PIMS: getting the right business metrics

Business executives are often drowning in data but gasping for the oxygen of useful information. When they look beneath the surface of supposedly well-defined and comprehensive Enterprise Resource Planning (ERP) Systems, they find many inconsistencies of definition across different geographies. And when it comes to tracking the non-financial metrics they rely on to grasp the levers they need to change for future success, they find a bewildering array of KPIs produced from different sources. It can be impossible to benchmark one operational unit versus another, to generate useful cross learnings, or to coordinate change globally.

Contact

Senior Partner at Malik PIMS® London
keith.roberts@malikpims.com

Keith Roberts is Senior Partner and the world’s foremost authority on PIMS® – using evidence to improve business management. He studied statistics at Cambridge University and has worked – both within companies and as a consultant – on the strategic transformation of dozens of major companies in oil, chemicals, paper, packaging, FMCG, media, hi-tech and engineering in 53 countries and 6 continents.

The PIMS programme, being a multi-company effort to measure and compare across many companies in many industries in many countries, has had to address these tough issues for the last 30 years. We have assembled data according to uniform definitions, on standardised KPIs, across 30000 years of business activity. This document distils our experience from helping some large diversified companies get and track the right set of business metrics.

Many metrics apply across different industries

PIMS started life in General Electric in America, who had the problem of comparing jet engines to light bulbs to polycarbonate plastics to financial services to a TV network. GE’s findings on its internal database were startling – and have been confirmed across many companies in six continents over four decades:
1. investing in “winners” – businesses with high ROI today - is exactly as good as investing at random. You always invest at the peak, never invest in start-ups, but sometimes hit the sweet spot. The correlation between beginning ROI and incremental R on incremental I is zero.

2. investing in businesses just because their markets are big and growing is a mistake. Big markets tend to be less profitable; growing ones not significantly more profitable.

3. success is primarily determined by competitive advantage and supply chain fitness, supplemented by some market attractiveness factors. Relevant metrics include market share, customer preference, relative price, relative marketing, innovation rate, complexity, capital intensity, location advantage, investment mix, productivity, attractiveness for good people, customer power, channel structure, vertical integration and material cost inflation.

4. these success factors are not only measurable using consistent metrics across different industries, but have identical impacts on performance in different industries in different geographies and in different decades. What matters is a business’s strategic profile, not what it makes (or where or when).

The implication is that - in addition to income statement, headcount, and balance sheet ratios - a company should select a short list of around 15 non-financial metrics as in (3) above. These should be defined consistently and applied across all businesses. In addition, there should be room for:

- flagging major step changes (in technology, supply chain, competitor structure etc.)
- additional general metrics that are needed for other reasons (e.g. health & safety; number of lost time accidents per million person hours) – maximum recommended five.
- additional business specific non-financial metrics (e.g. footfall in retail outlets) that are clear performance drivers in that sector but are not applicable across all industries. Maximum recommended again five.

Criteria for a good set of metrics
A good set of performance metrics should only include metrics that really drive performance (profitability and/or growth). If several related metrics exist, we want the smallest set of indicators that:

- operate consistently over time
- are leading rather than lagging indicators
- best explain performance
- can be easily understood and applied worldwide
- have a sound economic and management logic
- can be collected easily and cheaply
- can be put in a tree structure that makes sense to managers
- are clearly linked to management actions.

In this section we will give an example of how the experience and data of ours can be used to address this issue, using as an example the most famous PIMS metric, market share. Overall a number of different market share metrics exist. An absolute market share of 20% may represent the market leader in a fragmented market or the number 3 in a concentrated market, so we must consider relative share as well. We will investigate a number of possibilities against the above criteria:

- Absolute market share (value)
- Absolute market share (volume)
- Market share rank
- Share relative to largest competitor
- Share relative to 3 largest competitors
- Your share vs. average of the competitors (Herfindahl index)
- “Effective” market share.
Criterion 1: Does market share drive performance?
Since its early beginnings PIMS research has shown that market share is one of the main drivers of profitability. Figure 1 shows that market share helps profitability but limits headroom for growth. The 3800 businesses in the PIMS research database are ranked horizontally into five groups with market share less than 5%, 5% to 10%, 10% to 20%, 20% to 40%, and greater than 40%. For each group we show the average:

- **ROI**: return on investment = EBIT as a % of fixed + working capital (book value)
- **ROS**: return on sales = EBIT as a % of net sales
- **Growth**: %pa growth in real sales (value deflated by price index).

Figure 1 shows the corresponding chart for relative market share

Relative market share is as strong a driver of profitability as absolute market share. A doubling of scale accounts for around a 3% point difference in ROS or 8% points on ROI. Relative market share is defined here as the ratio by value of this business’s market share to the market share of its three biggest competitors combined.

 Criterion 2: Is the effect consistent over time?
We are most interested in metrics that have a constant effect over time: then we can have some reassurance that the effect will persist into the future. Figure 3 shows for different decades, and quite a spread out scale on relative market share (versus big 3 competitors), that the differences over time – front to back - are quite small, especially in the central bars which have bigger sample sizes, whereas the effect of relative share - left to right - is fairly constant.

The effect of share is time-independent.

Similar charts are available for the other market share metrics listed. So how do we decide which to use? Since profitability is the main success factor related to share, we will use the ROI or ROS effect as the main decision parameter.

We are most interested in effects that remain constant or we can safely assume then that these effects will continue.

The chart shows – for ROS versus relative share – that decades (front to back) are quite small while the effects (left to right) are fairly constant. This is true for a
It can be seen that taking a log transform of the relative share metric, especially versus the single largest competitor, generally increases the explanatory power. Rank has a negative correlation because a higher rank means a smaller share. To go into the issues in more detail:

1. Value share versus volume share. The correlation between ROI and market share is slightly higher for value share than it is for volume share. A cross-tabulation of ROI for different levels of value versus volume share does not provide us with a clear answer for which one is the “better” metric: there are too few observations in the “off-diagonal” cells, i.e. with very differentiated relative price. However, a multiple regression yields a positive coefficient for value share and a negative coefficient for volume share. Also, value share is easier to define in categories where different SKUs have very different physical properties (e.g. concentration, liquid/powder). This implies that it is better to use value share than volume share.

2. Market share rank versus relative market share. To compare a portfolio of businesses that compete in many different served markets, market share rank is the simplest relative measure to use. There is a strong relationship between the market position and the profitability of a company, but a market share rank of number 1 may represent a dominant leader or a first among-equals position. In figure 6 we can see that this makes a big difference to ROI: share relative to largest competitor is more informative than share rank. For example, businesses that are 2, 4 or 8 times as large as their largest competitor all rank number 1 (the blue bars), but their ROI performance differs significantly.

 Criterion 3: Is market share a lagging or a leading indicator for profitability?

Does share drive ROI or ROI drive share? Figure 4 shows, on the horizontal axis, the deviation from a regression between beginning ROI and beginning relative share (vs. three largest competitors). The extremes represent “disequilibrium” points where share and ROI are out of line. The vertical axis shows the changes over 4 years in relative share and ROI: it is clear share drives ROI and not vice versa. NB additional factors drive both share and ROI.

 Criterion 4: Which market share metric best explains variance in ROI?

There are a number of ways of approaching this question. The first is just to look at straight correlations, as in Figure 5:

<table>
<thead>
<tr>
<th>Metric</th>
<th>Correlation with ROI</th>
<th>Log (Metric)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share (value)</td>
<td>0.294</td>
<td>0.288</td>
</tr>
<tr>
<td>Market share (volume)</td>
<td>0.286</td>
<td>0.285</td>
</tr>
<tr>
<td>Market share rank</td>
<td>-0.236</td>
<td>-0.272</td>
</tr>
<tr>
<td>Relative market share (vs big 1)</td>
<td>0.028</td>
<td>0.282</td>
</tr>
<tr>
<td>Relative market share (vs big 3)</td>
<td>0.257</td>
<td>0.305</td>
</tr>
<tr>
<td>Relative market share (vs avg. comp)</td>
<td>0.267</td>
<td>0.252</td>
</tr>
</tbody>
</table>
1. Single versus three largest competitors. Share relative to three largest competitors has a stronger positive correlation with ROI than share versus single largest. When we cross-tabulate them in Figure 7, the chart shows a steeper slope from left to right than from front to back. Share relative to three largest competitors is a better metric than share relative to single largest competitor as it captures the scale and bargaining effects associated with a business’s relative size in a more comprehensive way.

2. Share relative to three largest competitors versus share relative to average competitor. The inverse of the weighted average share (i.e. sum of squares of market shares) is the Herfindahl index. Your share versus average of the weighted average competitor shows a smaller positive correlation with ROI than share versus big three. In any case, we would recommend to exclude this metric because it is a more sophisticated statistical metric which is both more difficult to define to non-statisticians and unnecessary to use when other far more straightforward metrics of relative market share have equal or better explanatory power.

3. Share relative to three largest competitors versus absolute value share. Relative share (with log transform) is somewhat more correlated with ROI than absolute share. However, in the cross-tabulation in Figure 6 there is still a positive slope from left to right as well as from front to back. In addition, a regression analysis supports the message that using both metrics is more informative than using either separately.

4. “Effective” market share. Market share is a relevant metric in two different ways:
   a. as a tracking metric and key performance indicator on the business. For this purpose, we suggest it should be calculated simply and from regularly updated data sources (e.g. Nielsen).
   b. as an analytical input to calibrating profit potential. For this purpose, PIMS uses “effective market share”, a weighted average of channel share, country share, regional share and global share, weighted by the importance (size and scale sensitivity) of different cost elements in driving scale economies, as follows:
      » Economies related to channel share: salesforce, promotion
      » Economies related to country share: advertising (by brand), administration, distribution (combined brands)
      » Economies related to regional share (by technology): manufacturing, depreciation, inventory holding
      » Economies related to global share: purchases, R & D.

We would not suggest that “effective market share” is used as a regular metric: it is too sophisticated to explain, and not managerially relevant - large parts of it such as regional and global share are outside the purview of the typical operating manager. It does, of course, have a somewhat stronger correlation with ROI (0.374).

The conclusion from this research is that you should use two market share metrics: absolute market share (on a value basis) and relative market share (value versus big 3 competitors).
Criterion 5: Can they be easily understood and applied worldwide?
Market share is your net sales as a percentage of the served market. This raises issues of business unit definition (who are you?) and served market definition (share of what?).

Every PIMS project requires these issues to be addressed in a way that makes economic and management sense, so we have tens of thousands of cases - torture tested by use “in anger” for management decisions.

For example, for a branded consumer goods company we usually decide on business definition as follows, based on the main economic drivers and management levers:

» Geography: by country or closely related country cluster (e.g. Benelux, Iberia) when there are significant overlaps in customers, competitors, prices, marketing, sales organizations, market positions, supply chains etc..
» Products & brands: by category, even if this includes multiple brands and product forms (e.g. liquid, powder). Include private label as a competitor.
» Channels: separate out very differentiated specialist channels, e.g. impulse, hotels/bars/ restaurants, pharmacies, where they are big enough to matter.

Remaining criteria
Market share is widely used as a metric in business. It clearly relates to the outcome of management actions and has a sound economic and management logic, based on the experience curve, economies of scale, etc.. The PIMS models include many other profit and growth drivers in addition to market share, relating to market attractiveness, competitive strength, and supply chain fitness. They also disentangle the complex inter-correlations of factors that drive both profit and growth:

» Some factors have a positive effect on both profit and growth, e.g. relative quality, better service, market growth, extended credit, competitor strike action, fall in material costs, quality of management. Supply chain disruption and competitor entry have a negative impact on both.
» Some factors have a positive effect on growth but a negative effect on profit, e.g. low price, advertising, promotion, sales effort, rapid innovation, complexity increase, low starting market share, spare capacity. With a time lag, the extra share can then help profits.
» Some growth drivers are not immediately profit related, e.g. quality of marketing campaign.
» Some profit drivers are not really growth related, e.g. customer and supplier power, vertical integration, capital intensity.

In conclusion, market share should be a standard metric in every competitive business. It is positively correlated with the profitability of a business, has consistent effect over time, and is a leading indicator. It is better to use value share than volume share, and using both absolute market share and share relative to three largest competitors adds information. It is important to apply economically and managerially relevant definitions of the business unit and the served market.

The same logic and evidence base can be used to define other standard metrics, covering the main 15 drivers of profit and growth.

Notes:
1. The business characteristics analyzed in this document cover a period of four years up to the reporting date.
2. Return On Investment (ROI) and Return On Sales (ROS) are measured pre-tax and prior to finance charges. Investment is fixed assets at net book value plus working capital. Sales are net of bad debts, discounts, rebates, and “permanent” channel promotions.
3. Businesses are arranged in charts at equal additive or multiplicative intervals to illustrate the range of the PIMS database. There are not equal numbers of businesses in each group.
4. The PIMS database currently contains the strategy experiences, good and bad, of over 3800 product and service businesses provided by participating companies. Each experience is documented in terms of the actions taken by the business, the nature of its served market, the kind of competitive environment, and its financial results. In all, 500 distinct characteristics of each business experience are available for study.
5. “Growth Rate” is the average % per annum real growth rate of the business’s sales (value deflated by price index).
The Malik Organization
St. Gallen Zurich Vienna Berlin London Toronto Beijing Shanghai

With international subsidiaries and partnership networks, Malik is the world’s leading provider of advanced holistic management, leadership and governance solutions. We are the prime address for executives wanting to be trained, consulted, supported and/or coached for holistic top management systems for mastering complexity. Business companies, non-profit organizations and public institutions have their general management systems tailored by us.

The Malik ManagementSystems® are the world’s most effective instruments for the reliable functioning of organizations under the complex conditions and dynamic changes of today’s globalized world. Our solutions are backed by more than thirty years of research and application in the fields of general management of complex systems and the functioning of organizations. More about our company and our solutions on: malik-management.com

Prof. Dr. oec. habil. Fredmund Malik
Chairman & CEO

Fredmund Malik, founder and chairman of Malik, is an acclaimed international management expert, awarded scientist, and professor of corporate management and governance at the University of St. Gallen, Switzerland. He is the award-winning author of a dozen bestselling books, including the classic “Managing Performing Living”, and a regular columnist in opinion-forming media. He is one of the leading and most innovative management thinkers of our time. Amongst others an expert in corporate governance, he is a member of the board of directors or advisory board of several world-leading corporations. Since the early 1990s, he has been the first in the German-speaking countries who discovered and consistently criticized the errors of neo-liberalism and of the shareholder value approach developing also the innovative right and proper solutions. Using his system-cybernetic methods and instruments, he was among the very first to predict and write about the current crisis, the Great Transformation21 and its complex challenges for which he has developed cutting-edge solutions.