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# A Structured Approach to Technology Assessment



*A white paper by Technology Futures, Inc.*

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So you've just created a new advanced technology that is superior to anything else you've seen. But will people pay enough to justify the commercialization and productization of the technology? What is the best course of action to take advantage of this new technology?

These questions need to be answered in a structured manner to avoid inaction and/or wheel spinning all the way to market introduction. Technology Futures, Inc. uses such an approach that it calls Technology Advantage Management (TAM) in working with its clients to assess a particular (or a portfolio) of technology.

TAM is not a fixed process, but a guideline (or framework) to be adapted to the culture, structure, and abilities of the business. It has evolved out of numerous technology assessment engagements with organizations in industries ranging from beauty products to semiconductors to telecommunications to national security.

A technology assessment project will start with a listing of the salient features of the technological to be assessed. These are non-generic but high level. An example of a feature at this level would be "ability to provide removable data storage at five times the density of then current DVD technology." The goal of this list is to give participants in the assessment an idea of the technology without limiting their creativity.

A knowledge gathering phase follows that looks at the changing environment the technology will be participating in. This would include the general societal

considerations, namely geopolitical, economic, social, and regulatory. It would evaluate three important areas: market pull, technology push, and competitive clash.

A rich toolbox of methodologies is available to enable a future vision of these areas. In selecting which methodologies to use, one needs to balance the selection based on the five ways people view the future: as quantitative extrapolation, as fitted patterns, as personal interplays, as a series of events to be prepared to react to, and as a subconscious (intuitive) vision. By selecting methodologies that have an affinity to each of these views in a broad pattern, the quality of the assessment will be improved. When presenting your findings to management, they will more likely be accepted because different managers view the future in each of those ways.

The societal, market, competitive, and technology findings are used to create a forecast of the potential markets for the technology. This forecast along with the supporting evidence from the assessment is used to create a technology advantage opportunity document. There maybe several such documents prepared at the same time in companies that deal in multiple technologies.

At this point, you have defined the overall opportunity for your organization. That opportunity has been captured in documentation that can be referred to in later steps and used as the basis for modification with newer knowledge.

You are now ready to do strategic planning. Using the documentation from the previous steps, you will look at your organization's ability to address the opportunity. That includes your vision/goals/mission, your capabilities, and your current focus in R&D, finance, and marketing. From this activity, you will end up with a technology advantage strategy that documents the strategy that will best serve your organization. This will provide a firm foundation for your technology implementation planning.

The TAM approach has been adapted to variety of types of organizations, business size, and maturity. It helps to identify emerging advances in technology. It provides you with methodologies to analyze the importance, implications, and timing of these advances. It is used to match these advances with the mission, objectives, and capabilities of the organization and determines the actions that must be taken by the organization to insure that competitive advantage is achieved.

*Bill Kleinebecker is senior consultant at Technology Futures, a technology management, forecasting, and planning consultancy headquartered in Austin.*