The Implementation of Knowledge Management to Enhance Performance of the Banana Plantation Team at Pt Xyz

Aldivar Cahyo Santoso
Institut Teknologi Bandung, Indonesia
Emails: aldivarsantoso@gmail.com

ABSTRACT

This study final project was a research to design and provide comprehensive knowledge management system in order to enhance performance of banana plantation team at PT XYZ. Results from a recent knowledge assessment showed the team having an average of 67% on current best practices followed by sequential inconsistency in operational efficiency resulting in 8% fruit weight loss similar to organizational expectations of about approximately 90% target. A mixed research methodology (non-parametric) encompassing the APO Knowledge Management Framework, and SECI model, along with the PPT framework to explore people, process, and technological conditions. Qualitative data were collected through semi-structured interviews, observations and questionnaires. The results show a fragmented KMS, uncommon access to knowledge which is dependent mostly on leaders, training work being reactive and pragmatic most of the times, tacit field-oriented good practice not well documented and exchange of peer-to-peer knowledge without systemic support mechanisms. In short: uninterrupted availability of key information about operations rests more in individuals than institutional mechanisms. Following this, an integrated approach combining APO dimensions, SECI processes and PPT components was used to design a holistic KM system based on these findings. The proposed system includes structured socialization process, standardized externalization process, consolidated combination architecture and strengthened internalization mechanism.

INTRODUCTION

The banana and tropical fruit market has a bright future. Tropical fruits have been in high demand in the last decade, as they are considered new and novel products (Evangelia et al., 2026; Giuggioli et al., 2024; Sarkar et al., 2023). Although banana demand has been basically stagnant before 2016, it really took off then. The comeback has been fueled by two main factors: rising income levels in developing countries and a growing awareness of health and nutrition in developed countries. In several developed countries, banana consumption is increasing from a low base and is close to the global average (FAO, 2020).

Tropical fruits have gradually become more popular around the world. The most rapid increase in per capita consumption is in non-tropical regions, where it is beginning from a relatively low base (Abbas et al., 2026; Yuniarti et al., 2022). In Latin America and Africa, where levels of consumption are already high, growth is much slower. For example, Latin America's per capita consumption increased at only 1.0% per year in the past decade and is expected to decelerate even more to 0.5%. Consumption in Asia is projected to grow by 0.9% per year, mostly propelled by higher incomes in India. The fastest growth has occurred in

developed countries, where per capita consumption over the past decade has increased 2.5% each year. Growth rates are forecast to slow from previous years at just 1.0% because of declining consumption per capita in bananas, but growth potential for the future is high, given that current levels of consumption remain low (FAO, 2023).

Global banana production was forecast to grow from 135 million tonnes in 2028 at an average annual growth rate of 1.5%. This is a relatively sluggish rate of growth compared to other tropical fruits, mainly because the banana market is already highly saturated in much of the world, with production growth primarily driven by population increases. Bananas are the dominant fruit crop by production volume (FAO, 2020), and while their share of total tropical fruit output is projected to decrease from 58% in 2009 to 53% by 2028 due to accelerating demand for mangoes and avocados, bananas still make up over half of overall output.

Banana production is overwhelmingly situated in Asia which will account for an estimated 54% share of world output. Globally, FAO (2020) forecasts that India will continue to be the leading producer of pulses (33 million tonnes), largely due to its sizeable domestic market. In this global situation also, Indonesia occupies a strategic position where it is one of the top three or four producers in the world (Dermoredjo et al., 2025; Fiala, 2022; Setiajiati et al., 2024; Solehudin, 2023). Much of the South Asian country's production is for local consumption, making it a key cog in the supply chain of the Asia-Pacific. Latin America and the Caribbean, on the other hand will produce around 34 million tonnes thanks to the lead by large exporters such as Ecuador, Guatemala and Colombia, intended mainly for import needs from developed countries (FAO, 2020).

Bananas are grown in Indonesia, and they are often eaten raw as fresh fruit. Bananas that have eaten well known by the local name is Ambon banana, Barangan, Ambon Lumut, Raja Bulu and Raja Sereh type bananas (Cavendish). In West Java the area was also known as a production center of local variety bananas, which were called horn banana, cotton banana, kapok banana, and jackfruit banana (Eriyatno et al., 2021).

Well, based on data from the Central Bureau of Statistics (Badan Pusat Statistik), Indonesia's banana production actually had increased quite a lot, from 7.01 million tons in 2016 to 9.26 million tons in 2024. Per capita banana consumption remained very stable between 2018 and 20242008 at a level around the average for that period (8.35 kg/capita). The peak consumption was recorded between 2021 and 2022, with approximately 2.5 million tons and per capita consumption of around 9.2 kg per capita.

Indonesia's banana industry consists of many smallholder farmers, but a major player in the large-scale, commercial and export-oriented segment is Gunung Sewu Group through its subsidiary Nusantara Tropical Farm. In Indonesia itself, it has a number of large plantations in counties such as Lampung and South Sumatra, it is also specifically targeting the production of high-grade Cavendish bananas to export markets.

The international banana market is threatened by persistently rising threats that threaten its future. Apart from the macroeconomic difficulties brought about by geopolitical insecurity, increasing protectionism and changing production prices–all of which endanger demand and investment, there is an alarming development on the supply side: Fungal plants' diseases are becoming more areas concern, especially one bananas devouring Banana Fusarium Wilt Tropical Race 4 disease (TR4) (FAO, 2025).

Climate change, which increasingly brings droughts, floods and hurricanes seems to make banana production even more difficult and expensive (Kaashoek et al., 2025; Naqvi et al., 2023). Higher temperatures will also speed up the spread and intensity of plant pests and diseases. The most serious of these, TR4, poses a significant threat to global banana supply. This aggressive strain of Fusarium wilt, meanwhile, is particularly alarming because it can infect a much wider range of banana cultivars than earlier strains, and at present there's no effective fungicide or eradication method. Promising studies have resulted in breakthroughs for creating resistant (7th and 8th) banana varieties, but the types' acceptance by traders, retailers, and consumers remains uncertain (FAO, 2025).

The banana trade will be mentioned in the new report as countries face TR4 disease, which has spread to 24 countries, including the major banana-producing regions of (Southeast Asia) like Indonesia. Though environmental factors determine how severe outbreaks are, human actions — especially close contact when maintaining the plant — amplify its spread dramatically. To reduce this risk, PT XYZ implemented operational procedures limiting the movement of labor between plantation sites to mitigate disease spread. Previously, the labor force was specialized in random tasks such as fertilization or irrigation and moved often between estate areas, thus aiding disease dispersion unintentionally. While worker sterilization procedures were put in place, they did not work. The new operating model confines workers to designated zones within a plantation, increasing disease control but leading to suboptimal care of the plants and an 8% decrease in fruit weight. This is the problem because the workers are now multi-tasking which makes plant maintenances more complex. Integrating knowledge management practices is key to overcoming this challenge by placing systematic processes for acquiring, sharing, and utilizing pertinent knowledge in organizations, thus enhancing organizational performance and keeping a competitive edge.

RESEARCH METHOD
Data Analysis Method
Qualitative Data Analysis

For the qualitative data of semi-structured interview and observation analyzed using thematic analysis approach. Thematic analysis is a qualitative approach to data collection and analysis that identifies, describes, interprets patterns of meaning (themes) within your data (Braun & Clarke, 2006). This approach is particularly appropriate for exploring participants' experiences, perceptions and practices around knowledge management. The interview transcript was reviewed and written down to extract themes, key insight mainly related to knowledge management. Basis of the theme and key insight that will be used in describing how the knowledge management is being held by the company, especially on banana plantation using APO, SECI, and PPT framework.

Quantitative Data Analysis

The quantitative data in this study is based on online surveys. Survey responses were analyzed using descriptive statistics (it is the most widely used and accepted method for interpreting Likert scale data), primarily, mean score of each item data (Creswell & Creswell, 2018). Here, the complex data based on attitudes and beliefs are effectively boiled down to a simple numerical score, allowing meaningful distinction between dimensions and highlighting perceived areas of high/low performance.

RESULTS AND DISCUSSION

Knowledge Management Infrastructure Is Fragmented and Not Institutionalized

Actually, organization's knowledge management (KM) infrastructure stands at the first place among those themes drawn from qualitative data. Analysis of current condition PT XYZ's KM infrastructure is structurally fragmented, operationally inconsistent ain't not yet institutionalize in banana plantation team. Even though PT XYZ has made significant knowledge, it is fragmented to disconnected sources by various agencies and accessed informally. Therefore, knowledge sits in the organization but is not governed, integrated or made systematic and accessible consistently and reusable for all relevant employees, mandor parcela's in particular.

From all respondents and observation, knowledge is typically not stored in one consolidated KM platform but instead scattered across many repositories Quality assurance (QA) department holds formal documents such as SOPs and WI. Training videos, microlearning materials, and learning modules are owned and maintained by the learning and development department. On the other side, mandor parcela even have informal archives of videos or notes on personal device and they are so dependent on WhatsApp.

This fragmentation is very well captured by respondent GAO "*dokumen ada di QA… video kemarin kita share via WhatsApp saja*" similar to what respond SJJ said "*WI di QA… video di L&D*", AAZ confirm that knowledge files are "*parsial... disimpan masing masing... belum terintegrasi*", observation also becomes one supporting evidence stating that WhatsApp become the most prominent medium for knowledge exchange. Such condition inhibits building consistent organizational knowledge base and force employees to depend on interpersonal networks or ad-hoc communication for information they need.

Founded knowledge, which is pivotal to grasping tacit and super practical field strategies are additionally scattered. Currently, the banana plantation team has produced a large number of videos (the videos are made for high-precision operations such as deleafing, last free and fruit-insertion DDF and irrigation standardisation video). But these videos are just saved separately by several people and departments, without being formalized or indexed into a centralized repository.

Respondent GAO says, "*video kita share via WhatsApp,*" implying that these videos spread in an ad-hoc and uncontrollable way. "*SJJ menambahkan bahwa 'vidio disimpan di L&D… tidak diakses mandor',*" which suggests that there are videos, but they're only used at each individual's formal training session: they are not available to watch on demand. AAZ also states that "*video pembelajaran disimpan masing-masing,*" emphasizing video storage as personal and decentralized. The non-standardization of this video process limits the use of video-based learning as a scalable KM tool and prevents mandor parcela from tapping tacit knowledge when it is needed.

In addition to storage problems, the organization has no consistent processes for creating, verifying and updating knowledge. While some structured processes exist at higher organizational levels, these systems do not trickle down efficiently to operational teams. That is, KM practices at the field level largely informal, leader reliant and reactive.

GAO, for instance clearly mentions that the sharing of knowledge "*bisa kapan saja*" meaning that when and how transfer is not consistent. AAZ similarly states that "*belum ada*

tempat menyatukan semua file/video" whilst SJJ comments that "*tempatnya harusnya satu… tapi terpisah QA dan L&D.*" While ACB describes a more structured KM flow at the corporate level, mechanisms to ensure uptake at mandor parcela level are absent, meaning these structures have not been institutionalized across the organization.

A KM system becomes fully institutionalized only when it has established governance roles, version control processes, validated repositories and defined access privileges. The data reflect the current absence of these elements at an operational level, leading to uneven sharing and uses of knowledge.

Consists of another dimension of this theme directly associated with the organization dependency on external source for new knowledge. Consultant best practices within the organization, and outside innovations like update DDF procedures are routinely implemented. But once inside the system, this new knowledge becomes fragmented, appended to existing knowledge along the same siloed path – it is not integrated into a unified KM cycle.

This is illustrated most clearly by Respondent SJJ: "The new sciences are from the outside… from consultants… from Philippines." In contrast, the ACB approach highlights a more organized feasibility and validation timeline, while only selected persons can request specific items due to competitive privacy (i.e., confidentiality). This partial and piecemeal absorption internally prevents this new knowledge from being absorbed across the entire organization, thereby constraining its influence over performance.

The disjointedness and informalization of our KM infrastructure has an immediate impact on organizational performance. It is caused by the scattered information, information that is not uniformly covered and stored in disconnected channels so it becomes barriers for frontline mandor parcela to access information. This resulted in knowledge gaps, uneven execution of operations, recurring field mistakes, and reduced capacity to diagnose problems quickly.

Knowledge Access is Restricted, Creating Leader Bottlenecks
A second salient theme from the qualitative data relates to the restrictive and hierarchal structure of knowledge access within a banana plantation team Formal knowledge such as SOPs, WI, videos, and technical module may be dead but the organization has it Partially approved Knowledge.-but it is not available for all employee levels. Rather, it is intentionally limited to higher level from section head onwards. Therefore, employees with frontliner roles like mandor parcela must depend on their close leaders for knowledge. This eventually leads to bottlenecks, and inconsistency in execution across the field.

Formal repositories of knowledge are tightly controlled. Mandor parcela and the like as Frontliner did not have direct access to this knowledge. SJJ Respondent confirmação written lifts only higher level staf "mandor tidak diberikan SBT … pemigitan training". In the same way, respondent GAO also explains that mandor must request access indirectly "mandor kalua mau akses harus lewat saya". Di respondent AAZ menguatkan pola ini "mereka minta ke atasannya dulu baru dikasih"

References:Nonaka I, Takeuchi H. (1995). The Knowledge-Creating Company (pp. 317) In the case of PT XYZ, this is not just a procedural problem, but rather an issue of confidentiality and leaking documents.

This limitation of access inherently creates an environment in which leaders act as the sole gatekeepers of information. This can be seen across all respondents. As mandor parcela

cannot independently fetch the documents, only leaders are permitted to distribute information. A very high reliance on leaders to interpret, explain and contextualize knowledge ensues.

SJJ admits this dependency to"kalau mandor parcela bingung, harus nanya atasan" AAZ also said that "penangkapannya beda beda… tergantung individu" which means that transfer of knowledge depends on how the leader explains and how each mandor interpret it.

The effect of this is that the people who are making important decisions have too little information available, leading to bottenecks and slowing down how fast organisations learn. For PT XYZ, this dependency results in significant variation in field performance between parcelas as knowledge transferred through leaders is subject to individual differences of their way of communicating and understanding as well as availability.

Additional constraints on the flow of knowledge are derived from technology. The note added: "Internet connectivity around plantation sites is intermittent which requires mandor parcela to either move into particular areas with better signal or head to the nearest office." Given this operational reality, real-time access to digital knowledge repositories is not realistic. The connection problem makes it difficult for mandor to access any mobile and cloud system consistently.

Widespread restricted access, leaders' dependency and poor connectivity collectively lead to systemic bottlenecks in knowledge flow. Liner depan seperti mandor parcela harus bergantung kepada pemimpinnya. This delay in knowledge scattering, especially in cases of urgency from the field where immediate technical troubleshooting is necessary, is hindered by this structure. Since knowledge flow is uneven between brigades and parcelas, there are significant differences in execution quality.

Training and Knowledge Transfer Are Reactive and Dominantly Technical

The second theme that captured from qualitative interviews and field observations is indicative of the reactivity, non-structural or technical-centric of training and knowledge transfer in PT XYZ's banana plantation team. Most training is require upon request, initiated by operational issues or through informal schedules established by leaders. This theme consists of four codes across respondent and observation data ie ad-hoc training, design training recommendations, managerial knowledge gaps among mandor parcela, and education / cognitive gaps.

Respondents consistently indicate training rarely happens until something goes wrong — or leaders demand it. AAZ notes "sementara by request saja" that suggests training is neither on a set schedule or systematic. SJJ reiterate the same condition "untuk rutinnya belum ada… kadang kadang kia minta training from research untuk refresh". These statements are in accordance with some of the field observation results showing that training is generally "conducted on ad-hoc basis, typically initiated upon request from plantation manager or estate leader."

It is this reactive pattern of training that centres on symptom correction rather than capability building which inhibits organisational learning and increases performance variability. Reactive training is also one of the leading causes of lopsided capability development.

Current practices unfortunately remain rather reactionary, but there is agreement from respondents that organizations should move toward systematic, periodic and competency-

based training cycles. SJJ proposes "training regular… setiap triwulan atau setiap semester" refresherment training to keep madnor up with developments on evolving techniques in the field. AAZ has also suggested the same mechanism but highlighted the requirement of periodic competency assessments every six months to determine individual competence gaps.

This is consistent with human resource development literature where it is documented that timed training cycles, coupled with diagnostic assessments significantly increase both knowledge retention and capability consistency. In designing training, if organizations choose a competency-based model, they are able to pinpoint the specific learning and deliver targeted interventions to minimize variability in skills (Noe, 2010). recommendations from respondents show the organizational awareness of this need, even though no such system yet exists within practice.

Another common finding among respondents is that training largely emphasizes technical skills. Although managerial and leaderships competences are notably underdeveloped. SJJ mengaku "technical dan leaderships, tapi lebih banyak ke technical" sejalan dengan pengamatan yang menyatakan bahwa "kebanyakan pelatihan fokus pada peningkatan keterampilan teknis dan perhatian terbatas untuk kompetensi kepemimpinan dan manajerial".

Inbalance training composition had implications for operational performance because mandor parcela fuction is not only technical operator but also act as frontline supervisors. Mandor parcela manages and coordinates many workers. Plantation productivity and performance are underpinned by leadership, communications and decision making. AAZ juga menekankan bahwa kepemimpinan itu "lebih penting… kalau pengetahuan sudah banyak tadinya, tetapi leadership-nya nggak ada, ya masalah."

Mandor parcela is one example of frontline supervisors who are required to have technical and managerial competencies that can enable them to be effective in a dynamic and complex environment. When all training is technical in nature and ignores the development of leadership, these "know what to do" workers struggle to coordinate with others, influence, or manage them. This imbalanced type of training also is a reason for PT XYZ having bad execution in the field and knowledge gaps even after running multiple technical refreshment trainings.

Even if training is implemented, understanding and retention varies widely between mandor parcela due to differences in education level. AAZ nimpalin bahwa mandor parcela asal beragam latar belakang "SMA, SMK, STM… dengan penangkapan pengetahuan yang berbeda" Such cognitive diversity plays a role in how quickly or well people can absorb training materials, especially tacit- or technical-agricultural knowledge.

In summary, the ad-hoc training scenario, lack of structured cycles for onthe-job learning/training and issues around development of leadership skills and educational understanding/cognitive processing that sets these into motion are vital reasons why PT XYZ continues to have a continuing knowledge gap. Just technical training is no guarantee of successful execution in the field. The organization does not focus on companies after developing technical knowledge due to lack of systematic training programs, competency mapping cycles, and leadership development for mandor parcelas that act as intermediaries.

Tacit Field Know-How Is Weakly Captured and Reused

One of key themes that comes through in the qualitative analysis is the organisation's ongoing battle to capture, codify and repurpose tacit ag knowledge. Tacit knowledge forms the nucleus in most plantation operations and specifically in banana cultivation, where many aspects of decision-making depend on judgment-based decisions such as nuanced timing and subtle field techniques impact crop quality directly impacting productivity. Tacit knowledge, because of its nature, is not well documented in organization; nevertheless it plays a key role in operation of plantation. Causing disruption in operational processes and variation on mandor parcela performance

Interview data indicate that the most important aspects of banana plantation work are tacit. GAO menekankan bahwa "timing itu tidak terdokumentasi…harus berbagi langsung" artinya ada yang memang pola bisa ter capture dengan baik hanya melalui SOP. SJJ also described that "ilmu di banana itu sepele, tapi aplikasinya yang susah" emphasizing that in plantation work very much depends on experiential judgment, instead of procedural knowledge only.

This is consistent with Nonaka and Takeuchi (1995)'s conception of tacit knowledge as deeply personal, context specific, embedded in action, not easily visible to others and therefore difficult to articulate or formalize. In agricultural contexts, tacit knowledge becomes decisive in crop management and situational interpretation because conditions differ across micro-environments. Like whether to cut the flower or not, it has to be interpreting of plant physiology, where in place, all accumulated field intuition.

Due to this inherent tacitness, in an organization extensive knowledge transfer is done either through demonstration, morning briefings, or casual talk during field inspection. Though effective for quick distribution, they lack permanence, traceability and reliability when turnover or reassignment happens.

Code #2: BE a lesson learnt, not documentation of lessons learnt Field issues do happen quite often in front of customers but learning and fix from them is not captured in systematic manner. According to the observation data, "documentation related to lessons learned from past field cases has not yet been systematically developed… thus similar problems continue to recur.".

The absence of documenting knowledge acquired during problem-solving events makes the organization prone to error recurrence and over-reliance on memory and localized experience rather than organizational repositories for knowledge (Argote & Miron-spektor, 2011).

The organizational learning process as suggested in Nonaka's SECI model requires externalizing tacit knowledge into explicit formats to enable their combination, distribution and reuse (Nonaka, 2007). In addition to this, because there is no written instruction for doing it, the new or less experience mandor will have varied approach in internalizing them.

This theme correlates directly to the wider business issue of knowledge gaps. Without converting tacit knowledge into explicit, reusable organizational assets, expertise is unevenly distributed across parcels. The lack of lessons-learned documentation further exacerbates inefficiencies: the same challenges in the field repeat themselves, requiring resource allocation over and over again, thus raising operational cost and delaying solving problems.

Peer Knowledge Sharing Culture Exists but Is Not Enabled by System or Incentives

A recurring theme from all data sources is the informal peer knowledge-sharing culture that exists among mandor parcela, but is poorly supported by formal incentives. Without the structure that platforms provide and use of incentives, there would be no consistent way for knowledge to diffuse between teams. This is a condition that directly leads to the uneven development of capabilities and maintains knowledge gaps across parcelas.

According to the interviews data, the mandor parcela generally open and willing to share operational insight in informal menghadiri field inspections joint or other informal discussions. AAZ observed weekly field inspection "masing masing saling memberi masukan… kelebihannya bisa ditiru teman teman yang lainnya" it means that peers learning well between the right way organic.

However, these types of peer teaching practices rely heavily on interpersonal relationships. GAO says that "ada mandor yang mau sharing… ada yang tidak… tergantung kecocokan" euphemistically indicating that most technical knowledge is a gift between people who have established personal relationships. Organizations that fail to polarize when research sharing is based on social connections instead of mechanisms risk facing a situation where insights are dispersion and features based on forms of access. Informal networks can serve as a potent channel for knowledge flow, however they are often fragile and inconsistent (Cross et al., 2001).

There is no specific medium or a mechanism in place for structured peer to peer learning in the organization. This means that scheduled communities of practice (CoPs) formal reflection sessions nor peer-learning workshops are not established. This absence is consistent across respondents and is corroborated by observational evidence highlighting that "there is no a structured platform for knowledge sharing between mandor parcela.". Above all, current works require structured and predictable sharing windows in order to for knowledge flow. Without such systems, knowledge is exchanged on an opportunistic rather than intentional basis.

Along with structural gaps, a destacable lack of motivational drivers should exist to facilitate mandor parcela sharing what they know. AAZ notes that "reward belum ada… hanya ucapan terima kasih" while the observation data reminds that incentive for knowledge related contributions already exist, yet only interact to section head level onwards, and primarily relates to some form of innovation over peer learning.

Incentives are key to encouraging employees to put in the effort of contributing expertise to others. In this labor-intensive agricultural environment, where workloads are high and time is limited, knowledge sharing needs to have perceived value with reward for it to be sustainable. Employees will focus more on getting things done than sharing knowledge, especially if it takes time away from their other work, unless they have the right incentives in place. In fact, the lack of incentives may further be a disincentive to transfer knowledge since it encourages knowledge hoarding behaviours.

Critical Knowledge Continuity Depends on Individuals, Not System

A representative example of systemic issues determined through the interview and observation is that sustaining organizational knowledge relies mostly on individual employee but not institutional mechanisms. This knowledge retention for retirees and decrease in operational performance through knowledge gaps define the theme generation two codes.

This discrepancy present the damage of knowledge leakage (based on inefficient structural vulnerability) and enterprise-wide implications (inconsistent performance across mandor parcela).

Most of the tacit and explicit knowledge with high values are held in individuals senior workers and technical expert, according to interviews data. Management bridges these by using a mechanism to retain some retired employee as SMEs, "kalua pun purna… bisa tetap di karyakan", ACB highlight this aspect because organizational memory is only preserved when specific individual is retained.

In the absence of effective tools like knowledge repositories, structured after-action reviews or systematic knowledge capture protocols, organizations find it difficult to preserve key information for future reference and miss opportunities during leadership transitions, organizational transformations or in a mobile workforce.

All four respondents, however, draw explicit links between uneven knowledge distribution and inconsistent implementation in the field. GAO states that transferring knowledge to tenaga kerja can be difficult and this contributes to variation in performance. SJJ points out that, on its own, technical mastery produces 'mungkin 50%' effectiveness — implying that hammering your spreadsheet isn't enough to knock it out of the park without having deeper experiential knowledge. AAZ also emphasizes that inconsistent understanding from mandor parcela causes "proses lambat dan beda-beda."

The uneven distribution of knowledge within teams directly translates into variation in quality, error rates, and efficiency of outputs (Argote & Miron-spektor, 2011). In plantation contexts, where daily decisions like fertilization dosage, pesticide timing and deleafing techniques determine the future outcome of a crop, nconsistent knowledge comes up as uneven plant quality; fluctuating yields; operational inefficiency.

When organizational knowledge is in people rather than systems, every transition. reates new capability gaps. Without mechanisms to actively capture knowledge and embed it in the processes, these blind spots cost time and performance over each cycle.

Current KM Condition Through PPT (People, Process, Technology) and SECI Framework

Table 1. Summary of Current Condition Based on KM Three Pillars

Pillars	Codes	Current Condition
People	Education and cognitive gap	Educational background varies → different comprehension and absorption levels.
	High dependency on leaders as knowledge source	Mandor depends heavily on leaders to understand WI/SOP; learning is not self-driven.
	Lack of managerial knowledge for mandor	Limited managerial capability: leadership training rarely refreshed; technical bias.
	Incentive system for knowledge sharing	No rewards for knowledge sharing at mandor level → low motivation.
	Uncapture practice tacit knowledge	Tacit know-how (timing, judgement, field tricks) dominates operational performance.
Process	Lack of peer-to-peer knowledge sharing	Sharing depends on personal closeness; no structured peer culture.

Pillars	Codes	Current Condition
	Knowledge retention for retirees	Retiring seniors hold large tacit knowledge; loss risk is high.
	KM not institutionalized / non standardize	Knowledge scattered across WI, QA, WhatsApp, L&D, personal devices → no workflow.
	No lessons learned documentation	Many field incidents repeat due to no systematic lessons-learned capture.
	Ad-Hoc and insufficient training	Training is reactive, triggered by issues or leader request; no continuous cycle.
	Knowledge gaps reduce operational performance	Uneven knowledge distribution directly reduces consistency and yield.
	Knowledge sourced externally	New knowledge mostly comes from external references, consultants
Technology	Fragmented knowledge storage	Knowledge stored in multiple silos (QA, L&D, WhatsApp, personal storage).
	Fragmented video-based knowledge	Videos exist but scattered across WhatsApp, L&D, personal files.
	Restricted knowledge access	Mandor do not have access to WI/SOP/SBT or learning videos.
	Poor connectivity disrupts knowledge flow	Poor internet signals make digital access and reporting unreliable.

Table 2. Summary of Current Knowledge Process Condition Based on SECI Framework

SECI Framework	Current Condition
Socialization (Tacit → Tacit)	• Knowledge sharing mostly happens informally • Mandor parcela mainly learn by asking their immediate supervisor or during field inspection when a problem arises at a certain location. • Peer to peer sharing among mandor parcela exist bu depend on personal closeness • Tecit trick and field judgement are demonstrated directly in the field • There is no dedicated sharing forum for mandor parcela
Externalization (Tacit → Explicit)	• Explicit knowledge but does not capture some detailed tacit such as field judgement and experiental knowledge have remained undocumented. • Some tacit knowledge is stored in the form of video, but they are stored in scattered locations (L&D, WhatsApp, personal folder) • Lessons learned from field issues are not documented, it is causing repeated cases • Knowledge from senior workers is only extracted verbally before retirement, not yet converted into reusable documents or digital assets.

SECI Framework	Current Condition
Combination (Explicit → Explicit)	• There is no single database that integrates SOPs, training material, and video. • Digital access is restricted to certain level, frontliner such as mandor parcela cannot directly access documents. • Documentation of field issues, root causes, or corrective actions is not combined into a lessons-learned repository.
Internalization (Explicit → Tacit)	• Mandor parcela internalize SOPs and another knowledge mainly trough training and field coaching. • Because access to explicit documents is limited for mandor parcela, internalization relies heavily on verbal explanation and demonstration. • Training composition is more on technical skills rather than managerial skills.

Интерпретация на базата на SECI модела, PPT модел и тематичен анализ показват много силна и последователна обосновка. All methods address different but complementary facets of the same underlying KM problem, thus strengthening confidence in the soundness of the findings. Looking at the SECI analysis it is clear that there are currently fragmented knowledge flows which rely heavily on informal interactions and direction by leadership. This observation is entirely consistent with the PPT analysis that lays out how inconsistent internalization and reuse of knowledge is driven by human capability, process weaknesses, and technological limitations.

Based on the People pillar perspective, based on the PPT analysis shows that mandor parcela experience an uneven understanding of varying educational background, lack of managerial skills, and strong dependence on leaders. This aligns with the SECI finding that socialization and internalization are very leader driven and miss structured peer forums.

In the Process pillar, PPT points to a lack of lessons-learned documentation, unstandardized KM procedures and inconsistent training cycles. This aligns closely with SECI's externalization and combination phases, where tacit knowledge has scant documentation and explicit knowledge is scattered in multiple locations.

This triangulation itself confirms that there is no systematic organizational mechanism for the organization to convert individual experience into common assets available to the whole organization, leading to conditional repetition of field issues and limited operational learning.

Limited access, siloed storage and weak networks are frontrunners of the big barriers to knowledge transfer identified by its Technology pillar in PPT. These requirements mirror SECI's decomposition at the combination stage where explicit knowledge should coalesce and be available but instead is fragmented and not available to those on the front lines. This convergence across analytical lenses indicates that technology limitations are simultaneously a symptom of and driver for more socially oriented KM fragmentation.

Business Solution

In this sub chapter, the authors are exposes the business solution related to business problems and asnwering research question about how knowledge management is being implemented to improve PT XYZ banana plantation team performance. The design of the KM system will be done by taking into consideration the APO framework, PPT framework and SECI framework.

The APO framework was concerned with how the present KM maturity status was and provides a comprehensive overview of the performance of KM in the organization. APO framework can provide diagnosis on all the dimensions to focus improvement in KM and its strategic purpose in organizations.

In order to facilitate KM in details, one of the most popular framework is PPT which is based on three pillars of people process and technology. KM Objectives will enable the KM Foundations and developing KM Strategies.

On the other hand, SECI framework focuses on knowledge process which is essential for KM to be work out. It can be divided into 4 phases, Socialization, Externalization, Combination and Internalization. In this final project, SECI framework is also used to propose KM system.

Determining KM Objectives and KM Strategies

Before creating the KM strategies to propose as a solution for PT XYZ's identified problems, we need first to define the KM objectives. These objectives were developed through integrating the APO KM Readiness Framework with thematic analysis results, most notably synthesizing the major themes that surfaced from qualitative data obtained by interviews and observations. The following table shows the final KM objectives, which were derived through this integrated analytical method.

Table 3. Knowledge Management Objectives

APO Dimension	Theme	KM Objectives
Leaderships	Knowledge Access is Restricted, Creating Leader Bottlenecks	Strengthening Access and Distribution of Knowledge Throughout the Plantation Team
People	Peer Knowledge Sharing Culture Exists but is Not Enabled by System or Incentives	Encourage and Sustain Peer-to-Peer Knowledge Sharing Culture
Process	KM Infrastructure is Fragmented and Not Institutionalized	Standardized and Institutionalize Knowledge Processes Across the Organization
Technology	Knowledge Access is Restricted, Creating Leader Bottlenecks	Enhance Technological Infrastructure to Enable KM Implementation
Knowledge Process	Tacit Field Know-How is Weakly Captured and Reused	Improve Capture and Conversion of Tacit Field Knowledge

APO Dimension	Theme		KM Objectives
			Ensure Knowledge Continuity Through Structured Knowledge Retention Mechanisms
Learning & Innovation	Training and Knowledge Transfer are Reactive and Dominantly Technical		Build Continuous Competency Development for Technical and Managerial Skills
Outcome	Critical Knowledge Continuity Depends on Individuals, Not System		Integrate KM Performance Metrics to Support Organizational Learning

Once KM objectives are defined, we can move on to the development of KM strategies. These strategies develop under the guidance of three pillars of Knowledge Management, known as the PPT (People, Process and Technology) Framework. The people dimension refers to individuals or groups who have responsibility for creating, sharing, using knowledge and making decisions. Process dimension: group of activities which determine how knowledge is created, recorded and transferred The technology dimension on the other hand refers to those tools, systems and infrastructure for supporting knowledge management activities.

Table 4. KM Strategies

KM Objectives	KM Strategies	KM Framework Solution		
		People	**Process**	**Technology**
Strengthening Access and Distribution of Knowledge Throughout the Plantation Team	Leadership role redesigned to reduce bottlenecks	Estate Leader, Banana Plantation Manager, Regional Head	Delegated approval workflow; Leader-as-coach model; Access-rights decentralization	Repository; Mobile Dashboard
Encourage and Sustain Peer-to-Peer Knowledge Sharing Culture	Mandor Learning Circle Program	Mandor Parcela; Research and Development (Agronomist); Learning and Development	Monthly peer-sharing sessions; Cross-parcel visits; Group problem-solving	CoP (community-of-practice) WhatsApp-integrated portal; Repository
Standardized and Institutionalize Knowledge Processes Across the Organization	Integrated KM Workflow	Estate Leader, Banana Plantation Manager, Regional Head; Quality Assurance; Research and Development; Learning and Development	Standard workflow for WI/SOP/SBT updates; Version control; Community of practice	Repository; Database

KM Objectives	KM Strategies	KM Framework Solution		
		People	**Process**	**Technology**
Enhance Technological Infrastructure to Enable KM Implementation	Digital KM Platform with Offline Capability	Digital Innovation Team; Learning and Development; Research and Development	Device issuance workflow; Ticketing system for access issues; Role-based access in KM system	Mobile Dashboard; Repository; Database
Improve Capture and Conversion of Tacit Field Knowledge	SECI-based Tacit Capture Program	Mandor Parcela; SME; Learning and Development	Field video capture routines: Lesson learn documentation; Microlearning creation	Mobile Dashboard; Repository; Database
Ensure Knowledge Continuity Through Structured Knowledge Retention Mechanisms	SME Knowledge Retention Program	SME; Learning and Development	Pre-retirement extraction; K-based exit interview; SME-led mentoring; Structured handover checklist	Repository; Database
Build Continuous Competency Development for Technical and Managerial Skills	Competency Development System (Technical + Leadership)	Learning and Development; Research and development; Banana Plantation Manager	Quarterly training cycle; Leadership bootcamp; Individual Learning Plan (ILP); Competency assessment every 6 months	E-learning; Database
Integrate KM Performance Metrics to Support Organizational Learning	KM Performance Dashboard Align With KPI	Estate Leader, Banana Plantation Manager, Regional Head; Human Resource; Mandor Parcela	KPI alignment: recurrence of issues, training attendance, mandor competency improvement, lesson learn documentation and utilization, yield correlation	Mobile Dashboard; Database

KM System Implementation using SECI framework

The following phase after identification of km strategies is designing km system by employing SECI framework. Knowledge creation in the SECI model happens through a continuous interaction of tacit and explicit knowledge. The techniques and methods introduced at this stage are shaped by streamlining some of the organisation's existing knowledge management practices, using the author's professional experience as an employee

of said organisation, along with synthesising conclusions drawn from each analysis made in Sub-chapter IV. 1.

Tacit to Tacit Knowledge (Socialization)

Tacit knowledge is difficult to convert into a formal heirarchial context, hence tacit knowledge can be learned through ways of collective experiences. As proposed by (Nonaka et al., 2002). socialization is the conversion of tacit knowledge through shared experiences.

Table 5. PT XYZ Socialization Process

Current Condition	Expected Contdition	Tools
- Knowledge sharing mostly happens informally - Mandor parcela mainly learn by asking their immediate supervisor or during field inspection when a problem arises at a certain location. - Peer to peer sharing among mandor parcela exist bu depend on personal closeness - Tecit trick and field judgement are demonstrated directly in the field - There is no dedicated sharing forum for mandor parcela	- A structured peer to peer learning culture is established across parcelas. - Mandor parcela reoutinely exchange tacit know-how through organization learning circles, cros parcela visit, and group problem solving - Tacit field judgement such as timing, assessment, troubleshooting is routinely demonstrated. - Peer sharing should no longer depend on personal closeness but becomes part of the organizational KM routine	- Peer sharing sessions (learning cycle) - Community of practice - Leader act as a coach

Several PPT socialization processes tools or techniques have been identified from KM strategies derived from the framework. The tools or techniques are peer sharing session, community of practice and leader act as a coach. So the main purpose of these three tools and technique is to build collaborative working enviroments, where mandor parcela can learn & share to each other as well from their leaders and learning from SME (Subject Matter Expert).

Session berbagi sesama atau sering di sebuuh sebagai kafe pengetahuan, merupakan sebuah acara yang bisa dipakai sebagai forum berbagi secara khusus antar mandor parcela. It also can be a great opportunity for mandor parcela to share learning. The sessions offered standardised mechanisms in the form of presentations, live demonstrations or simply video or photo reviews. Visual materials help making the subtle tacit clues explicit, repeatable and comparable across parcelas thereby support learning. This process not only reinforces shared understanding but also fosters cross-validation of practices.

These will form our monthly peer sharing sessions. It has also turned knowledge sharing from an ad-hoc, event-driven activity into a systematized organizational process. By

institutionalizing a recurring schedule the organization removes any dependence on happenstance or interpersonal intimacy, ensuring that tacit knowledge becomes democratically accessible to all mandor parcela. During this peer sharing beside them, mandor parcelas, guru, and SME also up here to share their knowledge or the latest information related to the company. his purposeful map of collective reflection is in-tune with Nonaka et al (2002) Socialization mode, where tacit knowledge can be exchanged via shared experience.

Community of Practice (CoP) a defined, intentional group of practitioners with a common domain of knowledge whose members interact regularly to improve their practice. In the context of banana plantation, a CoP represents a structured organization to facilitate in-depth involvement of mandor parcela, Research & Development (R&D) and subject-matter expertise (SME) to share knowledge, collaboratively work through field issues and establish common best agronomic and operational practices. These groups gather together around the shared goal of profitable, productive and efficient banana production.

Implementation of CoP is to provide knowledge sharing, solving problems and better decision making. To facilitate effective engagement, the CoP must be woven into operations involving everyday work. Digital tools as communication channels like WhatsApp groups might support coordination, but the heart of CoP is in engaging, structured learning interactions and through active participation from members that are all compulsory such as mandor parcela, R&D personnel, and SMEs.

The S-O transformation, where the leader transforms from command-and-control figures into leader act as a coach is key to improving Socialization within the SECI-based KM system. leaders turning into coaches, whose main role is not to give the answers but rather help mandor arrive at them through collective reflection, questioning and business problem solving. Thus leaders become facilitators who help structure discussions, encourage contributions from peers, and ensure that insights from day-to-day operations are recorded and generalized to other plantations.

In this mentor model, Leaders guide mandor parcela in keyways. Primarily, they bolster psychological safety in knowledge-sharing meetings, allowing mandor to freely elaborate on obstacles, shortcomings or gaps. Second, leaders use coaching techniques like probing questions, guided reflection and active listening to elicit mandor experiences rather than provide solutions. Third, leaders promote collaboration by making connections across parcelas note parallels and make sure key lessons find their way into lessons-learned documentation and training cycles.

Tacit to Explicit Knowledge Creation (Externalization)

Externalization is a process of converting or articulating tacit knowledge into explicit knowledge, in forms that can be documented and shared as well as systemically applied by others (Nonaka et al., 2002). PT XYZ has already carried out these processes on the field by using video recording as a medium to have and express tacit knowledge that comes from their work, unfortunately, they are stored separately.

Table 6. PT XYZ Externalization Process

Current Condition	Expected Contdition	Tools
• Explicit knowledge but does not capture some	• Tacit expertise is systematically	• Lesson-Learned Documentation

Current Condition	Expected Contdition	Tools
detailed tacit such as field judgement and experiental knowledge have remained undocumented. • Some tacit knowledge is stored in the form of video, but they are stored in scattered locations (L&D, WhatsApp, personal folder) • Lessons learned from field issues are not documented, it is causing repeated cases • Knowledge from senior workers is only extracted verbally before retirement, not yet converted into reusable documents or digital assets.	captured into reusable explicit forms • Filed issues, root cause, field finding, corrective actions transform into lessons learned entries. • Senior worker knowledge is captured into reusable explicit forms and converted into digital assets befor retirement • Tacit demonstration becomes microlearning modules	• Pre-retirement extraction (K-Based Exit Interview) • Tacit Capture Program

With tacit knowledge conversion to explicit, there are three tools that have been identified which are lesson-learned documentation, pre-retirement extraction (K-based exit interviews) and tacit capture program. At the same time, they serve very important purposes in the development of explicit knowledge.

The tacit capture program is a canonical operational mechanism that allows you to convert experiential, practice-based knowledge into explicit reusable enterprise assets. The Tacit Capture Program creates a repeatable, standardized process that institutionalizes tacit identification, extraction and validation of tacit topics into explicit forms. The program is a multi-step capture workflow that ensures consistency, accuracy and applicability.

An organization starts with selecting a tacit knowledge topic, inspired by operational needs, pain points or noticed variation in field execution. Then, tacit insights are elicited through media formats like expert video demos, interviews with experts and walk-throughs in the field do case studies or story sessions that mimic media format for SMEs or a more seasoned mandor to speak about their line of reasoning, embedded cues and judgement process that is hard to document. L&D and R&D teams go through this raw tacit input that could be incorrect or deviate with the standards and formalize them in the form of courseware. Validated content is then converted into explicit assets, e.g., microlearning modules, best-practice modules.

Lesson-learned documentation and document the repeating problems in the field to an organizational learning assets. Identifying lessons-learned the organization has been able to avoid getting "back to zero" every-time a problem arises. It ensures the operation is more streamlined and productive. It can also improve the performance in future if a mistake was made. Lessons learned outputs are also integrated into the KM Repository and indexed by activity type, problem category, root cause, and parcela location.

Pre-retirement extraction is an proactive way of capturing the knowledge of near retirement workers. Where many organizations depend on informal cadgeing or fly-by mentoring, it relies on a formally planned and mandatory pre-retirement program with knowledge-based exit interviews, subject-matter debriefings and field techniques documentation. During these sessions, SMEs are shepherded by Learning & Development and R&D team members to extract their thought processes during decision-making, field judgement calls, and troubleshooting logic not captured in formalized procedures. Such deliberate extraction guarantees that tacit wisdom is converted into explicit, transferable knowledge capital before veterans leave the institution.

Explicit to Explicit Knowledge Creation (Combination)

Combination enrich explicit knowledge by transforming it into a more complex and systematic framework of explanations. Explicit to explicit knowledge creation is operation in which systematic sets of explicit knowledge are created through gathering explicit knowledge from outside or inside organizations (Nonaka et al., 2002). There have been found two tools: Mobile dashboard, KM platform from the KM strategies that are used in combination process.

Table 7. PT XYZ Combination Process

Current Condition	Expected Contdition	Tools
• There is no single database that integrates SOPs, training material, and video. • Digital access is restricted to certain level, frontliner such as mandor parcela cannot directly access documents. • Documentation of field issues, root causes, or corrective actions is not combined into a lessons-learned repository.	• All explicit knowledge is integrated into a single KM platform • Version control and validation workflow to ensure knowledge is still up to date and secure	• Mobile dashboard • KM platform (repository and database)

One of the key challenges highlighted through the plantation operations is the poor and intermittent internet connectivity via few remote locations. The Offline Mobile Dashboard solves this problem by preloading the mandor device with knowledge resources required. This provides mandor with dependable and reliable access to operational knowledge without being reliant on real-time connectivity during field activities. The dashboard synchronizes accordingly when the sign is available ensuring that WI, SOP, microlearning content and lessons learned are updated to each device.

This offline mobile tool is complemented by the Integrated Digital KM Platform at a higher level. A consolidated, searchable repository that brings together WI, SOPs, SBTs, training materials and videos, microlearning modules and lessons-learned documents. It includes version control, validation workflows with input across departments (QA, R&D, L&D and plantation leadership). The mandor parcela get secure, role-based access to knowledge only to see them being assigned work.

The relationship here between the digital KM platform and the mobile dashboard is not so much parallel as it is deeply interdependent. The dashboard acts as the mobile field extension of your KM platform. The contents displayed on the dashboard are fetched from the KM platform repository. Dashboard automatically downloads updated versions of WI/SOP, a new lesson-learned entry and/or microlearning videos/troubleshooting guides during synchronization periods. Insight from the field that is captured by mandor parcela like photo, video, notes, or problems that happen on the field can be uploaded back to KM platform when connectivity returned.

In this integrated design, the KM platform delivers organizational structure, governance and standardization, and the mobile dashboard facilitates accessibility and usability free of case in real world field conditions. The integrated system proposes to minimize execution variability, increases operational discipline, and helps to fill knowledge gaps in mandor parcela. A tightly integrated Mobile Offline Dashboard and Integrated Digital KM Platform allows for a complete end-to-end knowledge ecosystem.

Tacit knowledge to Explicit Knowledge Process (Externalization)

With internalization explicit knowledge that was want to share at whole organization and convert become tacit knowledge by individual people (Nonaka et al., 2002). For the dummies, internalize is work to do on implicit knowledge. In plantation operations, this stage plays a key role as it depends on skill and judgment rather than reading of some papers.

Table 8. PT XYZ Internalization Process

Current Condition	Expected Contdition	Tools
• Mandor parcela internalize SOPs and another knowledge mainly trough training and field coaching. • Because access to explicit documents is limited for mandor parcela, internalization relies heavily on verbal explanation and	• Mandor parcela internalize explicit knowledge through structured training cycles, coaching, and regular competency assessment. • Mandor gain direct access to explicit knowledge via mobile dashboard • Combination of technical and managerial training to ensure tacit mastery aligned to operational standards.	• Individual learning plan. • E-Learning

demonstration. • Training composition is more on technical skills rather than managerial skills**.**		

The work nature of plantation requires mandor to simultaneously master 2 knowledge domains: technical knowledge and leaderships competencies. Integrated technical and leadership training programs is one of the tools to address this issue. Technical modules address fundamental field operations, and leadership modules build the necessary supervisory skills. In addition to teaching mandor the technical knowledge he must have, it also teaches him managerial competence so that not only does the mandor know what to do, but he knows how to make others do it right consistently.

Individual learning plan, Attention is to ensure that training would not be the same for every individual. The individual learning plan is a customized training program that reflects the gaps in knowledge and field behavior for each mandor parcela based on their competency levels and work performance. It is closely fused with the 6-Month Competency Assessment, which serves as the diagnostic engine of internalization. Coupled with individual learning plan and competency assessment, the organization thus creates a powerful feedback loop of how to identify need by compentecy assessment, facilitated by structured training, and re-assessed after six months for measurable behaviourst transformation.

E-Learning — The next tool acts as the digital backbone of internalization. Offering microlearning videos, interactive technical refreshers, leadership modules, and quizzes that reinforce long-term retention. Mandor are able to learn through E-Learning in an asynchronous manner, unlike traditional training, and at their own pace, allowing them to repeat, review/reinforce.

Taking into account the connectivity challenges of the plantation, a comprehensive E-learning platform with complete integration with the Mobile Dashboard and KM Platform (with offline access) should be implemented. The KM Platform is the central location of all explicit knowledge. Mandatory on Mobile: The DashBoard Mandor is a simpler operational interface. Essential materials are pre-loaded onto their devices prior to mandor entering the field. Whenever they are in the field, take a break or have time during a coaching session, ther e- learning modules – stored on the device – allow for continued learning and training. Once the device is back on network, it auto syncs and updates ILP progress, training records & learning analytics in system.

It is, in its final form, a holistic, cyclical and digitised learning ecosystem that weaves together transition processes as well as internalisation processes. This foundational capability is built through initial technical and leadership training. The ability to assess competencies objectively on a 6-month timeline promotes self-improvement and continual reflection. The ILP ensures that development is continuous and customized. In such a remote field condition KM platform or mobile dashboard make sure that knowledge is there for you to use. The

platform of this e-learning will enhance knowledge, in a more accessible and scalable way. To summarize all the SECI model implementation, we can see the following figures.

Proposed KM System Implementation
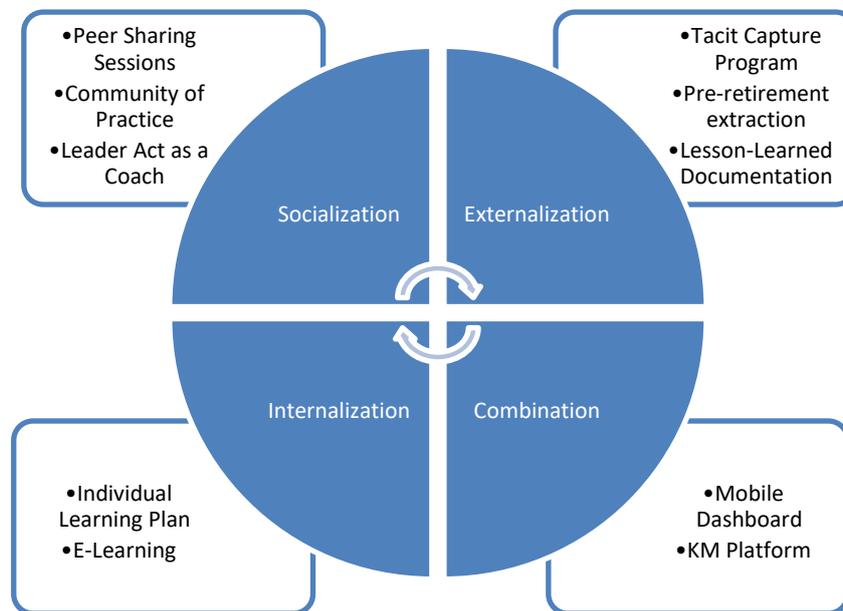
Figures 4. SECI Model for KM Implementation at PT. XYZ

Integrating the APO, PPT, and SECI frameworks results in business solutions that correspond with four essential management process stages (create, store, share, use) of knowledge. The KM system proposed in the previous section mapping each stage within ithe framework of data, information and knowledgeprovides a comprehensive approach to help PT XYZ significantly improves their KM implementation.

Although the main goal of this final project is to improve the banana plantation team performance, the author also understood that new approaches are often seen as expensive. As a result, the developed KM subsystem is optimized to be cost-effective by considering existing assets and capabilities present in the organization.

Implementation Plan & Justification

INTRODUCTION The literature mentioned that technology development is necessary when implementing new KM system, especially at PT XYZ which also requires the implementation of structured organizations change approach. KM system implementation is an organizational change. Where Kotter's Eight Steps for Transforming Your Organization offers a solid framework for rolling out people, culture, and new ways of working (Kotter, 2007). We will use the Kotter's 8-Steps change management model to follow through with an implementation plan.

Table 9. 8-Steps Change Management Model. Source**:** (Kotter, 2007)

Step		Action Needed	Output
1	Establish a Sense of	• Examine market and competitive realities for potential crises and	Urgency Level ≥75% of leadership convinced.

Step		Action Needed	Output
	Urgency	• untapped opportunities • Convince at least 75% of your managers that the status quo is more dangerous than the unknown	
2	Form a Powerfull Guiding Coalition	• Assemble a group with shared commitment and enough power to lead the change effort • Encourage them to work as a team outside the normal hierarchy	A coalition capable of driving system and behavioral changes across estates.
3	Create a Vision	• Create vision to direct the change efforts • Develop strategies for realizing that vision	A one-page KM Vision that can be communicated
4	Communicate the Vision	• Use every vehicle possible to communicate the new vision and strategies for achieving it • Teach new behaviors by the example of the guiding coalition	Employees can explain the KM vision clearly and see how their work contributes.
5	Empower Other to Act on the Vision	• Remove or alter system or structures undermining the vision • Encourage risk taking and non-traditional ideas, activities, and action	Mandor can access, share, and contribute knowledge without dependency on supervisors.
6	Plan for and Create Short Term Wins	• Define and engineer visible performance improvement • Recognize and reward employees contributing to those improvements	Visible proof that KM is working
7	Consolidate Improvement and Produce More Change	• Use increased credibility from early wins to change system, structures, and policies undermining the vision • Reinvigorate the change process with new proect and change agent	KM becomes part of the operating rhythm, not a project.
8	Institutionalize New Approaches	• Articulate connection between new behaviors and corporate success • Create leaderships development and succession plans consistent with the new approach	KM becomes part of identity, not initiative.

For specific timeline, the data is processed then visualized into a time chart that display all activities with their starting time and full implementation time

CONCLUSION

This research intends to assess the existing landscape of knowledge management (KM) in banana plantation division of PT XYZ and to create a KM framework to bridge knowledge and competence gaps. Based on the APO, PPT, and SECI analysis, it found that PT XYZ habitually practices knowledge management in place but still is fragmented, informal and people-dependent rather than institutional. Consequently, it is followed by uneven field execution and competency gap of mandor parcela, pumpkin pest infestation in the fields, and a decrease in plantation productivity as indicated by prawn fruit weight reduction at 8%. Knowledge is stored and accessed in multiple disparate platforms and departments, often limiting access to critical documents among higher-level agents, leading to bottlenecks for front-liners. Much tacit knowledge — field judgment and troubleshooting — is undocumented, transmitted informally. Rather, training is reactive, not competency-based. It is ruled that PT XYZ's KM maturity lies on the stage of "Refinement"; systems are scattered, no integration and standardization resulted. To tackle these obstacles, the research introduces an extensive KM model combining APO, SECI and PPT frameworks that focuses on organized peer learning, comprehensive tacit knowledge capture as well as a common KM platform with offline mobile access components for mandor parcela along with Individual Learning Plans (ILP). The adoption strategy is established using Kotter's Eight Steps framework: creating a sense of urgency, forming a coalition to guide the process, eliminating structural barriers, securing quick wins by standing up the KM platform early to build momentum for further KM activities, and ultimately ensuring that KM processes are embedded into policies and performance evaluations to support sustainability.

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