More on Lead & Lag Indicators
Leading and lagging indicators

**Lagging indicators** tell the current performance, what has happened or what is happening. They are linked to outcomes. But they do not help in predicting the future.

For example, customer satisfaction, total sessions, total purchased value, average cart value etc.

More useful indicators will be those that can *expose the issues timely* and they are called **leading indicators**. They measure actions that generate results. For example, employee satisfaction rating, a high or low satisfaction might impact the business.

It should also be noted that the same indicator can play a role of leading and lagging indicator depending on the scenario. For example, Net Promoter score (meaning “How likely is it that you would recommend our product to a colleague?”) might be a lagging indicator for the “Improved customer service” and a leading indicator for “Increase sales.”

Another example, imagine this part of a value chain:

Train employees > Increase monthly production

So depending on the context, what your goal is set, Team skill index can be a leading indicator for the next step in value chain, and at the same time it can be a lagging indicator for the step of training.
## Difference between leading and lagging indicators

<table>
<thead>
<tr>
<th>LAGGING</th>
<th>LEADING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on past performance, <strong>historical</strong> data</td>
<td>Based on early signs in the system, and <strong>estimates</strong> the direction ahead of time</td>
</tr>
<tr>
<td>Can be measured &amp; calculated <strong>easily</strong></td>
<td>Mostly the <strong>rough estimations</strong> can be done as it is difficult to measure before things happen</td>
</tr>
<tr>
<td>Actions based on lagging data are <strong>REACTIVE</strong></td>
<td>Action based on leading data are <strong>PROACTIVE</strong></td>
</tr>
<tr>
<td>Helps to find out what went well and what did not</td>
<td><strong>Early warning signal</strong>, helps focus on future actions which matter</td>
</tr>
</tbody>
</table>

All About KPIs
Example 1: Lead and Lag indicators

Objective: Providing reliable customer support service

HOW?
Find success factors

- Fast response to queries
- Correct response to queries
- Time to answer
- First call resolution rate
- Customer satisfaction rating

More on KPI Selection in later lessons

Leading
Lagging

All About KPIs
Example 2: Lead and Lag indicators

Objective: Train support personnel

HOW?
Find success factors

Training time
Training coverage
Training hours
Participation rate

Leading

Skill Index

Lagging

Test scores

All About KPIs
The same indicator can be leading to one and lagging to another

Objective: Improve Monthly Sales
- Product quality
- Employee skills index

Objective: Improve Employee Competency
- Total time spent on training
- Participation rate

Leading

Lagging

All About KPIs
### More Examples

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Lag</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved performance of a salesperson</td>
<td>Number of contracts closed</td>
<td>Number of calls made, Sales techniques used, Leads quality</td>
</tr>
<tr>
<td>Increase online monthly revenue</td>
<td>Monthly Revenue</td>
<td>Online products stock, Upselling revenue</td>
</tr>
<tr>
<td>Achieve excellent customer service</td>
<td>Customer Satisfaction Index</td>
<td>Time to order food, Time to deliver food</td>
</tr>
<tr>
<td>Increase sale of a new product</td>
<td>Revenue: new product</td>
<td>Results from presales, Number of people signed for the waiting list</td>
</tr>
<tr>
<td>Increase web traffic</td>
<td>Total Visits</td>
<td>Brand awareness, Click thru rate, Online conversion rate</td>
</tr>
<tr>
<td>Increase customer satisfaction</td>
<td>Customer satisfaction, Number of new customers, Market share</td>
<td>On-time delivery, Number of product returns, Number of customer complaints</td>
</tr>
</tbody>
</table>
Tool to identify lead and lag indicators- Cause and effect analysis

Cause and effect or the Ishikawa diagram was created by Kaoru Ishikawa. It is also known as Fishbone diagram as it resembles to fish skeleton.

It is used to identify potential factors causing an effect. It is an effective tool to find out the root causes with the help of brainstorming and 5 whys.

STEPS:
• First we need to define clearly the effect for which causes must be identified. We put that effect or the Y at right hand side. (In KPI Case, effect will be the Objective)
• In a group we brainstorm, to identify possible causes or the X’s. (This will include processes and other factors linked to the objective)
• With a central line, major areas of causes are connected, it looks like a skeleton of fish that’s why it is called as fishbone diagram.
• then add potential causes for each main area, placing them horizontally. (Activities aligned with the objectives)
• If there are sub causes...they are added to each cause that has been entered. (Sub activities, issues which if addressed will help meet the objective)
• This adding of sub causes goes on until each line reaches to a potential root cause.
• We should check the logical validity of the causal chain...we may make use of 5 whys also. Each sub cause should sound like having a negative effect on the parent cause. And before concluding, we check for the completeness.
Tool to identify lead and lag indicators - Example: Airline

----How objective can be met?----

Efficient Processes
- Fast TAT
- Redesigned processes
- Trained Front end staff
- Lower Prices

Efficient Flights
- On-time departure
- On-time arrival
- Lower Prices
- Trained crew

Objective

Increase profitability

Identified Lead activities

More passengers

Competitive Ticket Pricing

- Find more on Fishbone diagram- https://youtu.be/MIzI57fPlpU

All About KPIs
Example 2 - Call Centre

Man
- Not trained
  - Managers
  - Known issues not addressed
- Sales
  - Sales agent
  - Less incentives
  - No follow-ups
  - Not automated
    - Slow
    - Call tracking
- Methods

Machine
- No dedicated system
  - Computer
  - Too slow
  - Not automated
  - Complaint forms
    - Lengthy
  - Telephones
    - Overloaded
    - Insufficient lines
- Materials

Increase customer response

All About KPIs
To summarise...

- Actions based on lag indicators are reactive while lead indicators provide triggers for proactive actions.
- Lead indicators are predictive, proactive and preventive.
- Lead and lag indicators are related to target area, one KPI can be lead for one area and lag for another.
- Lead indicators should also be aligned to target goals. Can be indirectly aligned.
- Fishbone diagram can be used to identify lead indicators.
Reference

Importance of lead indicators in occupational safety (+case studies)

• https://www.nsc.org/Portals/0/Documents/CambpellInstituteandAwardDocuments/WP-PracticalGuidetoLI.pdf