

Strategic Initiatives

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Discover.

Analyze.

Strategize.

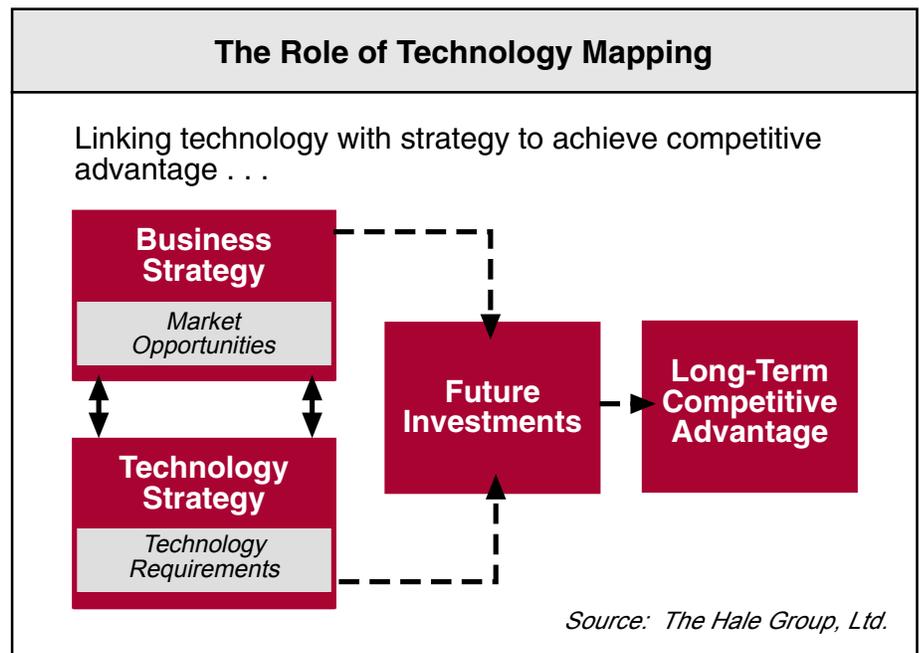
Implement.

Measure.

Technology Mapping

Aligning the Technology Portfolio with Strategic Direction

Technology mapping is really about determining the current technological and competitive position of a company, and identifying areas of future investment that will yield long-term competitive benefits. The technology mapping process that we have taken our clients through has led to fundamental re-evaluations of business processes, and more importantly, has identified how organizations have compensated for weak technological positions by other means. One client, for example, identified its formulation expertise as an industry-leading capability. They realized this expertise was compensating for their processing skills which trailed their competitors. The organization then began to invest in processing to complement its superior formulation skills and to build a stronger competitive advantage. *continued on page 2*



When most people think of technology, they immediately jump to information technology; but, there are typically several dozen to several hundred discreet technologies that an organization utilizes every day.

In this instance, a technology is a process, know-how, or skill set that has a direct impact on the competitive position of the organization. Typical broad-based examples of technologies are formulation skills, specific processing technologies (such as freezing, thermal processing, and drying) and information management technologies (including specifications, production procedures, formula management, and quality assurance).

Technology mapping is the process of developing a technology strategy in support of an organization's business strategy. Business strategies are based on identifying and exploiting market opportunities. In order to effectively accomplish these goals, organizations need a technology portfolio that is aligned with and supports the business strategy. The macro view of the relationship between the business strategy and the technology strategy is outlined in the graphic on page 1.

The purpose of the technology mapping process is to clarify the organization's position using three measures:

1. What technologies are critical to achieving the strategic goals?
2. What is the position of the company in each of those technologies relative to others that are utilizing the same technology – leading versus trailing?
3. What is the position of the organization relative to competition in each of the critical technologies?

The goal of this process is to identify and clarify areas for future investment to achieve the strategic goals and gain competitive advantage.

The Process

The process of technology mapping involves several distinct steps and activities, as outlined below.

Step 1. Articulate the Business Strategy: While this sounds like a trivial step in the process, many times the management team, and particularly, the different functions within the organization (sales, marketing, finance, R&D, quality assurance, etc.), either do not clearly understand the business strategy, or have distinctly differing views of the strategy. This first step is important to ensure a common view of the business strategy throughout the organization.

Step 2. Identify the Critical Success Factors: The next step is a two-fold process. Once the strategy is clearly articulated and agreed upon by all of the players, the management team needs to identify the basis of competition – these are areas such as product performance, customer intimacy, etc., that define how the organization competes for customer business.

From the elements of the strategy coupled with the basis of competition, the critical success factors for achieving the strategic vision begin to emerge. Examples of critical success factors (CSF's) include:

- Culinary innovation
- Deep customer knowledge
- A customer-responsive and customer-centric organization
- Technical knowledge
- Product innovation
- Packaging innovation

Step 3. Identify the Required Technologies: In this step, each of the critical success factors is evaluated in terms of what is required to support its development. What emerges is a list of the required technologies to create a competitive advantage, if focused upon. For this process, technologies are defined as both skill sets (culinary skills, information management, etc.) and the more typical definitions (aseptic processing, modified atmosphere packaging, database marketing, etc).

Typically, the number of technologies / skill sets involved in supporting the CSF's is quite large. We have seen technology portfolios as small as 75 and as large as 400. The technologies are grouped to make the process more manageable. Technology groupings such as formulation, information, process, quality, packaging, logistics / supply chain, sales function, etc., prove useful in organizing and evaluating the technology portfolio.

The Technology Mapping Process	
1	Articulate the Business Strategy
2	Identify the Critical Success Factors
3	Identify the Required Technologies
4	Map Existing Technologies <i>versus</i> the Required Position
5	Sort , Focus and Prioritize
6	Manage the Portfolio and Measure the Results
<i>Source: The Hale Group, Ltd.</i>	

Step 4. Map Existing Technologies Versus the Required Position: The next step in the process is to evaluate the organization's position within each technology. The outcome of this process is a series of "technology maps" that provide a visual representation of the company's position versus the competition as well as versus the available technologies. This process can then serve as the basis for identifying areas of future investment. The evaluation process is typically an internal assessment along three axes:

- **The company's position relative to its competition** - This measure is not focused on the competitors in a given product category, but on all players using a given technology. For example, a frozen soup manufacturer using flexible pouch packaging would evaluate its position not relative to other soup manufacturers, but rather to all food companies, and in some cases, non-food com-

panies that use the same technology. The soup manufacturer would be evaluating its position relative to snack food manufacturers, spice and seasoning manufacturers, and any others that use flexible packaging. The key question in this step is whether the subject organization is leading or lagging the others that use the same technology.

- **The competitive impact of the technology** - This measure determines how important each technology is to the industry or category. The basis of the measure is whether it is a widely accepted technology such as canning that probably cannot provide a competitive advantage, or is it a less widely accepted technology such as case ready meats that can provide an opportunity for significant competitive advantage.
- **The importance of the technology to the organization** - This measure can take many forms such as the number of products impacted by the technology, percent of sales, number of key customers, or the percent of gross margin or operating income affected by each technology. Each measure provides an estimate of the importance of each technology to the manufacturer's organization.

The process of evaluating the organization's position with each technology is best accomplished through the use of a cross-functional team that includes sales, marketing, manufacturing, logistics and R&D. The team always benefits from those having prior experience in different organizations in order to provide a reference point for the organization. While this is an admittedly tedious process, this internal assessment is very valuable in determining future direction and investment.

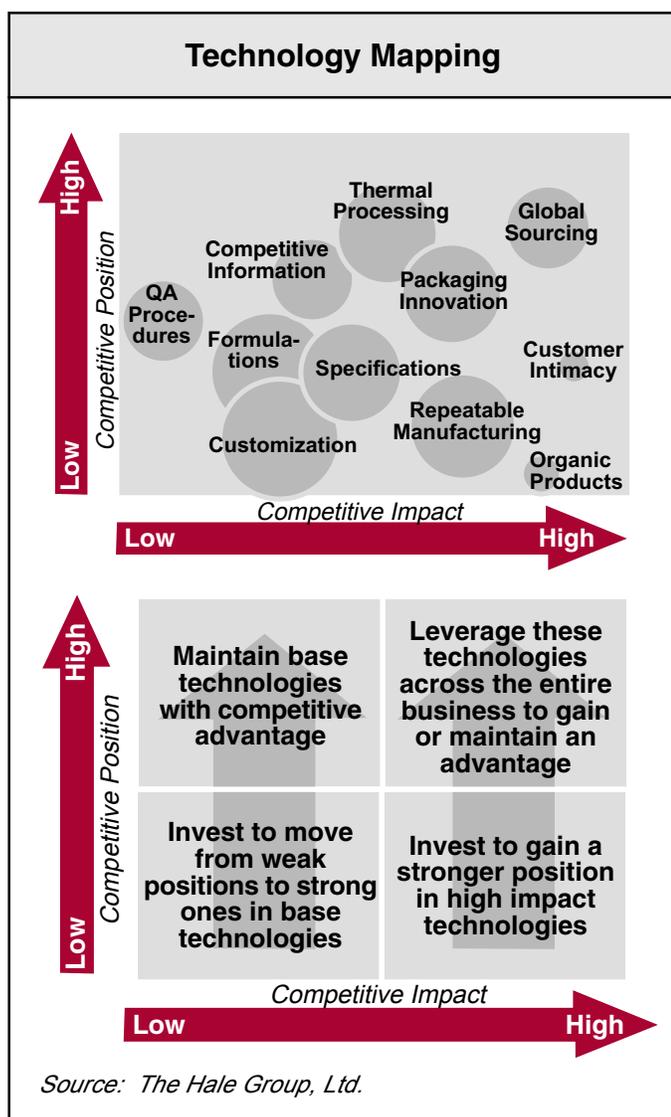
The outcome of this process is a "technology map," or more often, a series of technology maps, as shown in the chart on page 4. In the top half of the chart, an organization's technologies with the greatest current business impact (percent of sales dollars, sales volume, number of products impacted, etc.) are represented by the largest bubbles. The competitive position is shown on the vertical axis, and competitive impact on the horizontal axis. *continued on page 4*

In the simplest evaluation, the map can be divided into quadrants, as shown in the second half of the chart. Those technologies in the lower left are generally basic technologies that require investment to stay competitive. The lower right quadrant includes the emerging technologies in which the organization has a weak position. The upper left quadrant includes the basic technologies in which the organization may be able to gain a competitive advantage, and the upper right quadrant includes emerging areas in which the organization has a point of difference. In general terms, **any technologies in the bottom half of the map should be evaluated for investment in order to improve the competitive position of the organization.**

The final activity in Step 4 is a gap analysis to determine where the current technology portfolio matches, or doesn't match, the required technologies to achieve the strategic goals. Typically, there is good alignment in some areas, and obvious gaps in others. It is also likely that there will be technologies identified as being important to the future of the business that are completely missing from the current technology portfolio. These technologies must be prioritized for future investment.

Step 5. Sort, Focus and Prioritize: Step 5 is the process of identifying those technologies that deserve investment in order to achieve the strategic goals of the organization. This evaluation involves estimating the level of investment required (capital, people, licensing) and the expected impact on the business. This step begins to set the priorities for future investment and becomes the benchmark for evaluating investment opportunities.

Step 6. Manage the Portfolio and Measure the Results: Step 6 outlines the priorities and expected outcomes of investments. This step puts in place milestones and measurements to ensure that the original goals of the process are being met going forward.



About The Hale Group

The Hale Group is a consulting and advisory partner assisting companies develop fact-based strategies to contend with an evolving landscape. The underlying philosophy of the firm's efforts on behalf of its clients, and in collaboration with them, is to formulate strategies that enable clients to break through the market clutter and identify platforms for growth.

The Hale Group has developed proven processes and tools to help organizations gain perspective on the opportunities and challenges within an industry. The level of The Hale Group's participation can take many forms from addressing the overall process or an individual part of the process. However, in whatever capacity we participate, the desired outcome is for our clients to be successful.

Our products and services include:

- Strategy
- Market Research
- Opportunity Analysis
- Organizational Effectiveness
- Operating Efficiencies
- Mergers & Acquisitions

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