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**Talent Management:
Challenges of building cross-
functional capability in high
performance work systems
environments**

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Prepared for the Asia Pacific Journal of Human Resources (APJHR) special issue on future directions of talent management research and practice

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Challenges of building cross-functional capability in high performance work systems
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Abstract

Occupational dissimilarity is a measure of the overlap in education, skills and experience across two disciplines. Though occupational dissimilarity is not directly addressed in the organization design, careers, and other literatures, it plays an important role in organizational effectiveness. Specifically, integrating tasks when occupations are dissimilar is quite difficult, which can hinder successful strategy execution. When two or more dissimilar functions play key roles in the value creation process (for example, R&D and sales), the risks to organizational effectiveness are particularly acute. In these cases there are no natural tendencies for individuals to develop cross-functional skills, and traditional integration approaches typically include only formal mechanisms such as general manager development and cross-functional teams. The argument is made here that organizations should more actively focus on ways to foster cross-functional skills at the individual contributor level, not just general manager level, in such cases. Examples from logistics, consumer product analytics, and services procurement / business process outsourcing are addressed. Implications for organizations operating in emerging markets with large consumer markets but underdeveloped talent markets are also explored.

Key words: talent management, high performance work systems, cross functional teams, competencies, integration

1. Introduction

The importance of specialization for organizational success has been widely recognized by both economists and management researchers since the early days of both disciplines (Smith, 1776; Lawrence and Lorsch, 1967). In order for specialists' input to create added value, the fruits of their labors have to be integrated effectively, a task that is assigned to groups, teams or dedicated roles. At the individual worker or job level, the ability to work across multiple disciplines is addressed formally principally through cross-training for group-based work and through job rotation for general manager development.

Developing cross-job or cross-functional skills is not necessarily a difficult task. For many people and roles, the ability to learn and master a different role does not pose a major challenge so long as the nature of the skills needed for the other role are sufficiently close to what the person already knows how to do. Jobs on manufacturing assembly lines are close in this way, which is one reason why cross-training is both effective and relatively easy to implement in the support of self-managing assembly line teams. Jobs in sales versus marketing, in finance versus accounting, in research versus development, etc., are all close because the education and job experience required to master one discipline translate virtually seamlessly¹ to the other discipline. Consequently, individuals' career paths often weave between disciplines such as these that are close, or adjacent. With relatively high degrees of cross-fertilization between functions such as these, the organizational challenge of integrating work and organizational processes across the two disciplines is greatly diminished by the deep familiarity people in both functions have about the other function.

¹ In this context "close" means that the formal educational requirements are essentially the same, and that work experience in one discipline raises productivity in the other discipline. It does not mean that the marginal return to experience (or marginal productivity) across disciplines is necessarily the same. We would expect that within-discipline experience generally will raise productivity more than cross-discipline experience, with the exception of instances where productivity is positively related to integration of tasks across the two disciplines.

Yet many jobs and functions are not close or adjacent in this sense. In any case where the skills and experience needed to master a job or discipline are quite different, there is little foundation for natural cross-job or cross-functional understanding and integration. Examples include design versus engineering, sales and marketing versus R&D, sales/customer service versus production, and finance versus HR. The reason why these functions are not adjacent is due to three factors: (a) the educational and work experience requirements to become expert in each discipline are not closely related, (b) it takes a long time to become expert in each discipline, and (c) in the general population, it is rare to find people who have accumulated the human capital needed to become expert in both disciplines.² Anytime there are two disciplines that satisfy these three criteria we will call them distant or nonadjacent.

In such cases of distant or nonadjacent disciplines, the traditional ways of organizing work and developing skills leaves organizations exposed to integration challenges when there are large numbers of specialists who have to interact with each other to realize the company's strategy. These bottlenecks often are the foundation of structural impediments that prevent effective strategy execution. In a world with ever increasing competition, the ability to overcome these bottlenecks arguably is a new frontier for gaining ever-elusive competitive advantage. Examples from the fields of industrial design, supply chain, sales analytics and services procurement are explored in detail.

This article lays out a new way to overcome these bottlenecks: developing and rewarding people for being both specialists and cross-functional experts. In contrast with general management development, this strategy focuses on individual contributors, not high potential

² In contrast, consider the example of the skills needed to be a copy editor, administrative assistant or data entry operator. The English and computer skills needed for these occupations are commonly found among many people who work in other white collar occupations, which makes these occupations close to each other. Thus integrating the work of these occupations (copy editor, administrative assistant, data entry operator) with the work of other white collar occupations is typically much easier than integrating work across distant or nonadjacent occupations.

managers. In contrast with team-based cross-training, this new strategy is designed for developing cross-functional experts among a wide array of functional experts, not just those assigned to specific teams or group projects.

This new talent strategy has the potential to provide competitive advantage to any company, and particularly to companies in fast growing emerging markets. Such markets are characterized by underdeveloped talent markets and low availability of people with extensive experience working in the complex organizational settings that characterize modern day multinationals. Developing effective talent strategies to overcome the challenges of integration across distant disciplines can be even more vital for organizational effectiveness in fast growing emerging markets than in longer-standing developed economies.

2. The benefits of specialization to the individual and to the firm

Since the time of Adam Smith (1776) and Frederick Taylor (1923), economists and management experts have championed the merits of specialization. Specialization is both a reality and necessity of economic life. The entire wealth of human knowledge is too much for one person to master. For that reason alone, the world cannot be filled with complete generalists; some specialization is required because of the physical limits of the human brain.

The degree of specialization in societies is relatively high. Occupational specialization is a cornerstone of human development in every economy worldwide. cursory evidence of occupational specialization can be found in the distribution of jobs across occupations: significant fractions of employment are accounted for by occupations that require large amounts of specific human capital accumulated through years of dedicated schooling and/or on-the-job experience. For example, in the United States in 2010, more than one third of all jobs were

accounted for by management and professional occupations which typically require at least a four year bachelors degree (often with a specific focus such as medicine, law, engineering, science, architecture, etc.) and many years of on-the-job experience to be successful. Adding in occupations that do not necessarily need a specific educational degree but which require years of dedicated on-the-job experience to be successful (such as fire fighters, police, construction workers, first-line supervisors, and machine operators, installers and repairers), brings the total to more than half of all jobs in the economy.³

Occupational wage paths tend to be fairly deterministic, at least after the initial period of work experience after leaving school. Many people “job shop” in the years immediately after leaving school, trying different occupational and career choices before settling on a focus. Once people choose career paths and accumulate a certain amount of experience, they tend to stay with those career paths. Topel and Ward (1992) found that more than two-thirds of lifetime job changes occur during the first ten years of work experience. Neal (1999) found that early in people’s work experience, job changes often include career (occupation) changes; over time career changes become much less common and job changes tend to take place across employers within the same career path.

From the individual’s perspective, one reason for focusing on a specific career is the accumulation of specific human capital and higher compensation that comes along with it. Evidence for the importance of specific human capital is clear from the experience of workers who are displaced from a job because of a plant closing or other large scale event beyond their control. The advantage of focusing on workers like these is that their job change is assured to be because of economic conditions that are relatively independent of their skills. We can be

³ Author’s calculations from Bureau of Labor Statistics (2010) data.

confident that these job changes are not “for cause” which would indicate a mismatch between the worker’s skills and the job requirements.

When displaced workers can find jobs in a related field (for example, manufacturing workers remaining in manufacturing), their wage losses from being displaced may be as small as only half as much as their peers who take jobs in entirely unrelated fields (Jacobson, LaLonde, and Sullivan, 1993). When the displaced workers are able to stay within the same industry, they often suffer relatively little long-term earnings losses (Neal, 1995). Moreover, the effects of displacement on earnings typically exist predominantly for older workers with much larger amounts of firm-specific and industry-specific tenure, not for younger workers (Kletzer and Fairlie, 2003). All told, the evidence from displaced workers supports a strong labor market return to individuals for specializing their skills by choosing a career and sticking with it.

Workers also vote with their feet: those with greater tenure in an industry are more likely to stay in that industry after displacement than workers with less tenure (Fallick, 1996). The latter is consistent with workers trying to minimize earnings losses from applying their accumulated human capital in jobs where it is less valuable.

From the firm’s perspective, there are strong arguments for specialization in job design, which is the counterpart to the worker’s choice of career specialization. For example, in the first chapter of *The Wealth of Nations*, Adam Smith (1776) analyzes specialization in job design in a pin factory. In what may be the first management case study in history, Smith calculates that if a worker does every task involved in making a pin, she can produce at most about 20 pins per day. Smith then estimates that if workers specialize on different tasks, 10 workers can together produce about 48,000 pins per day. Thus, in Smith’s example, specialization through narrow job design increases production by about *24,000 percent*. Even if this is a large overestimate of the

true productivity differences, it still indicates the potential power of specialization as an approach to job design.

Frederick Taylor (1923) and other management researchers and practitioners pioneered the use of industrial engineering and job design as a way to use the benefits of specialization to improve productivity. Industrial engineering enabled breaking down the intricate steps of producing a highly complex product (such as a car) into very narrow tasks or jobs that could be performed by relatively unskilled workers. The specialization of tasks on the manufacturing line produced enormous productivity gains.

3. Limits to the benefits of pure specialization: narrow versus enlarged/enriched jobs, and teams

There are limits to the productivity gains to be had from pure specialization alone. The rationale for the benefits of moving away from narrowly-designed jobs to jobs with more tasks and greater responsibility is provided by the research of Herzberg, Hackman, Lawler and Oldham (Herzberg, Mausner and Snyderman, 1959; Herzberg, 1966; Herzberg, 1968; Hackman and Lawler, 1971; Lawler, 1973; Hackman, Oldham, Janson and Purdy, 1975; Hackman and Oldham, 1976; Hackman and Oldham, 1980; Lawler 1986). The main argument is that moving away from highly specialized, narrow jobs can increase the intrinsic motivation to do the job tasks through enhanced meaningfulness of the work, responsibility for outcomes of the work, and knowledge of the results of the work.

The movement away from narrow jobs can happen through job enrichment, job enlargement or both. Job enlargement means expanding the number and variety of tasks the job is responsible for without increasing the diversity of skills needed to perform the tasks, nor increasing the level of responsibility of the job (i.e. authority to make decisions). For example,

expanding a manufacturing line job from installing one component to installing two components, if they require the same skill set, is job enlargement. Expanding a telephone receptionist job to include basic word processing could also be job enlargement. Generally speaking, we expect that motivation would increase due to job enlargement if the original job's tasks were vary narrow: enlargement in this case increases motivation through increased task variety.

The literature has focused much more on job enrichment than job enlargement. Under job enrichment, the skills needed to perform the added tasks and/or the level of decision making authority increase. For people with the aptitude for the added skills and/or desire to have greater responsibility, it is easy to see why enrichment can increase motivation.

The benefits of job enrichment and enlargement derive from reduced monotony and an ability to better understand the full set of tasks that have to be accomplished. Reduced monotony increases productivity through enhanced motivation to focus on the tasks and avoid simple errors. A greater ability to understand the full set of tasks increases productivity through greater efficiency of integrating the tasks assigned to the job. The potential tradeoff comes from the time it takes to learn each of the tasks: if the tasks are complementary and the skills required tend to be found in the same person, then expanding the number of tasks should lead to greater efficiency through integration. However, the more dissimilar the tasks are, the greater the likelihood that inefficiencies will be introduced by combining those tasks in the same job.

The inefficiencies created by combining dissimilar tasks implies that there is an upper limit on how much motivation and productivity can be increased for the typical worker under both job enlargement and job enrichment. In the case of enlargement, the motivational benefits of more and more task variety eventually become overwhelmed by problems of coordination and sheer task volume: if there are far too many tasks to be completed in a reasonable amount of

time, the person should become demotivated by the prospect of having to do all of them. In the case of enrichment, the argument is similar, but with two nuances. First, if a broader and broader skill set is required, the ability of any one person to effectively accomplish the tasks eventually will be driven to zero because all people have limits to the number of skill domains they can completely master. Second, ever increasing decision making responsibility will not necessarily be attractive to all workers; so the pool of people motivated by job enrichment along decision making lines should diminish at very high levels of decision making responsibility.

Despite the long history of writing and practice around the aspects of job enlargement and enrichment, the issue of occupational similarity in the tasks has not been thoroughly addressed. One reason is that, in practice, enrichment and enlargement tend to take place along skill dimensions that are similar, that is, either within an occupation or across similar occupations (sales and marketing; engineering and operations; manufacturing and distribution; research and development; etc.). A second reason is that teams are the primary vehicle used to integrate and coordinate tasks.

Starting in the middle of the 20th Century, problems with quality on traditional manufacturing lines led firms to experiment with less specialized jobs on manufacturing lines and in other settings where job design had created very narrow jobs. Introducing cross-training and team-based methods of production in many cases led to increased productivity (Appelbaum and Batt 1994; Mohrman, Cohen and Mohrman, 1995; MacDuffie, 1995; Cohen and Bailey, 1997; Ichniowski, Shaw and Prennushi, 1997; Knez and Simester, 2001; Hamilton, Nickerson and Owan, 2003; Janod and Saint-Martin, 2004; Zwick, 2004; Blasi and Kruse, 2006; Devaro, 2008). However, the absence of complementary HR practices often limited the productivity

improvements (Cooke, 1994, MacDuffie, 1995; Mohrman, et al., 1995; Wageman, 1995; Cohen and Bailey, 1997).

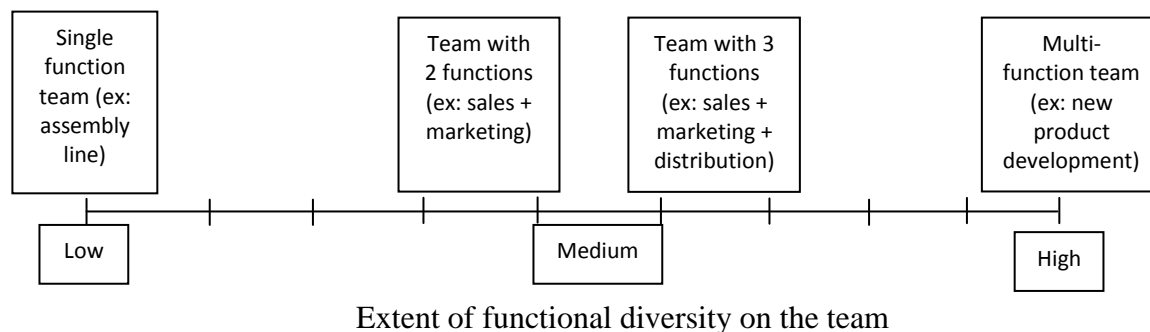
Job enrichment has succeeded on manufacturing lines through the introduction of team-based work in which a group of employees is mutually responsible for a set of tasks, such as assembling an entire engine. In the original manufacturing line configurations, each worker was responsible for one part of the engine assembly. The problem was that errors in putting together the engine would not necessarily emerge until the engine was fully assembled, at which point it was time consuming to track down the source of the errors. Team-based work has succeeded in these settings by making a group of workers collectively accountable for the complete set of work – for example, the entire engine assembly – and using job rotation and cross-training to enhance skills and integration. Though the tasks of engine assembly are distinct, they draw from a very similar skill set (occupation), which enables cross-training and job rotation to contribute to quicker assembly time and higher quality through better task integration.

Evidence on the use and impacts of teams outside of manufacturing is less extensive, yet still clear (Wageman, 1995; Cohen and Bailey, 1997; Batt, 1999). Though there is much evidence of increased productivity, the net impact on profitability is less obvious (Cappelli and Neumark, 2001). This is due in part to higher labor costs associated with greater skill requirements and job responsibilities in work environments with less narrowly defined jobs (Osterman, 2006).

The manufacturing assembly line is an example at one extreme of team structures. At the other extreme are new product development teams. These two examples bookend the range of options for team design, with the extremes defined by the degree of dissimilarity in the skills needed to perform the full set of tasks (Figure 1): the manufacturing assembly line typically

draws skills from only one occupation or from very similar occupations; the new product development team requires skills from a number of very dissimilar occupations (R&D, sales and marketing; operations/manufacturing; strategy; etc.).

Figure 1: Functional diversity on teams

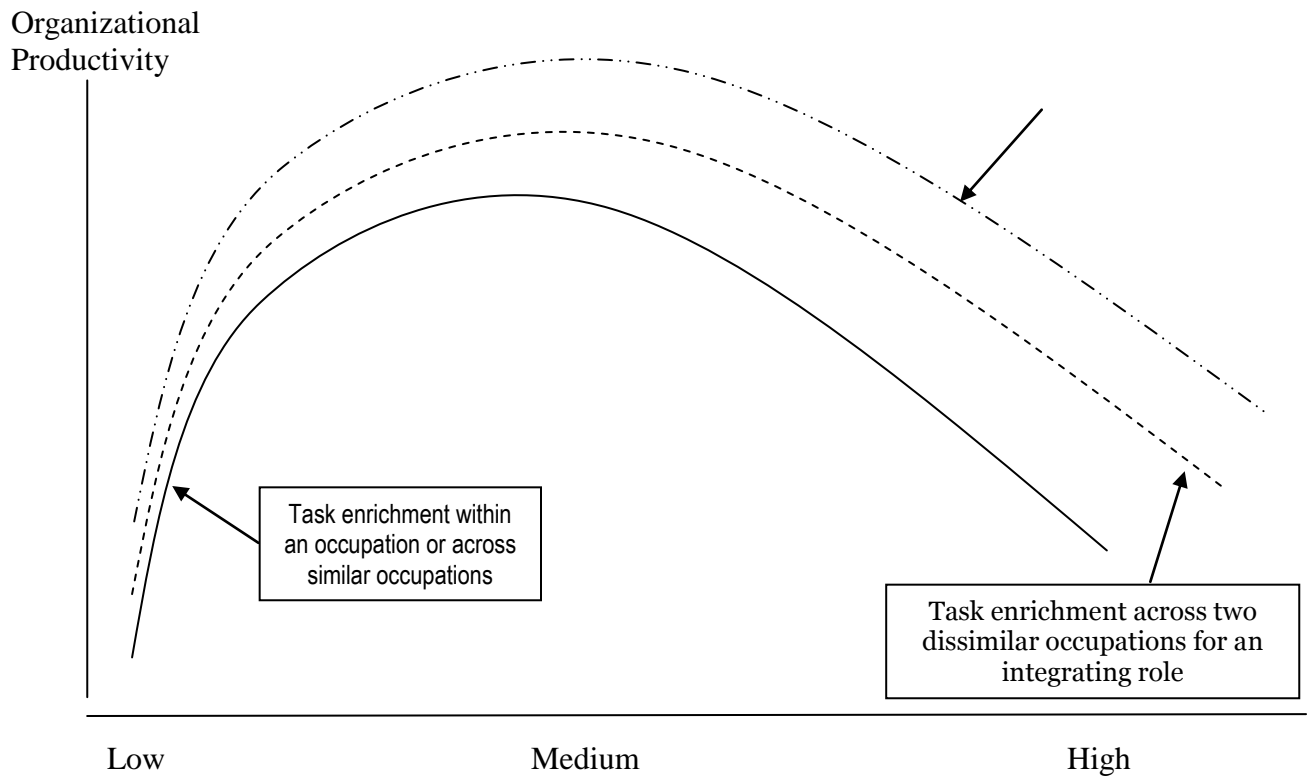


Despite the potential benefits of teams, they are not productivity enhancing in all situations: there are limits to effective integration across roles, particularly when the roles are very dissimilar. This is the classic issue detailed by Lawrence and Lorsch (1967), who were the first to systematically identify the inherent tradeoff between differentiation (specialization) and integration in job and organization design. The essence of the problem is that, in theory, integration happens best at the individual job level, that is, when one worker is responsible for the tasks that are being integrated.

Despite the benefits of making integration happen in one role, there are limits to the productivity gains that can be accomplished through making a job less narrow (i.e. requiring that integration takes place at the job level, instead of across jobs) precisely because of the challenges of integration. The more complex the tasks of a job, the smaller the number of people in the population who can perform (integrate) the full range of tasks effectively. The diminishing

productivity with increased task complexity is due in large part to the increase in cognitive difficulty. This means that there is an inverted U-shape relationship between job complexity and productivity: at some point productivity will necessarily fall when the complexity grows too high. This amounts to unraveling of the benefits of specialization: in the limit, all workers would be performing all of the production tasks, and thus all be generalists in the production system. Even when enrichment happens within a relatively narrow set of occupational skills, at some point the ability of the typical worker to perform the tasks effectively diminishes with increased enrichment. Thus there is an inverted U shape relationship between enrichment and productivity, as shown by the bottom (solid) line in Figure 2.

Figure 2: Hypothesized relationship between job enrichment and productivity



Yet the benefits to the organization of effective integration are increasing in the complexity – and dissimilarity – of the tasks precisely because of the difficulty of accomplishing the integration. In cases where the rare person can singlehandedly integrate tasks across two very dissimilar occupations, that person’s marginal productivity (contribution) to the organization should generally be higher than that of people whose jobs have only one of the two sets of tasks, so long as they are responsible for integration across the tasks. This is represented by the middle dotted line in Figure 2.

Interdependence among the tasks of dissimilar occupations needed to create customer value is the reason why integration of the tasks creates value. Because an integrating role plays a critical part in bringing together the output produced by two different functions, the contribution of those functions cannot be fully realized without the integration. Thus, while it may not always be true that the marginal productivity of an integrating role is higher than a non-integrating role, as a general approximation it is reasonable to conclude that this is the case. Going one step further, the marginal productivity of roles that integrate across three or more dissimilar occupations (i.e. general manager roles) generally should be the highest. This is represented by the top line in Figure 2.

Yet even if the marginal productivity of integrating roles is no greater than non-integrating roles, the key point is that integrating roles are hard to fill in cases of occupational dissimilarity. The challenges of finding or developing people who can effectively integrate processes across a wide array of dissimilar occupations are clear, as evidenced by the inordinate amount of attention paid to the challenges and pitfalls of developing effective leaders and general managers (for example, Kotter, 1982; McCall and Lombardo, 1983; Kotter, 1986; Luthans, Hodgetts, and Rosenkrantz, 1988; McCall, Lombardo, and Morrison, 1988; Conger and

Benjamin, 1999; Charan, Drotter, and Noel, 2000; Ready and Conger, 2003; Goldsmith and Reiter, 2007). Though there has been less focus in the research literature specifically on the challenges of integrating two dissimilar functions in one role, the challenges of general manager development and of implementing cross-functional team such as new product development teams are evidence enough.⁴ As we discuss below, the challenges are particularly acute when work and processes have to be integrated across two or more dissimilar occupational specialties.

4. Traditional approaches to achieving integration across dissimilar occupational specialties

Integrating work across two or more dissimilar occupational specialties is one of the most difficult challenges that organizations face. Because the tasks and skills involved are not “close,” the vast majority of people in the population who work in one of the specialties have little to no experience or skills in the other specialties. Consequently, organizations have to make explicit efforts to find ways to integrate the tasks effectively.

Organizations traditionally have used teams for integrating the work of dissimilar occupations, but the difficulties of doing so often lead to inefficiencies and problems executing the strategy. A classic case is integrating R&D with sales and marketing. A successful career in R&D typically involves education in a science-related field, years of experience doing scientific research, and skills that emphasize precision and extraordinary attention to detail, decision making after careful deliberation, delayed gratification, and an ability to work alone. A successful career in sales, in contrast, typically involves a general, non-scientific education, years of experience working in roles with a high degree of interpersonal communication, and skills that emphasize emotional intelligence and quick decision making with incomplete data. These

⁴ Though not explicitly addressed in those literatures, the new product development team and general manager development literatures typically deal with situations where three or more dissimilar occupational skills and tasks need to be integrated.

profiles are almost polar opposite: most people with deep expertise in R&D would not succeed in a sales career path, and vice versa.

Because the work of R&D and the work of sales and marketing take place at different stages of the value creation process and are occupationally dissimilar, communication between the two functions traditionally takes place through more formal channels and processes.⁵ When organizations want the closest integration possible, cross-functional teams are used (e.g. new product development teams). Yet even when cross-functional teams are used, there are potentially large inefficiencies because of lack of alignment of perspective and communication styles created by the occupational dissimilarity: it is hard to get people, even on the same team, to see eye-to-eye when they come from such different perspectives. Consequently, most organizations struggle with innovation because the market signals and intelligence collected by the sales and marketing functions are not effectively integrated with R&D and the product development process.

One company that provides a counterexample is Apple, which in recent years has consistently exceeded expectations through an ability to effectively integrate design and marketing perspectives with R&D to turn out products such as the iPod, iPhone, and iPad. One reason why Apple commands so much attention in both the popular press and the financial communities – and why its stock has performed so well – is precisely because it is widely recognized as unusually capable of achieving the integration that other companies struggle to accomplish. In large part, the credit given to Steve Jobs for Apple's success lies in his ability to integrate R&D, design and marketing in a way that few others seem capable of doing. With his

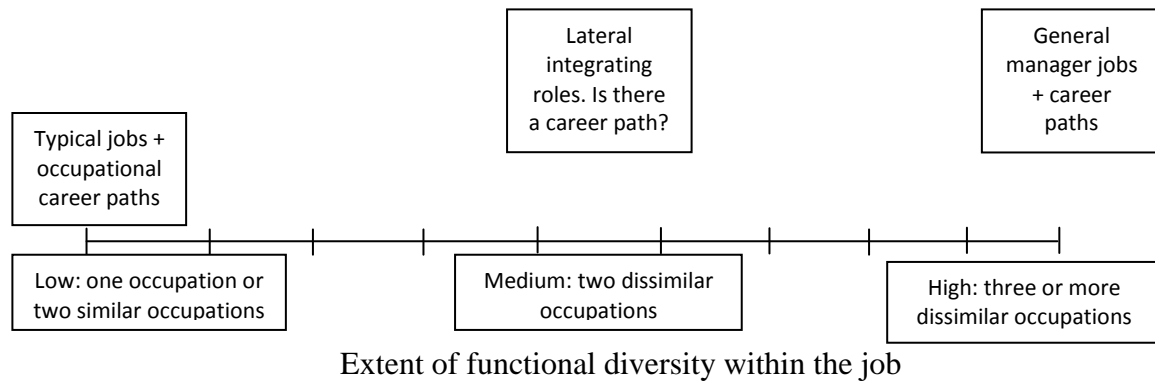
⁵ In contrast, when occupations are close or similar, informal networks and communication are more likely to occur spontaneously. This creates a foundation for cross-functional collaboration on which the organization can build task integration with much less effort and greater success than when occupations are dissimilar. For example, sales and marketing are separate functions, yet in most organizations there are large informal networks that help bind the two groups together, based on people with career paths that cross both disciplines, frequent collaboration on projects, and occupational similarity.

recent death, many have questioned whether Apple as an entire organization will be able to continue its winning streak of successful products (BusinessWeek, 2011). Part of the “secret sauce” at Apple may in fact have been Steve Jobs’ unusually ability to bridge the worlds of engineering and design so seamlessly.

Aside from cross-functional teams, the other main approach organizations use to integrate dissimilar occupations is job rotation. This is most common in general manager development, which promises the benefit of individuals who can effectively span and integrate the work done by very dissimilar occupations. The downside is that it is very time consuming and expensive to develop highly effective general managers from within or to hire them from the outside, in large part because many people cannot master the skills needed to integrate many dissimilar occupational specialties. Thus the number of truly effective general managers in organizations is small, leaving large gaps in organizations’ ability to integrate across dissimilar occupations at the individual job level.

The challenges of defining and nurturing occupational career paths across dissimilar occupations are highlighted in Figure 3. In the case of career paths either within an occupation or across two similar occupations (sales and marketing; research and development; finance and accounting; manufacturing and distribution; etc.), typical functionally siloed career paths are sufficient to develop the skills the organization usually needs within each function. In addition, employees tend to find it easy to continue to build skills in areas where they already have an aptitude, so they are more likely to choose function-specific career paths if left to their own devices. Thus organizations do not have to exert a huge amount of effort to define and support function-specific career paths, or career paths that cross two similar occupations.

Figure 3: Functional diversity within a job and occupational career paths



In the case of career paths across three or more dissimilar occupations, general manager jobs and career paths are also well defined and focused on by organizations. Because of the dissimilarity of the occupations, though, it requires extraordinary effort on the part of both organizations and individuals to define and successfully execute the broad cross-functional development needed to build true general management skills. The good news is that both organizations and individual employees recognize these challenges and put substantial effort into solving them, even though such efforts are not guaranteed to be successful and often fall well short of the objective.

5. Options for achieving integration across two dissimilar occupational specialties

What is missing is recognition and understanding of the importance of occupational career paths across two dissimilar occupations. I argue here that organizations have paid insufficient attention to the need to develop cross-functional skills in the specific case where two dissimilar occupations play key roles in the value creation process if they are effectively integrated. That lack of attention leads to suboptimal cross-functional skill development, due to ill-defined and unsupported career paths across the two functions. Moreover, because career

paths across dissimilar occupations are not widely addressed by organizations, individuals do not receive clear signals about the importance of such careers, and thus invest little time or effort into developing true cross-functional skills.

What is needed is a new way of achieving integration across dissimilar occupations without losing the benefits of specialization, while simultaneously improving on the communication inefficiencies of cross-functional teams. To accomplish this, the integration ideally needs to take place at the individual level, with the right balance in each function of pure specialists and people who can perform the integration efficiently and effectively. The contrast between the traditional ways of organizing work across two dissimilar functions such as R&D and sales is highlighted in Figures 4 and 5. Figure 4 describes the traditional structure where integration only happens at either the cross-functional team level or at the general manager level. Figure 5 provides an alternative design, where a limited number of specialists in each function are cross-trained to develop skills in the other function.

Figure 4: Traditional Functional Organization Design

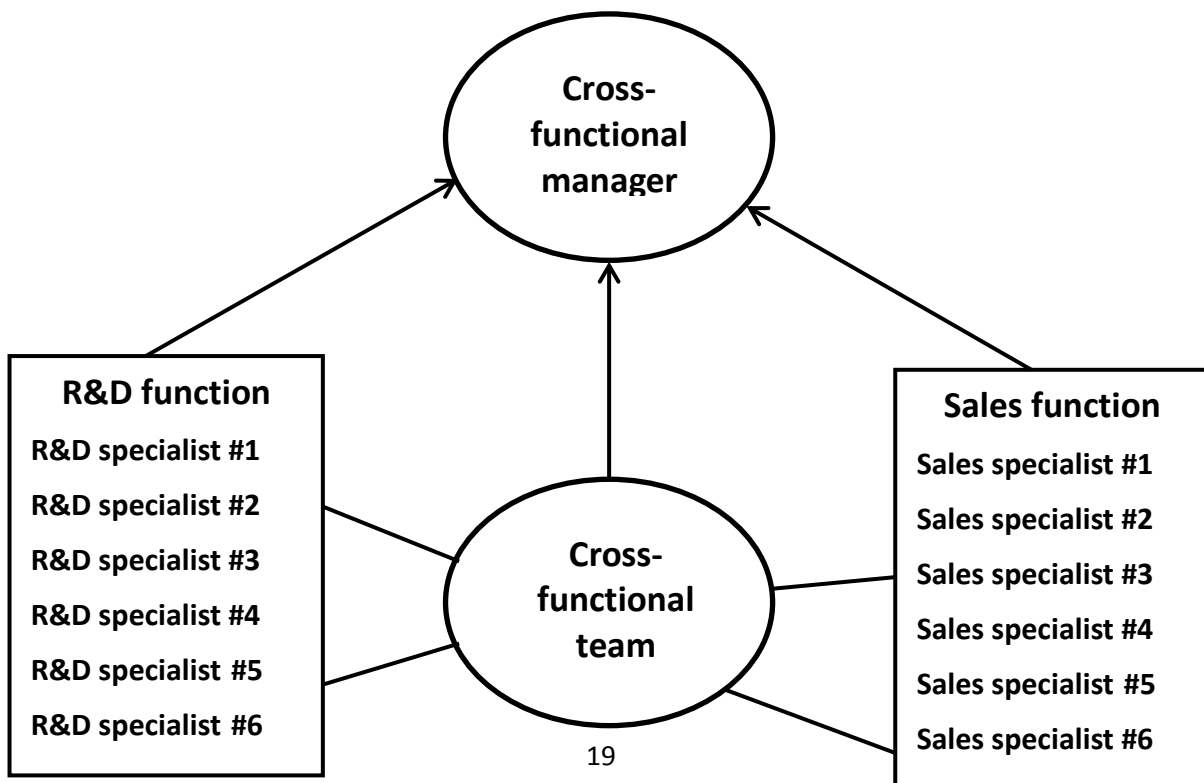
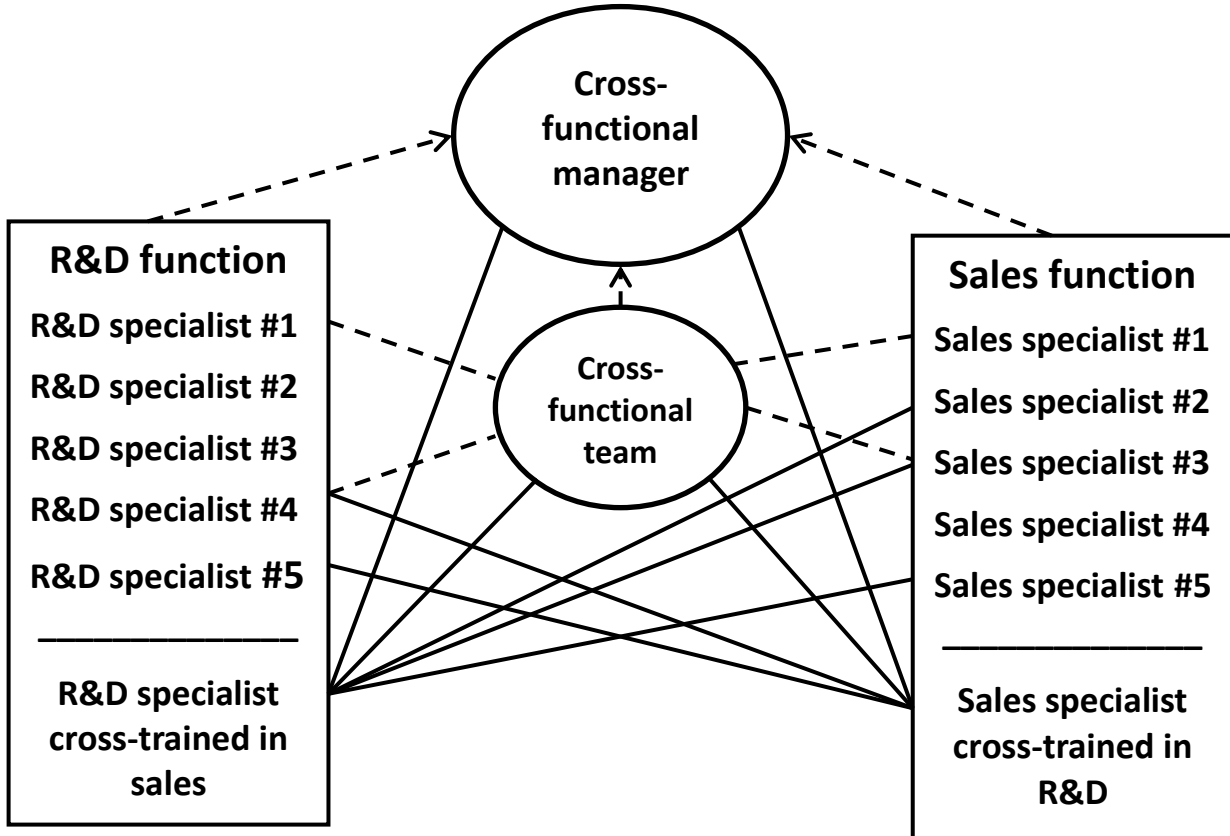


Figure 5: Organization Design with Career Paths that Integrate Dissimilar Functions



The logic behind the new organization design is as follows:

- A large number of roles under both designs need to be specialized within each function to take advantage of the productivity benefits of specialization.
- Cross-functional teams and the general manager role are needed under both designs to facilitate cross-functional integration of the work performed by the occupation-specific specialists.
- To overcome the communication inefficiencies in the case of the cross-functional team and the bandwidth issues for the general manager (time and energy to get involved in a wide array of minute details), a select minority of independent contributors in each function perform integration along different dimensions: facilitating the work of the cross-functional

teams and the general manager, and also providing integration in situations beyond the scope or capacity of the cross-functional teams and general manager.

While the logic behind the new roles in Figure 5 may seem obvious, the reality is that in most organizations, the number of specialist roles that are cross-trained to a high degree across dissimilar occupations is very small to nonexistent. One reason is because there is no natural tendency for individuals to flow across dissimilar occupations, which stands in stark contrast to what happens in similar occupations. A second reason is because organizations tend to rely heavily on cross-functional teams or general managers as the sole sources of integration.

Given the potential organizational benefits of the cross-trained specialists in Figure 5, the question then is how might organizations create effective career paths that would lead people to both want those roles and have the skills needed to fulfill them. A formal approach would entail creating explicit career ladders, with responsibilities and rewards tied to effective development of the cross-functional skills. This could be done through competency models, job rotation, formal training programs, and/or cross-functional competency based pay. A less formal approach could entail providing support and resources for individuals who choose to be cross-trained, through the provision of voluntary training courses and on-the-job development, or through subsidies to undergo such training outside of normal working hours (e.g. targeted tuition assistance for formal education programs in the other occupation).

Though the example of sales versus R&D is extremely common and highlights the great difficulty in integrating two very dissimilar occupations, there are examples that suggest that at least partial integration can be achieved under the right conditions. The case of logistics, which is a relatively new function that integrates sales, distribution, and production, shows that it can be done effectively, though the amount of work needed to do so is extremely high. Yet despite the

progress organizations have made in developing logistics functions and experts who can span the various disciplines within them, best practices around career paths and cross-functional skill development have only recently started to emerge (Dischinger, Closs, McCulloch, Speier, Grenoble, and Marshall, 2006; Murphy and Poist 2007; Aquino and O'Marah, 2009; Vokurka, 2011).

In my work with companies I have come across other examples where organizations are starting to address integration and development of cross-functional skills across dissimilar occupations. Compared to the case of logistics, though, these examples have not received a comparable level of attention from either researchers or practitioners. The first case is the consumer analytics roles involved in research, analysis and sales in consumer products companies. The second case is services procurement and business process outsourcing.

In large consumer products companies, a common role that supports the sales organization is consumer analytics, which is typically called category management. Category management professionals analyze data on shopping patterns and trends to try to discern sales opportunities. People in these roles serve as a bridge between “pure” R&D, which focuses on technical development of new products (what is feasible to produce) and the fundamentals of consumer demand (what is feasible to market), and the outward facing “pure” sales roles that interface with the retailers that sell the companies’ products. Category management professionals mine consumer shopping behavior data to derive recommendations on bundles of products that can be marketed together and ideas for packaging and promotions.

Occupying a niche between two well developed, yet very dissimilar, functions, category management professionals face an extremely difficult integration task. On the one hand, they typically do not have research backgrounds, and thus have very little input into the R&D process.

Yet their focus on data-based analysis of what consumers are actually willing to buy puts them in a prime position to provide feedback and guidance to the R&D function. On the other hand, they also typically do not have the interpersonal skills of top salespeople, and can struggle to communicate effectively in high-powered sales meetings with senior representatives from both sides of the business-to-business sales negotiations (the consumer products company and the retailers).

Possible solutions for the development of more effective category management personnel and better integration across the R&D and sales functions in large consumer products companies, along the lines of Figure 5, might include:

- Drawing people from sales and from R&D into category management for job rotations.
- Placing category management personnel on R&D teams.
- Providing incentives to R&D personnel to spend time working in the sales function and vice versa.
- Training salespeople to be more analytical, which would improve their ability to take advantage of the insights created by category management analysis.⁶

Services procurement and business process outsourcing would appear to be relatively straightforward tasks: purchasing inputs provided by people. Yet those seemingly straightforward tasks are complicated by lack of overlap between the two key functions whose perspectives must be integrated for effective execution: finance and HR. Finance plays a key role because it typically sets the terms that drive insourcing (vertical integration) versus outsourcing decisions from a financial perspective. HR plays a key role because services purchases and

⁶ Category management personnel often report directly to key sales roles, which creates high visibility of category management personnel within the sales function, but at a cost. Because some sales people may lack a strong appreciation of the insights in-depth data analysis can provide, the tasks assigned to category management personnel can be overly simplistic and fail to take advantage of the full range of skills and potential insights the category management personnel have to offer.

business process outsourcing, unlike purchasing of physical objects, involve people and issues around capability development and task integration. The consequence is that many business process outsourcing decisions are extremely complicated and often not well designed and executed (Lawler, Ulrich, Fitz-enz, Madden and Maruca, 2004; Shi, 2007).

One potential solution which I saw implemented by a large financial services organization was the creation of a procurement function that integrated the roles of finance and HR in the same group. At the time of the writing of this article, the group had been established for a relatively short amount of time, so it was too early to gauge the ultimate effectiveness of the approach. Yet the principles behind it were quite sound: organizing two very dissimilar occupations under one reporting structure forced integration to take place at the critical point where procurement decisions are made. Doing so minimized the inefficient communication and decision handoff that are endemic under traditional organization designs that separate finance and HR roles from each other in different silos. The career path implications had not yet been fully worked out, yet the direction was clear: (deep) cross-training of functional specialists in the other, dissimilar, occupation.

6. Implications for organizations operating in fast growth emerging markets

Though all organizations can potentially benefit from having a deeper bench of specialists who can work across dissimilar occupational lines, the cost-benefit tradeoff depends on a number of factors including the time needed to develop cross-functional skills, the availability of such talent on the external labor market, and the underlying rates of turnover of specialists within each discipline. For companies operating in fast growth emerging markets, the issue may be particularly acute because of high rates of labor turnover and scarce availability of

high quality talent in local labor markets. An in-depth treatment of the issues involved would take more space than is possible in this article, so I will limit the discussion here to a general outline of the issues and potential solutions.

Fast growth emerging markets like China, India, Brazil and Indonesia are characterized by large and rapidly growing middle classes and a historical dearth of jobs in companies organized using advanced organization design techniques. Thus, as companies expand their scale of operations to meet growing consumer demand, the demand for people who can play the key integrating roles across dissimilar functions usually exceeds the supply. Even if a company is willing to pay top dollar for a set of skills, it may have a difficult time recruiting enough people to do the work.

The companion factor is a much higher underlying rate of turnover across most occupations in these markets than is typically observed in developed economies. Though I have yet to see a detailed societal-level analysis of the causes of differences in turnover rates for emerging and developed economies, the likely cause is not hard to imagine. In an environment where new jobs are being created at a relatively rapid pace, individuals' perceived job opportunities at other organizations (and the rate at which they receive job offers) should be higher, leading them to jump ship much more quickly, all else equal.

The challenge this creates for organizations is most acute for roles where it takes a lot of time and experience to develop the skills. Lateral integrating roles in general fall into this category. For roles that integrate across dissimilar occupations, the challenges are even greater because of the difficulty of keeping employees long enough to both develop the skills and then apply them.

Just like the case for organizations in developed economies, the approach to developing cross-functional skills at the individual contributor level (Figure 5) is a potential solution for organizations operating in fast growing emerging markets. In that case, though, the argument for doing so is potentially much greater than in developed markets because of the turnover issues. In an environment with high rates of turnover, waiting for the development of fully-trained and effective general managers is even more risky than in the more stable labor markets of developed economies. If a deeper bench of individual contributors within each functional specialty who are cross-trained in the dissimilar occupation can be built, this will help offset the negative impacts of turnover.⁷

One likely difference between the two economic settings is the number or percentage of functional specialists who would need to be cross-trained to maintain the organizational capability of integration across the dissimilar occupations. With higher underlying rates of turnover, an organization operating in fast growing emerging markets would need a higher concentration of cross-trained specialists to ensure a minimal supply of them at any time, because of the higher turnover rates.

⁷ Note that this argument is essentially the same as one of the rationales behind cross-training for the roles on a manufacturing assembly line team: if someone is absent temporarily due to illness or longer term due to turnover, the other team members are able to step in and do the absent person's work until the person returns or a replacement is found and fully trained.

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