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Visions for the Future – Theoretical Perspectives on Management

**Title: Use the 3-H approach to reflect the key lessons of
the MTR scandal of construction works at Hung Hom
station extension under the Shatin to Central Link
Project.**

by KAM Chi Wing

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1. Background information

1.1 Aim

The general aim of this paper is to theorise about the managerial experiences and knowledge with the 3-H approach (Yu, 2019); reflect on the process and outcomes of a megaproject; why the project was failed or succeeded and what key lessons can be drawn from my reflection. The research aims of this paper is to use 3-H approach (Yu, 2019) to understand the causes of Mass Transit Railway Corporation Limited (MTRCL) scandal of the construction works at Hung Hom station extension under the Shatin to Central Link (SCL) Project to draw learnings on leadership, management, work culture, and project management.

1.2 Objective and domain

With this backdrop, the objectives of this paper is to use the 3-H approach (Yu, 2019) to reflect on i) the causes of the issues, ii) explore corporate and work culture which leads to such scandal, iii) understand leadership which contribute to such result in order to iv) provide suggestions to avoid similar situation from happening again and v) come up with success factors in project management. The domain in which I wish to present my argument to are corporates with business context, especially the construction industry in Hong Kong.

1.3 Research question

Therefore, the research question or the title of this paper is: **Use 3-H approach to reflect the key lessons of the MTRCL scandal of construction works at Hung Hom station extension under the Shatin to Central Link Project.**

1.4 Area of interest and scope of this study

This paper covers different levels of management, including top, the senior, middle, frontline of MTRCL and related contractors. Level of the strategy of this paper includes business, functional and value chain strategy.

1.5 Significance of the issues

The issues of this paper are worth researching because the construction sector contributed 5.2% of Gross Domestic Product (GDP) of Hong Kong in 2016. It also employed over 353,000 people and 110,000 construction site manual workers in 2018 over a 7.8 million population in Hong Kong (Research Office Information Services Division Legislative Council Secretariat, HKSAR, 2018). More importantly, the lesson learned can help to reflect the management practice of i) government on its infrastructure project management, ii) construction firms on its vendor/supply chain relationship management, iii) corporates on the work culture which affect the work results.

1.6 Original value

Currently, there is no research paper on this topic using the 3-H framework through this mega project as the case background which gives the original value of this paper.

2. Research approach

2.1 Methodology

Both primary, secondary research were used to answer the research question. To seek more independent views, and to understand the actual practice of the industry in Hong Kong, 6 semi-structured interviews with industry practitioners and professionals were conducted as primary research. Each participant was asked similar questions related to the research question. The list of questions can be found in Appendix A. Verbatim of the interviews were recorded and can be provided upon request. For secondary research, the last 10 years of peer-reviewed journal articles were studied. Besides, related newspaper reports, press releases, government statistics were also reviewed.

2.2 Key subject word

The key subject words of this paper are, 3-H approach (Yu, 2019), construction industry analysis, transformation leadership in construction industry, leadership and management in construction value chain, managing construction contractors, corporate work culture to avoid fault, corporate governances, project management, behavioral theory, agency theory, motivation theory, and communication in construction projects.

2.3 Limitation of this study

This paper uses a mega construction project in Hong Kong as a case study. It is understood that there is a cultural difference in project management in different countries but the generic learnings can be applied in places with a similar background. It is anticipated that this work will trigger further research.

This paper will use the 3-H framework (Yu, 2019) as the major contemporary management theory to analyse the management practice of the MTRCL case. The 3-H framework is an organisational management framework developed by Eddie Yu in 2019. It uses metaphoric expressions of Heart (H1), Head (H2) and Hand (H3) to represent the vital dimensions of people, organisation and competence, respectively. The 3-H framework is used because it is a holistic methodology for managing organisational issues, including project management. Under this framework, relevant management theories and practices can be systematically and logically introduced. This framework can also help develop a holistic solution to address organisational issues. The 3-H related

management theories and concepts which can be applied in this case study are i) H1 Heart-related literature: motivation, leadership, organisational culture, communication, ii) H2 Head-related literature: value chain, industry analysis, iii) H3 Hand-related literature: Competence (Yu, 2019).

3. Organisation and project being studied

3.1 Background of the organisation and project

The company this paper study is Mass Transit Railway Corporation Limited (MTRCL) of the public transportation industry in Hong Kong. The project engaged is the most expensive HK railway Hung Hom station extension under the Shatin to Central Link (SCL) Project. SCL is divided into two sections, the East-West Line (EWL) and the North-South Line (NSL).

The Incident is the structural integrity of the platform slabs and diaphragm walls at the expanded station for the HK\$97.1 billion (US\$12.4 billion) Sha Tin-Central link. This scandal blew up in May 2018 with allegations of steel bars being improperly cut to facilitate installation of couplers on the platforms, and the structure of the supporting diaphragm walls being changed without government approval (Tsang & Yau, 2018). The impact of the incident is serious as it affects public safety, public trust to the government and other infrastructure projects, trust in the construction industry, and trust to MTRCL. If the investigation report indicates that there is a danger to the structure and public safety, dismantling and reinstatement work will be needed which will cause delay of the project. The following diagram shows the image of the platform and supporting the diaphragm wall. My role is an independent observer to study the causes of the incident.

Diagram 1



The east-west corridor of the rail link was originally expected to open by mid-2019, while the cross-harbour part was scheduled to launch in 2021. Photo: Sam Tsang

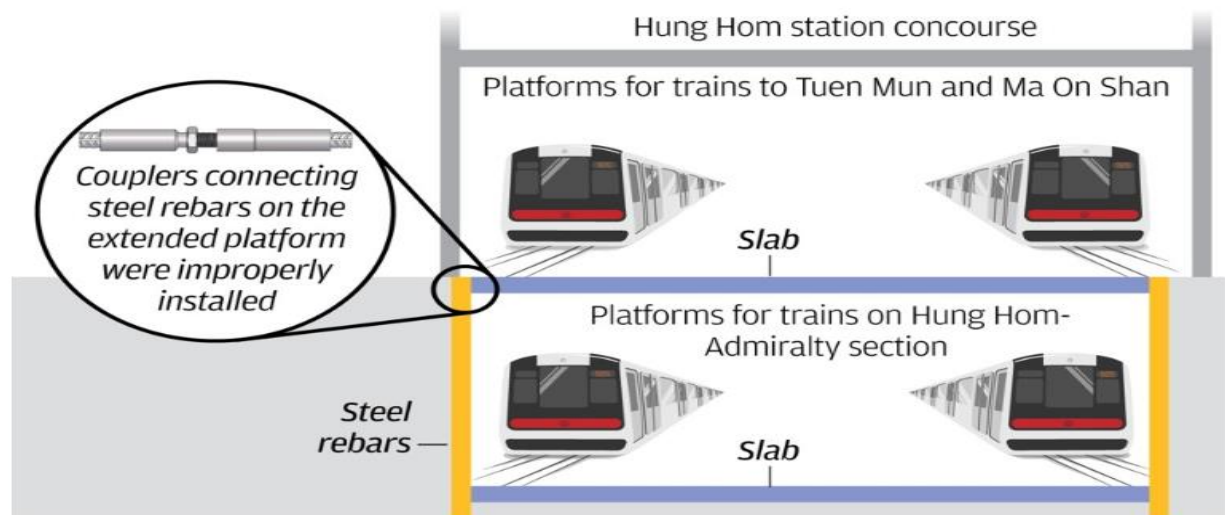
In this project, the HKSAR Government is the ultimate ‘owner’ of the entire SCL project while MTRCL is the ‘project manager’. In order to construct the SCL project, Secretary for Transport and

Housing is representing the Government entered into a series of entrustment agreements with MTRCL in May 2012. In fulfilling its mandate as a project manager, MTRCL has signed numerous major civil engineering contracts. The one related to the scandal is Contract 1112 (the ‘Contract’) between MTRCL and Leighton, as the contractor, on 7 March 2013. Leighton further tendered three sub-contracts with Fang Sheung who is responsible for installing the steel reinforcement for the platform slabs. This involved all necessary bar cutting, bending and fixing works on the slabs. It further involved connecting the joints between the slabs making up the EWL and NSL platform slabs and connecting the platform slabs to the diaphragm walls. There is an allegation that Leighton ‘labour’ deliberately placing the cut shorted thread against the couplers to pretend there is a true installation. China technology employees had witnessed that no inspection process was in place to ensure the secure installation of the rebars into the couplers (Hartmann and Hansford, 2019).

Diagram 2

Cutting corners

The steel rebars on the Sha Tin to Central rail link were cut short to fake proper installation



August 2015
MTR inspection staff discovered first batch of faulty steel bars

From August to December 2015
Five instances of cutting steel bars were found

December 2015
MTR sent an email to Leighton demanding it rectify the work

August 2016
Construction of the track slab was completed. No repeat incidents were found after December 2015

Source: MTR

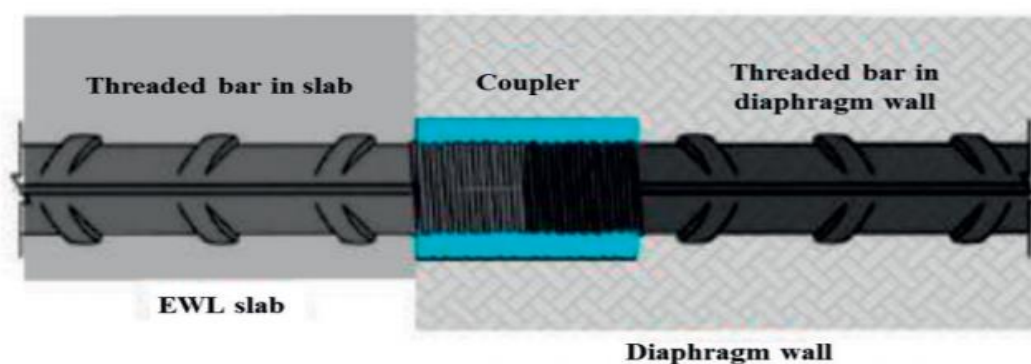
SCMP

3.2 Factual information as evidence to support the verdict of project success/failure

To investigate the scandal, HKSAR Government appointed former judge Michael Hartmann to lead the investigation under the Commission of Inquiry Ordinance. This paper uses the interim report of this commission as the factual information for the verdict and for analysing the causes of failure. The interview findings from primary research are used to provide more industry actors viewpoints on the verdict.

The whistleblower was Jason Poon, the Managing Director of China Technology Corporation Limited (China Technology), one of the main subcontractors responsible for erecting formwork and pouring concrete of the station box structure. Jason expressed concern that there had been a systematic and widespread cutting of threads from the end of reinforced bars, commonly called ‘rebars’, to avoid having to fully engage the rebars into the mechanical coupling devices: the ‘couplers’. This suggests that the huge reinforcing concrete structures making up the station box structure may not securely be connected to each other. This malpractice had been permitted by a lack of diligent oversight and inspection, which threatened the structural integrity of the whole station box structure (Hartmann and Hansford, 2019). And this arouses public concern on the safety of the structure. The photo below shows the image of rebars and couplers.

Diagram 3



The review of Hartmann and Hansford has looked into the supervision, management, quality assurance, communication, process, practice, monitoring and control systems of both the Government and MTRCL. 65 witnesses were testified and seven witnesses who were accepted as being independent experts (Hartmann and Hansford, 2019).

Diagram 4



The MTR Corp was hit by allegations of steel bars being improperly cut to imitate proper installation into couplers on the platforms. Photo: Dickson Lee

According to the investigation of the Commission, some thread of rebars were cut because workers wanted to convert Type B or rebars into Type A of rebars as Type A rebars have run out. There were also cases when rebars were not fully engaged in the couplers and employees of Fang Sheung is responsible for this conduct (Hartmann and Hansford, 2019).

Diagram 5



3.3 Analysis of its causes of failure. With reference to the 3-H framework and each H's related theories. Factors, which caused major motivational negative powers that contributed to the failure of the project

According to the commission's interim report, a combination of factors contributes to the incident, this section will use H1 of the 3-H framework to analyse those factors. H1, Heart-oriented dimension plays a central role to the 3-H framework, it cares about motivational and other human aspects in management practices which motivate employees to commit in achieving organisational goals. Below are the possible negative motivational powers and human factors in management which contributes to the issue.

3.3.1 Lower actual cost and lower bid contract

Contract 1112 is a 'target cost' contracts which incentivize the contractor to deliver the works at a lower actual cost. Payment is made to the contractor on the basis of the actual costs incurred together with a fee for its overheads and profits. However, built into the contract is a 'pain/gain mechanism' under which, the Government (not MTRCL) and the Contractor (Leighton) share any savings under the target or share any additional costs over the target. In fact, in Contract 1112 there was a cap on the Government's exposure to additional costs of 10% of the initial target cost (Hartmann and Hansford, 2019).

As shared by industry actors, it's the industry norm to render the contract to vendors who offer the lowest bid in price-focused tender selection. Apart from cost saving, the government finds it troublesome to justify if the decision was made not based on price. The worse fear is a possible allegation of corruption. Therefore, it's usually the lowest-bid gets the job. This practice and mindsets lure the vendors to save costs by all means and motivate them to make a concession in quality of work.

3.3.2 Corporate and work Culture

In the opinion of the commission, there was negligent and/or illicit conduct in the installation of rebars into couplers and Fang Sheung workers were responsible. Fang Sheung believes their workers decided to cut short the rebars without telling the company to replace the rebars when they encountered difficulties e.g. the couplers were damaged, something wrong with the rebars, for the sake of convenience (Hartmann and Hansford, 2019). Industry experts interviewed

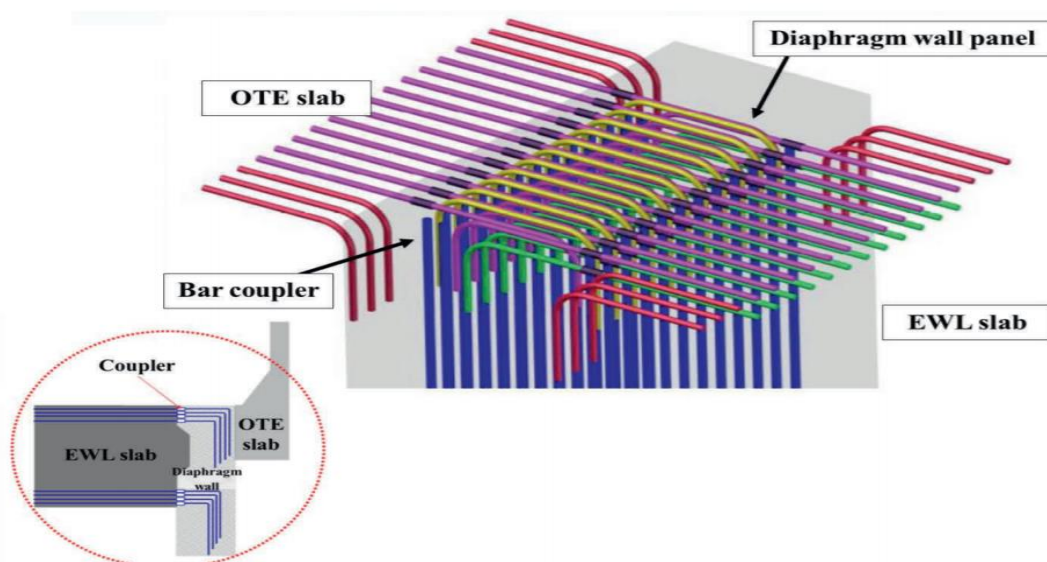
confirmed this work culture in the industry. Get the job done on time is a strong incentive to workers as this is how they get pay. This convenience-based culture usually jeopardises the quality of work.

3.3.3 Leadership and Management

Leaders set direction and priority to the company. It is hard for employees to follow certain requirements if the leader does not support such an initiative. Steve Rowsell, the independent expert commented that site supervisors of Leighton were not aware of the Quality Supervision Plan (QSP), Site Supervision Plan (SSP) and related technical competence. It is because the Chairman of Leighton claimed Leighton's own quality control procedures were more than sufficient, the QSP becomes superfluous. Independent expert also commented that MTRCL failed to ensure Leighton's management and supervisory team aware and follow the requirement set out in General Specification (Hartmann and Hansford, 2019). Thus, the related requirement was not followed. Industry professional interviewed concurred that Leadership and Management play a key role in all decisions and execution of work, especially quality control measures.

Besides, senior management in this project seemed too detached from the real work situation because, in one of the press releases, senior management illustrated how to turn rebar into the coupler in front of the press to express the work was easy to be done. However, according to the industry experts, the rebars could be 30 meters long in reality and it takes four workers to turn one rebar into the respective coupler. Not need to say the actual site environment has lots of rebars in the structure which increases the difficulties. The diagram below gives a vivid image of the density of the rebars set into the concrete structures.

Diagram 6



3.3.4 Communication issues

According to the commission's report, there was a second change of design in the project and that followed with fundamental miscommunication between MTRCL's design management and construction management teams. MTRCL's construction management team thought its design management team would update the working drawings and would obtain approval from the Buildings Department for the change as part of the consultation process. However, the design management team did not notice about the second change until the media reports were out around July 2018 (Hartmann and Hansford, 2019).

Another evidence is that the SCL requires 'full-time and continuous supervision'. Leighton's Head of Engineering, Stephen Lumb, understood the term differently from the independent expert of the commission. According to Stephen, 'full-time supervision' means the person responsible for project supervision is full-time staff instead of part-time. And 'continuous supervision' means normal daily supervision. However, according to the independent expert, Steve Rowsell, 'full-time and continuous supervision' meant that Leighton's supervisor needed to be present at all times where mechanical coupler works are underway. The objective is to ensure the work is done properly in accordance with the specifications and any problems are resolved without delay (Hartmann and Hansford, 2019).

The above misunderstanding in communication terms is very likely caused by a lack of precise definitions and consistency in terminology for project management communication. Management has the responsibility to ensure a correct and clear message is cascade to all levels of the company. Industry expert interviewed also emphasis alignment in project communication terms is important. Industry professionals also reminded that communication is a big challenge, especially for projects like this scale. They also shared that there have been frequent changes of design in recent years on government projects which create lots of confusion in communications. However, they fell surprised that Leighton management are not aware of 'full time and continuous supervision' definition from Government and MTRCL's point of view provided Leighton has done many projects for the above parties.

3.4 Identify the key weaknesses of the organisation and planning of the project, which led to the failure of the project

This section of the paper will focus on H2, the Head-oriented dimension to analyse the weaknesses which led to the failure of the project. The metaphor of 'Head' means the mind of the supervisor, manager, working from middle management and above with strong planning, organising and control expertise. Required competencies related to this case study are planning, organising, control and decision-making skills (Yu, 2019). Contemporary strategic management theories studied in this section include stakeholder management, value chain management, and project management.

3.4.1 Stakeholder management in the construction value chain

There are pieces of evidence stating that stakeholder management in the value chain, particularly for vendors or subcontractors, in this case, are loosely managed in this project. For example, Khyle Rodgers, Leighton's site superintendents, was responsible for providing on-site coordination with subcontractors to ensure that all specifications were strictly followed. However, he testified via a video link from Australia stating that he was not aware of any single incident regarding defective bar-fixing work until June 2018 when the scandal erupted. (Yau, 2018).

Contradict to Rodgers, Edward Mok, a graduate engineer who was in Leighton's engineering construction team and responsible for supervising the work of sub-contractors reported two discoveries of rebars cutting between August 2015 and November 2016. Three rebars cut short were not screwed into its coupler. Immediate remedial steps were taken to fix the problem in both cases. As Edward considered the incident to be an isolated one, thus he only spoke to the foreman at Fang Sheung, the rebar fixers, to pass on a warning to respective workers. A further discovery was made by the assistant inspector of MTRCL, Andy Wong, who found two threaded lengths of steel on the floor with a wire cutting machine nearby (Hartmann and Hansford, 2019). Since no follow up was done, MTRCL has fallen away on managing its subcontracting stakeholders along the value chain.

The industry interviewees shared that it is an industry norm to not making a case of the substandard works. It will consume lots of management time and remedial works. They prefer to keep it low and settled at the work level. That may be the reason which defective works identified were not reported in the 'Nonconformance' reports (NCR) (Hartmann and Hansford,

2019). As a result of this practice, the opportunity to learn from the first identified incidents of cutting threads from rebars was lost because the matter was never reported.

3.4.2 Project management

Jason Poon, Managing Director of China Technology testified in the investigation and mentioned to the press that there was a complete failure of supervision. He claimed there was no supervisor from Leighton on-site watching the works, they only show up when MTRCL came. This lack of supervision permitting the activity to continue from Aug 2015 to June 2016. The commission also commented that this part of the project was poorly management (Hartmann and Hansford, 2019).

According to the industry experts in the interview, construction projects under this large scale are very complicated. It required extraordinary project management skills to collaborate with multi-parties under tight timelines.

3.5 Identify the key strengths or weaknesses of the competences of those responsible for the execution of the project, which accounted for the failure of the project.

This section of the paper will use H3, the Hand-oriented dimension to analyse the weaknesses which led to the failure of the project. The metaphor of ‘Hand’ refers to frontline workers. Great strategy or plan needs a frontline workforce to implement it. The related competencies include know-how, technical and problem-solving skills. Management needs to define the scope, duties, and responsibilities in order to facilitate frontline to carry out their work. Good workmanship and get the right job done right at the first time can help achieve zero-defect quality control (Yu, 2019). However, there are issues in workmanship and quality management which contribute to the failure of the project.

3.5.1 Workmanship

Leighton employed a pool of daily casual labourers, through sub-contractors such as Rankine Engineering managed by Leighton’s on-site superintendents and/or other senior on-site staff. These labourers were deployed to undertake work of sub-contractors, Fang Sheung in this case when needed in order to keep the work on schedule. That’s why Jason of China Technology see those workers cutting the rebars are wearing Leighton’s uniforms. Industry experts advised that the action of turning the rebars into the couplers is not an easy task for untrained casual labours. The thread angle may not fit into the coupler as expected.

In the past 10 years, the HKSAR government launched 10 mega infrastructure projects in Hong Kong almost concurrently. This creates big pressure on the industry in terms of all related resources including skilled workers. According to the industry experts, it is a common practice to employ daily workers for various reasons besides shortage of experienced workers. E.g. tight timeline, cannot maintain so many long-term staff as the future project opportunity is not secure, limited budget to keep so many long-term staff, the lower labour cost of daily workers, no need to set aside a budget on staff benefits for those daily workers, etc. The impact of such industry practice is the workmanship of these untrained and inexperienced labourers has no guarantee.

3.5.2 Quality management

There are suspicions that there had been systematic and extensive cutting of the threads at the end of rebars which made them not fully screwed into the couplers or not screwed in at all. This is an obvious oversight by MTRCL and Leighton to allow this illicit practice to happen.

Jason Poon first received reports from the senior members of his company that workers in Leighton uniform have been cutting the threads from rebars, and later he witnessed it himself. He attempted to stop them but was being ignored. Leighton later claimed that those workers though wearing their uniform are in fact staff of Fang Sheung. In early September 2015, he reported this incident to Gabriel So and Khyle Rodgers, Leighton's site superintendents, who assured him that they would instruct all Leighton employees that it was impermissible conduct. However, their attitude changed around a month later. This gave the impression that Leighton's superintendents and other on-site staff turned a blind eye on their quality of work. Thus, there is an accusation that the cutting of the threaded ends of rebars was not simply opportunistic or sporadic. This impermissible step was taken by workmen facing difficulties, but became 'systematic' and 'planned' because these corrupt practices permitted it to happen (Hartmann and Hansford, 2019). In another word, daily workers employed by Leighton thought they could get away with the bar cutting practice. This also evident poor quality management.

According to industry experts, there is a "check the checker" industry practice. In reality, seniors seldom go to the site to do quality check, they only rely on their direct report to declare if the quality check was done. The problem is all levels are infused with this practice, thus the defects are easily covered or ignored.

3.6 Other factors that could contribute to the success or failure of the project.

3.6.1 Timeline

Leighton denial there was pressure to get the work done with a tight timeline. They explained that some staff might want to help the company to complete the works faster which affected the quality of work (Hartmann and Hansford, 2019). However, almost all industry experts believe the timeline is one of the key reasons for project failure. There has been discussion in the industry that senior government officials demanded the project to complete in a not so realistic timeline for political reasons. Any delay in these high-profile projects will need to be explained in the Legislative Council which government officials do not want it to happen.

3.6.2 Negligent of management

In the commission's report, Jason Poon stated that he has confided the issue to Malcolm Plummer, Leighton's Project Director before Anthony Zervaas had taken up the position, about August or

September 2016. However, when Malcolm Plummer gave evidence, he emphatically denied any allegation has brought to his attention. He also mentioned that daily workers were employed in separate areas of the job. Jason also reported the cases to Gabriel So and Khyle Rodgers, Leighton's onsite superintendent but both denied such incident had taken place. Gabriel So said that the workers have no time to cut threads from rebar. In order to make the management aware of the dishonest acts, he has made a report to Aidan Rooney, the General Manager of MTRCL in Sept 2015 but Aidan denied such conversation had taken place. Jason kept trying to make the management of Leighton to address the issue, he emailed Anthony Zervaas, Leighton's Project Director on 15 September 2017 but was ignored (Hartmann and Hansford, 2019).

For the period of 18 months calculated from mid-2015 until the end of 2016, Jason said he had made reports about the bar cutting actions to the following people: Anthony Zervaas, Leighton's Project Director; Gabriel So, Leighton's General Superintendent; Khyle Rodgers, a Leighton Superintendent; Aidan Rooney, MTRCL General Manager; and Dr Philco Wong, the MTRCL Projects Director. All of these people denied that there had been any such conversations taken place (Hartmann and Hansford, 2019). An email was presented to the commission in which Poon alleged that Rodgers was "well aware" of the bar cutting malpractice and actually was "directing the activity". Rodgers told the press and commission that the allegation in the email was a "barefaced lie" and he "rejected it entirely". He also denied having seen such an email. "That statement or any statement to that effect is categorically and completely false," he said in his statement (Yau, 2018). In short, there is evidence to arise suspicion that management of Leighton turned a blind eye to the illicit practice.

According to industry professionals, daily workers do not have the guts to make the decision to cut the rebars by themselves. They are not able to bear the responsibility and consequences. Therefore, industry professionals have a high tendency to suspect that the bar cutting activity was allowed or directed.

3.6.3 Integrity issue

Detailed log records to ensure couplers had been correctly installed were not there in the first place and the compliance fell away. Counsel for the Government commented bluntly that MTRCL and Leighton need to come clean about the lack of Request for Inspection, Survey and Check ('RISC') form, the contemporaneous records, instead of creating the misleading and confusing retrospective checklists (Hartmann and Hansford, 2019). Besides, there is a procedure

to lock the defective work, but not being followed. These actions represented terrible project management and may suggest some integrity-related issues.

Industry experts mentioned that the steel wire cutting equipment and machine are normally kept in the site management office and need the approval to get it. Therefore, without site management support, workers were not able to carry out the rebar cutting activities. This makes reasonable suspicion that there is integrity issue. However, almost all Leighton management denial they have made such instructions. Rodgers of Leighton insisted that he was unaware of a non-conformance report being issued by Leighton to bar-fixing subcontractor Fang Sheung Construction in December 2015 regarding three to five occasions in which rebars were not fixed into the couplers and some rebar threads had been cut (Yau, 2018).

4. Key lessons learned

This section aims to draw conclusions by restating the research objectives/problems, highlighting key findings and demonstrating comprehension over how the objectives of the research were effective. As mentioned in the beginning, the research aims of this paper is to use 3-H approach (Yu, 2019) to understand i) the causes of MTRCL SCL scandal in order to ii) explore corporate and work culture which leads to such scandal, iii) understand leadership which contribute to such result in order to iii) provide suggestions to avoid similar situation from happening again and v) come up with success factors in project management. As i), ii) and iii) have already been addressed in section 3, this part of the paper will focus on iv) and v) using 3-H approach. To support the 3-H theory, peer-reviewed academic papers were studied to address the objectives of this research.

For HKSAR government and companies like MTRCL, sound strategies and plans are necessary but not sufficient to guarantee the attainment of organisational goals and objectives as evident in the SCL case. The missing links are an engaging & competent team, which is committed to conducting effective implementation. With the implementation of the 3-H framework, corporate strategies, plans and practices can be effectively, systematically and comprehensively designed and implemented. A holistic solution to an organisational issue means all H dimensions have to be effectively and efficiently managed. Each H is interrelated and interacted with one and other, neither one nor two of Hs are sufficient to effectively & efficiently manage an organisation (Yu, 2019)

“A good management is an art and science of getting things done effectively and efficiently through people and other required resources guided by the 3-H framework.” (Yu, 2019)

4.1 Heart-oriented dimension

The metaphor of ‘Heart’ plays a central role in the 3-H framework. Heart-oriented dimension refers to caring about motivational and other human aspects in management practices in order to motivate staff to achieve results. In order to make the change happen, it is important to have top management’s support this Heart-orient approach (Yu, 2019). Key suggestions from peer-reviewed academic papers on motivation, leadership, communication and corporate culture are explored.

4.1.1 Motivation

According to Rose and Manley, financial incentive can motivate the majority of actors but cannot guarantee project performance. They have done research about motivation drivers of the incentive design on construction projects. Incentive flexibility, value-driven selection, the potential for future work and goal opportunities to achieve the reward are more relevant to this case. Value-driven selection based on the ability to add value rather than the traditional price-focused in the tender decision. The potential for future work motivates actors to uphold and improve reputation in order to secure future commercial opportunities (Rose and Manley, 2011). Above mentioned motivation drivers increased the project participants' commitment in achieving the goals.

4.1.2 Leadership

Performance of leadership has been cited as a critical success factor in effective management, it also determines either the success or failure of a project. Krause, Groover, and Martin suggested transformational motivate people in more aspect compare to transactional leadership style. Transformational leadership can be described as relationship-oriented or inspirational leadership. The major behaviour characteristics to motivate followers act beyond self-interest via engagement. (Krause, Groover, and Martin 2010).

Limsila and Ogunlana have detail research on transactional and transformational leadership. Transformational leadership style has obvious positive relationships with work quality, work quantity, and creative problem solving, effectiveness in work, satisfaction, extra effort, and organizational commitment.

Transactional leadership factors include: contingent reward, management-by-exception (active), management-by-exception (passive). *Contingent* reward refers to an exchange system in which the leader and staff agree together to achieve the organizational goals and the staff will receive respective rewards. Leaders must clarify the expectations and offer recognition when goals are achieved. *Management-by-exception (active)* means under this leadership, staff may be punished for being out of compliance with preset standards or ineffective performance. Leaders applying this style turn on the strong radar for mistakes, and errors and will take quick actions to rectify the situation. *Management-by-exception (passive)* means leaders will intervene when problems come up but avoid specifying agreements, clarifying expectations and standards to be achieved by subordinates (Limsila and Ogunlana 2008).

Transformational leadership factors include idealised influence charisma, inspirational motivation, intellectual stimulation, individualised consideration. *Idealised influence* charisma means leaders applying this style is a role model trusted by staff. The attributes and behaviors leaders demonstrate are persistence and determination in the pursuit of objectives, high standards of ethical, principles, and moral conduct, sacrifice self-gain for the gain of others, consider subordinates' needs over their own needs and share successes and risks with subordinates. *Inspirational motivation* means leaders provide meaning and challenge to staff work. The spirit of the team is aroused while enthusiasm and optimism are displayed. The leader shares the vision, ignites enthusiasm, encourages staff to envision attractive future, communicate expectations while demonstrating a commitment to achieve goals. *Intellectual stimulation* means leaders stimulate their subordinates' efforts to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways. The intellectually stimulating leader encourages subordinates to try new approaches but emphasizes rationality. *Individualised consideration* means leaders develop a coach or mentor relationship with each individual, pay attention to each individual's need for achievement and developing individual according to his or her potential (Limsila and Ogunlana 2008).

The research of Müller and Turner indicated that transactional style works better in simple projects and transformational leadership style is needed more in complex projects (Müller and Turner, 2010).

Besides transformational and transactional leadership styles, there is research about ethical leadership. Ofori had done an empirical investigation of ethical leadership in Singapore's construction industry in 2009. It concluded that ethical leadership is significantly correlated with transformational leadership, contingent reward factor of transactional leadership, extra effort from employee, effective leadership. A leader who ignores ethical conduct creates significant negative impacts. According to the research ethical leadership has no correlation with transactional leadership but negatively correlated with loose management and transactional culture of the corporate. To establish ethical practices in different corporates, leaders need to exemplify ethical value in daily behaviours and decisions. Links reward with ethical and sanction with unethical actions will create the desired culture in an organisation (Ofori, 2009).

4.1.3 Communications

Toor and Ogunlana's research confirmed that comprehension and communication are critical factors for the success of a project (Toor and Ogunlana, 2009). Mok highlighted that stakeholder communications and engagement are important in the whole project cycle (Mok, Shen and Yang, 2015). Awareness, effectiveness of communication policies, engagement and expectation management, roles in communication, positive communication, good internal communications are important points to note in project-based organisations (Rajhans, 2018). Zulch suggested that project need to adjust their character, behaviours, attitudes, language under different situations in communications in order to get things done through people (Zulch, 2014).

4.1.4 Corporate culture

Corporate culture plays a significant influence on work quality and addressing integrity, negligent issues. Ethical corporate culture introduced by Schwartz brings important insights.

Three fundamental elements of an ethical corporate culture are core ethical values, formal ethics program, and ethical leadership. An organisation or a leader needs to ensure the core ethical values are penetrated throughout all its policies, processes, practices and rewards; structured ethics programs with a clear code of conducts, training, and respective committee is in place; ethical leadership is exemplified from the top to all level of leaders consistently (Schwartz, 2013)

4.2 Head-oriented dimension

This dimension requires many competencies. With reference to MTRCL scandal and the analysis in section 3, this section looks into the research on project management, stakeholder management in construction value.

4.2.1 Project Management

For large-scale and complex projects like MTRCL SCL, challenges on project-related factors, project management related factors and human factors (Toor, Ogunlana 2009) needed to be well-managed. The cost and effort to handle negative feedback from media, politicians, and the public can be very high due to its significant social impacts (Sun and Zhang, 2011).

Yang pointed out that leadership has a strong association project outcome. However, there is a difference between project management and project leadership. Anantatmula suggested that project management means improving the efficiency and effectiveness of a project through planning, organizing, and decision-making. Leadership means leading and motivating others to achieve project goals while growing professionalism (Anantatmula, 2010). Desirable project results and project management requires effective leadership (Nixon, Harrington, and Parker, 2012).

Müller and Turner project leadership has leadership traits, it is presented as leadership competency profiles in successful projects. Four hundred respondents indicated that critical thinking which categorized under intellectual dimension; influence, motivation, and conscientiousness under emotional competence dimension are the essential traits for successful project management. The research highlighted that leadership training is needed for project managers (Müller and Turner, 2010).

4.2.2 Stakeholder management construction value chain

There is limited vendor management academic paper in the set criteria can be found, therefore, this paper chose to use stakeholder management as the reference. Ward and Stephen commented that stakeholders are a major source of uncertainty in projects (Ward, Stephen. (2008). Academics have researched on stakeholder manager process along the project lifecycle which helps ensure successful implementation of projects (Eskerod and Jepsen, 2013, Trentim, 2013). There are also empirical studies on stakeholder analysis toolkits for design and planning mega projects. (Doloi, 2011, Lienert et al., 2013, Valdes-Vasquez and Klotz, 2013). Aaltonen also introduced eight strategies to influence the stakeholders during the project implementation

stage: resource building, credibility building, direct action, coalition building, communication, conflict escalation, direct withholding and indirect withholding (Aaltonen, 2011).

Yang, Shen, Drew, and Chan have done a comparative analysis of critical success factors for stakeholder management in construction projects. For the MTRCL SCL project, following factors worth further particularly worth exploring: Exploring stakeholders' needs and constraints to projects; Assessing stakeholders' behaviours; Predicting the influence of stakeholders; Assessing attributes of stakeholders; Analysing conflicts and coalitions among stakeholders; Promoting a good relationship among stakeholders; Formulating appropriate strategies; Predicting stakeholders' reaction (Yang et al.).

4.3 Hand-oriented dimension

This dimension means great strategy and plan needs frontline workers to implement it. requires many competencies. Improvement in workmanship good quality control is required for this case study. Getting the right job done for the first time with zero-defect quality control is what the 3-H model would like to promote (Yu, 2019).

4.3.1 Quality management

Total management approach of quality management which takes care of workmanship to meet customer's expectation within the planned budget and project schedule was introduced by Rumane. He pointed out that plans, quality specification, schedules must be specified in project documents (Rumane, 2017).

5. Conclusion

This section reflects on the research process for insights, wisdom and valuable knowledge gain in this exercise. Managing a mega project like MTRCL SCL is a very challenging task, it needs a holistic management approach like the 3-H. As H1 Heart-oriented dimension plays a crucial role in the 3-H model, it is vital to get the top management's blessings in applying the Heart-orient approach in managing the organisation (Yu, 2019). Based on the primary research interview, secondary research and 3-H model, we can draw learnings that motivations, leadership, communications, corporate culture, project management, stakeholder management in the value chain, quality management are the essential factors for project success.

To cultivate a 3-H and ethical culture, top management needs to support their Human Resources to set up policies, processes, practices, and rewards. Leaders need to make sure that the new culture is infused in all levels of staff. To promote desired behavioural outcome from actors, incentive flexibility, value-driven selection, the potential for future work and goal opportunities to achieve the reward are the motivation drivers worth to consider. Well use of transformational and transactional and ethical leaderships can increase work quality, work quantity, and creative problem solving, effectiveness in work, satisfaction, extra effort, and organizational commitment. Effective communication involves clear alignment in project terms. Leaders need to adjust their communication behaviours and language in a different situation to ensure the message are correctly received.

Successful project management requires leadership traits like critical thinking, influencing, motivation skills and conscientiousness. Companies can emphasis training in these areas. Stakeholder represents the most uncertain human factor in project management, strategies like resource building, credibility building, direct action, coalition building, communication, conflict escalation are strategies worth further explore and develop. Critical success factors like stakeholders' needs and constraints to projects; stakeholders' behaviours; influence of stakeholders; attributes of stakeholders; conflicts and coalitions among stakeholders; the relationship among stakeholders needed to be well managed.

When the operating system and H3 Hand issues are well planned, organised (Yu, 2019) and monitored, frontline will most likely to achieve the expected outcome. Total management approach to quality management is a good way to gatekeep the workmanship and minimize unnecessary surprises. All 3 Hs are interlinked when H1 'heart' is duly considered in the strategic planning process (H2 'head'), the workforce will be more motivated to implement (H3 'hand') the plan.

Appendix A

Appendix_ Interview guideline for industry actor

Research question: Use the 3-H approach to reflect the key lessons of the MTRCL scandal of construction works at Hung Hom station extension under the Shatin to Central Link Project.

Basic information

The objective of the interview is to understand the actual practice of the industry with reference to the research question.

Interview questions

Basic information

1. Your name?
2. Your position/title?
3. Your company name?
4. Business nature?
5. The number of employees?
6. Did you handle any government, MTRCL, megaprojects?
7. If not, what other projects you have handled?
8. Have you heard about the Hung Hom station extension under the Shatin to Central Link Project scandal?
9. According to your experience and profession, what might be the causes of the issues?
10. What corporate and work culture lead to such scandal?
11. What leadership contributes to such a result?
12. Can you provide suggestions to avoid a similar situation from happening again?
13. Any success factors in project management can be concluded from such an incident?
14. Did you read the commission interim report?
15. Do you agree with the report findings and suggestions?
16. Is there is anything you want to add?

Appendix B

Profile of interviewees for the primary research

	Your position/title?	Business nature?	Years of experience?	Did you handle any government, MTRCL, megaprojects?	what other projects you have handled?
1.	Mechanical Engineer	Construction	30 years of experience	Yes. Government infrastructure project	
2.	Chartered Civil Engineer	Construction	25 years of experience	Yes. MTR project, reconstruction/reprovision of a government building	
3.	Professor in Engineering	University Education	30 years of experience		Government-supported research projects
4.	Chartered Civil Engineer	Construction	Over 30 years of experience		Property development projects
5.	Corporate Safety Manager	Construction	Over 30 years of experience	Yes. MTR projects	Electrical & Mechanical, Mechanical Ventilation and air conditioning, Heating Ventilation and Air Conditioning, Fire Services System
6.	Registered Professional Engineer		30 years of experience	MTR projects, government projects.	Hospital projects

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