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Name and Surname: Vanessa Dsouza MBA Module: Operational Management (Module 1) Unit Reference-: MBA-O&M-02 Title of Assignment: Operational Management in the field of Supply chain- (Procurement& Planning) Tutor: Mr Abdul Aziz H Shaghlel The number of words: Table of Contents Introduction..... .....1 References..... .....16 Introduction Review and Implementation of key Strategic, tactical and operational factors are extremely important to the success of any business moreover 1 in the airline Industry. In the example below we can review these aspects in a case study of Airline AAX in the fields of Procurement, Planning and supplier and operations support in the field of spare parts support.

1 “Leading procurement organizations are exploiting several opportunities to leverage the corporate buy, optimize the supply base, minimize linked costs in the supply chain, and maximize the value of goods and services for the users Keywords:9Cost reduction;9Organizations;9Purchasing;9Suppliers Document Type:9Research Article Publication date: 01 January 1998 https://www.ingentaconnect.com/content/mcb/ijlm/ 1998/0000000 9/00000001/art00001 1. Operational strategy Case Study – Airlines AXX a view fro m a strategic, tactical and operations perspective. A centralized Warehouse and support of spares- Airline AAX has a fleet of 150 aircraft and use a centralized warehouse which is alongside over 8 engineering hangars to support the quick demand and issue of spares to support the maintenance of Aircraft on ground, C- check , A- check and maintenance tasks to be carried out

according to the designated time slot period and to ensure the aircraft fly out on time after maintenance tasks are completed. They maintain a roster of about 2100 suppliers and carry an inventory of $250 million spares. PROS- Quicker response times and critical demand satisfaction, decreased risk of shortages and continuous availability of spares CONS- A burden on inventory, excess inventory, loss of inventory and increased costs. From an operations perspective, approaching a strategic and tactical approach to support operations and run the business efficiently considering the cost reduction, customer satisfaction and meeting the 2 demands factor would be to segregate demands into CRITICAL/NO-GO spares which can be stocked at the inhouse warehouse. However, the non- critical spares for example paints and expendable items can be explored wherever possible with the local suppliers to stocking into their own local warehouses to save on costs and optimize material being shipped with maximum shelf life as per the demand thus this cost of holding stocks at your own warehouse onto the supplier and will bear the inventory holding costs at the same time commit to support customer (airline AAX). 1.2)A tactical approach towards the support of high value rotable (T class) and repairable spares to improve aircraft performance and availability and minimize A.O.G (Aircraft on ground requirements) Key components of a tactical approach would be as follows-: ⊠ Data-Driven Demand Forecasting Use historical maintenance data, fligh t hours, and reliability metrics to forecast demand for critical spares. Apply

predictive analytics to anticipate upcoming component removals based on MTBUR (Mean Time Between Unscheduled Removals). ⊠ Dynamic Rotable Pool Allocation Establis h regional rotables pools near major operating hubs. Prioritize high-failure-rate and long-lead-time components. Rotate stock based on predictive usage and operational demand. ⊠ Collaborative Planning with MROs and OEMs Coordinate wit h Maintenance, Repair, and Overhaul (MRO) providers to align component repair cycles with projected usage. Negotiate turn-around times (TAT) SLAs to ensure components return to service-ready condition quickly. ⊠ AOG Response Framewor k Designate fast-track logistics providers for AOG situations. Pre-position emergency stock for top 10 AOG drivers based on past incident logs. Implement a 24/7 AOG desk with authority to expedite parts sourcing and shipping. ⊠ Performanc e Monitoring and Feedback Loop 3 Track KPIs: stock turns, fill rate, AOG response time, and rotable cycle time. Conduct weekly reviews with supply chain, maintenance, and planning teams. Adjust inventory policies and forecasts based on real-time feedback. ⊠ Outcome/Benefits: Reduced AOG incidents by ensuring availabilit y of critical parts. Improved fleet uptime through proactive part provisioning. Lower inventory costs via optimized pool sizing and repair cycle management. Faster response time for unscheduled maintenance events. Key components of a strategic approach in terms of cost control and support in below scenarios would be-: ⊠ Abnormal price hikes on non catalog and non-contracted spares. Th e airline AAX faces frequent issues on spares that are non- catalog and

non-contracted. These spares are then subject to abnormal price hikes from vendors during procurement. Aiming at negotiating and securing these into a Long-Term contract for a minimum duration of 3 years and maximum o 5years with a fix minimal annual % increment on the UNP of less than 2% or zero depending on annual sales history. as well as stocking specifically high usage spares with an Average monthly usage of more than 2, would save on both inventory and price costs. Rebate on annual spent Analysing and negotiating th e vendors on the annual spent. Targeting a rebate for example if purchases from vendor “X” exceeds 2 million, securing a credit note based on the annua l spent i.e negotiating between 5-10% rebate to be calculated on the spent with vendor “X” at the end of the year. Ensuring suppliers for example all vendors under the aircraft manufacturers Airbus and Boeing are bound and have signed the PSAA and GCP Inventory policy- Defining a strategic stockin g policy. Considering a strategic stocking policy is stocking spares per MEL classifications influences spare parts prioritization and well as the ABC category values results in cost savings MEL=Minimum equipment list classifications are a s follows-: MEL1= NO GO, extremely critical spares- the aircraft cannot fly if these spares are required and if they are not available during aircraft maintenance. 4 MEL2=GO IF, the aircraft can fly but under conditions define d in the SCOPE of work card requirements and task deferral. MEL3= GO Item s, routine non-critical. Low value expendables which are not considered importance

to replace or maintain. ABC Classification of spares considers costs and can be viewed as per below CLASS A: These are high-value items, typically representin g a small percentage of inventory but contributing significantly to overall value.9They often account for 10% of the inventory but drive 70-80% of consumption or revenue. Class B: These are moderate-value items, making up a larger portion of inventory than A items, but contributing less to overall value.9They might represent 20% of inventory and contribute 20% of sales. Clas s C: These are low-value items, often making up a large portion of the inventory, but contributing little to overall value.9They may represent 70% of inventory and contribute only 10% of sales. 9 ABC ANALYSIS CLASSES 9 Importa nce percentage of total inventory Impact on revenue or profits CLASS A Vital Low High CLASS B Important Medium Medium CLASS C Less Important High Low 5 Q2. The importance of Quality management Good Quality Management practices is of vital importance towards the success of any organization. Total Quality management priorizes understanding and meeting customer needs and expectations. It emphasizes on a continuous effort to improve processes, products and services. TQM is not a practice that needs to be implemented by front line workers but it should be practiced by the entire organization, top management included to move towards a flawless process. Total quality management does not aim at short term gains but rather looks at sustainable long term gains. TQM is not only the application of quantitative methods but also human resource management principles

to improve both materials and services supplied to any organization and the degree to which the needs of customers are met, The research discussed in this article integrates the concepts, ideas, and findings that have emerged from ongoing multi-phase studies of purchasing's role in TQM. From this research, sponsored by the Center for Advanced Purchasing Studies (CAPS), the investigators have developed several ideas about what purchasing organizations should do to attain total quality management goals. (Joeseph R Catrter, 1994) TQM aims at reducing and eliminating errors Quality=0 defects Quality needs to be measurable Quality aims at a seamless process Quality is achieved through a lean and Agile process. 6 Examples of Quality improvement can be viewed in the two examples below-: The Planners from the Materials provisioning department raises requisition for spare parts. Flaws in the process and which result in a drop in quality are as follows-: 40% of requisitions received from the Planner lack the latest version of spare required to be ordered, the updated unit cost or vendor, This results in the order finally being rejected by the vendor and a backward process in communication between the buyer and the planner. On order confirmation the supplier will revert to the buyer (Procurement) to correct the spare to the superseded version, this results in going back to the Planner (Planning) to obtain approvals in both the spare part number as well as cost values. Hence does not follow a lean approach. An alert in the system to verify correct costs and the superseded spare to be ordered on the Material

requisition can avoid going back and forth in the process. Both processes can be noted in the flow chart below. PROCESS WHICH DOES NOT FOLLOW A LEAN APPROACH 7 Request with older version of spare, incorrect unp Buyer receives the requisition and confirms the order to the vendor Supplier rejects the order with a note back to the buyer to amend Buyer reverts back to the planner to correct the price, vendor Planner corrects and returns the request to the buyer (Procurement) The buyer corrects the order with the correct latest spare and The Buyer transmits the correct order with corrections which is finally acknowledged by the vendor. Requisition goes back to the management for approval due to changes. PROCESS WHICH FOLLOWS A LEAN APPROACH Mandatory system alerts to input the correct latest spare part number and updated unit price on creating of the requisition should be in place without which the Planner should not be able to finilaize and transfer the requisition to the Buyer. A second example where quality is compromised in the field of Material management in aviation is due to improper planning and lack of forecasting, a frequency of urgent requirements leaves the Buyer (Procurement) no room to obtain the spares according to the 5 R's basic policy. Right price, Right Quality, Right Quantity, Right source and Right time. Best value practices and prices will not be achieved, and the Buyer will go for the first source available in the market regardless of the price perhaps even sometimes compromising on the quality of the spare from an aftermarket or distributor and not from the OEM

(original equipment manufacturer) if cannot be sourced. This may then even result in further discrepancies and rejection of the spares if found with defects. It is important to have a firm plan and a regular sharing information with the Procurement every 3 months prior the actual demand will contribute towards cost saving, time saving and efficiency. The planner should have regular meetings with internal stakeholders to have a systematic approach in planning requirements. The exchange of quarterly reviews between Planning and Procurement, backed up with a good ERP system which triggers requisitions on time as per usage and once they fall below ROP (reorder point) in consideration with the spare published lead time and historic lead time factor will aim at better forecasting and meeting requirements. ABSTRACT An important issue related to maintenance management is the problem of sizing the number of spare parts. Overprovisioning aircraft spares results in financial losses. However, a lack of spare parts is also negative, 8 Requisition with correct latest part number, vendor and unit price raised and sent to Procurement Buyer receives the requisition, verifies updated information and places the order to the vendor The vendor receives the order and accepts the order without rejection confirming with the lead time because this may result in a loss of production due to the increased downtime of equipment. Hence, spares need to be available in the right qty to meet the actual requirement. Important factors such as costs, profitability, reliability need to be taken into account. Another relevant aspect is the management of

uncertainties about the reliability or maintainability of the system, using the concepts of Decision Theory and a Bayesian approach, which incorporate experts' prior knowledge. (Spring nature Link, 1985) 9 Q3. Identifying 5 core cross functional processes in Procurement. Identification of core cross functional processes in any organization is of utmost importance and the success of the organization depends on identification of such processes and continuously working on improvements target towards a cost efficiency and resource efficiency. 5 CORE CROSS FUNCTIONAL Processes identified are-: ⊠ Make / Buy / Repair or Lease? ⊠ S trategic sourcing ⊠ Supplier relationship managements (SRM's) ⊠ Procure to pay Proc ess ⊠ Contract Life cycle management 3.1 MAKE OR BUY, REPAIR OR LEASE? Durin g the course of business, we are required to make decisions on whether to make, buy repair or lease which in turn effects the finances of the company. Many of these decisions will involve determining whether to acquire goods from the suppliers or the OEM or to fabricate and build in house or lease. This requires a comparative data analysis and study on those alternatives. In the case of a high spent spare, an internal study with planning to determine actual usage trend and simultaneously coordinating with the vendor for proprietary information like drawings or technical data to explore in house repair capabilities may be explored. In below example and chart, we see how a buy or repair decision can be arrived at using a comparison graph in the 2 scenarios of the purchase of high value spare panel under part number

315WXX-123. Considering the annual spent which exceeded 3 million $ a study was conducted in the monthly usage and spent. After evaluation into the demand for the high value spare and developing a new internal in-house repair capability of these panels finally resulted in a 70 % reduction of panels being procured, only the 30% which were found to be damaged or lost and could be supported with a scrap note were procured to meet demands. This stringent control and study contributed to a significant savings towards the company. 10 Achievement- A savings of $ 2,296,000.00 for a six-month period. Jan Feb March April May June _- $70,00.00 _ _- $560,00.00 _ _- $595,00.00 _ _- $490,00.00 _ _ - $525,00.00 _ _- $420,00.00 _ Half yearly Spent on new panel without re pair evaluation Month Jan Feb March April May June _-$210,00. _ _-$168,00. _ _-$1 82,00. _ _-$147,00. _ _-$161,00. _ _-$126,00. _ Half yearly spent on the panel af ter repair evaluation. Month 3.2. Supplier relationship management – (SRM) Supplie r relationship management is one of the most important key performance indicators in materials management and it involves a close interaction and relationship between departments like Procurement, Planning, Quality and the Finance Teams to understand and coordinate in key areas where the vendor has failed to deliver as per the organisation’s expectation. 11 ⊠ AIM: Managing interactions an d performance with suppliers to ensure quality, reliability, and innovation. ⊠ Activities: Conducting quarterly reviews with the vendor based on their performanc e in terms of pricing, lead time achieved, order discrepancies and overall

communication and support. This aims at joint development initiatives, Risk and compliance management and issue resolution. 3.3 Strategic sourcing-: Procurement aims at helping the organisation to achieve savings and profitability objectives. 1 What companies buy has been increasing in importance, size and complexity therefore how companies buy has changed. All leading procurement organisations are exploiting several opportunities to leverage the corporate buy, optimize the supply base, minimize costs and maximise the value of goods and services to the customer. 1 These opportunities can be described in the systematic framework of strategic sourcing applicable to both services and materials. 1 Strategic sourcing can be taken into new levels and applied to business designs to capture and sustain profitable growth. By building sourcing process excellence and aligning capabilities with requirements of the corporate buy, procurement can have a main role in the corporate quest for value growth. Strategic sourcing involves a coordination between several internal stake holders for example Planning, Technical department Quality Assurance and the suppliers. Spent Analysis is key factor in strategic sourcing. To view the procurement spent across the organisation using transaction data and further reviewing the spend by commodity, supplier etc provides a basis of identifying cost saving strategies. Spent Analysis considers several important factors which contribute towards strategic sourcing and meeting demands of aircraft spares in material's provisioning.
 Demand Forecasting- This aims at accurately predicting future demands for aircraf t spares simultaneously focussing on avoiding both overstocking excess inventory and nil stock situations. Important factors like usage patterns, failure rates on high value repairable and rotables and monthly usage trends for example can be considered. Inventory management- This takes into account the cost of inventor y on hand and the need to balance such inventory costs as well as meeting the demand from the customer. Effective inventory 12 management aims at reducing or avoiding A.O.G situations as well as maintaining healthy stock without burdening cash flow. Supplier selection- Evaluating and Selecting a reliabl e supplier is of key importance based on their financial data and proven quality and reliability in the market. Quality assurance- Focuses on the nee d to ensure that spares supplied conform to the airworthiness standards of FAA

, EASA and defined regulatory bodies. Spares need to be supplied with the supporting airworthiness documents. Frequent internal meetings with Engineering Technical department, Quality assurance departments as well as the vendors are conducted to ensure that quality is not compromised. Samples of the FAA Tags and documentation that will be supplied by the vendors or authorised distributors and often reviewed and scrutinized by the relevant departments prior the acceptance of a vendor as approved and authorised in the company. Ris k mitigation- Identifies potential risks associated with the procurement of spare parts such as supply chain disruptions due to force majeure or frequent price fluctuations is crucial. 3.4. PROCURE TO PAY The 4 th cross functional process we may refer is procure to pay P2P. The procure to pay is the process of integrating important cross functional teams of purchasing receiving and account payables to create greater efficiencies. Purchase order creation- creation of purchase order with the correct price as per quote/catalogue Receiving- Goods receipt Team receives the spares and updates a receipt in the system which matches the qty and price. Invoice reconciliation- The invoice is generated and when it meets the 3- way match of correct order number, price, spare part number and qty, payment gets processed through the system. Accounts payables team receives the invoices electronically and processes payment. 13 In the 2 processes below, we may view Best practices as well as practices which are not efficient. Manual versus electronic. No electronic system- Manual Process is not transparent Supplier sends invoices manually hardcopies- may be lost in shipment Additional communication between Procurement and Accounting and supplier Delays in reconciling Delays in payment and not as per payment terms. Electronics system Transparent process Invoices are sent electronically through the spec 2k systems. The system matches the invoice price part number and qty Payments are processed seamlessly without delays. 14 How procure to pay software can bring efficiency in purchasing. Procure to pay electronic solutions digitally connects vendors, organisations, policies and processes unearthing new savings opportunities. Automation leverages the power of workflows, digital forms, cloud tech, smart processes and detailed analytics to help you derive more value out of the procure to pay

process workflow. 15 https://boostdraft.com/en/blog/how-to-choose-contract-lifecycle-management-software This process focusses on managing contracts proactively from their initial creation, negotiation, execution, renewal and termination processes. It focusses on improving efficiency and reducing risk and ensuring compliance throughout the contract's life span. Key aspects of contract lifecycle management are: ⊠ A centralised repository- A central location where contract relat ed documents can be accessed by authorised individuals thus enabling quick visibility and maintaining confidentiality. ⊠ Automation and standardization- Automatio n of contract processes such as drafting, negotiation and approval thus reducing manual efforts. Also standardizing contract templates and clauses ensuring consistency. ⊠ Improved visibility and reporting- Dashboards that provide quic k insights into contract performance, obligations, and key dates thus enabling better decision making. ⊠ Risk mitigation- CLM helps to organisations to identif y and mitigate potential risks associated with contracts and act well in advance. ⊠ Cost savings- CLM leads to significant cost savings by reducing manua l effort, improving efficiency and minimizing errors. 9 important stages in Contract lifecycle management. 2 16 "The key Benefits" of an Effective Contrac t Lifecycle Management System are" ⊠ Centralized Data:9Offers one clear source of truth. This reduces confusion and errors. ⊠ Shared Workflows:9Enhances teamwork across departments . ⊠ Transparency and Compliance:9Ensures everyone is informed and follows the rules . ⊠ Efficiency and Collaboration:9Results in improved work through digital tools an d automation in the contracting process." https://www.contractexperience.com/resource s/9-stages-of- contract-lifecycle-management 17 Q5. "The importance of continuous improvement in materials management –(PROCUREMENT AND PLANNING) 18 19 20 21 22 2

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