

Finding NEMO - Accounting in New Efficient Maintenance Organizations

by Gesine Varfis

Many maintenance organizations underestimate the relevance of accounting. This may seem a bold statement, but when looked at more closely, it is not.

In the past few decades a number of airlines and maintenance repair organizations (MROs) have initiated deeply rooted transformations in ownership, organization, processes and strategy in order to gain profitability and reduce costs. One of the results is that everything has been given a price tag: products, processes and even customer relations. This is where financial and management accounting cuts in. Cost and revenue analyses as well as strategic target setting are based on financial accounting structures. Whereas processes, resources and management have been adapted to mobilize strengths, eliminate weaknesses, develop opportunities and avoid threats, accounting has rarely been touched. It is becoming apparent that many MROs have underestimated the role of accounting in this process. Money is lost without anyone knowing where the leakage is, which is contradictory to the goal of designing a new efficient maintenance organization. To gain efficiency and sustainable cost cuts, MROs have to address accounting. Accounting is not an international standard, nor is it an industry dinosaur. It is the cornerstone, indeed the backbone, of all cost and revenue relevant analyses, and is constantly evolving.

The sound growth extrapolation cushion the aviation industry based its decisions on is a thing of the past. September 11th 2001, the Iraq war or epidemics like SARS have been held accountable for the collapse in revenues, but it dawns more and more that the crisis is a structural one strongly correlated to global economic development. To understand the MRO situation one has to study airlines. State-owned enterprises dominated the 1980s. To tackle unproductiveness and deficits airlines were privatized, departments were outsourced, mergers and alliances followed accompanied by liberalization of skies and market. Last, but not least the no-frills airlines have expanded into regional networks as well as addressing intercontinental services, which forces airlines to rethink their strategies, product cycles and customer relations. All these changes pushed the aviation industry out of 'paradise'. Today's players are forced to find a new strategy for success. For MROs (which have these plagued airlines as clients) this development translates into cost cutting pressure (with airline-announced cost saving targets of 20 – 30 %), revenue expectations, contract renegotiations, new risk and cost maintenance agreements, service level agreements with bonus and malus systems as well as outsourcing. For aviation the tight situation is a fact and the pressures are felt by all participants in the chain, including maintenance. The waters around the MROs have turned fierce and chilly and maintenance, an engineers pride, transforms into a cost and benefit driven enterprise.

Financial as well as management accounting are instruments to identify cost savings or revenue potentials. Financial accounting focuses on accounting standards and external statements, in order to make your company fit for shareholder value and meet legal obligations. Management accounting focuses on the interpretation of the available data and defines the skeleton that makes your company 'swim' faster and more efficiently than the rest of the school. Financial accounting is more or less determined by law, where management accounting can be freely defined and designed. In other words accounting is more sexy then everybody thinks and also more strategic. People think of financial accounting as dry and outmoded, producing balance sheets and posting numbers to T-accounts. This is an archaic view of accounting. Norton and Kaplan's¹ balanced scorecard has proved that an holistic view including performance, customer relationship management, finance and human resources is needed to develop a competitive advantage. It is commonly accepted that cost and revenue dimensions have to be strategically advanced by target dimensions like quality, performance, product, customer satisfaction, among others. But what systematically structures and therefore drives these analyses is rarely addressed: accounting. It is the accounting structures that provide transparency, cluster cost and revenue into measurable and therefore manageable dimensions. Accounting structures are the base from which management information is derived. Therefore this basis has to be defined to meet the targets of the company. In many cases it purely serves financial statement audits, but does not support strategic information for management decisions.

¹ Robert S. Kaplan, David Norton. The Balanced Scorecard. ...

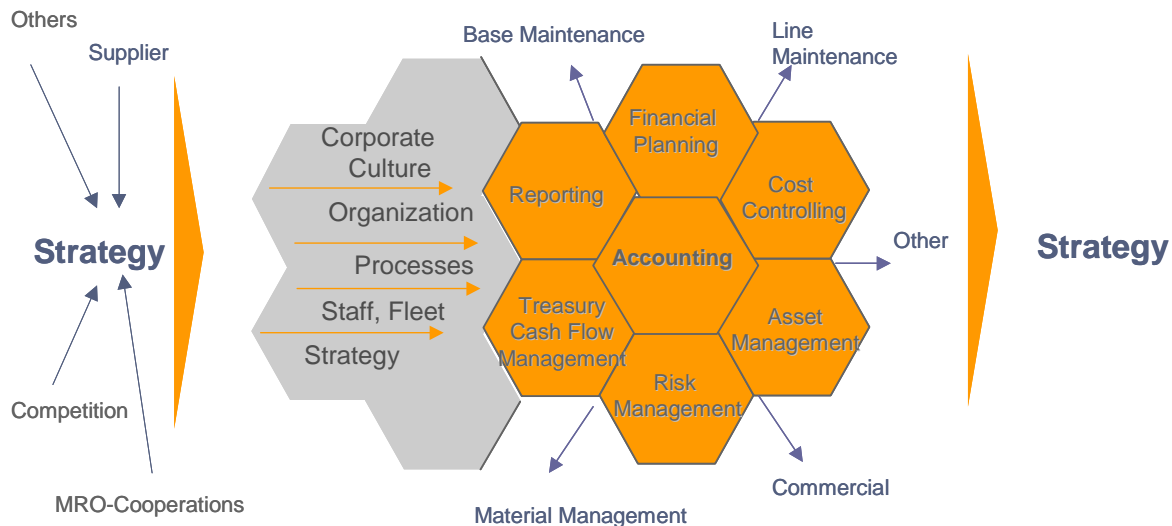


Chart 1 Tomorrows accounting structures need to integrate strategy and business drivers

MROs have been pushed into an identity crisis. They have the stigma of being a cost factor that does not create traffic. On the other hand airlines are confronted with the fact that without maintenance it is impossible to fly. Maintenance is a must, it sustains safety, reliability and retains asset value. But maintenance is more: it has a customer relations effect! It creates comfort, appearance, image and mobility. MROs have started to introduce management ideas to address those problems. New strategies and business concepts were introduced to develop a workable concept out of crisis. Some concepts were effective, some were not, but in many cases the basics have not been touched i.e. accounting and especially the accounting structures. Consulting experience has shown that: quite a number of MROs continue to apply historic (airline department) financial accounting structures:

- Emerging from a former airline department those MROs just took over the airline's chart of account, without adaptations.
- Others gained independence, but are still embedded in a holding structure. This has translated into a holding defined charts of account, based on consolidation requirements and shareholder focus.

other MROs did not focus on accounting structures, but on running the business:

- Operations managers never came in touch with cost or revenue.
- Accounting structures were not adapted to organizational changes.
- Financial accountants controlled and monitored cost and profit centers.
- The finance department did not talk to the guys with grease on their hands.

Even MROs that introduced new enterprise resource planning (ERP) systems only achieved half of its potential. Most of them just translated their existing accounting concepts and processes directly into the new application.

Scanning MRO accounting structures in detail, there have been charts of account covering cost elements like crew uniform, fuel, aircraft charges, etc. not taking maintenance specific cost elements into account. From the cost center side, the business and process focus was missing. Only a few MROs have taken into account their products like total engine support, APU repair / overhaul, engine testing, engine modification, engine parts repair, etc. to track cost and revenue. This shows that the new business concepts are hard to monitor, and are not systematically enhanced by aligning the accounting structure or management accounting to strategy.

MRO Business Concept

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Financial & Management Accounting

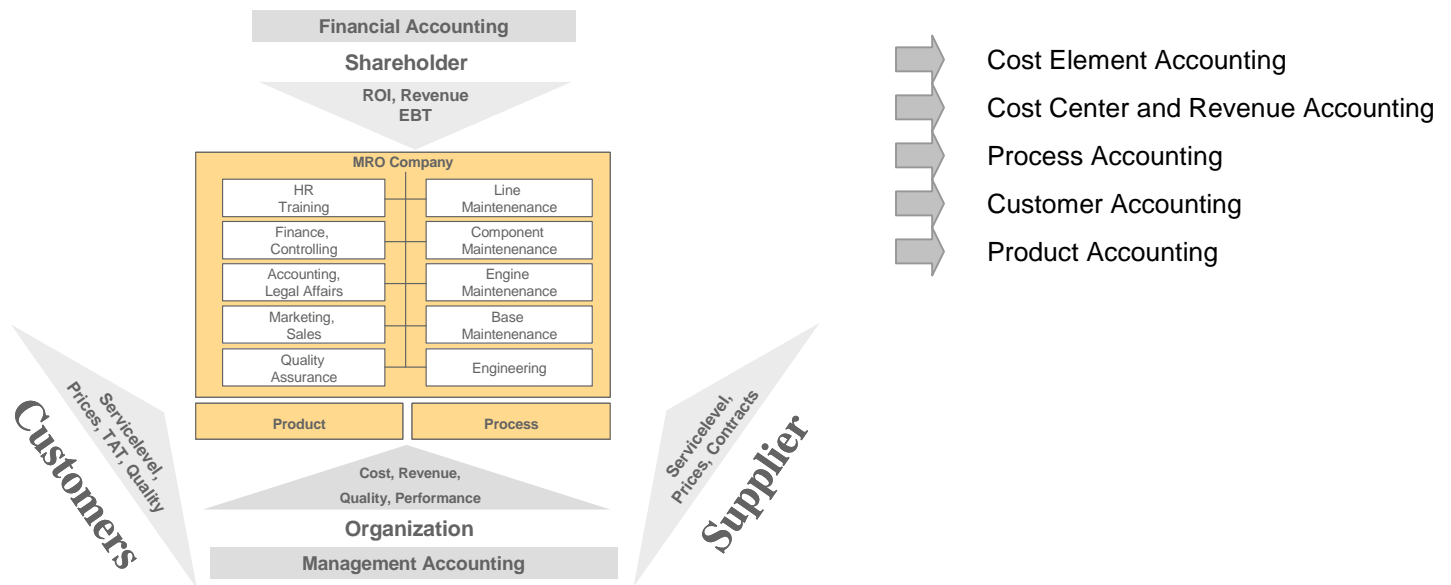


Chart 2 The accounting driver model NEMO

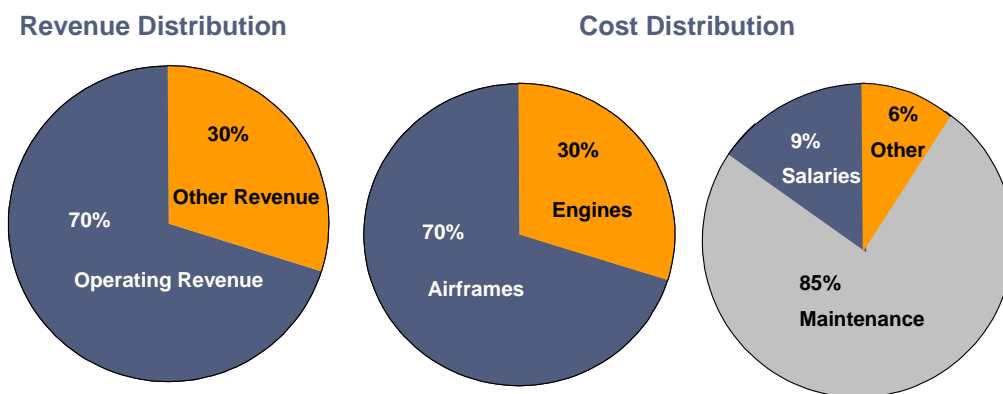
Today's markets have become more and more volatile forcing managements to adapt. The earlier developments are anticipated, the earlier the management is able act. It is not reaction, it is action that drives today's business. This is what NEMO as an accounting approach inherits: a holistic view on the organization, its business, its finance, strategy as well as taking its stakeholders into account supplemented by a performance driver and determination focus which translates into a customized accounting structure. This new approach changes the focus from historic financial figure analysis towards strategic anticipation by taking early warning indicators into account as well as the monitoring of revenue and cost drivers by management accounting.

Based on the accounting driver model NEMO, MROs can be clustered into three different groups:

- Shareholder value driven MROs
- MROs managing with the wrong metrics
- MROs managing with strategic metrics.

Shareholder value driven MROs manage by financial accounting structures. In general their financial and management accounting structure is identical. Accounting is driven by public standards based on industry standard chart of account. Profit and cost center structure is identical with the organization structure of departments like engineering, heavy maintenance, line maintenance, etc. Those structures could apply for any MRO, neither creating a competitive advantage, nor a value proposition. Therefore the business (metrics, decisions and action defining the business) is driven by public standards and bookkeeping with the target of producing financial statements to satisfy shareholders. What makes it even worse is that maintenance operations manage by dispatch reliability and delay statistics. If they are lucky, some receive a monthly cost statement of their department. Unfortunately, there is no usable correlation between the cost statement and the daily business. Here the statement applies: what you can not measure you can not manage and if available information is not shared within the organization one set of goals might even be contra-productive or damaging to others. The times have past when the MRO business was driven by engineering only, but the times of a joint approach covering financial and operational entrepreneurship have not yet started. This is why structures are important to join accounting and operations, translating strategy and business into an accounting structure that creates a competitive advantage. This is especially important for MROs, because it is a business where a certain set of screws cost cents, but an engine millions of dollars.

The majority of **MROs** manage **with the wrong metrics**. Their financial and management accounting structures differ, but their cost center accounting structure still mirrors the organization, whereas the business is not mirrored systematically, nor do managers know the overall picture of the company nor their targets. The result: managers try to save money for their company by saving cents at the same time they lose millions they do not know about. This is because accounting is not seen as a business support function. There are specialists who know the figures and there are the ones who know the business. Both units do not cooperate nor communicate regularly (this is more often a “language” problem than anything else) nor do they have a joint goal, or a structure that funnels them towards one goal. Charts of account and cost centers are introduced by financial accountants with a financial statement focus. They accurately allocate revenue and costs to business units, or departments. On the other side are the engineers with limited finance skills, trying to meet their targets and budget. These maintenance managers get financial figures, but they are supposed to run the business with cost element aggregation levels like the following:



Source: Lufthansa Consulting Research

Chart 3 Exemplary management accounting reports for revenue and cost distribution

Management information that differentiates in operating and other revenue is of no value. Money spent for this type of reporting is to a degree wasted. In addition the data is based upon old, insufficient, non-target oriented and non-performance related data. In most cases the changes from the standard charts of account were unsystematically evolution driven by individual needs. Assessment experience has shown that at some evolution stage business units were no longer comparable, some entities had only one big cost center, others had 10 different cost centers. The information gained through aggregation and analysis over the different hierarchy levels has been poor, because different information levels or cubes derived from the accounting structure were not obtainable, the information gained was not comparable, cost drivers could not be identified and nobody knew which product created the revenue. In most cases the accounting structure used was sufficient for financial statements, but not for managing the business.

Many companies of this category have established profit centers. Managing a profit center is comparable to running an enterprise, it is just a smaller entity. This is why tailoring is important to meet the needs of this entity. The crux is to keep the holistic demands of the company in mind. Cost and value drivers on this aggregation level have to be controlled, the business has to be reflected, organizational units, products and processes have to be monitored. Management accounting concepts have to be designed to mirror the activities of the profit center, which in most cases they do not. A profit center is established using industry standard accounts. Therefore one must know what is booked under which aggregation level to understand and to translate the information in manageable results. In most cases assessed, the drawbacks are not the lack of data or know how:

- There is no strategy, nor are there targets.
- Lack of communication: accountants or financial analysts do not cooperate with operations and maintenance.
- Lack of focused structure: an accounting concept or structure is comparable to a constitution. It defines the framework for individual and team action, assigns the required

checks and balances, defines the joint goals and targets, mirrors the corporate culture, etc. It brings different poles together e.g. accountants and engineers.

- Lack of training: engineers are not trained to interpret financial information, nor are their any briefings or deviation analyses.
- Wrong corporate culture and functions. Accountants or financial analysts have been introduced as the controlling sharks in the waters, whereas management accounting is supposed to have a support function for the business units.
- Most of the analyses as well as the accounting is history oriented.

Advanced MROs manage with strategic metrics based on financial and management accounting structures that are subject to change. Management decisions are based on qualitative and quantitative measures and data comprised in management reports covering more than financial figures of the past. Amongst others, early warning as well as key performance indicators are correlated to financial figures and strategy. Those figures are not only analyzed, they are even simulated, by anticipating future incidents. The complexity and amount of data needed for sound decisions shows that financial accounting structures have to be based on a proper management accounting concept that structures and aggregates the available figures hierarchically. Different hierarchy levels in the organization have a different focus on strategy, customer needs and products. This more detailed accounting is made possible by IT-systems that allow the real-time processing of large amounts of data, the handling of complex enquiries and the archiving of information in data warehouse applications. At the same time interface management provides access to different information systems. To make use of the power of IT systems and to generate a competitive advantage, MROs need an adaptable, holistic, transparent, top down allocation of strategy and targets, whereas the bottom up approach comprises the aggregation of information. The art of designing tailored accounting structures that guarantee a competitive advantage is to mirror and translate the different hierarchical needs of the company (strategy / targets, products, organization, customer, supplier and processes) into an accounting structure, without over-atomizing the information. At the same time cost and revenue drivers have to be included in the structure to monitor, benchmark and follow up the determinants.

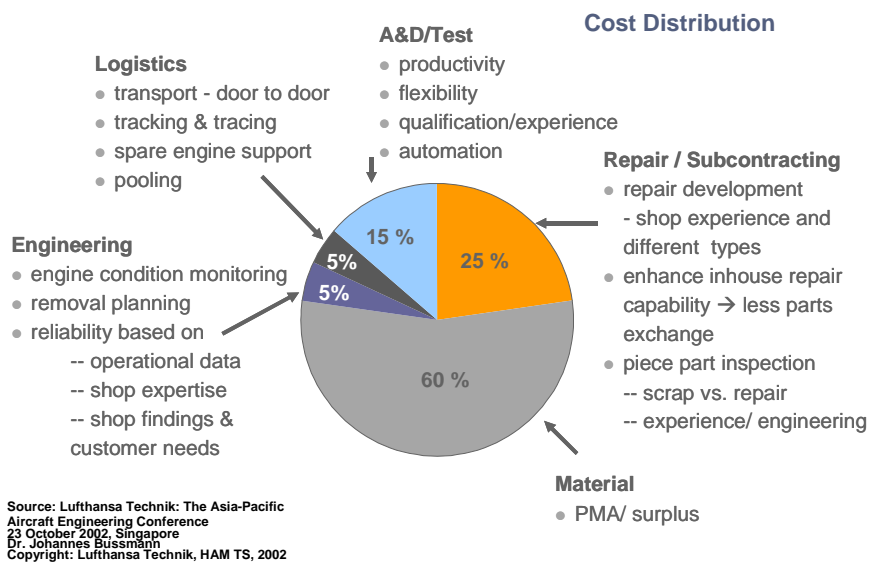


Chart 4 Exemplary accounting structure drivers

The yardstick is the strategy which incorporates the future perspective. After deriving the targets the cost and revenue accounting structure has to be defined in a way that managers receive information by reviewing their cost and revenue distribution. Further information must be accessible by drill downs or queries. Furthermore MROs have to design accounting structures that represent the service arrangement portfolio like maintenance care by flight hour, cost ceiling time & material, or pure time & material arrangements.

The accounting structure must assist in analyzing and taking action by providing supportive information for pricing, product management (cost and revenue per service), sales and marketing as well as the cost and revenue from the view of the organization and customer. Last but not least cost and value drivers have to be provided by real-time data processing.

The idea of the business driven accounting approach NEMO is only enhances the companies value if the attached management information system (MIS) is aligned. The MIS must not only mirror the spirit of the management accounting structure, but is also the basis to generate the initiative of change. This requires the instalment of measurable “management objectives”. Items that cannot be measured cannot be planned or monitored and should be avoided. The information in the MIS should be discussed at regularly scheduled management meetings to ensure proper prioritising of follow-up actions as well as to discuss longer term actions to be taken in the light of trends and developments. The table below shows categories of indicators to be monitored as well as some examples.

Indicators related to objectives & budget	Financial Indicators	Performance Indicators	Strategic Indicators
Absolute values	\$ material stock Total maintenance cost	# delays > 15 min # transactions = work load	# of line maintenance customers \$ contract value
Trend data	Cumulative results Engine costs last years	Delays last 3 months # transactions last year	# of new/lost customers last month(s) \$ contract value last 3 months
Proportional data	\$ material as % of sales Engine cost as % of maintenance cost	Delays as % of total flights Transactions/FH	Internal/external MH in %

Absolute values are needed to assess and appreciate the impact of the parameter. E.g. an increasing number of transactions would require more people or larger IT systems to process these transactions.

Trend data, graphic or numeric, serves the purpose of detecting developments and repetitive movements and correlating these developments with other trends and data. As an example: lower material stocks and rising number of delays signal a dysfunctional material policy.

Proportional data serves the purpose of expressing cost per production unit or as a percentage of a common denominator in order to compare the own performance with industry standards, best in class or previous periods with other quantities.

Financial indicators are derived from the financial and management accounting to assist in steering the company to financial health and to meet share holder expectations.

Performance indicators are derived from both the financial and operational systems and are intended to signal whether the product offered to the market is in line with the desired quality and standards. Improving financial indicators combined with declining performance indicators signal a dysfunctional policy.

Strategic indicators measure whether the organization is developing in the direction management wants it to go. If management wants more third party line maintenance, it should monitor whether more work is being sold. Healthy financial and performance indicators combined with weak strategic indicators may signal a short term focus, weak/misaligned strategy or both.

Accounting makes the MRO skeleton fit for swimming in your waters and creates a competitive advantage when applied properly. MROs have to put their dinosaurs into the museum and adjust their skeleton to the needs of the environment and their capabilities. The benefit is not only qualitative, it gives managers accountable metrics at hand and thereby generates transparency.

Additionally Lufthansa Consulting estimates that MRO's could save up to 10 – 15 % of their costs by adapting a NEMO accounting structure and concept. By realizing qualitative gains through flexibility, transparency, streamlining, consistency and real-time availability of the information MROs need, MROs can manage ongoing cost cutting programs themselves. At the same time MRO's could gain an adaptable, value driven, performance related accounting structure mirroring it's business.

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