implementation of the house of quality [3] in the Agro-industrial Technology Department, University of Darussalam Gontor Indonesia. Similarly, the industry-oriented framework was proposed as the education method to embrace dynamically changing employment needs of industry, which comprises degree internships, start-up focus degrees, tailored studies and various significant related with Industry 4.0 elements [4]. Also, it is crucial for the government in developing countries must encourage societies to have creativity in the business model as well as innovation in terms of social development. Socio-cultural institutional transformation is a strategic objective of the Thailand government facing the age of the fourth industrial revolution [5]. Thailand government attempts to propose economic development such as emphasize agricultural sector and transform into a value-based and innovation-driven economy. The identification of industry 4.0 current research paper had been conducted by implementing a structured literature review and yielding sustainable industry 4.0 framework. Current research categorized particular paper namely concept of industry 4.0; machine-equipment interactions; human-machine interactions; sustainability and trend technology of industry 4.0 [6]. Eventually, the world must accelerate their knowledge for better understanding of advanced

technology and the only possible is through curriculum design in many level education institutions, particularly in universities/colleges.

As an emerging institution, University of Darussalam (UNIDA) Gontor, particularly Department of Agro-industrial Technology attempts to respond to the phenomenon of Industry 4.0. Also, the rapid development of advanced technology has emphasized industries to demand qualified higher educated employees more creative and innovative. The main problem is industries lacks involvement in the higher education system, in terms of designing curriculum which embedded knowledge, skills and competencies. Similarly, UNIDA Gontor has to respond immediately to provide eligible graduates who possess technical skills as enterprises needed. Furthermore, this research is aimed to identify several critical issues of Industry 4.0 technology and analyze skill and knowledge from the stakeholders' perspective. More importantly, gathering information such as graduate abilities from selected industries which already have Memorandum of Understanding (MoU) with the Agro-industrial Technology Department are needed. Further, one of renowned total quality management, namely House of Quality is applied by utilizing relationships submatrix to gain the degree between crucial issues and relevance knowledge. Moreover, the objective of this research is to conceptualize better curriculum materials of Agro-industrial Technology department so they can prepare their graduates to work in future manufacturing and to understand the human-machine interface.

2 Literature Review

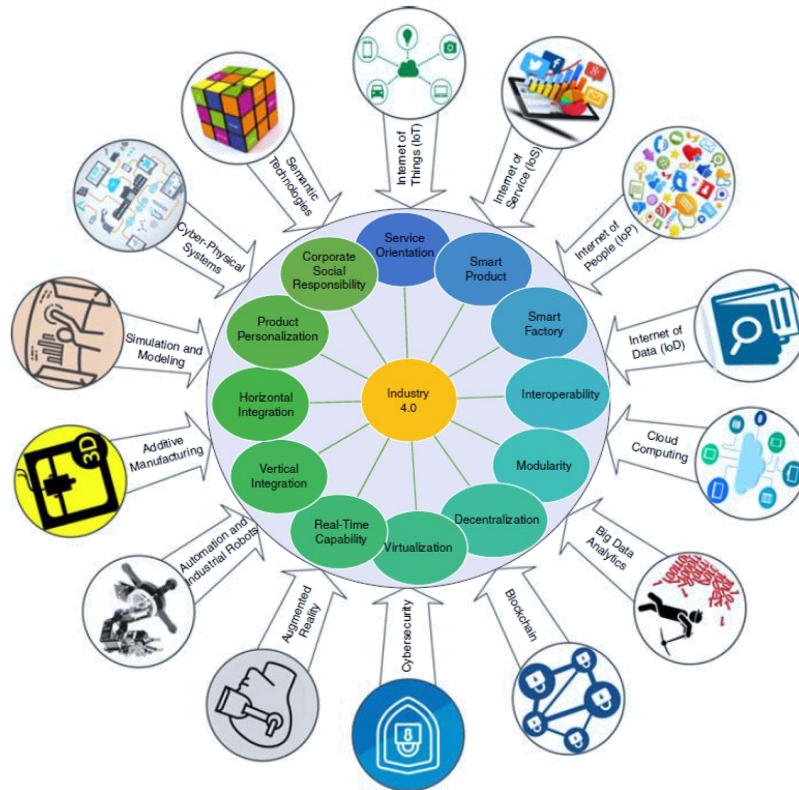
2.1 Design Principles of Industry 4.0

Last three industrial revolutions have transformed the manufacturing substantially from a steam machine to advance automated digital machine. It was pioneered by Germany in 2011 and introduced to the public through German Engineering Federation at the Hannover Messe. Additionally, Germany strategy to implement their roadmap is maintaining its production at home to serve the international market and enhance employee skill to support their export products. German Standardization Roadmap on Industry 4.0 is mainly discussed about the detail of semantic and ontological linkage with the administration shell and Industry 4.0 components in the future [7]. This roadmap has led by Federal Ministry for Economic Affairs and Energy (BMWi) and Federal Ministry of Education and Research (BMBF), with the involvement of three significant industry associations, those are BITKOM, VDMA and ZVEI. Together they formulated a platform of Industry 4.0 comprehensively to ensure that Industry 4.0 solutions are implemented on a global scale. Also, Germany also considers from many levels of standardization from national through international to geared toward globally.

Many scholars, practitioners and societies are unclear about the term of Industry 4.0, encountering the difficulties of how to implement this development. Moreover, manufacturing is encountering difficulties to understand the requirement of transition toward smart manufacturing. Scholars believe the concept of Factory 4.0 has led to significant development in technological innovation. According to the current researches, many academicians categorized and explain the terminology of Industry 4.0 and addresses its issues. **Figure 1.** depicts the main design principles of Industry 4.0 according

to [8] which comprised 12 design principles and 14 technology trends. For a better understanding of those elements will be summarized in **Table 1**.

Fig 1. Technology Trends of Industry 4.0 [8]



2.2 Toward Indonesia 4.0

As an emerging country, Indonesia has a tremendous opportunity to revitalize the industrial sector to be the top 10 largest economies by 2030. The government through the Ministry of Industry reported, in 2016 the manufacturing sector had contributed 20% of product domestic product (PDB) [9]. Importantly, the Indonesian Minister of Industry formulated National Industrial Committee to carry out ten national priorities as the goal to implement the Fourth Industrial Revolution. Those ten priorities comprise: (1) reform material flow (2) redesign industrial zones (3) embrace sustainability (4) empower SMEs (5) build nationwide digital infrastructure (6) attract foreign investors (7) upgrade human capital (8) establish innovation system (9) incentivize technology investment and (10) re-optimize regulations and policies. Improvement the human resource skills and competencies shall be the initial step via matching program between education and industry. To achieve that,

Minister of Research, Technology and Higher Education must embrace universities, institutes and colleges to state their educational program.

Table 1. Characteristics of technology trends [1], [8], [10], [11]

Technology Trends	Characteristics
Internet of Things (IoT)	<ul style="list-style-type: none"> ▪ As the supporting technology of smart machines excel humans at precisely and constantly capturing and communicating data ▪ As well as the integration of cyber-physical process which supported with sensors and compatible network ▪ In the context of industry, can be referred to as Industrial Internet of Things (IIoT)
Internet of Services (IoS)	<ul style="list-style-type: none"> ▪ Defined as utilizing the internet for an innovative way of value creation through Product as a Service (PaaS) business model ▪ Embedded infrastructure with sensor-based products to give some information such as product usage and its condition
Internet of People (IoP)	Refers to humans become an active element of the internet. For instance, humans put their personal information online and make virtual public communication about their feelings
Internet of Data (IoD)	<ul style="list-style-type: none"> ▪ Effective data to transferred, stored, managed and processed into the system ▪ Database management systems to serve IoT, IoS and IoP
Cloud Computing	<ul style="list-style-type: none"> ▪ Effective technology to reduce IT infrastructure which utilizes computing resources when using any device connected to the internet ▪ Enable the integration of distributed manufacturing resources and flexible infrastructure across geographically
Big Data Analysis	<ul style="list-style-type: none"> ▪ Specific technologies with new analytical methods and tools to transform the substantial volume of data effectively and efficiently into information and knowledge
Blockchain	<ul style="list-style-type: none"> ▪ Foundation of cryptocurrencies, enable countless smart devices to perform the transparent, secure, fast and smooth financial transaction in the IoT platform ▪ It can be utilized in any digitized transfer of information, develop a trusted relationship between suppliers, manufacturers and customers
Cyber Security	Techniques aimed to protect critical industrial systems, manufacturing lines and database from unauthorized access

Technology Trends	Characteristics
Augmented Reality	A digital interface by placing a virtual object in the real world, to give a higher calculation of perception using various technology As the visualization of computer graphics in the real environment
Automation and Industrial Robots	Future manufacture will employ robot which able to communicate, adapt and react Human-machine interaction becomes more intensive in many organization functions such as production, distribution, maintenance etc.
Additive Manufacturing	The reflection of technologies to develop three-dimensional objects layer by layer under computer control 3D printing particularly has enabled factories to produce a prototype, proof of concept design efficiently by reducing the production process
Simulation and Modelling	Aimed to leverage real-time data to mirror the physical world in a virtual model which includes human, machine and products
Cyber-Physical Systems	Systems of collaborating computational entities connected with their surrounding physical world, controlled and monitored by the computer-based algorithm
Semantic Technologies	A common standard for communication and exchange information among different component of Industry 4.0

3 Methodology

This study initiated with literature review from reputable journals such as Emerald Insight, Science Direct, SAGE, IEEE and Taylor Francis which focus on Industry 4.0 scenario. Those articles taken from many journals were assessed qualitatively. Subsequently, determining critical issues of Industry 4.0 are essential to a better understanding of what are the essential of fourth industrial revolutions.

Meanwhile, gathering some information form selected stakeholders is paramount considering the Department of Agro-industrial Technology has signed several MoU with industries. To comply with this phase, a questionnaire was designed and aimed to yield three primary information comprise graduate abilities, skills and knowledge. Since established in 2014, Department of Agro-industrial Technology has been cooperated approximately with 25 institutions covered universities, industries and local government. Both online and offline questionnaire was prepared to gather data effectively and efficiently. **Figure 2.** illustrate the steps of research consist of three main phases and the goal is prioritizing knowledge in Agro-industrial Technology curriculum.

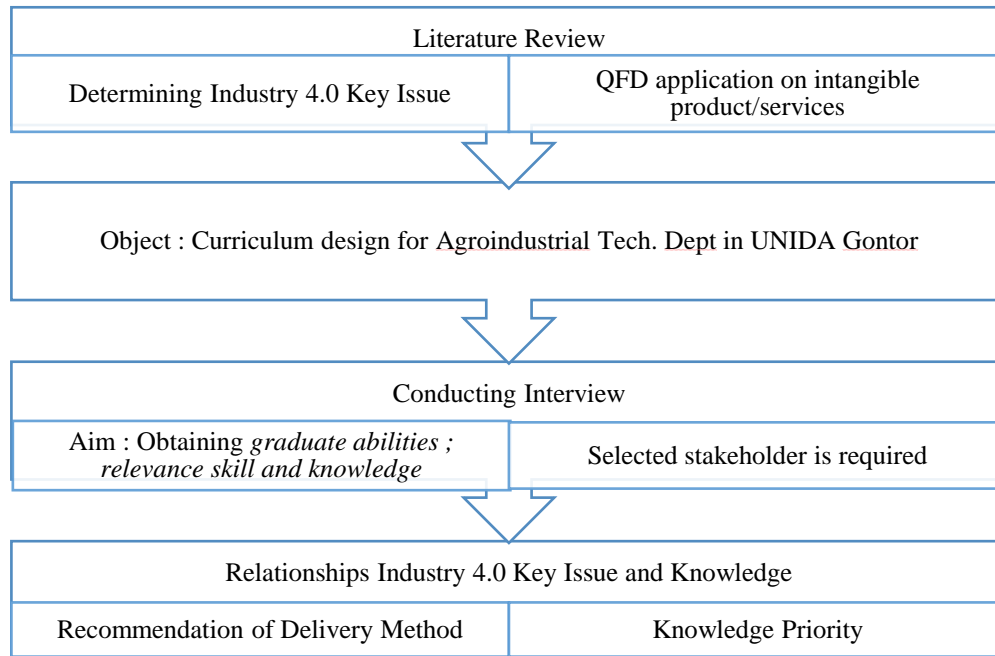


Fig 2. Research methodology

4 Findings

According to literature reviews in selected papers from notable publishers, some critical issues of industry 4.0 were generated five elements as follows:

- 1) A new paradigm of manufacturing
Industry 4.0 has shifted the paradigm to the concept of manufacturing. Sustainable manufacturing is needed, and it requires a system thinking approach in all operations of the organization. Complex interactions between human and machines, stages of manufacturing such as additive manufacturing, responsive manufacturing, cloud manufacturing and knowledge-driven manufacturing [12].
- 2) Business Strategy
Digitization consists of a technology-based driver, namely instrumented, interconnected and utilize intelligently. Digitization and industry 4.0 transition requires the full commitment of top management and fundamental resource allocation. By digitization, functional needs and priorities in all aspects of organizations should be identified, managed and facilitated.

Nowadays, products derived from the manufacturer are more personalized, so the market business strategy has to change by this condition.

3) Advance Technology

Fourth Industrial Revolution is inseparable from technological progress and its characterized on vertical integration, horizontal integration and end-to-end engineering. Integration between production and management levels [12]. Meanwhile, horizontal integration refers to the collaboration between a functional organization with resource and real-time exchange. End-to-end engineering defined an entire product life cycle from its development until after-sales. On the other hand, technology trends have tremendously impacted the evolution of the smart factory, and many researchers have attempted to identify, review and analyze them.

4) Smart Supply Chain

The emergence of mass-personalization business model, the concept of production will highly be customized that require configuration of the entire supply chain network. This condition will encourage to create digital supply chain network to achieve real-time communication among partners (supplier, manufacturer, customer). According to [13] one of the influence factor to support the digital supply chain is real-time information and technology. Similarly, Industry 4.0 integrated with smart supply chain management (SSCM) allows to access data from operations and business systems, as well as from *buy-side* partners and *sell side* partners. Besides, SSCM characteristics comprise collaborations focus, environmental focus, social focus and production system focus.

4.1 Voice of Stakeholders

Questionnaires were disseminated among selected stakeholders, yielding the graduate abilities as seen in **Table 2**. According to [3] there were twelve primary graduate abilities (GA) to be possessed in the department and rank contribution was given. The lower the value of rank contribution indicates graduate users demand that ability. In contrast, the higher the value denotes companies are less need that ability. This information prominently attracts university particularly department to modify their delivery method in lecturing course. Addressing graduate ability seems likely more suitable in the practical field study.

On the other hand, **Table 3** summarize required knowledge which classified into four main topics namely (1) Environmental and Management (2) Engineering System and Business Strategy (3) Food, Technology and Process and (4) Agriculture and Animal Husbandry. Considering the types of stakeholders are varying, the topic of Animal Husbandry still relevance with Agro-industrial Technology Department. In the topic of Environmental and Management, dominant topic comprises management scholars, while Halal System becomes a trending topic to be discussed in the class. Additionally, halal is the promising topic for academicians, enterprises and society in many aspects such as industries, tourism and lifestyle. Notably, the particular topic of smart supply chain management shall be given by the development of Industry 4.0.

Table 2. Graduate abilities rank contribution

Label	Graduate Abilities	Rank Contribution
GA-1	<i>Teamwork</i>	4
GA-6	Problem Solver	4
GA-5	Leadership	4
GA-7	Logical, critical and analytical thinking	5
GA-4	Initiative and Creative	5
GA-8	Demonstrate independent, sustainable and quality performance	7
GA-12	Master in Agro-industrial Technology knowledge	8
GA-2	Oral presentation	8
GA-11	Expertise in Integration of Islam knowledge	8
GA-3	Proficient in English speaking	8
GA-9	<i>Expert in analysis tools</i>	8
GA-10	<i>Excellence business plan maker</i>	9

Table 3. Knowledge requirement by stakeholders

Topic	Knowledge
Environmental and management	Production management
	Financial management
	Human resource management
	Operations management
	Supply chain management
	GMP, HACCP, ISO 9001 & 22000
	Cleaner Production
	Quality management system
	Project management
	Halal system
	Social community Empowerment
	Environmental management
	Hygiene
	Materials management
Marketing Management	
Engineering system and business strategy	Plan Layout
	Principle of manufacture
	Data processing
	Planning Inventory
	Business Role
	Business plan

	Creative industry Research methodology Research and Development Regulations Process Engineering New product development Quality assurance Optimization of Industry Entrepreneurship Upstream and downstream industry Local wisdom product Partnership The innovation of featured product from local society
Food, technology and process	Packaging development Agriculture materials processing Agriculture Waste Processing Agroindustry ingredient knowledge Planning Control Process Chemical Industry Microbiology and Chemical Agroindustry raw materials knowledge Packaging and Design Food Innovation Food Processing Technology Food Industry Knowledge Food Ingredient Food quality Food quality assurance Food safety Production Process
Agriculture and animal husbandry scholarly	Optimum analysis of Agroindustry development Dairy production Planting, fertilizing, pulverization, harvesting

5 Conclusions

The rapid development of Industry 4.0 is inevitable. Higher education must provide a response to this change by re-modify their curriculum design in course level, lecture delivery method and enhancing institutional capacity to cooperate with the overseas institution. Moreover, both university and industry must collaborate intensively by grant more occasion to the student. This paper identifies the critical issues of Industry 4.0 and perspective from stakeholders about current ability and knowledge required. Further, this research considered as the early phase of redesigning curriculum comprehensively. Eventually, in-depth research and analysis to obtain appropriate core competencies as relevance with Industry 4.0 are needed.

Acknowledgement. This research was fully funded by University of Darussalam Gontor, Indonesia. This paper was presented at 1st International Conference on Business, Law and Pedagogy (ICBLP), Sidoarjo, Indonesia.

References

- [1] S. Mittal, M. A. Khan, D. Romero, and T. Wuest, "A critical review of smart manufacturing & Industry 4.0 maturity models: Implications for small and medium-sized enterprises (SMEs)," *J. Manuf. Syst.*, vol. 49, no. June, pp. 194–214, 2018.
- [2] J. Simon, M. Trojanova, J. Zbihlej, and J. Sarosi, "Mass customization model in food industry using industry 4.0 standard with fuzzy-based multi-criteria decision-making methodology," *Adv. Mech. Eng.*, vol. 10, no. 3, pp. 1–10, 2018.
- [3] A. Rahmawan and M. N. Kholis, "Implementation of Quality Function Deployment (QFD) in Agro-industrial Technology curriculum," *Agroindustrial Technol. J.*, vol. 01, no. 01, pp. 10–21, 2017.
- [4] S. Venkatraman, T. de Souza-Daw, and S. Kaspi, "Improving employment outcomes of career and technical education students," *High. Educ. Ski. Work. Learn.*, vol. 8, no. 4, pp. 469–483, 2018.
- [5] P. Buasuwan, "Rethinking Thai higher education for Thailand 4.0," *Asian Educ. Dev. Stud.*, vol. 7, no. 2, pp. 157–173, 2018.
- [6] S. S. Kamble, A. Gunasekaran, and S. A. Gawankar, "Sustainable Industry 4.0 framework: A systematic literature review identifying the current trends and future perspectives," *Process Saf. Environ. Prot.*, vol. 117, pp. 408–425, 2018.
- [7] DIN, "German Standardization Roadmap: Industry 4.0 - Version 3," *Ger. Standardization Roadmap Ind. 4.0*, 2018.
- [8] M. Ghobakhloo, "The future of manufacturing industry: a strategic roadmap toward Industry 4.0," *J. Manuf. Technol. Manag.*, vol. 29, no. 6, pp. 910–936, 2018.
- [9] Kementerian Perindustrian, "Making Indonesia 4.0." 2018.
- [10] V. Alcácer and V. Cruz-Machado, "Scanning the Industry 4.0: A Literature Review on Technologies for Manufacturing Systems," *Engineering Science and Technology, an International Journal*, 2019.
- [11] L. Ardito, A. M. Petruzzelli, U. Panniello, and A. C. Garavelli, "Towards Industry 4.0: Mapping digital technologies for supply chain management-marketing integration," *Business Process Management Journal*, 2018.
- [12] L. S. Dalenogare, G. B. Benitez, N. F. Ayala, and A. G. Frank, "The expected contribution of Industry 4.0 technologies for industrial performance," *Int. J. Prod. Econ.*, vol. 204, no. July, pp. 383–394, 2018.
- [13] E. Manavalan and K. Jayakrishna, "A review of Internet of Things (IoT) embedded sustainable supply chain for industry 4.0 requirements," *Comput. Ind. Eng.*, vol. 127, no. November 2017, pp. 925–953, 2018.