

# The industrial and commercial perspective of peer-reviewed research

## Dear Readers

Peer reviewed publications are essential in demonstrating valuable research to fellow academics, funding agencies, as well as moving important scientific concepts into areas that ultimately benefit our global society. Both theoretical and applied research are vital scientific pursuits, therefore, both must be pursued with equal vigor. In pursuing a research path researchers should consider the entire scope of their audience. Granted, most frequently, the readers are other academics, students, and government research and funding agencies; generally people whose source of income is not tied to producing a commercial product. On the other hand, there is a significant audience that reviews the scientific literature scouting for product ideas and solutions to problems they may encounter in producing a product or service.

There are many academics that envision their research being patented and becoming the next greatest product or solution, and many are successful. In fact, it is the pure research institutions that are driving the next advancements in medicine, energy, environment, entertainment, and technologies that improve daily convenience. Without this source of knowledge many private companies would not be able to provide the next best thing – because the concept of large core corporate research facilities is decreasing. Many of the new product development projects in industry are driven by collaborations with academic institutions or small start-up companies spun out from academic institutions.

It is this source of innovative ideas that midsize and large industry is looking to for new products. It is industries' development engineers, chemists, biologists, and molecular biologists that are reviewing much of the new peer reviewed publications. They not only review applied research, the research that has produced a tangible entity, but also research for purely theoretical understanding of phenomenon.

The industry audience will look for particular attributes in a publication to determine the level of value. Whether it is a theoretical concept, characterization, or production of a tangible product, a well-structured goal is a crucial. All research publications should clearly state the objective of the study. The research should be intended as an improvement over previous research, provides greater understanding of a concept, or has a viable end use. Reporting on an experiment only because it was possible, is not adequate for the industrial audience. Of course there are cases where the utilization or uniqueness may not at first be obvious – but a minimal attempt to clearly state why this research was undertaken and what was expected, particularly if an unexpected result was obtained is important. In fact, it is the unexpected result that is often most valuable. After all, “an unexpected result” is one

aspect that patent examiners use to determine novelty and suitability for granting a patent. Technologies that can be secured with a patent are often of most interest to industrial evaluators.

In the case of applied research there are very specific items that someone who is scouting the research literature for product ideas looks for. There are five key items when evaluating whether a technology should be considered for collaboration. All need to be considered, however, some are not very easy to answer in the very early stages of product research. The first can be called “does anybody care?” Which simply means is there a market need for the technology and can that need be demonstrated? Second, does it work? For the intended application, can feasibility be verified? Depending on how early in the development process a particular technology is, a theoretical demonstration may be sufficient initially. However, if a collaboration is formed with an industrial partner feasibility must one of the first objectives. When conducting applied research the importance of market need and feasibility are somewhat obvious.

On the other hand, there are three other factors that may not be quite so obvious. Number three on the list: is the technology legally available? If it is a technology ultimately intended for commercialization, then the intellectual property (IP) and any enabling IP must be available. In other words do you have Freedom to Operate (FTO)? In addition to IP legal availability, regulatory requirements should be considered. If regulatory approval is needed, a concept of what the regulatory path could be and if there are any inherent roadblocks that could prevent regulatory approval will be questioned by industry (e.g toxic effects of nanomaterials in the body). The fourth factor is whether your proposed technology can be manufactured. Any company will need to produce the product, usually in an automated fashion; therefore, a technology that requires intense hand production to function, may not be desirable from a commercial perspective. The last item someone considering a technology for commercialization might ask is: what is the cost? This includes cost to manufacture, cost to license, and ultimately the cost versus benefit to the end user.

For a researcher, understanding that feasibility must be demonstrated is rarely an issue; this is why the research is performed. However, for those pursuing applied research, with commercial value as the intent, the other four factors should also be considered. Not all five of these items need to be shown in the research publications. But, depending on the researcher's goal, these factors should be kept in mind knowing that industrial technology scouts may apply them in the course of the evaluation. It is the opinion of this former industrial technology scout, that when selecting a research path you should clearly state a goal that solves a

problem, makes an improvement, increases fundamental understanding, or produces a tangible entity that improves our global society.

With kindest regards



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