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APPENDIX GA36d

LEVEL 7 ASSESSMENT SPECIFICATION

Student name:	**Hui Chun Yip David**	**Student ID number:**	**1812887**
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Lecturer:	**Dr. Stephanie Lee**	**Internal Verifier:**	
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Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) **Alternative submission method (if applicable):** **Late submission of the assessment will result in a late penalty mark.** Penalties for late submission: Up to one week late, maximum mark of 50%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

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Part1: Evaluation of current research

Introduction

Per my evaluation of current research, I reviewed over 30 journals which the content is related in operations management which is the impact factor is 6.481 in goggle. Per my background, I am working in China printing factory and our company apply Lean concept closed to 10 year. I lead some operations improved projects by Lean concept adopted and also take the better result. In my best result of Lean practices, I could reduced the pre-production lead time over 30% within 6 months and reduced the indirect labour ratio. Therefore, I deeply believe Leans is the one of the best tools to improve operations management and better result. In this part, I would like to evaluate the journal from Zuliyanti Hanizan Ainul Azyan, Venkateswarlu Pulakanam and Dirk Pons on 2017 and the title is the 'Success factors and barriers to implementing lean in the printing industry'.

Philosophy

About this journals, it was applied the case study of qualitative research. For case study approach, the case study is using inner observation and interview to written document. This method was analyzing exploratory the factors and comments from interviewer to identify the themes. Therefore the researcher analysed qualitatively to extract the success factors and barriers in the printing industry. For data collection, it was used directly interpretation and developed natural pattern to generalization of what was studied and learned. For classifying codes into themes, case study is describe the case with related content to indentify the categories. This categorical aggregation to establish themes or pattern in developing & assessing interpretation.

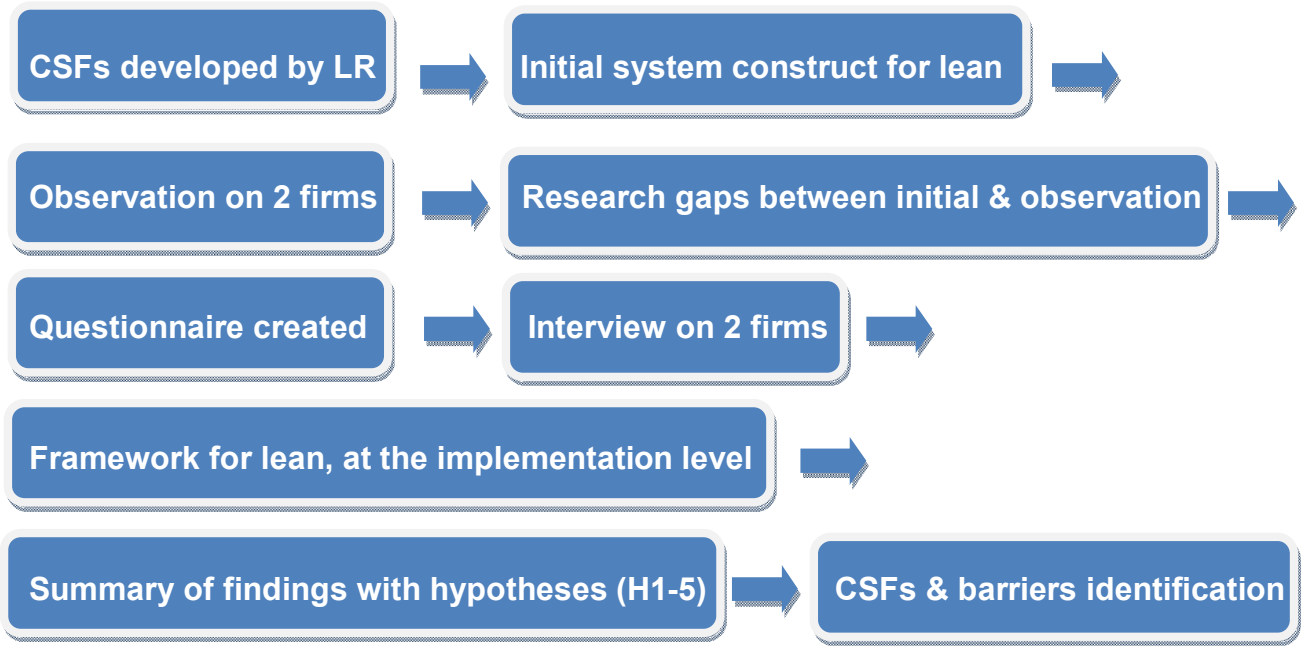
Per literature review, the journal was most applied grounded theory by qualitative research

because the research could be develop the theory by axial coding and selective coding is engaged to develop a story or matrix to further development and extend the theory. The following is the philosophy approach between case study and grounded theory:

Data Analysis	Case Study	Grounded Theory
Managing & organising the data	Create & organize data files	Create & organize data files
Reading & memoing emergent ideas	- Read through test, - Make margin notes & - Form initial codes	- Read through test, - Make margin notes & - Form initial codes
Describing & classifying codes into themes	Describe the case and its context	- Describe open coding categories - Select one open coding category to build toward central phenomenon in process
Developing & assessing interpretations	Use categorical aggregation to establish themes or patterns	- Engage in axial coding - Develop the theory
Representing & visualizing the data	- Use direct interpretation - Develop naturalistic generalizations of what was 'learned'	- Engage in selective coding & interrelate the categories to develop a 'story' or propositions or matrix

For this journal, it was used in case study approach. Firstly, the research is developed the critical success factors by literature review and prepare the initial system construct for lean adopted printing industry. Then the searcher had inner observed on 2 firms and identify the research gap between initial firm and observation. The researcher to prepare the questionnaire to interview the target on this firms. The framework was created after

questionnaire interview. In summary, the researcher concluded the finding for potentials hypotheses and identify the critical success factors (CSFs) and barriers after research. The following is the framework development.



Data collection

About this journal, it is used the case study approach of qualitative research. The journal was researched by 2 firms and 10 interviewers who were the middle management and frontline management guys of their firms. About this two firms, the interviewers were included two managers who were related with Lean implemented and three employees who were selected to see any similar or differences of their view of Lean projects.

In this journal, it is the one of the limitation because it is interviewed 2 firms which is one is success after Lean applied and another one is not successful. In addition, limited interviewers and limited the layers of interviewers also was another limitation.

Per literature review, most qualitative research scope should be extend to whole firm. Lean was not management tool only. Lean could modify the existing human being in existing operation by waste reduction and elimination to improve the operational performance. If you accept and apply the Lean concept, Lean should like the DNA to build into their brain or blood to let the management team keep continuing to improvement. If

the firm involve the Lean, it became the Lean management. The firm could keep continuing to improvement until your target. That why most firms could apply the lean within this 20 years. (Cristian Morosan et al 2010; D. Rajenthirakumar et al 2013; Chi-on et al and Sanjeev 2016)

Therefore, we should extend the scope to different layer to research the Lean application in different layers to review and study. Make sure should be cover lower, middle and top level management for research. It is because it could study difference layers and angle of Lean application to let the firm to further improvement by qualitative research. Lean concept could be top-down or bottom in the firm must be better.

In the interview, the researcher gave the hard copy of questionnaires to the interviewer and separate interview sessions to interview by individuals. It is the perfect to data collection because the interviewer could share their first image and thinking to the author. In addition, the researcher also took the notes and record. It could help to further research and study of their research.

In addition, extend the same research methodology to more firms should be better. In this journal, it prepared 2 firms only which one is success case in lean application by 5S, Kaizen, Just-in-time, Roka yokes and standardized work instructions and another one is applied 5S only. If the research can extend more firms (suggested 10 firms) or prepare 2nd research of other firms. It would be interesting to better understand and review what goes on the people mindset by different lean application and company culture. To deeply research study, we should review the frontline who make sense of lean initiatives in which area, managers request the resources for lean implement.

Methodology

This journal was applied case study method of the qualitative research to study the key successful factors in the printing industry by Lean adopted. In addition, it also identified success factors and barriers in real case study in the printing industry. The approach of this research was developed the critical success factors (CSFs) by literature review of lean

implemented. Based on this CSFs, the researcher extracted a set of interview questions were put into two printing firms for quantitative review by case study research. For this two firms, one is the successfully implemented lean and other one is less-successful in similar background of printing background included the commercial offset printing, digital printing and packaging printing . Therefore, it was already the big different between 2 firms. Actually, it was more easily identify the successful factors and barriers of this two firms but it could not apply in the industry or market.

Case Study

For the methodology, the journal was applied the case study from qualitative review. Case study method was applied in Information system (IS) based research and investigated informatics system framework which is easily understand and identify the problem compared with nature theory. It is because Benbasat et al. (1987) identify the reason which was suitable for research were the researcher could get the data collection, review the evidence compared with the theory or nature setting and it could be identify the problem why and how from the researcher. (Benbasat et al. 1987; Orlikowski and Baroudi 1991; Walsham 1995; Darke et al. 1998) In addition, Case studies method could be either positivist or interpretive (Walsham 1995; Darke et al. 1998). For positivist case, it was evaluated with the criteria with the natural theory by observation and deduction. For interpretive case, it was focus on the principles of the interpretive paradigm. The researcher did not need to be a observer in the real case by himself or herself. The researcher could find out the concepts and interpretive with the nature. (Walsham 1995; Darke et al. 1998) The researcher could compare the quoted theory, in this case is Lean implemented in printing firms , to generate, develop or build the new theory or framework. (Darke et al. 1998; Eisenhardt 1989 and Yin 1994). Case study could be identified the six major sources from qualitative research: documentations, recordings, interviews, observations , participant-observations and physical artifacts. (Yin 1994)

In this journals, the researcher designed the framework and roadmap of the CSFs before the research approached. Then the searcher observed the firmed background, personal

observations and literature review to create the questionnaire for next step for interviewer through 5 interviewers per each firms. After the interview, the searcher concluded the interviewer and coding from transcript to compared with the nature Lean theory to identify the CSFs and barriers in this research. Therefore, it could come out five hypothesis area by case study approach. However, the approach identified the CSFs and barriers but without identified the relationship and prepare the hypothesis testing.

Grounded Theory

Grounded theory was usually applied in qualitative research because it was a systematic approach with the construction theories and data analyzing. Grounded theory was used inductive and bottle-up methodology and different with the traditional methodology deductive model or hypotheses testing. Grounded theory was started from the question and prepared the questionnaire to collect the data by qualitative method. The researcher reviewed the collected data, repeated and repeated to find out the ideas, grouped the data by coding into the concepts and change into the categories. Therefore, the categories could become the theory. It could be the roadmap of the grounded theory.

About the data collection, it should be same as the case study method but the big different is the coding. Coding is the critical process in the grounded theory. The coding could separate 3 stages: coding, axial and selective coding. For the coding, the researcher reviewed the collected data after interview. The open coding is the process of broken down, combined, categorized the data by the transcript. Coding were the meaning idea from each interviewer, formed and combined into category. Coding could be formed the some idea to go to next stage. Axial coding was the process to re-assembly data from open coding data. Categories were higher level of the concept. We were generated by constant comparison of this similarities and differences. Paradigm model were tool for the axial coding. It could enable the systematically the data and related them to each other. Selective coding was the final process of the grounded theory which was the integration process and fine-tune to form the theory. Firstly, it identify the core category and the central idea after axial coding. In addition, the core concept should repeated in the data.

Therefore, we should build up a whole tree to identify the category by paradigm model. We could further explication which was given more details and description. This integration combined the categories by higher level of abstraction to linked into the core category. Finally, the story and core theory was conceptualization of a narrative by bottom-up phenomenon. It should be the sequence of the grounded theory.

Codes -> Concept (s) -> Categories Model (Theory)

(Strauss and Corbin 1990).

Case Study with Grounded Theory

Fernández et al. (2002); Hughes and Jones (2003) and Fernández (2005) were used the combined methodology with the grounded theory and case study for qualitative research. The advantage of Case study The aim was combined theory approach. The aim was combined the both advantages of different theory. Case study was strong in personal observation by researcher and this approach could be skipped the literature review to consoled the result. If researcher did not prepare the literature review, researcher could prepare the journal but the concept should be similar with another case or out of tack in similar theory.

Grounded theory could be consolidate the core framework or theory by data analysis and coding by research question. It could became the theory of this qualitative research.

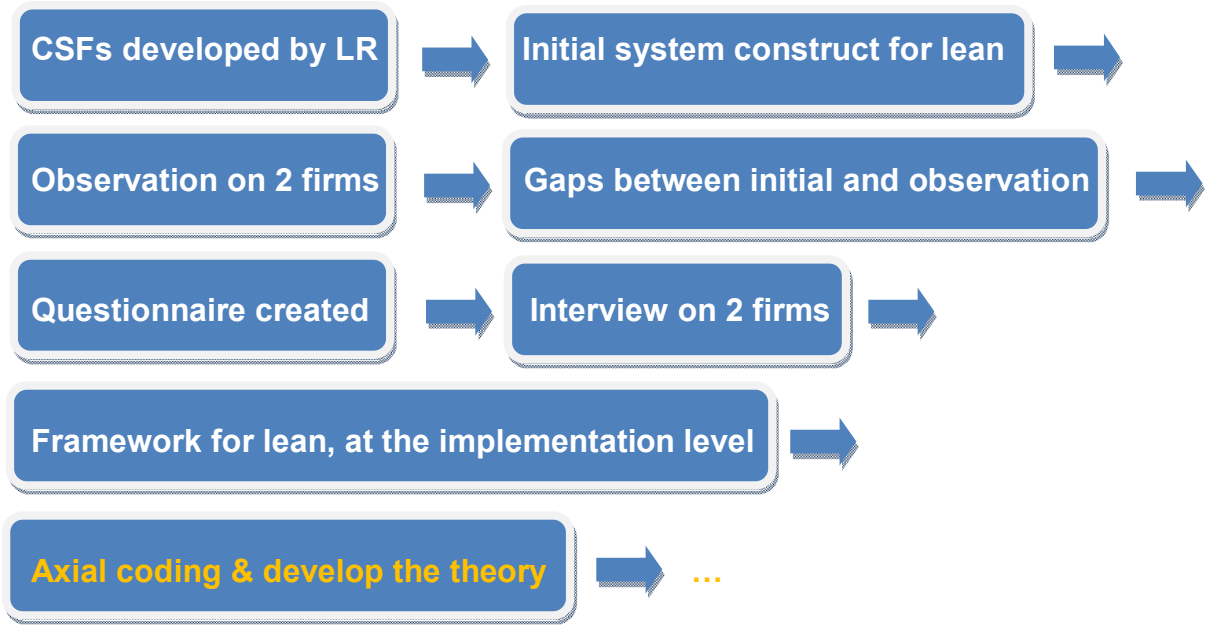
Yin (1994) applied both theory of the research. The case study protocol could be reviewed by the document with the interview, general guideline and procedures were followed by the searcher. This overview protocol of the case study which included the objectives, topic and investigation to communicate with the reader for the research topic and purpose. Case study was strong in the interview protocols comprised which specified the main topic through the interview and discussion by questions and respondents. In addition, Yin (1994) applied the grounded theory to increase the reliability by case study database such as the interviewed transcript, notes and analytic materials for coding. This materials could become the grounded theory in the journal.

Hughes and Jones (2003) also applied both theory which the case study methodology was

stated the empirical work which defined discrepancy between the interpretive and the grounded theory is applied by coding, axial coding, categorizing to form out the theory.

About this journal, the research was came from 2 cases study review so this research could not cover and apply in this industry and apply in very similar case. The function of this journal could not easily applied and acceptability in the industry. It was weakly to apply the this similar industry by limited interviewers and limited firms so this journal should not higher impact factor and also the limited citation of this journal.

In my suggestion, Therefore, we could apply the grounder theory to build up the theory for further and wider research to increase the acceptability of the theory and journals. The following is the new added framework (orange highlighted) based on my suggestion:

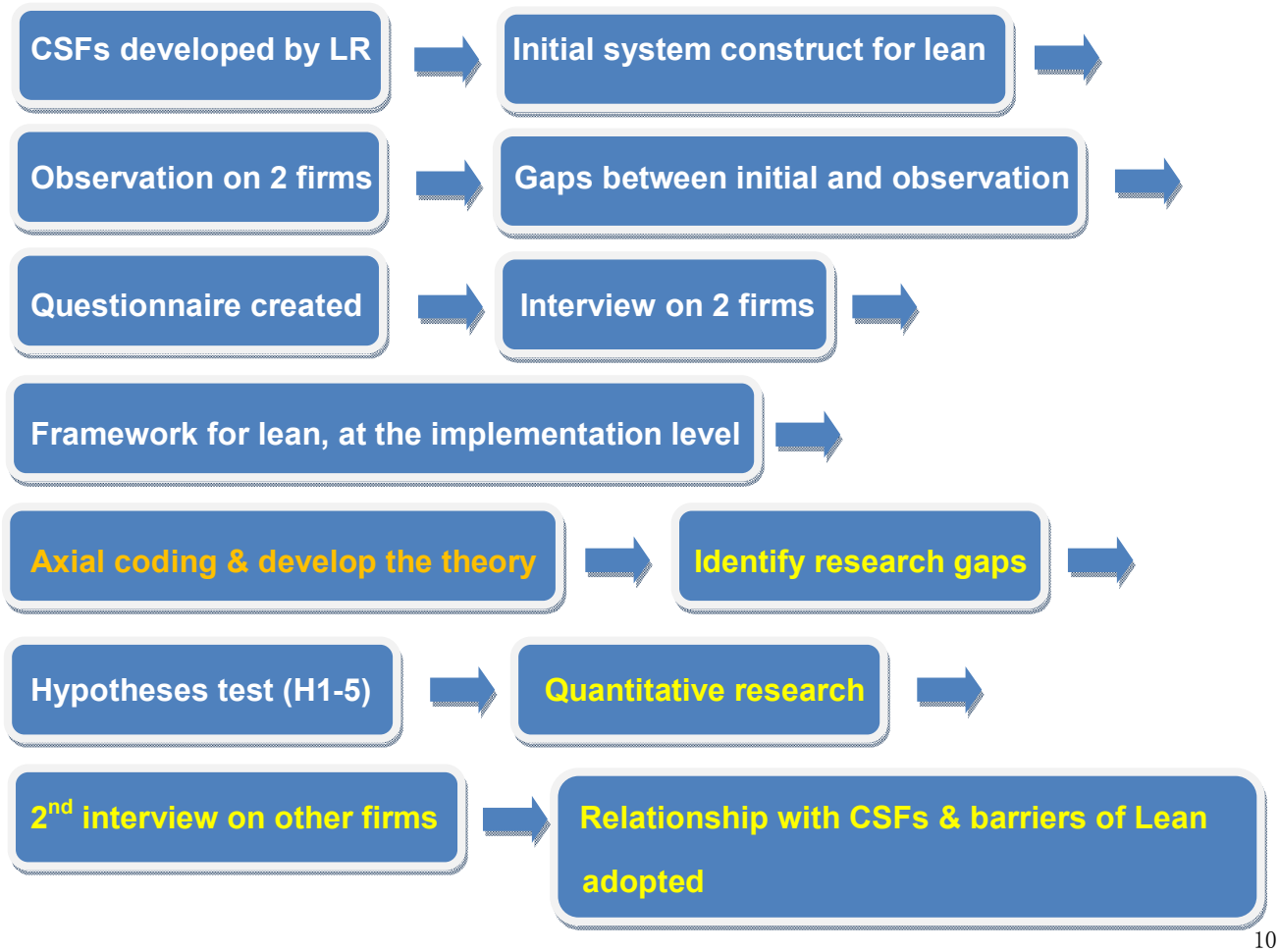


About the grounded theory part, we could revise the questionnaire to interview the target firms and target interviewers. After the questionnaire, we should prepare the transcript of each interviewers and proceed to prepare the coding and axial coding. After the coding, we could conclude the concepts from the coding process and build up the theory. If the research area increase the cover in top/ middle/ bottom layers, different firms and different country owner. Therefore, this theory could be higher confidence and acceptability.

Qualitative + Quantitative research

Another research direction, we could prepare the research after the framework created. We are combine the hypotheses test to on-going on valuable research. Therefore, most journals should combined the qualitative and quantitative research. The framework is created by qualitative and further hypotheses testing is prepared by quantitative because qualitative research need to pay more attention to observe to prepare the framework and use the hypotheses testing to prove this framework. Therefore, we could be proceed this combined method to find out the critical factors and related factors through to success or failure after lean implement and prove by the factors is related with Lean adopted by hypotheses testing. It conclude the factors or new framework could improve the operation by Lean adopted in the printing industry.

Therefore, we should keep to continue to develop the framework by different research methodology as below:



Yellow highlighted is the additional research by quantitative research. During the qualitative research is based on the observation and identify the research gaps by researcher observation and initial situation. It could not scientifically methodology to identify the critical factors . Therefore, Quantitative research could be indentify the confidence level by scientifically method to identify the relationship with critical success factors and barriers as Lean adopted case. After identified the research gap by qualitative, we could prepare the next interview and research for further firms to find out the relationship CSFs and barriers with Lean adopted. It do that, this journal could be increase the impact factor and application in the industry rather than just from case study research.

Conclusion

Lean was developed by Toyota in the 1980s. This theory is the scientific methodology and technology to improve the performance and process with minimum the non-value adding activities which is customer should not want to pay to meet the customers needs in organisation. During the unstable business environment, Lean is one of business improvement tools to improve the organisation performance and continuing improve to reduce the cost and increase the productivity.

For this evaluation of current research, we find the following area could be improvement:

1) Data collection: number of interviewers, full coverage of all layers and more firms
2) Methods: Case study should be involved grounded theory and Qualitative with Quantitative
3) Further interview to prove the CSFs and barriers and find out the relationship

Therefore, this journal should be increase the acceptability and impact factor by these this limitation improvement. In literature review, most journals could follow this framework to prepare the research. It could help me to understand how to citation, find out the limitation area for improvement and prepare better framework for research proposal (Part 2) and dissection. I think it is the important part of Part 1 for evaluation of current research and

well prepare research proposal (Part 2). Now, we could keep forward to research proposal.

Part2: Research proposal

Abstract

This paper study the factors and barriers by Lean implement in China printing industry. Lean was came from Toyota, also is called Toyota Production System (TPS) or Toyotaism and developed in 1980. The core value maximize the customer value which is customer willing to pay by minimizing the waste which is customer is not willing to pay. The organisation want to increase efficiency, throughout and pass rate and reduce the waste, lead time and defect through Lean implement. For this research, we are looking for the successful factor and barriers in Lean adopted printing company to develop the theory by grounded theory of qualitative research. Our target could make the organisation higher profit margin, shorter lead time and better quality to make the organisation greater.

Printing is one of the largest industries in the China because most of the printing company is middle scale industry. During the digitalisation development, the macro environment is changed because customer need faster, better and cheaper. Therefore, the customisation and personalisation product is came from the market so the printing industry is also need to change in small quantity and more product range to meet customer needs. About current China-US trade war, China should suffer 1.1% decrease in employment and 1% GDP loss which are not negligible. Most foreign buyer hope China manufacturing can absorb this tariffs (10% - 25%). If can't most orders should change to no tariffs production area such as South-east Asia. Therefore, LEAN should be one of the powerful tools to improve the operational cost and quality in the organisation to maintain their profit and keep to survive in market.

Introduction

During this background and unstable business environment, the organisation should apply the Lean method to improve the profit margin Therefore, we should prepare the literature review to understand which is the critical success factor and barriers of Lean adopted in the organisation. The best should be related with printing industry or similar industry.

Per my working experience, my working printing company is applying in Lean over than 10 years and I also take lead some Lean projects such as shorten production lead-time and workflow re-engineering. In the best result, the organisation could reduced the pre-production lead time over 30% by 6 months and reduced indirect labour over 20%. Therefore, I deeply believe Leans is the one of the best tools to improve operations management and better result to overcome the tariffs issue by China-US trade war and unstable business environment. (Joseph 2014; Dirk Pons et al 2017; Terence and Li 2019)

Research question

How to get successful by Lean implement in China printing industry?

- To identify the critical factors and barriers of Lean implement in printing company
- To solve the barriers by Lean method
- To develop the strategy or method to improve the printing industry

Research philosophy

In the research philosophy, we have explore 5 steps as ontology, epistemology, axiological, methodological and interpretive frameworks.

Ontology

For ontology, it should be the relativism. We should understand the nature of industry and target firms. We have review in Lean applied printing industry by literature review within past 10 years.

Epistemology

It is Emic. The researcher should be insider observation and analysis in the targeted firm because it could be collected the primary and real data by own observation. It is similarity with Gemba walk by Lean. In addition, it also identify the gaps between literature review and observation.

Axiological

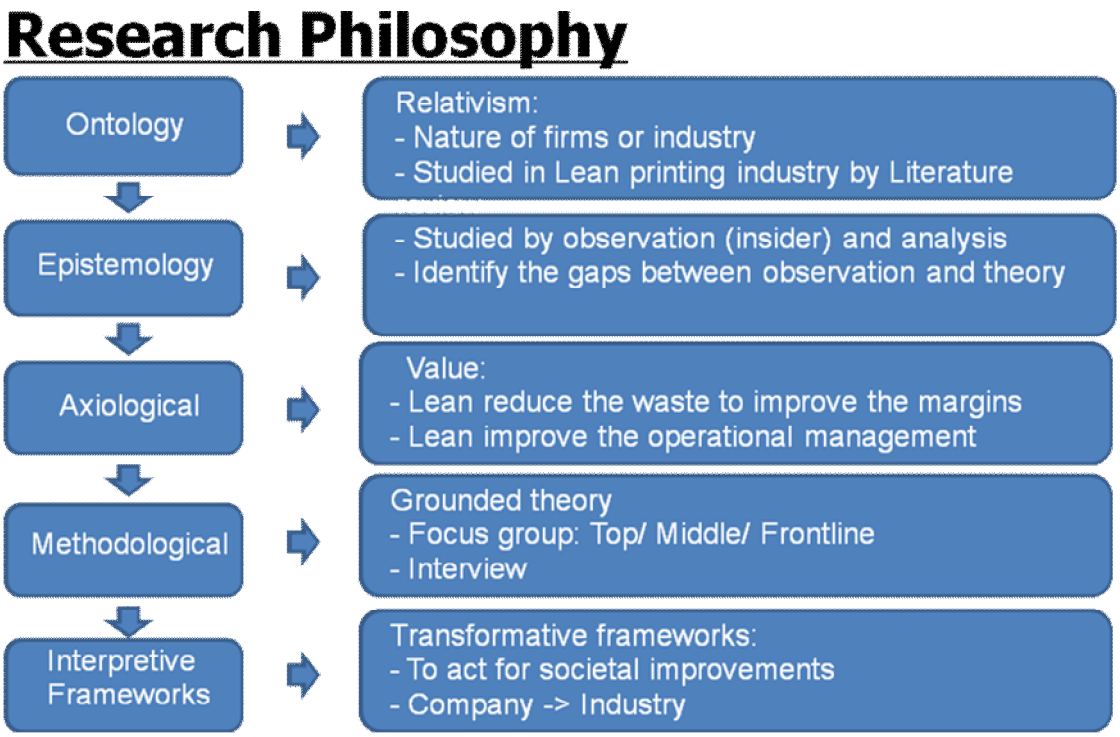
It is the value of the theory. Lean is waste identification and reduction to improve the profit margin and Lean could improve the operational management by workflow smoothly.

Methodological

This proposal should be applied in grounded theory. Our focus group should be cover different layers: senior management, middle management and frontline. If could help to see the whole picture of Lean application in this organization. In addition, we should prepare the questionnaire by literature review in interview of this focus group.

Interpretive frameworks

I would like to use the transformative frameworks because I would like use the research to act for societal improvements for attractive more organisation to use Lean to improve their own operation. In addition, this firm could be extend to printing industry as similar case for their quick improvement rather than study many literature review.



Literature review

Lean was maximize customers value and wants when minimizing waste and customer unnecessary. It could be created greater values for customer with fewer resources. The tool should understood and clear the customer value and focuses and found out the critical area to continuous increase to maximum. The ultimate case was achieved the maximum customer needs by minimize the waste and target is tend to zero waste. In the world class firms, the ratio of value added over non-value added was 3 and without applied Lean was less than 1. Therefore, Lean could be available to improve the organisation is at least 3 times but the Lean tool is more focus on waste reduction and lead time improvement. In addition, Lean was also the low cost investment for powerful tooling to take the quick-win solution to eliminate the waste and reduce the non-valued added area to improve the organisation in short period. Normally Kaizen team was within 3 to 6 months and the team should keep continuing for further improvement.

For waste eliminating, we should passed the value streams mapping or flow to identify at isolated points which was processes created that less human effort, space, less capitals, less time, less defects to keep or make product and services greater, compared with original business systems. After Lean, organisation able to provide the better product or service to our customer desires by faster, better, cheaper and fast throughput times. That why the organisation and management want to apply this tools past last thirty years. (Cristian Morosan et al 2010; Horacio et al 2011; Alessandro et al and G.D. Samarasinghe et al 2012; D. Rajenthirakumar et al 2013; J. R. Jadhav et al and Joseph 2014; Jesus 2015; Arvind et al, Chi-on et al and Sanjeev 2016; Dirk et al 2017; Dana and Muhammad et al 2018)

In China industry, the expense was on-going to increase. The major increase area were basic wages increased which is around double increased past last 10 years, housing provident fund was 5% from salary, social security fund was increase 13% in 2018 and

higher RMB fluctuated rate in past 3 months. Total expense increased around 10%. During the China-US trade war, the trade tariffs should be increasing 15% on Dec-15th and may be 25% (maximum). Therefore, the totally cost could be increased around 25% - 35%. Compared with Southeast Asia such as Indonesia, Thailand and Philippines, their government were control the wages, low tax policy and government support strategy and without trade tariffs issue.

During Lean could improved the operational performance in literature review, the figure was also good by shorten time improvement. In literature review, the success organisation should applied Just-in-time, no WIP, line balancing and VSM for operational improvement. (A. V. and E. P. 2013; CSIS 2016; Ilias & Roger 2019)

Success factors for Lean manufacturing

According to Imai (1997), the critical rule was the standardisation. The standardisation of work (SOW) was one of the documentation system. In addition, employee motivation was also very important after work standardisation. Alignment between with customers and suppliers directly and effectively for information sharing. It could be simply the workflow by Lean adopted.

According to Like (1998), the success factors are leadership, senior management to involve the Lean improvement activities, broad organisation vision, good environment for change, job securitisation after improvement, understanding the customer wants and rapid and smooth changing.

According to Dennis (2007), the success factors are applied Plan Do Check Act (PDCA) improvement cycle. Spears and Bowen (1999) also support PDCA because all improvement should be done by PDCA scientific method.

According to Dirk (2017), the success factors were defined the leadership and commitment from senior management, clear lean training, well understanding of lean concepts, lean tooling and approach, well identification of waste, senior management support and clear communication.

Barriers for Lean manufacturing

According to Pirraglia et al., (2009), the critical barrier was defined on resources which was included lack of human resources, lack of training, lack of time to implementation and inhibit organisation ability to implement lean. About the training, it should be cover senior management, middle management and frontline. In addition, communication was very important because the barriers of the firms were disconnection between customer and supplier. Communication should be vertically and horizontally direction and clear channel as lean implementation.

According to Atkinson (2010), the barriers were the commitment and lack of support from senior management. Some senior management see Lean was a short term improvement or business tool. The worse case was false commitment and support by senior management. Therefore, the senior management support and commitment were very critical transfer from barrier to successful.

According to Dirk (2017), the barriers were limited benefits by Lean application, unrealistic initial target, limited resources such as skills, knowledge, cost and time, mindset change, unclear indentify of waste and poor understanding of Lean benefits.

Successful factor and barrier by literature review

During the literature review, we could be conclude the successful factor and barriers. It could help us to easily understand and prepare the interview and questionnaires. The successful are: standardisation, motivation, alignment between with customers and suppliers, good environment for change, job securitisation after improvement, PDCA, leadership and commitment from senior management, clear lean training, well understanding of lean concepts, lean tooling and approach, well identification of waste and clear communication. For barriers, we could conclude limited resources, not well communication, not well understand the customer needs, lack commitment and support

from senior management, mindset change, unclear indentify of waste and poor understanding of Lean benefits.

Methodology

Per evaluation of current research, Zuliyanti et al (2017) show the interview is focus on the middle management and frontline worker as Lean project joined. In the citation, it could be not well prepare to collect the data in different level and limited staff. Therefore, I should prepare the context and participants of my research proposal.

Context and participants

Per the literature review, Joseph (2017) prepare the focus groups are:

- senior management
- middle management
- frontline

It is because the different layers should be participant in each Lean activates. Per our literature review, some barriers are came from senior management don't fully support, middle management could not be the vertically and horizontal for communication with customer and supplier and top and down staffs. In addition, frontline don't really identify the waste and really understand Lean benefit. Therefore, 3 purposive sampling of each layer also need to study in this research.

During the no. of participant of Lean project joined is not too much of target firm. Therefore, the interviewer is designed as below:

1) Senior management = 2 persons (totally is 4 persons)
2) Middle management = 4 persons (totally is 11 persons)
3) Frontline = 8 persons (totally is 35 persons)

Data collection step

Interviews

After we designed the focus group in 3 layers to collect the information, we should prepare the questionnaire for the interview. The questionnaire should be designed related with our aim and objective and research question of this research. Therefore, the questionnaire should be related with successful factors and barriers of the firm. The following is the questionnaire question:

(i) Describe lean manufacturing in your own words.
(ii) Did you achieve your designed goals?
(iii) What did you think the success in Lean project?
(iv) What did you think the success factors in Lean project?
(v) In Lean project, what is the barriers you faced? How did you overcome?
(vi) What strategies did you use in implementing lean manufacturing? What worked? What did not work?
(vii) Could you mind to share your Lean experience to other department?
(viii) What knowledge had to be developed at frontline, middle management and senior management?
(ix) What were some of the strategies you used to develop your knowledge?
(x) Any support from supervisor or other department?
(xi) Is there anything else you would like to add?

I should prepare interview groups of 12 participants totally within 1- 1.5 hours for this interview. At the same time, I prepare the audio recorder and transcribe notes in this interview.

Observations

In the Lean, Gemba was the term often see in the literature review. Gemba walk could find out the opportunity by Go and See. The researcher should play the role of observer of the interview and insider initial observer to review the organisation. It could be different angles to understand the organisation rather than single channel (interview).

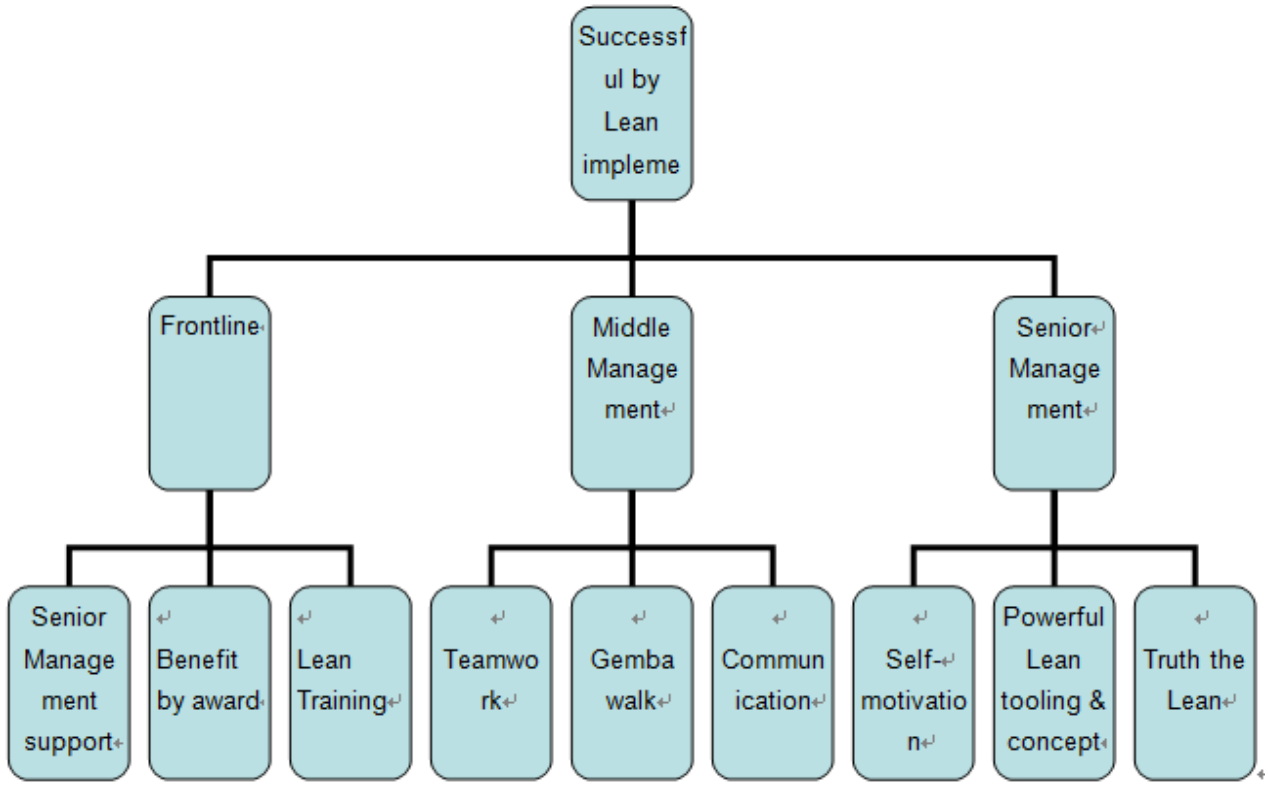
Data analysis

During the data analysis, we could apply grounded theory after interview and observations. Grounded theory was used inductive and bottle-up methodology and different with the traditional methodology deductive model or hypotheses testing. In the coding process, we reviewed the collected data, repeated and repeated to find out the ideas, grouped the data by coding into the concepts and change into the categories. Therefore, the categories could become the theory. It could be the roadmap of the grounded theory.

According to Strauss and Corbin (1990), the coding is included 3 stages: coding, axial and selective coding. For the coding, the researcher reviewed the collected data after interview. The open coding is the process of broken down, combined, categorized the data by the transcript. Therefore, we should prepare the transcript after the interview.

By the transcript, we could find the key concepts from the transcript. For the senior management level, it should be Lean DNA, teambuilding, Lean management and motivation. For the middle management level, it should be communication with other departments, relationship with customer needs and supplier, waste defined, time management and workflow improvement. In the frontline, it should be benefits, reward, management support, other department support and Lean training. There are the opening coding.

After this coding, we re-assembly data from open coding. The categories were higher level of the concept. Therefore, I build up the analytical tree of the successful factors of the Lean implement as below:



Analytical Tree of successful factors of Lean applied in printing company

During this axial coding, it identify the core category and the central idea. In addition, the core concept should repeated in the data. Therefore, we should build up a whole tree to identify the category by paradigm model. We combined categories by higher level of abstraction to linked into the core category. Finally, the core theory was conceptualization of a narrative by bottom-up phenomenon.

Therefore, the successful factors (theory) is build up by 3 layers management and concept of each management level.

It should be the sequence of the grounded theory as:

Codes -> Concept (s) -> Categories Model (Theory).

Discussion

Lean is the powerful modern management improved tooling past 30 years. The concept is waste reduction to fulfil the customers values and wants in operational improvement. During Lean is hot topic for business and operation improvement, I prepare the qualitative research to identify the success factors by Lean printing company.

Per the findings, 9 potential successful factors Lean implement in China printing company. Compared with successful factors or barriers in literature review, there are the critical success factors of Lean implement in China printing company. Therefore, this research could be a direction which the company would want to use Lean method for improvement. It could let the company or organisation study they have any potential factors or barriers before they proceed the Lean application or not. Therefore, this proposal could transform Lean successful factors framework from a company to the China printing industry or China company. It should be index of successful factors of the industry.

However, the research just studied and reviewed in a single company. Therefore, the factors and barriers could be occurs in a company and can't reflect in the industry. If we want to increase the acceptability and impact factor of this research, we should study more firms such as different company sizes, different backgrounds and different markets for further study. Secondary round interview also increase the confidence by qualitative research of this case.

In the limitation of this research, it was explored in single firm and limited interviews is not good used for initial purposes. In addition, single interviewer to interview 3 management layers at the same time. It could be affect the final result because the interviewer can't give their own ideas with other participants. Therefore, individual interview could be better than group interview. The hypotheses testing and greater confidence level in the study to extend the research to more companies.

In my suggestion, the research could be set up the hypothesis test formula to find out the factors with confidence level. Therefore, it should consolidate the following factors:

1) Self-motivation – Lean like the DNA involve the staff mindset to keep continuing for further development.
2) Management support and commitment – It is very improve for the staff because each policy could be better apply in organisation should be win-win situation. If the staff could get the reward and company also earn the Lean benefits, the policy should be keep on-going to develop.
3) Clear Communication – Communication could be vertically (from top to bottom), horizontally (between different department) and customer/support level. The standard and information should be clear and share at the same time.
4) Team spirit – trust and team building are very important in the organisation.
5) Clear Lean training – The staff of organisation should be understand how to apply the tooling and concept as organisation apply the Lean concept. For example, Just in time (JIT) as the core to reduce the waste and great improvement.

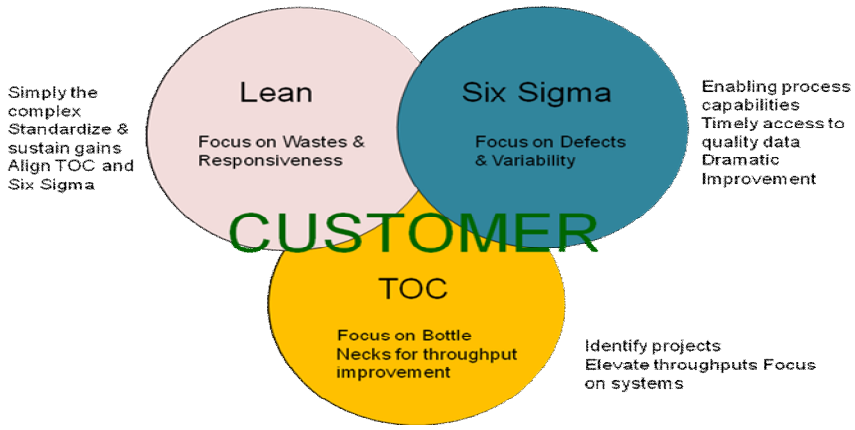
If we define the hypothesis testing with successful factors, it could be more easily to under the testing direction and solution from this research.

In conclusion, according with the unstable marketing environment, specially China and US trade war, China manufacturing should plan to reduce their operation cost to survive and some company plan to move their operation outside of China to reduce their operation cost. In addition, China company also need to face the labour shortage, higher benefits and cost increasing issue. Therefore, I would like to prepare the dissertation for improve in China printing industry rather than moving out of China.

Reflection

Per my qualitative and quantitative research learning, both research methodology could be applied in different approach in my further doctorial dissertation. For the qualitative research, it should pay more attention to observe to prepare the framework to build up the theory by grounded theory. For the quantitative research, I can learn the systematic and statistics method to develop hypotheses testing to find out the relationship between factors and cause. However, this methodology could collect the primary data and drill down and explore our target research gap. Therefore, most journals could be applied mixed research method.

Per all literature review, the most business improvement method also applied mixed tools because different tools have advantage and limitation for different case. For Lean , it should be Lean with six sigma and Lean with TOC for process improvement per last 5 years journals. Lean is focus on waste reduction, Six sigma is focus on quality improvement and TOC is focus on throughput increased. During the different approach, and concept and target is different, combined approach in run paralleling could be rapid to improve the organisation to fulfil quick change environment. The following is the different idea with combined theories:



Lean six sigma approach with TOC

In future, this research proposal are not only applied in China printing industry. It could be applied on world printing industry if they could like apply the Lean theory for operational improvement. The main core value of Lean is continuing improvement by ourselves and improvement looping to keep very things to do the best.

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SBPD7002 – Presentation

David Hui
26th Oct,2019

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Part 1:
Evaluation of current research

Success factors and barriers to implementing lean in the printing industry

A case study and theoretical framework

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Abstract

Purpose – Lean principles are applied in manufacturing and service industries extensively, but its successful application in the printing industry has been poor. The purpose of this paper is to explore the factors that impede the uptake of lean in the printing industry.

Design/methodology/approach – Qualitative case study research methods were used to explore success factors and barriers to implementing lean in printing by interviewing two managers and three employees at each of two printing firms that had implemented lean to different degrees.

Findings – A number of critical success factors and barriers to implementing lean are identified. Success factors include practitioners' understanding of lean philosophy, principles and methods, management leadership and commitment, upfront training in lean and effective communication.

Originality/value – The work contributes to empirical research on implementing lean in the printing industry. This research identified critical success and failure factors in implementing lean in this industry. Management knowledge, commitment, and support emerged as key factors. A theoretical framework is provided that proposes relationships of causality for the successful implementation of lean in this industry.

Keywords Lean, Critical success factors, Implementation

Paper type Research paper

Introduction

- Reviewed over 30 journals
- Operations management which is the impact factor is 6.481 in goggle
- My background
  - Working in China printing factory which apply Lean concept closed to 10 year.
  - Led some operations improved projects by Lean
  - Best result of Lean practices:
    Reduced the pre-production lead time over 30%
    Reduced the indirect labour ratio
- Lean is the one of the best tools to improve operations management

Philosophy

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- Case study approach

Data Analysis	Case Study	Grounded Theory
Managing & organisaing the data	Create & organize data files	Create & organize data files
Reading & memoing emergent ideas	- Read through test, - Make margin notes & - Form initial codes	- Read through test, - Make margin notes & - Form initial codes
Describing & classifying codes into themes	Describe the case and its context	- Describe open coding categories - Select one open coding category to build toward central phenomenon in process
Developing & assessing interpretations	Use categorical aggregation to establish themes or patterns	- Engage in axial coding - Develop the theory
Representing & visualizing the data	- Use direct interpretation - Develop naturalistic generalizations of what was 'learned'	- Engage in selective coding & interrelate the categories to develop a 'story' or propositions or matrix

Philosophy

- Approach by journals

CSFs developed by LR → Initial system construct for lean → Observation on 2 firms → Research gaps between initial and observation → Questionnaire created → Interview on 2 firms → Framework for lean, at the Implementation level → Summary of findings with hypotheses (H1-5) → CSFs & barriers identification

Philosophy

- Suggestion

CSFs developed by LR → Initial system construct for lean → Observation on 2 firms → Gaps between initial and observation

→ Questionnaire created → Interview on 2 firms → Framework for lean, at the Implementation level

→ Axial coding & develop the theory → Identify the research gaps → Hypotheses test (H1-5)

→ Quantitative research → 2nd interview on other firms → Relationship with CSFs & barriers of Lean adopted

Method used

- Journal = Case study method
- Identify critical success factors and barriers
- Limitation = limited firms and interviewers

- Suggestion
  - Case study -> grounded theory
    => Develop the theory
  - with Quantitative research
    => Research gap identified
    => 2nd interview on other firms
    => Relationship with CSFs and barriers by Lean adopted

Data collection method

- Case study
- Researched by 2 firms
- 10 interviewers: 2 managers and 3 frontlines

	Firm A	Firm B
Business ownership	Local	International
Number of employees	500	400
Type of printing	Offset lithography and digital printing	Offset lithography and digital printing
Products	Commercial printing of magazines, books, brochures, catalogue, annual report, newspaper Digital printing of photo book, personalised calendar, personalised invitation card, poster, bunting and banner	Instruction manual, books, brochures and alike Digital printing of poster, bunting and banner
Production operations	Everything done in-house except finishing for hot stamping, embossing and if overcapacity. These works and in situations when demand exceeds capacity, the work is outsourced	Everything done in-house except thread-sewn work, which is outsourced
Used consultants to implement lean?	Yes, local and international	Yes, local
Lean methods implemented	5S	5S, Kaizen, JIT, Mistake Proofing (Poka Yoke), standardised work instructions (SWIs)

Data collection method

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Improvement area

- Limited firms (1 success and 1 less-success)
- Limited interviewers (5 staffs/firm)

Perfect area

- Perfect for data collection method by hard copy questionnaires with interview individuals

Suggestion by Literature review

- More firms (1st: 2 firms; 2nd : >=10 firms)
- Interviewers (Top, middle and frontline level)
- Top-down and bottle-up management by Lean

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Part 2:
Research proposal

Abstract

Why organisation need Lean?

Non-value added
- Waste reduction
- Lead time reduction
- Defect reduction

Value added
- Efficiency increase
- Throughput increase
- Pass rate increase

Unstable environment => challenges

Tariffs:
10%? 15%? 25%? 0%?
Who know?

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Research Questions

How to get successful by Lean implement in China printing industry?

- To identify the critical factors and barriers of Lean implement in printing company
- To solve the barriers by Lean method
- To develop the strategy or method to improve the printing industry

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Research Philosophy

Ontology →
Relativism:
- Nature of firms or industry
- Studied in Lean printing industry by Literature

Epistemology →
- Studied by observation (insider) and analysis
- Identify the gaps between observation and theory

Axiological →
Value:
- Lean reduce the waste to improve the margins
- Lean improve the operational management

Methodological →
Grounded theory
- Focus group: Top/ Middle/ Frontline
- Interview

Interpretive Frameworks →
Transformative frameworks:
- To act for societal improvements
- Company -> Industry

Literature review

LEAN

- Toyota Production System (TPS) or called : Toyotism in 1980
- Core idea is to maximize customer value while minimizing waste
- Goal provide perfect value to the customer through a perfect value creation process that has zero waste
- Less human effort, less space, less capital, and less time to make products and services at far less costs and with much fewer defects
- High variety, high quality, low cost, and with very fast throughput times
- Information management becomes much simpler and more accurate.

Literature review

Cases in different industry improvement

Author	Year	Industry / country	Core study
Lawrence & Hottenstein	1995	Mexico	• investigate the relationship between JIT manufacturing • consider reducing setup times, reducing production lot sizes, simplifying materials flow and handling, reducing inventories, and preventing defective products from being made as key components of JIT.
Li	2000	Chinese factory	•investigates the relationship between such measures of performance as sales, profits (after tax), and returns on investments. •42 measures of competency in marketing, product design/development, manufacturing &human resources

Literature review

Cases in different industry improvement

Author	Year	Industry / country	Core study
Li	2005	Chinese factory	• investigates the intermediate infrastructural manufacturing decisions that affect Chinese firms' market performance. • suggests to manufacturing control, human resource development and technology applications to improve market performance.
Robb et al.	2008	Chinese furniture industry	• investigate the supply chains, operations practices and performance. • multi-dimensional construct for market performance. • 68 variables related to supply chain/operations practice and 13 operations dimensions assessed twice, once for importance and once for performance.

Literature review

Cases in different industry improvement

Author	Year	Industry / country	Core study
Taj	2008	Applied Lean Chinese factory	• investigates the adaptation of lean manufacturing in China. • study Lean manufacturing assessment at 65 manufacturing plants in various industries. • findings show low scores in layout design, volume/mix flexibility, setup, visual factory, and point-of-use delivery. • plants get better results as - materials flow, - scheduling control, - on-time delivery of finished goods, - overall defect rate.

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Context and participants

- **Focus Group:**
  Top/ Middle/ Frontline who are implement in Lean project or activity

-**Interviewer:**
Top management = 2 persons
Middle manager = 4 persons
Frontline = 8 persons

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Data analysis

- 1) questionnaires as below questions

(i) Describe lean manufacturing in your own words.
(ii) Did you achieve your designed goals?
(iii) What did you think the success in Lean project?
(iv) What did you think the success factors in Lean project?
(v) In Lean project, what is the barriers you faced? How did you overcome?
(vi) What strategies did you use in implementing lean manufacturing? What worked? What didn't work?
(vii) Could you share your Lean experience to other department?
(viii) What knowledge had to be developed at frontline, middle management and top management?
(ix) What were some of the strategies you used to develop your knowledge?
(x) Any support from supervisor or other department?
(xi) Is there anything else you would like to add?

- 2) Group interview

Findings

- 1) Powerful Lean tooling and concept –>
  Waste reduction, no WIP, Just-in-time
- 2) Self-motivation -> Lean DNA
- 3) Gemba walk -> Go and see by yourself and by your eyes
- 4) Teamwork -> Improve the problem by Kaizen team
- 5) Barriers -> Some teammate don't truth the Lean
  Management support is not enough
  Less motivation by no benefit

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Reflection

- Quantitative research to find out the relationship of hypothesis testing after my findings
- Studied in more printing firms
- Successful factors from company to industry by transformative frameworks
- Combined tools to improvement operational management such as six sigma, theory of construct and industry 4.0 by further literature review

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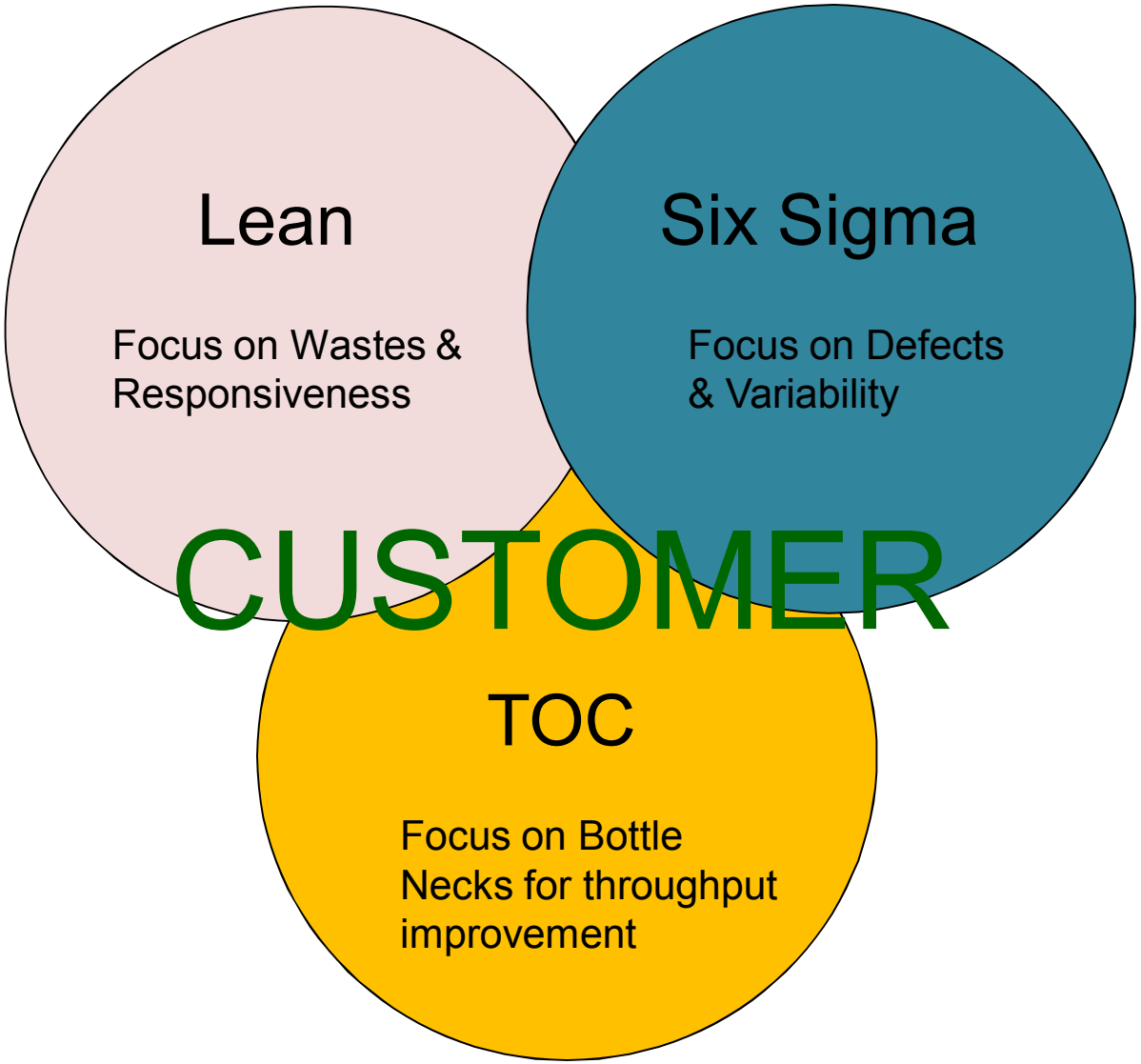
Theory of constraints

- Invented by Dr. Ellyahu Goldratt in 1980
- The Theory of Constraints (TOC) is an emerging philosophy that rests on two assumptions:
- (1) system thinking and
- (2) if a constraint is anything that limits a system from achieving higher performance versus its goal, then every system must have at least one constraints
- Recognition of the existence of constraints represents an excellent opportunity for improvement because it allows one to focus ones efforts in most productive area – identifying and managing the constraints.

Six sigma

- Developed by Motorola in 1986
- Data-driven approach and methodology for eliminating defects (driving toward 6σ more than 3.4 defects per million opportunities)
- Six sigma methodology use DMAIC process (Define, Measure, Analyze, Improve, Control) as an improvement system for existing processes falling below specification and looking for incremental improvement by using process capability index (Cpk) for judgment as process improved

My research direction



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Thank you!