Organizational climate drives commercialization of scientific and engineering discoveries

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Research universities with an organizational climate that actively supports commercialization and encourages interdisciplinary collaboration among researchers are more likely to produce invention disclosures and patent applications, according to a Baylor University study.

Published online June 29 in the *Journal of Research Policy*, the study by Emily Hunter, Ph.D., assistant professor of management and entrepreneurship at Baylor University's Hankamer School of Business, showed that a favorable organizational climate had a sizeable and direct impact on the development of new inventions and patents.

"University-based inventors were more likely to generate more early-stage commercialization when they perceived an atmosphere that was supportive of commercialization and provided opportunities for collaboration which spanned the research boundaries of academic disciplines," Hunter said. "We also found that a good organizational climate is more readily influenced by management than by other environmental factors such as the availability of venture capital."

The study focused on Engineering Research Centers (ERC), which were formed by the National Science Foundation (NSF) in 1985 to support commercialization. Between 1985 and 2006, the NSF allocated $57 million to research programs at 41 ERCs. ERCs also produced 1,431

invention disclosures and 528 patents (NSF, 2007). Because of their unique organizational structure and record of success, ERCs promote highly creative multi-disciplinary research and emphasize commercial applications and technical prototypes.

For the study, 218 faculty, ERC leaders, industrial liaison officers, and post-doctoral researchers from 21 ERCs completed an online survey. On average, 10 people responded from each ERC (ranging from 5 to 26 respondents per ERC). Forty percent of respondents were faculty members, while 21 percent were members of the administrative leadership team and 51 percent had dual research-leadership roles.

"We discovered that support for technology commercialization is reflected in the research center's leadership and academic structure," Hunter said. "Commercialization was affected by how often a researcher's department chair and other departmental members were involved in commercialization activities. Researchers who perceived support from their laboratory were often more likely to engage in such activities, even if commercialization had not been their priority before joining the ERC."

The study also found that, when an ERC technology transfer office (TTO) was seen as having a customer-service orientation, researchers were more likely to pursue invention disclosure and patents. Furthermore, if a TTO is organized, well-funded, and knowledgeable, it is better able to process paperwork and pursue commercialization.

"Based on their experiences in working with effective versus ineffective TTOs, many of our interviewees emphasized the dramatic impact that an effective TTO can have on the commercialization process," Hunter said.

"Leaders can actively demonstrate support for commercialization by explicitly including commercialization activities in rewards and

compensation practices such as promotion and tenure decisions. Leaders might also urge and provide support for science and engineering researchers to collaborate within and beyond traditional organizational boundaries, thereby increasing the novelty and commercial potential of their discoveries," she said.

Provided by Baylor University