Managing knowledge-intensive workers

Sebastiano Massaro

A manager's ability to provide knowledge workers with the personalized goals, motivation and tools they need to perform at their best will bring outstanding results.

The management of human resources (HR) has acquired greater importance for companies since the concept of the 'knowledge worker' was introduced nearly 50 years ago[1].

Employees in the biotech industry create, use and share knowledge, thus making them central to the success of their knowledge-based companies. Yet there are recurring issues regarding how best to manage scientists as employees. These concerns arise mainly because most startups do not employ HR professionals—or if they do, they assign HR functions to administrators who are not trained as HR specialists[2]. This article suggests a set of principles for identifying these recurrent issues and applying organizational leverage to direct biotech workers to fully meet their potential.

Identifying sources of tension

Managers of life-sciences companies lacking dedicated HR teams generally fall into one of two categories: scientists who have 'reinvented' themselves as managers or *de facto* executives who have entered the world of biotech with no prior scientific experience[3]. The former tend to relate to and treat employees as peers by assuming that they will not only focus on their scientific duties but also prioritize the company's commercial interests. The latter perceive knowledge-intensive workers as nonspecializing employees without acknowledging their characteristic higher-level capabilities and skills. Consequently, both types of managers tend to apply organizational rules and practices that often lead to workers' disappointment. Management that is very lenient may provide employees with too little guidance, which increases the risk that these scientists will lose focus on the company's priorities. On the other hand, supervision that is too stringent can be destructive to workers' creativity and morale and can have negative effects on their performance. It is becoming increasingly difficult for managers of knowledge workers to find an acceptable balance between these two extremes.

Executives must understand the needs of knowledge-intensive workers (see **Box 1**), their 'ideological tensions' and their individual motivations. Once aware of these characteristics, managers must adapt accordingly to improve scientists' efficiencies.

Often, life scientists trained in academia develop ideological conflicts while working in industry, because their involvement in commercial research exposes them to radical cultural differences. Understanding the major issues that lead to such tension will assist managers in recognizing and addressing these key challenges.

Industry versus academia. An academic scientist's focus usually centers on the pursuit of innovative research with the aim of producing scientific articles. But when working for a company, the scientist must redirect his or her research efforts, because the results must ultimately drive profit and help achieve the company's financial goals. The shift from academic to commercial research usually means more effort toward projects that fit the company's aims and less intellectual freedom for the knowledge-intensive worker. Scientists may resist management styles that seem to ignore the true intellectual dynamics behind biotech research. Therefore, scientists need precise supervision to understand the structure and purpose of building a business.

Social interactions and education. Researchers often associate work in biotech companies with fewer opportunities to interact and brainstorm with their intellectual peers. Many scientists view these relationships as crucial to their endeavors and, therefore, desire a workplace structure that encourages dialog. Employment in a biotech company usually means limited opportunities for independent research; therefore, scientists emphasize their creativity, inventiveness and understanding not only through their work, but also

Box 1 Needs and characteristics of knowledge workers

Scientists and other highly skilled workers often:

- Need feedback on their work but prefer to be approached as peers rather than subordinates
- Need mental space and dislike intrusions
- Need challenging work, opportunities to pursue and problems to solve
- Are self-directed, but need precise leadership and support from their superiors
- Are continuous learners and have individual priorities for advancement in science
- Have their own working schedules and may not necessarily be comfortable with imposed deadlines
- Are highly mobile and can move to a new workplace if opportunities for learning and personal growth do not exist or if they feel underutilized in their present positions

Sebastiano Massaro is in the Management Science and Innovation Department at University College London, London, UK, and the Department of Sociology at Boston University, Boston, Massachusetts, USA.
e-mail: sebrain1@bu.edu

Table 1 Collective versus individual perspectives

Key dimension	Collective perspective	Individual perspective
Knowledge	Created by the community of scientists working for a company	Created by each of the company's scientists
Achievement of company goals	Each worker contributes equally	Each scientist contributes uniquely
Responsibilities and outcomes	Attributed to a team or group of scientists	Attributed to the individual worker
Rewards	Available to everyone, tied to team's performance and enhanced over time	Are targeted motivators tied to individual performance, variable over time and addressed to the individual's needs

through social interactions. Thus, they crave opportunities to attend training sessions, courses and conferences so that they can interact with colleagues, stay connected to the academic world and continue their education.

Personal interests and attitudes. Most knowledge workers view their contributions and skills as unique. However, this mind-set can lead to tension with management if an individual scientist is viewed as merely one among many. When treated as no different from any other colleague, the scientist feels interchangeable and, therefore, not fully valued. In other words, employees often lament that managers are not flexible enough to customize the development of research projects according to their passions and capabilities. Scientists want to be assigned duties that closely match their primary interests and goals.

The manager's role is to understand these obstacles and channel workers' efforts into targeted areas that will contribute to the company's goals. Instructing scientists to perform at full capacity is not a matter of making them work harder but of understanding their individual characteristics.

Targeting the individual

The issues related to the scientists' academic orientation and their desire of frequent networking with their peers described above can easily be addressed at a collective level via a company structure that highlights the goals of the firm and supports an increase in social and intellectual exchanges for employees. The biggest challenge for managers, however, is in responding to the personal concerns and needs of their employees. Managers cannot use identical management styles and reward schemes for every knowledge worker. Instead, they need to couple traditional, collective HR thinking with a more individual-oriented perspective[4] (**Table 1**).

HR administrators in biotech companies usually assess employees as equal knowledge contributors in achieving the company's aims. Consequently, the attribution of responsibilities and outcomes, as well as incentives or rewards, is usually addressed to a team or collection of scientists. However, this approach should be integrated with one that treats each scientist as a distinct carrier of knowledge. Thus, reward schemes—as well as accountability and research outcomes—should be tied to the individual scientist's expertise, achievements and needs (for example, one employee may prefer to be rewarded for an accomplishment with customized working hours; another may prefer a monetary prize).

Key organizational levers

To succeed in applying a more individualistic HR view, managers should establish a dedicated framework using the company's culture and a style of leadership in which the talents and needs of each employee can be fully addressed. Managers need to recognize remarkable talent, set clear objectives and performance metrics for each employee, and provide incentives and rewards that match each individual's motivations. In building such a framework, managers can apply several organizational levers so that the team of employees performs optimally and each worker is targeted individually.

Be a coach, not a boss. Managers should ask themselves: "Are we managing or leading?" Most knowledge workers are uncomfortable having a manager closely oversee their activity. Scientists are not subordinates; they want to be considered as associates. Managers should create a working environment in which scientists can ultimately monitor themselves[5]. To do this, managers need to 'personalize' each scientific project and be open-minded and flexible with the company's resources and working conditions. The manager's role is then to lead these knowledge workers as a team and optimize the strengths, knowledge and experience of each individual to fit the goals of the enterprise.

Set milestones. Knowledge workers are motivated by challenge. To believe in the organization's mission, they need to see it as a contribution to their 'intellectual status.' When knowledge workers understand and support their company's mission, they are more inclined to consider its accomplishment a milestone of their work, similar to an academic publication. The more connected a scientist feels to a project and its implications, the more motivated he or she is likely to be. Managers should reduce the number of formal meetings with structured agendas, keep scientists away from bureaucratic tasks and leave knowledge workers free to fulfill their responsibilities as they see fit, with minimal direction from their supervisors. It is also important to maintain an academic standard of work environment; social exchanges and collaborations with universities should be encouraged.

Establish trust. The creation of familiar ties between managers and workers is a fundamental aspect of HR management in every knowledge-intensive company. Informal communication, caring and constructive behaviors and professionalism are crucial, as they enable managers and scientists to learn about each other and their work, thus providing the foundation for collaboration. In short, managers should create a working relationship that is both personal and professional—one that is built on trust—with each of their employees[6].

Table 2 Questions for an individual-centered HR strategy

Identify core workers	Who comprises the organization?
	Who has relationships with whom?
	Who creates and captures value?
Identify core workers' attitudes	Is the worker comfortable with his or her main project task? Does it match his or her skills and capabilities?
	Does he or she express frustration while working? If so, when?
	Does he or she crave the ability to share knowledge with coworkers?
	Does the worker feel he or she is contributing to the firm's performance?

Value each scientist uniquely. To effectively manage knowledge workers, managers must reward, recognize and coach each of them individually. Answering a few key questions about core workers' roles and attitudes (**Table 2**) will increase the manager's ability to customize an approach to each knowledge worker.

Conclusions

The effective management of knowledge-intensive workers is essential to any biotech company's success. Accordingly, management teams must continuously evolve, shaping a culture that improves the company's ability to motivate its scientists. Ultimately, outstanding results are driven by the manager's ability to equip knowledge workers with the tools and environment they need to perform at their best. The manager should think of scientists as brilliant painters, each with a different set of colors, and then work to provide the appropriate organizational canvas.

COMPETING FINANCIAL INTERESTS
The author declares no competing financial interests.

1. Drucker, P.F. *The Landmarks of Tomorrow* (Heinemann, 1959).
2. Finegold, D. & Frenkel, S. *Int. J. Hum. Resour. Manage.* **17**, 1–24 (2006).
3. Jensen, D.G. & Dougherty, E. *Bioentrepreneur* doi:10.1038/bioent789 (27 January 2004).
4. Felin, T., Zenger, T.R. & Tomsik, J. *Hum. Resour. Manage.* **48**, 555–570 (2009).
5. Roberts, K. *Hum. Resour. Manage.* **33**, 561–579 (1994).
6. Massaro, S. & Jong, S. in Toombs, L.A. (ed.), *Proceedings of the 70th Annual Meeting of the Academy of Management,* 1–6, (2011).