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Strategic and Sustainable Implementation of 5S in a Beef Abattoir

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ABSTRACT

In recent time workplace organization and easy information retrieval help in achieving optimum productivity through maximum utilization of the resources available, significantly reducing industrial lead-time and waste thus resulting in low production cost and increase return-on-investment (ROI). This paper is a study of the effective and efficient implementation of 5S processes in a beef abattoir. Thus, the paper employs both qualitative (*case study*) and quantitative (*statistical analysis like 5S scorecard and 5S audit performance*) methods. This research identifies and outlines 5S “best practice” issues overlooked such as unneeded items lying around, torn sign displays, labels and shelves not partitioned, bins not clearly stored in demarcated areas and storage tools not clearly shown with sign panels and labels. Furthermore, budget constraints and the abattoir unreadiness to adopt the 5S system inhibits the smooth implementation of the 5S phases required. Therefore, this research managed to map out a 5S lean-system implementation framework for the case company X beef abattoirs. Finally, the research recommended effective process on how 5S can efficiently save the industry on planning to reduce waste in processes such as lead-time in effective information retrieval system, safety issues to mitigate non-value adding activities and space utilization, for improved productivity.

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1. Introduction

The persisting shortfalls existing most abattoir industrial operation processes either in small, medium or large-scale enterprises (L/SMEs) are among the reasons that motivated this research on the effective and efficient implementation 5S in the case company X beef abattoir. The aims and/or objectives of this paper is to illustrate 5S implementation in a beef abattoir and to increase 5S literature papers on lean implementation. According to (Nwakaire & Keirstead, 2015) the abattoir sector has been abandoned in most national livestock development level for most developing countries. Fifteen Percent (%) falls under a well-developed commercial farming system comprising cattle ranching and feedlots coincide with a large number (85%) of ruminants under the traditional or communal grazing system (unfenced ranges) including small farms. Agriculture remains the critical source of livelihood for most people in Botswana (Boy, 2016). Agriculture contributed to 2.3% GDP in 2003/2004, out of which 70 to 80% was attributable to cattle production

(BEDIA, 2007). The purpose of implementing the 5S lean manufacturing tools in industries is to manage the aspect of process improvement (Environmental Agency, 2017). Hence, **Sort** means discarding items that are not needed in the workplace. **Set-in-order** means arranging items in a neat and systematic manner so that they be easily retrieved for use and to return after use. **Shine** means cleaning and inspecting the workplace thoroughly so that there is no dirt on the floor, machines, and equipment. **Standardize** means maintaining a high standard of workplace organization by always keeping everything clean and orderly. The last “S” which is **Sustain** which means training people to practice the 5S system continuously so that it becomes habitual and ingrained in the culture of the organization.. Beef abattoirs are meant to recover the edible portions of slaughtered animals and make them available for human consumption and this makes a beef abattoir to be a key sector in the food industry. Botswana has a livestock population of 3.36 million ruminants (cattle, sheep and goats). Good housekeeping in an abattoir is very key since it maintains a good standard in food safety and awareness. This research studies and highlights the implementation of a 5S lean system to improve productivity and workplace improvement in a beef abattoir. Benefits of 5S are that the workplace becomes cleaner and better organized, shop floor and office operation become safer, and enhances the generation of more and better ideas through visible results. This research was conducted in a case study company X, which is a private beef abattoir in Botswana.

2. Literature review

5S is a management tool from Japan, that focuses a quality environment in the organization, ensuring adherence to standards and in the process, fosters the spirit of continual improvement (Rahman, 2005). Bamber, Sharp, & Hides (2000) defined 5S as a tool that is based on the Japanese acronyms of seiro (organisation), seiton (neatness), seiso (cleaning), seiketsu (standardisation) and shitsuke (discipline) to develop a platform of an intergrated management system. Moreover, (Becker,2001) stated that a common name in the Western part of the world is housekeeping. (Rahman,2005) explained that the 5S management technique has contributed a lot to recuperate internal inefficiencies, operational effectiveness and nurture on time delivery system to the delight of customers. The practice of 5S intend to imbed the values of organisation, neatness, cleaning, standardization, and discipline in the workplace (Mapfaira et.al,2016). Futhermore (Rahman,2005), explained that for 5S to be succesfully, it needs commitmentparticipation and involvement of everyone and strong visible support from top management. (Kodama, 1959) stated that 5S is an endeavour journey should be intergrated with other Japanese life wisdom called kaizen (continuous improvement & change for better) and visual methods. (Rahman, 2005), devised a 5S roadmap implementation which is shown in Figure 1 below. The author explained that phase 1 and 2 are enablers (i.e Plan and Do phases). Ashta et.al (2010) emphasized that activities that are inclusive in phase 1 and 2 are; providing training and education, forming a 5S council, set up 5S zones, determining 5S objectives, plan 5S action plan and lauch 5S. Phase 3 and 4 are the actual results (i.e Check and Act). Activities involved are cleaning standards, better visual control system, establishing rules and Standard Operating Procedures (SOP), using techniques and strategies to sustain activities, review 5S newsletter to share the progress of 5S activities and reviewing 5S achievements (Prieto et.al, 2014).

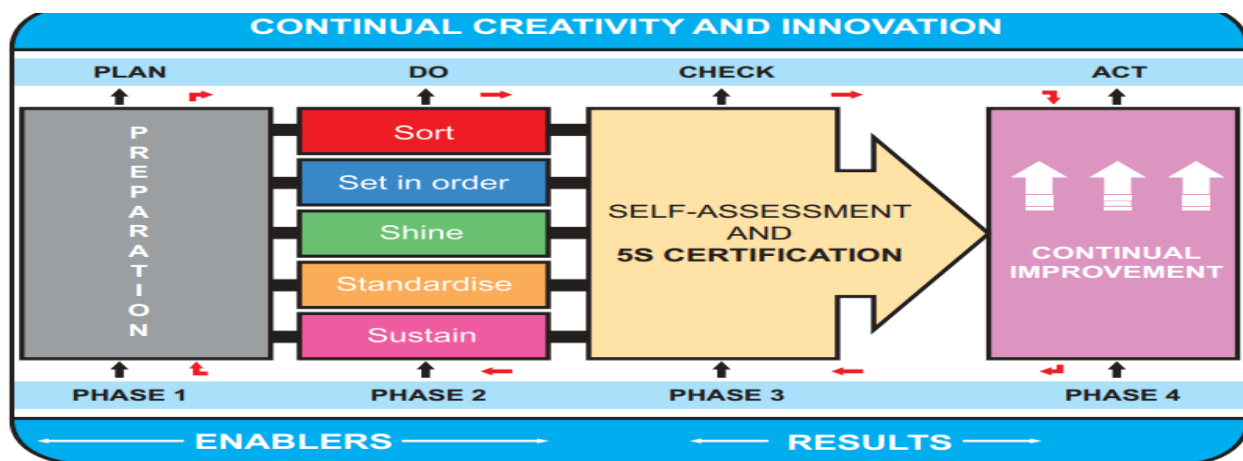


Figure 1: 5S roadmap implementation plan retrieved from (Rahman, 2005)

(GBMP,2019), stated that stability and visual standardization provided by 5S is an important aspect to lean practice and is visually attractive to management. The author further stated that challenges affecting 5S implementation are back sliding and lack of participation. The 5S methodology has expanded fom manufacturing and is now being applied to a wide variety of industries including health care, education, and government (Gapp et.al, 2000). 5S and visual

management can be beneficial in an abattoir (Kufigwa et.al, 2018). (Chron,2019), explained that without efforts of 5S especially the Sustain phase, good habits of 5S implementation it can be difficult to maintain. Moreover, it is important to focus on ways that will enable the process to be a habit. (Pradeep Mahalik,2019) stated that 5S activities should be integrated into a business function so as to achieve organisational excellence culture.

(Navajas et al.,2010) explained that 5S is easy for everyone to understand because it does not require the understanding of difficult technologies, it is simple, driven by logic and it is within the reach of all type and size of industry or organisation. Furthermore, (Jackson,2017) stated that the 5S management technique considers 5S standards which are Sort, Set in Order, Shine, Standardize and Sustain. (Bayo –Moriones et.al.,2010) defined this concept as following;

- **Sort** – means sorting and systematically items that are not needed in the workplace
- **Set in Order** – means arranging necessary items in a neat and systematic manner so that they can be easily retrieved for use and to return after use.
- **Shine** – means cleaning and inspecting the workplace thoroughly so that there is no dirt on the floor, machines, and equipment.
- **Standardize** – always means maintaining a high standard of workplace organization by keeping everything clean and orderly.

(Khanna,2009) emphasized that for the 5S system to be successful, the most important factor is the commitment, participation and involvement of everyone and strong visibility support from the top management. Moreover, the author stated that there are activities that help to systematically carry out 5S activities and this is.

- Visit 5S model companies for continual improvement
- Train everyone adequately on 5S Practices
- Promote 5S campaign
- Plan a systematic approach following the Plan-Do-Check-Act (P-D-C-A)
- Practice Performance Measurement and Reward System

This section outlined sources, materials, publications, case study reports, documents and books that reveal successful implementation 5S system, gaps that exist in the implementation of 5S in abattoirs and meat processing industries and explains on how to close those gaps by emphasizing them through writing.

3. Methods and materials

The methodology of this research study relied on secondary research (such as reviewing available literature and data), informal qualitative approaches (such as discussions, consultative meetings) and formal qualitative research (such as face to face interviews, direct observation, case studies, audits and plant tours). It explores the application of the 5S-lean manufacturing tools in meat processing industries (an abattoir). Lean processes have been introduced in abattoirs differently globally. This is supported by 5S-lean application at the UK Red Meat, thus, the lean tools were first introduced at the research company through campaigns, management buy-ins, proposals to company's management, training and awareness. The modes and processes of data collection and analysis are detailed below from subsection 3.1 (i) to (iv).

3.1 Data collection methods

Information on 5S implementation was collected by direct observation, photograph, audits, plant tours and discussion with workers. 5S scoring sheet and PDCA (Plan, Do, Check and Act) framework were also followed and used as methodical approaches to 5S implementation. These methods are explained further below.

i. 5S Score sheet

As company audits were being done, there was a need to identify a tool that would help to successfully conduct audits without biasness. The 5S scoring sheet was identified and employed as part of the methodology. Furthermore, to help understand improper workplace industrial setup, some bottlenecks were identified and outlined as issues within the company in terms of the 5S workplace organization and workplace safety issues. Thus, the 5S-lean audit was done using a 5S scoring sheet as the tool for assessment illustrated in Figure 2 below and Appendix A, shows an audit checklist used for 5S. The purpose of the 5S audit is to identify issues of 5S which require attention and to be able to track the changes as well as measure the benefits achieved through the implementation of the 5S-lean system. The scoring criteria was the mode of measurement this research adopted to investigate the company's performance in terms of its workplace

arrangement and space utilization effectively and efficiently. They are key to productivity improvement, they also enhances the good working environment, safety, and morale boost at the workplace. Assessment for 5S audit on performance results is in Table 1, blow. In Figure 2, below illustrates the score sheet used to grade each area at the beef abattoir.

Score	Condition Observed	Score (check box)				
		0	1	2	3	4
4	Very Good (perfect condition)					<input checked="" type="checkbox"/>
3	Good (1-2 problems)				<input checked="" type="checkbox"/>	
2	OK (3-4 problems)			<input checked="" type="checkbox"/>		
1	Bad (5-6 problems)		<input checked="" type="checkbox"/>			
0	Very Bad (above 7 problems), or non existent	<input checked="" type="checkbox"/>				

Figure 2: 5S Score sheet used for case company X

ii. Audits

Audits were done to understand the root causes, some problem areas, and some bottlenecks that the company experiences in its operational process and systems. See Appendix A, an audit checklist used for the 5S-lean scoring. The 5S-lean scoring sheet was used during auditing to score the current 5S that is existing in the abattoir.

iii. Plant tour

The plant tour was done to see where the company stands in terms of workplace organization, safety, and housekeeping. Illustration of a picture captured during the plant tour is shown in Figure 3. This was done to show the existing 5S standard in terms of workplace organization and safety compliance.

iv. Observation

Figure 3 shows 5S observations and some of the areas that need improvement in terms of signage, floor markings, visuals and labellings. These pictures were taken before 5S implementation to to illustrate areas that are still lacking behind in terms of 5S. As auditing were being done, pictures were taken too. It was observed that visual labels are not displays on some equipment and tools. It can be seen in Figure 3a below, that there is a sign of a fire extinguisher, but the actual product is not there. There was also a reel without any labelling indications in-line with the Safety regulations. Scoring was done, and it was observed that safety regulation in terms of labelling and providing signs for tools was at a rating of 2.5 out of 4.



Figure (3a): No labelling



Figure (3b): Sign of a fire extinguisher without actual product

4. Results and Lean implementation in a beef abattoir

This subsection of the study details the implementation process of 5S in a private abattoir. However, the actual implementation, verification, validation, and development of a framework for the 5S system remains questionable due

to or depending on the as-is standards at the abattoir before the 5S-lean implementation system starts. To establish how well the literature matches the real-life issues; a framework for 5S was developed with the help of the PDCA problem solving approach. The following subsection 4.1 presents the roadmap to the 5S-lean implementation, suggestions and improvements that can be done to the status quo. Thus, this subsection is structured on the logic and phases of the 5S-lean implementation process based on the PDCA approach, subsection 4.1 details the 5S implementation process below.

4.1: 5S Implementation

This section is about the implementation of 5S which is a lean technique that uses the 5S (Sort, set in order, Shine, Standardize and Sustain) to organize and maintain a neat and clean facility. Below in Figure 4 shows the roadmap to 5S implementation.

The meaning of 5S,

Sort- Means separating what is needed and what is not needed and keep only those things that are a need in the workplace. Discard unnecessary items

Set –in order- Neatly place and identify needed work items. Designate a place for everything so that anyone can find it. Always put things back in their designated spots

Shine- clean up. Always maintain a clean and shine workplace. Identify why are things are getting dirty.

Standardize- Become a role model for adhering to the standards of the first three S's and encourage others to follow them. Make rules and procedures to promote a good working environment until the first three S's become everybody's second nature.

Sustain- Maintain and practice the first four S's. Be thorough in straightening up, putting things in order and cleaning.



Figure 4: Roadmap to 5S implementation retrieved from (Pradeep Mahalik, 2019)

4.1.1: 5S Objectives and goals

Setting 5S objectives is important in the implementation of 5S as they guide the successful implementation of 5S. The main objective of implementing 5S is to create a clean, orderly environment which is clutter-free, minimal waste and time processes. Target goals of the implementation are to; reduce non-value adding activities, reduce search navigating the facility and allocating tools, parts, and supplies, improve floor space utilization, improve employee safety and moral, and extent equipment life through more frequent cleaning and inspection.

Table 1 below shows the performance of case company X after a 5S audit was performed using the stated criteria. The director, the production manager and the researcher (i.e three individuals) independently audited the facility using the 5S audit checklist, see *Appendix A*. The findings of the three individuals were averaged out to take care of any biasness. Radial charts in Figure 5 below were used to analyse how each element of the assessment area is performing in each phase. Doing so enabled to pinpoint performance of elements in each phase. This analysis helped the researcher in developing a future roadmap for 5S implementation in the case company beef abattoir X. The performance of 5S in the abattoir is seriously lacking in all aspects of 5S. Therefore, this calls for an all-round improvement with regard to all areas assessed. Implementation efforts should especially be put in structures that will boost the Standardisation and Sustain the various phases of the 5S because performance in these areas were very unsatisfactorily. Notes should also be taken at all phases to record the fact that performance in other phases may also be lacking. Figure 5(a) shows the performance of Sort and Straighten phases. From the audit, there are no sign panels and safety posters in the building. Figure 5(b) shows the audit results of Shine and Standardize phase, where there are no cleaning schedules and standard that tracks the frequency of cleaning in the building. Figure 5(c) illustrates the performance of the Sustain phase. Sustain phase scored lower marks because the 5S standard is not yet Standardize in the beef abattoir X.

Table 1: Audit performance of case company X (refer to Appendix A for assessment form)

	Criteria (AREA)	Sort(/4)	STRAIGHTEN (/4)	SHINE(/4)	STANDARDIZE(/4)	SUSTAIN(/ 4)	TOTAL (/20)
1	Healthy and Safety	3	2.5	3	2.5	4	13
2	Environment	1.5	1	1	0.5	0	4
3	Facilities	1.5	2	0.5	0.5		4
4	Floors and gangways	1.5	0	1.5	0	0.5	3.5
5	Duty technician	0	0	0	0	0	0
6	SHE officer	0	0	0	0	0	0
7	Tooling, fixtures and jigs	3.5	1.5	2.5	0	0.5	8
8	Wire, Cabling & hoses	2.5	2	1	1	1	7.5
9	Work benches & surfaces	3	3	3	3	3	12
10	Visual tracking boards	0	0	0	0	0	0
11	Production boards	0	0	0	0	0	0
12	Red tag	0	0	0	0	0	0
13	Mobile equipment	3.5	1.5	1	1	1	8
14	Cleaning standards	3.5	1.5	1.5	0.5	1	5.5
15	Intergrated tracking device of a carcass	0	0	0	0	0	0
	Total	22	13	14.5	8.5	11	69
	Overall	60	60	60	60	60	300

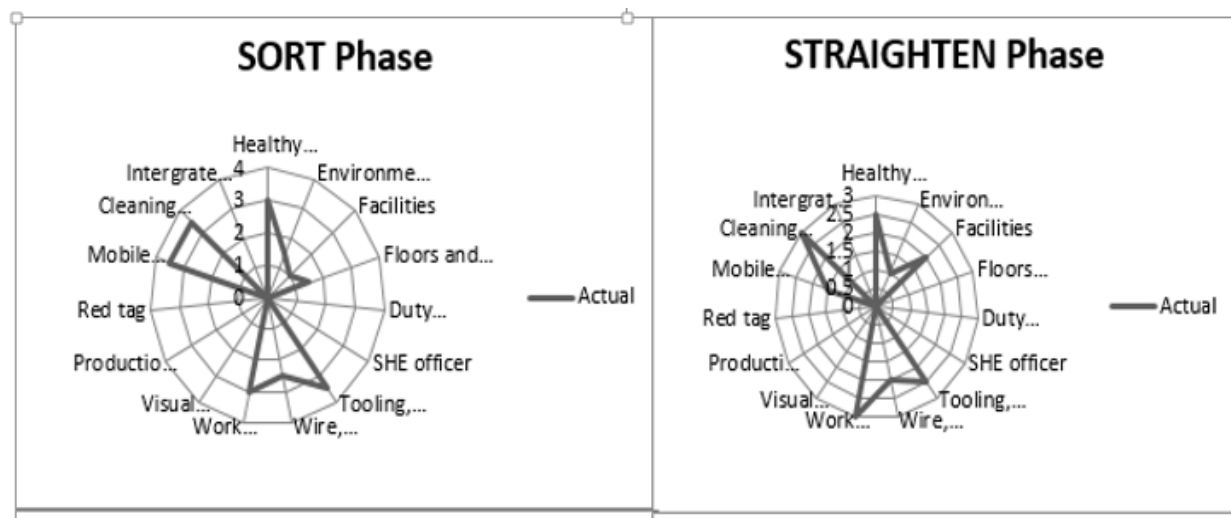


Figure 5 (a): Audits results of Sort and Straighten phases of case company X

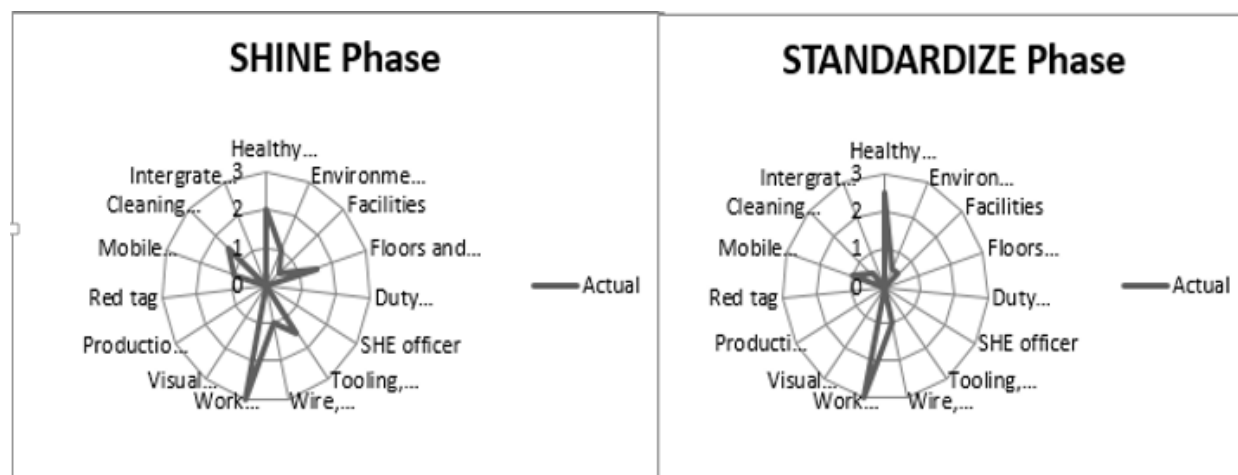


Figure 5 (b): Audits results of Shine and Standardize Phase of case company X



Figure 5 (c): Audit results of Sustain Phase of case company X

4.2.2: 5S Council

In order for the 5S system to be a successful commitment, participation and involvement of everyone is vital and most importantly strong visible support from the top management. The 5S council is formed to enhance the total participation at all levels of employees, to develop continuous improvement culture and best performance spirit in the teams. 5S implementation responsibilities are distributed across the organization to staff. The steering committee is responsible for selecting, assisting in conducting training, sharing information and assisting in developing the 5S plan. Before the 5S

council, a proposal letter was issued to the company requesting the 5S council to consist of two three individual that is two beef abattoir staff of the case company X (production manager and the director) and the researcher.

4.2.3: Conducting 5S Training

The most common mistake organisations make when implementing the 5S, is the failure to adequately train employees from the onset. Training is important to ensure that workers understand and are fully involved in the 5S exercise. Thorough understanding and involvement will improve the likelihood of sustainable high standards in 5S. For workers to develop a culture and accept 5S it is important that management is also fully involved. The 5S training is set up with an objective to disseminate 5S methodology and prepare the workforce for meaningful participation in 5S activities. The training programme would be the starting point of 5S. After the training is completed, all workers would have enough knowledge of 5S and be responsible for action in progress as was the case per this research's recommendation for the case company X employed in this research study.

4.3. Results

5S was specifically implemented, due to the abattoir not being ready to adopt and implement all the 5S-lean phases. Mostly, the first 3 phases that are Sort, Set-in-order and Shine were almost 70% implemented, then the last two phases being, to Standardize and Sustain were not implemented with almost 10% work done. Figure 6 and Table 2 below shows the 5S-lean achievements quantifications in terms of the implementation phases and percentages.

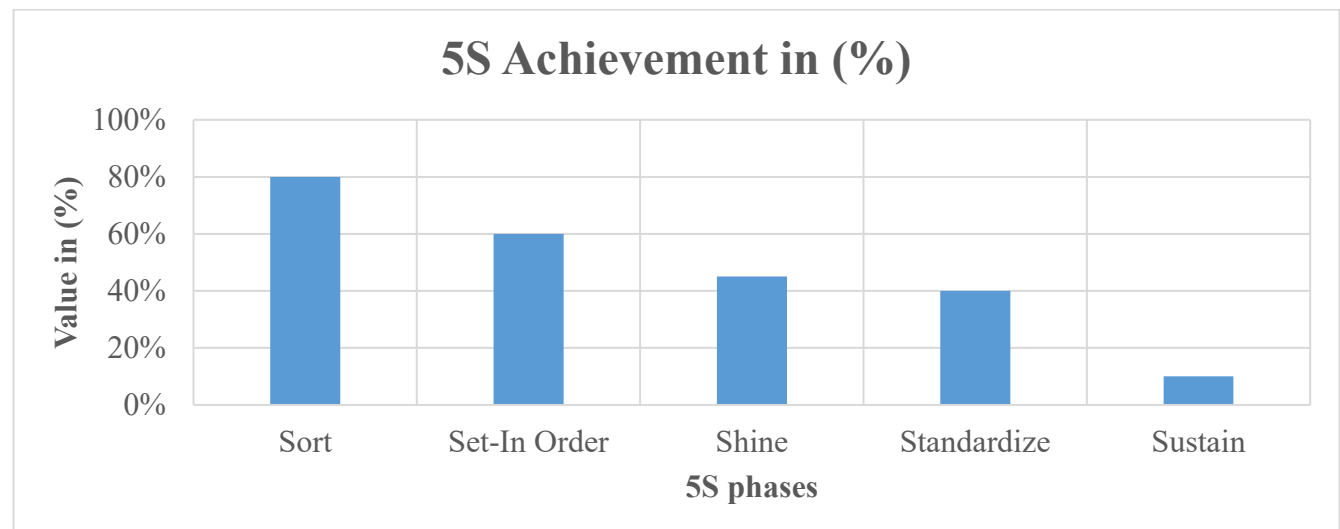


Figure 6: 5S achievement assessed at case company X

Table 2: 5S achievement quantification of case company X in terms of implemented phases and their percentages

5S Implementation phase	Activities achieved	Completion %
Sort	-Red tag was done -Unnecessary items were identified -Discarded items were red tagged -Items which are used weekly/hourly/ everyday were identified	80%
Set in Order	-Materials that need signage, labels and of stock were identified -Standard color coding, display cautions, messages were not done rather it was recommended for 5S future implementation -5S document manual was prepared and developed	60%
Shine	-Cleaning schedule was done -Inspection has been put in place -Area of cleaning storage and cleaning aids was done	45%
Standardize	-A 5S checklist was done for each area section -5S training was done -Periodic evaluation was not done but rather it was recommended for 5S future implementation	40%
Sustain	-5S council team was formed -5S was not fully implemented -There is no 5S good habits and discipline rather it was emphasized in future 5S implementation.	10%

Findings show that 5S can be applicable in a beef abattoir, more especially when the company is committed to address safety and improve productivity in the beef abattoir. Employees buy-ins and engagement with employees is very key to getting the change management done effectively.

5. Discussion and Recommendations

This section discusses the results and recommendations based on the 5S implementation in case company X. The objective of this research study was to implement a 5S system in a beef abattoir, where not all the 5S phases have been properly implemented or not implemented at all. It was observed that, the two last phases (i.e., Sustain and Standardize) were not done in the case company X because the abattoir was not ready to implement all the 5S phases. Therefore, discussion and recommendations were made based on what was achieved in terms of the 5S-lean system that were able to be implemented. Implications were made as to what might be done for future researchers' purposes for 5S implementation in beef abattoirs.

Recommendations were made to the case company X employed in this research study, since it was not ready to implement all the 5S-lean system for their abattoir industry at that moment. Suggestions and recommendations were made in the following subheadings:

- **Conduct a red tag and cleaning event**

It was recommended that the abattoir should conduct a red tag event and be named "The Red Tag Strategy event", to identify potentially redundant items in the work cell, evaluating their usefulness, and dealing with them appropriately. These area should be cleaned with purpose and always maintained clean and shiny. Get rid of all the garbage and dust in the workplace. The machines and equipment should thoroughly be polished every day to discover even small abnormalities. Correct any issues uncovered during cleaning by pin pointing the root cause of dirt and cutting it off from the source. Shine is also a total equipment maintenance practice that will increase the total life of machines.

Summary

Table 3 below, is a summary of the present situation on 5S implementation and proposed methods as the company agreed to continue with 5S implementation in future. Hence, the reason for partial implementation of the 5S-lean system in the case company X was due to budget constraints, unavailability of resources and time. As lean is a continuous improvement

tool, the case company X will always thrive to abide by the set proposed methods for workplace improvements, safety and workspace utilization.

Table 3: Proposed methods and suggestions as to the present situation of 5S standard system

Present situation	Proposed methods
No clear gangways and floor markings	It was recommended for the company to mark floors in future or use a simple white tape for markings
Improper cabling of electric wires	Recommendations were made to manage cables properly for worker's safety or to use wire cable trays to support cables
No safety rules displayed and safety awareness posters	It was recommended for the company to have 5S, safety awareness posters displayed in the production plant
No production charts	It was recommended for the company to have atleast one production reporting boards within the production plant
No red tag station	It was recommended that the company should have a red tag station where red taggings are placed and easily accessible
Lacking waste management practises	It was recommended for the company to have waste containers and well labelled according to the Waste Management Act 89 of 2008.
Mobile equipment not properly displayed	Recommendations were made for the company to have demarcated floor area where mobile equipment will be placed.

6. Conclusion

In concluding, 5S-lean implementation in an abattoir is very difficult because many aspects involves the top management's buy-in, commitment from the top management, employees response to change and resource investment for change into 5S-lean system implementation. For abattoir industries to survive in this competitive world, they need to improve productivity, just-in-time (JIT) food availability and safety standard at workplace organisation, in a way that beef abattoirs can work more efficient and in a safe manner. The concept of implementing the 5S-lean in a beef abattoir is ultimately important because it ensures a quality environment in the organization by ensuring adherence to standards and thus, fostering the spirit of continual improvement. Future works need to consider investigating the readiness of the beef abattoirs in implementing the 5S-lean management technique because in some cases not all the 5S phases could be implemented at a go as expected. Hence, recommendations and suggestions on the remaining two phases of the assessment and 5S-lean implementation within the case company X were made for consideration when the beef abattoir X is ready for continuing the 5S fully implementation.

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Biography

Babedi Kufigwa received his master's degree in Industrial Engineering and Manufacturing Engineering from Botswana International University of Science & Technology, (BIUST), the University of Botswana, (Botswana). Currently, he is working at First National Bank of Botswana as an Operational Specialist. He also did a research with Botswana Private Beef Abattoir, Palapye (Botswana), titled, "Implementation of lean manufacturing tools in an abattoir: A case study of Botswana Private Beef Abattoir". His main research areas are business process improvements, process optimization, productivity improvement initiatives and developing cost effective measures for manufacturing, businesses, industries, production fields and service industries. He is a member of Industrial Engineering and Operations Management (IEOM), Society of Botswana and Chartered Institute of Procurement and Supply, (CIPS) with British council Board.

Norman Gwangwava is a professional Engineer with experience from industry and academia. He is currently a lecturer at the Botswana International University of Science and Technology (BIUST), department of Mechanical, Energy and Industrial Engineering. He has presented and published many research papers at conferences and refereed journals. Research interests are in; Reconfigurable Manufacturing Systems (RMS), Cyber-Physical Production Systems (CPS), Collaborative Product Design and Closed Loop Life-Cycle Systems, Manufacturing Information and Database Systems. He holds a PhD in Industrial Engineering from Tshwane University of Technology, South Africa and a Master of Engineering in Manufacturing Systems and Operations Management from the National University of Science and Technology, Zimbabwe. He is a member of the SAIIE-ZA and ZIE-ZW.

Richard Addo-Tenkorang is a professional Engineer with several years standing. He is currently a Postdoc Fellow with the University of Vaasa's Network Value Systems (NeVS) Research Group and a current past Postdoc on the Manufacturing Academy of Denmark (MADE Programme) – MADE Digital at Aalborg University, Denmark - Centre for Industrial Production & Department of Material & Production. He holds a (DSc. -Tech) in Industrial Engineering and Management, PGCE in Higher Education Pedagogy, MSc. in Digital Enterprise Management, B.Eng. (Hons) in Mechanical Engineering and (HND) in Mechanical Engineering. His research interests are in the areas of Digital Supply-Chain Management, Digital Manufacturing – 3D printing, IoT, Industry 4.0, supply-chain Big Data management, etc. He has published extensively on internationally renowned platforms in these areas. He is an active member of IET, IRED, CSCMP & IAENG.

5S Audit Form

NAME: _____ DATE: _____ TEAM: _____

For each statement, check the score that best represents the 5S level for each item in each category.

Total score for each category and then add category totals.

<u>SORT</u> Sort out necessary & unnecessary items. The items deemed unnecessary and not being used should be removed from the area (incl. General area, workstations, personal storage areas, desk drawers, filing cabinets, PC electronic files, safe)	Unacceptable <i>No evidence shown</i>	Poor <i>Only evident here and there</i>	Good <i>Applied and evident in most areas</i>	Excellent <i>Thoroughly evident and applied to all areas</i>	World Class <i>Continuously looking for ways to make even more improvements</i>
1. Items/supplies on surfaces have been sorted, separating needed (used frequently) from unneeded (used infrequently or not at all).	1	2	3	4*	5
Details:					
2. Items/supplies in bookcases or on shelves have been sorted, separating needed from unneeded (available electronically or not needed at location).	1	2	3*	4	5
Details:					
3. Items in cupboards or drawers, including desk and file drawers, have been sorted, separating needed from unneeded (available electronically or not needed at location).	1	2	3*	4	5
Details:					
4. Items on floors have been sorted, separating needed from unneeded eliminating floor piles and all cords are safely contained.	1	2	3*	4	5
Details:					
5. Needed items (in cupboards, drawers, bookshelves, on surfaces, or floors) have been placed at the closest location to where they are used the most to minimize the waste of motion.	1	2	3*	4	5
Details:					
6. Unneeded items have been removed from the work area.	1	2	3	4*	5
Details:					
7. Work agreements for the above are documented and all staff know where to find the agreements.	1	2	3	4*	5
Details:					
Total Score					24

<u>SET IN ORDER</u> A place for everything and everything in its place so it should be easy to find	Unacceptable	Poor	Good	Excellent	World Class
8. Locations of needed items are labeled and items are in correct locations.	1	2	3	4*	5
Details:					
9. Required quantities for needed items are determined (par levels), including items in desk drawers and in bookshelves.	1	2	3	4*	5
Details:					
10. Locations for movable items are labeled, and items are placed in correct locations (white board/ laminated card/label on wall can be used).	1	2	3	4*	5
Details:					
11. Visual controls and indicators are established including: Posted map of area, including individual room maps.	1	2	3*	4	5
Details:					
12. There are Kanbans for re-order (if used by group agreement).	1	2	3	4*	5
Details:					
13. There is Labeling indicating contents of drawers and cupboards (a new person should be able to locate without assistance).	1	2	3	4*	5
Details:					
Total Score					23