

## Technology Management for Early Stage Technologies

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**Abstract :** Early stage technologies have been particularly challenging to manage due to high degrees of their numerous uncertainties. Most research results directly out of a research lab tend to be at their early, if not the infant stage. A long while uncertain commercialization process awaits these lab results. The majority of such lab technologies go nowhere and never get commercialized due to various reasons. Any efforts or financial resources put into managing these technologies turn fruitless. High stake naturally calls for better results, which make a patenting decision harder to make. A good and well protected patent goes a long way for commercialization of the technology. Our preliminary research showed that there was not a simple yet productive procedure for such valuation. Most of the studies now have been theoretical and overly comprehensive where practical suggestions were non-existent. Hence, we attempted to develop a simple and highly implementable procedure for efficient and scalable valuation. We thoroughly reviewed existing research, interviewed practitioners in the Silicon Valley area, and surveyed university technology offices. Instead of presenting another theoretical and exhaustive research, we aimed at developing a practical guidance that a government agency and/or university office could easily deploy and get things moving to later steps of managing early stage technologies. We provided a procedure to thriftily value and make the patenting decision. A patenting index was developed using survey data and expert opinions. We identified the most important factors to be used in the patenting decision using survey ratings. The rating then assisted us in generating good relative weights for the later scoring and weighted averaging step. More importantly, we validated our procedure by testing it with our practitioner contacts. Their inputs produced a general yet highly practical cut schedule. Such schedule of realistic practices has yet to be witnessed our current research. Although a technology office may choose to deviate from our cuts, what we offered here at least provided a simple and meaningful starting point. This procedure was welcomed by practitioners in our expert panel and university officers in our interview group. This research contributed to our current understanding and practices of managing early stage technologies by instating a heuristically simple yet theoretical solid method for the patenting decision. Our findings generated top decision factors, decision processes and decision thresholds of key parameters. This research offered a more practical perspective which further completed our extant knowledge. Our results could be impacted by our sample size and even biased a bit by our focus on the Silicon Valley area. Future research, blessed with bigger data size and more insights, may want to further train and validate our parameter values in order to obtain more consistent results and analyze our decision factors for different industries.

**Keywords :** technology management, early stage technology, patent, decision

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