Managing Knowledge-Intensive Firms

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§1 Introduction

According to Newell et al., a “knowledge-intensive firm” is a firm in which a majority, and sometimes the entire workforce, consists of “knowledge workers”, which they defined to “encompass both professionals and groups with other forms of disciplined based knowledge or more esoteric expertise and skills, for example advertising, media, whose major work tasks involve the creation of new knowledge or the application of existing knowledge in new ways”.¹ In general, knowledge-intensive firms are involved in the delivery of services, such as law and accounting firms, management consultancies, investment banks, architectural firms, software developers and agencies specializing in advertising and public relations. Newell et al. observed that the competitive advantage of any knowledge-intensive firm is a function of its ability to recruit, develop and retain a strong pool of knowledge workers who are willing to create and share knowledge. This is not an easy task for management since knowledge workers, particularly those who are recognized as the best in their field, typically have a number of different choices available to them when selecting an employer. Moreover, as Newell et al. pointed out, “it is the workforce in these firms that to a large extent owns the means of production, not management”, thus giving the expert workforce substantial leverage over the terms and conditions of their working relationship with the firm.

§2 Types of knowledge-intensive firms

Various attempts have been made to define a “knowledge-intensive firm” and suggest methods for classifying such firms into different types. Alvesson defined knowledge-intensive firms as “organizations that offer to the market the use of knowledge or knowledge-based products” and went on to explain that the core activities of these organizations were based on the intellectual skills of a very large proportion of the labor force deployed in development, and often also in the sale of products and in service work”.² For their part, Newell et al.’s discussion of knowledge-intensive firms was explicitly limited to organizations that compete on the basis of their ability to create, apply and share professional and discipline-based knowledge.

As for types of knowledge-intensive firms, Lowendahl argued that there were three generic types of knowledge-intensive firm that could be distinguished by focusing on

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differences between them with respect to the strategic focus of the firm and the control of
the resources used to provide the services to clients and customers:\(^3\):

- **Client-Based:** The strategic focus of client-based firms is on client relations and
  resources are individually controlled by the knowledge worker involved in the
  delivery of services. Examples include law and accounting firms.
- **Problem-Solving:** The strategic focus of problem-solving firms is on “creative”
  problem solving and innovation using team-based resources. Examples include
  advertising agencies, software developers and web design firms.
- **Output-Based:** The strategic focus of output-based firms is on adaptation of ready
  solutions using resources controlled by the firm. Examples include some larger
  management consulting firms.

Alvesson suggested dividing knowledge-intensive firms into professional services firms
and research and development (“R&D”) companies:\(^4\) The output of professional services
firms is largely intangible and workers employed by such firms generally interact directly
clients. In contrast, R&D companies typically produce tangible products and contacts
between workers at such companies and customers are usually indirect.

The landscape of activities can reasonably fall within a definition of knowledge-intensive
firm have expanded significantly in recent years. Law and accounting firms are the
traditional examples of knowledge-based professional services firms; however, Newell et
al. noted that there has been an explosion of new high-tech and specialist consultancy
firms, including virtual, Internet-based knowledge-intensive firms offering specialist
services to both individual clients and the general public. Newell et al. also observed that
certain knowledge-intensive firms, such as software developers and web design firms, no
longer relied on workers who acquired their required skills and expertise through formal
education and certification/licensure qualifications.

§3 **Distinctive characteristics of knowledge work and knowledge workers**

Newell et al. suggested several distinctive characteristics of knowledge work and
knowledge workers:\(^5\):

- **Autonomy:** Knowledge work typically calls for creativity and problem-solving and
  thus requires that knowledge workers be given substantial autonomy to determine
  how to initiate, plan, organize and coordinate their major work tasks.

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\(^3\) B. Lowendahl, Strategic Management of Professional Service Firms (Copenhagen: Copenhagen Business

\(^4\) M. Alvesson, Knowledge Work and Knowledge-Intensive Firms (Oxford: Oxford University Press,
2004).

\(^5\) S. Newell, M. Robertson, H. Scarbrough and J. Swan, “Chapter 2: Knowledge-Intensive Firms” in S.
Newell, M. Robertson, H. Scarbrough and J. Swan, Managing Knowledge Work and Innovation (London:
• **Knowledge Base and Working Methods:** Newell et al. noted that different types of knowledge workers rely, create, share and apply different types of knowledge in their work, which means that each knowledge work setting has its own distinctive “epistemic culture” (i.e., “those amalgams of arrangements and mechanisms. . . . which, in a given field, make up how we know what we know”). As a result, notice must be taken of unique social, discursive and material practices and efforts to introduce standard work practices and procedures, such as knowledge management systems and tools, will likely be met with resistance as being unnecessary distractions from the core work processes of practitioners of the particular knowledge base.

• **Co-Location:** Knowledge work often requires that workers be physically co-located away from their employer firm, typically on site in the offices of clients for which the firm is performing services. Co-location creates several challenges for management of the employer firm such as preventing clients from hiring away their workers and making sure that teams of workers in different locations can still communicate and collaborate effectively. Significant advances have been made in collaborative tools; however, care must be taken not to impose work processes on teams that will impede their creative processes.

• **“Gold Collar” Workers:** While many of the workers at traditional firms are relatively easy to replace, knowledge workers are the direct productive forces of their organizations and thus management is under special pressure to not only provide their workers with excellent terms of employment and working conditions but also an organizational design and culture that is conducive to knowledge work and view favorably by the workers.

§4 Organizational design of knowledge-intensive firms

Motivating knowledge workers and providing an environment in which they can do their most creative and productive work is an important imperative for managers of knowledge-intensive firms. Professional services firms, such as law and accounting firms, traditionally relied on organizational designs that have been described as “professional bureaucracies” and which have been organized using a clear hierarchical structure. In these organizations, advancement followed a clearly defined career path and leadership positions were held by senior professionals who oversaw both groups of other professionals (e.g., practice groups in a law firm) and managers not licensed in the discipline of the firm who were responsible for operational areas such as finance, information technology and human resources. While this model has been resilient for law and accounting firms, it is not suitable for most of the new knowledge work that has

6 K. Knorr-Cetina, Epistemic Cultures: How the Sciences Make Knowledge (Cambridge, MA: Harvard University Press, 1999), 1 (italics added by Newell et al. (see prior note)).


emerged in recent years and Newell et al. observed that contemporary knowledge-intensive firms such as software developers and specialist consultancies opt for flatter, less bureaucratized ways of organizing and “try to organize highly organically and flexibly, generally around teams”.

Mintzberg famously identified and described five archetypal structural forms that characterize the way firms organize: the “simple structure”; the machine (or full) bureaucracy; the professional bureaucracy; the adhocracy; and the divisionalized form. One of those forms, the “adhocracy”, was prescribed by Mintzberg as being the most appropriate when creativity and innovation (i.e., developing novel solutions to client problems) is the fundamental mission and strategy of the firm, as is generally the case with knowledge-intensive firms. The key part of the organization for this structural type was the support staff and the preferred coordination mechanism was mutual adjustment. Newell et al. concisely summarized the key features of the “adhocracy” form as follows: “The adhocracy is almost the complete opposite of the traditional bureaucracy. An adhocracy genuinely de-emphasizes a hierarchical structure in preference to a dynamic organizational structure based on self-formed and self-managed project teams, decentralized decision-making and minimal formalization in terms of policies, rules and procedures. Within an adhocracy . . . control tends to be based on professionalism and shared, organizational values—referred to as cultural or normative control—rather than on more typical forms of direct control such as direct supervision and adherence to rules and procedures.” Other researchers have found evidence to support the arguments that traditional bureaucracy is not suitable for firms engaged in activities that require innovation and shifting from an adhocracy to even a “soft” form of bureaucracy, intentionally or not, can have significant detrimental effects on the firm.

§5 Structural constraints on knowledge work

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11 Baron et al., for example, conducted a large-scale, longitudinal survey of software firms in Silicon Valley over a ten-year period which focused on modes of organizing, performance, CEO and employee turnover. The very few firms that shifted from a “star model” (arguably the template that most closely resembles the adhocracy) to bureaucracy experienced the highest employee turnover. Baron et al.’s research therefore clearly demonstrates that the majority of knowledge-intensive firms do tend to organize largely informally and traditional bureaucratic modes of organizing are not suitable if innovation is required. See J. Baron, M. Hannan and D. Burton, “Labor pains: Change in organizational models and employee turnover in young, high-tech firms”, American Journal of Sociology, 106(4) (2001), 960. Research by Robertson and Swan also highlighted that subtle shifts in organizing template from an adhocracy to a ‘soft bureaucracy’ (largely legitimated by the public flotation of the firm onto the stock market) can also have a significant detrimental effect. See M. Robertson and J. Swan, “Going public: The emergence and effects of soft bureaucracy in a knowledge intensive firm”, Organization, 11(1) (2004), 123.
Starbuck discussed several important structural constraints on effective knowledge work that managers of knowledge-intensive firms must continuously monitor. First, Starbuck cautioned managers of knowledge-intensive firms about attempts to develop norms and practices (i.e., “best practices”) that might constrain the innovative behaviors of the firm’s knowledge workers. While it is to be expected that firms may develop informal practices about various aspects of the knowledge creation process and that these practices may become embedded in firm routines and organizational culture, managers should be careful about codifying these practices into standardized tools for project planning and development that eventually inhibit discovery and adoption of new tools and ways of working that may be more appropriate for future projects.

A second issue is balancing the need to balance time as a scarce resource against the need for knowledge workers to have sufficient time to work through difficult problems and arrive at the creative and innovative solutions that are at the core of excellence knowledge work. Law firms have long been known for their diligence tracking of “billable hours” as a means for billing clients and tracking lawyer productivity; however, other knowledge-intensive firms in need of revenues to survive have also been forced to monitor and account for the time of their knowledge workers. While clients certainly want to be able to know what has been done for them before paying their bill, and managers of knowledge-intensive firms need to have some idea of how their workers are spending their time in exchange for the compensation offered by the firm, Starbuck cautions that monitoring and controlling of time may cause knowledge workers to do less than their best work because they are rushed. Moreover, time constraints inhibit knowledge workers from pursuing new ideas that may come during a project which while unrelated to the problem at hand nonetheless may lead to significant additions to the firm’s overall knowledge base. Attorneys at law firms actually face a similar dilemma: they are trained to exhaustively consider every angle of a legal issue as a condition of fulfilling their professional duties; however, clients have become less and less willing to pay for the production of comprehensive summaries and analyses of the law. As a result, attorneys have need to learn how to work efficiently and provide clients with the best possible answer given the budgetary constraints that may have been imposed.

Finally, while growth is usually a sign that the creativity of the workers within a knowledge-intensive firm is being well received in the relevant marketplace, it is also a move that must be undertaken cautiously with due regard to how increased size will impact the way in which work is conducted. Researchers have warned that growth can be counterproductive for firms that compete primarily on the basis of their ability to solve complex problems for their clients. Growth typically brings more formalization, centralization and hierarchy, as well the need to hire and manage more support staff, and all of this pulls the firm away from the adhocracy structure considered optimal for creativity and innovation. Newell et al. suggested that the potential problems associated

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with growing a knowledge-intensive firm might be mitigated by creating new, autonomous business units or introducing internal markets around a project-based form of organizing, thus maintaining an environment in which workers can create efficiently with the low levels of formalization and decentralized decision making that are most conducive to knowledge work.\textsuperscript{14}

\section*{§6 Organizational culture for knowledge work}

The challenge surrounding organizational culture for knowledge-intensive firms comes from the need for workers to have the requisite amount of autonomy thought to be necessary for creativity and innovation.\textsuperscript{15} Knowledge workers may be tempted to act in their own personal interests, rather than to advance the needs of the organization, since knowledge workers typically enjoy high mobility in the marketplace and often are able to change firms quickly if higher compensation and other opportunities beckon. As a result, managers of knowledge-intensive firms should strive to create an organizational culture based on “responsible autonomy”, which Newell et al. explained as a situation in which workers use their work autonomy to advance the interests of the firm and not just their own personal interests.\textsuperscript{16} Managers of knowledge-intensive firms must also understand and accept that their workers are typically highly skilled and educated and diverse, thus making it difficult to impose dominant organizational values of the type normally seen in traditional organizations with accepted hierarchies and centralized decision-making. Newell et al. observed that this means that those managers will “have to acknowledge that knowledge workers will naturally hold a variety of beliefs, which cannot necessarily be altered or subsumed within a single organizational value system”. The solution, according to Newell et al., may be for the organizational leaders of knowledge-based firms to focus on “promoting an organizational ethos that is more or less generally accepted and shared, rather than attempting to instill and reinforce a dominant core value system”. For example, leaders may emphasize and proactively support free communication among workers and consensual decision making.\textsuperscript{17} If the leaders can do this successfully (e.g., workers actually believe that they have reasonable autonomy to decide how projects will be carried out), they will have a better chance of creating an environment that knowledge workers see as a “good place to work” and thus increase their chances of attracting and retaining the necessary talent and having them carry out their work in the spirit of responsible autonomy.


\textsuperscript{17} See J. Greenberg and R. Baron, Behavior in Organizations (7th Ed) (Englewood Cliffs, NJ: Prentice-Hall, 2000) (describing efforts of Yahoo! founders to promote free communication among employees and genuine consensual decision making as the organizational ethos necessary for the fast-paced environment of the Internet and personal beliefs of knowledge workers).
About the Author

This chapter was written by Alan S. Gutterman, whose prolific output of practical guidance and tools for legal and financial professionals, managers, entrepreneurs and investors has made him one of the best-selling individual authors in the global legal publishing marketplace. His cornerstone work, Business Transactions Solution, is an online-only product available and featured on Thomson Reuters’ Westlaw, the world’s largest legal content platform, which includes almost 200 book-length modules covering the entire lifecycle of a business. Alan has also authored or edited over 90 books on sustainable entrepreneurship, leadership and management, business law and transactions, international law and business and technology management for a number of publishers including Thomson Reuters, Practical Law, Kluwer, Aspatore, Oxford, Quorum, ABA Press, Aspen, Sweet & Maxwell, Euromoney, Business Expert Press, Harvard Business Publishing, CCH and BNA. Alan is currently a partner of GCA Law Partners LLP in Mountain View CA (www.gcalaw.com) and has extensive experience as a partner and senior counsel with internationally recognized law firms counseling small and large business enterprises in the areas of general corporate and securities matters, venture capital, mergers and acquisitions, international law and transactions, strategic business alliances, technology transfers and intellectual property, and has also held senior management positions with several technology-based businesses including service as the chief legal officer of a leading international distributor of IT products headquartered in Silicon Valley and as the chief operating officer of an emerging broadband media company. He has been an adjunct faculty member at several colleges and universities, including Berkeley Law, Golden Gate University, Hastings College of Law, Santa Clara University and the University of San Francisco, teaching classes on corporate finance, venture capital, corporate governance, Japanese business law and law and economic development. He has also launched and oversees projects relating to sustainable entrepreneurship and ageism. He received his A.B., M.B.A., and J.D. from the University of California at Berkeley, a D.B.A. from Golden Gate University, and a Ph. D. from the University of Cambridge. For more information about Alan and his activities, and the services he provides through GCA Law Partners LLP, please contact him directly at alangutterman@gmail.com, follow him on LinkedIn (https://www.linkedin.com/in/alangutterman/) and visit his website at alangutterman.com.

About the Project

The Sustainable Entrepreneurship Project (www.seproject.org) was launched by Alan Gutterman to teach and support individuals and companies, both startups and mature firms, seeking to create and build sustainable businesses based on purpose, innovation, shared value and respect for people and planet. The Project is a California nonprofit public benefit corporation with tax exempt status under section 501(c)(3) of the Internal Revenue Code dedicated to furthering and promoting sustainable entrepreneurship through education and awareness and supporting entrepreneurs in their efforts to launch and scale innovative sustainable enterprises that will have a material positive environmental or social impact on society as a whole.

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