Knowledge at the Edge:

Moving A While Hoping for B

by

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Abstract

Edge-driven innovation is gaining recognition from organizational strategists as an important source of explorative capability. Yet its effectiveness depends on being able to move practices accomplished by front-line workers as they interact with customers. This paper presents a study of a large retail chain that has implemented centrally driven initiatives for fostering edge-based innovation. What follows is an account of how these initiatives have played out and, in particular, why they have not succeeded in a meaningful way. We locate the source of dysfunctional knowledge movement within the relationships among those at the edge—between front-line workers and their supervisors, and between these supervisors and their superiors. We develop managerial archetypes to illustrate the nature of these relationships. We then suggest that they underlie ways that valuable tacit knowledge is getting stuck and mundane explicit knowledge is being moved rapidly. This system also reinforces the practices of senior leadership at headquarters, since it filters out edge-based practices that might surface systemic problems. No mechanism exists for decision rights to evolve, and since the allocation of decision rights reinforces the relationships between the managerial archetypes and senior leadership, so the system neatly perpetuates itself. From the perspective of senior management the system is very sensible—it reinforces their practices, shields them from having to relinquish decision rights, and creates the appearance of knowledge movement. However, it leaves the overall organization with little capacity for moving the kind of real knowledge that has the biggest impact.
Introduction

Service-based economies are emerging wherever manufacturing sectors are in decline. The capability to move knowledge at the organizational edges is very important in service industries, because customer service interactions are learning opportunities: Customers share information about their preferences and disappointments with representatives of the organization. In all but the most standardized of service organizations, interactions with customers are one-off transactions—every one of them is potentially a unique learning opportunity. However, they are often understood as noise, generating variation that management may not necessarily view as an opportunity for learning.

Organizations can either learn from the variation that is inherent in many customer service interactions, or they can design systems to repress it. By minimizing the effect that customer-based variation has on key organizational processes, retail organizations like Walmart work to reduce the noise that customers bring with them into their stores. By using a self-service model, these organizations minimize the need to provide meaningful service-based interactions. But the self-service model cannot reap value from service interactions in the form of upselling, cross-selling, and truly understanding customer needs. In fact, the personalization embedded in the service interaction can generate large rents (Zuboff and Maxmin, 2002).

For service organizations to reap this value, they need to find ways to capitalize on the variation inherent in service interactions, rather than simply minimizing it. Since variation offers the novelty needed to be innovative, one way to capitalize on it is to learn from it. This presents a challenge to managers schooled in the cost control tradition, since
such learning must move from the bottom up. Thus, knowledge that emerges from the practice of ongoing interactions between salespeople and customers needs to move up to decision-makers. Changed practices must become systemic when circumstances dictate, and mechanisms need to be in place to determine when this is the case. Here we use a case study of a large service organization to describe what happens when several knowledge management mistakes happen together: when there is no systemic mechanism to discern local opportunities from enterprise ones, such that flexibility of response can’t take this difference into account; when there is no engine to move new local knowledge up to decision makers; and when templates are used to determine reward allocation before they have been vetted.

Knowledge of local practices sticks to the bottom not only because it is tacit, but because it is embedded in these practices. Existing practices serve as inertia to maintain the current climate and status quo. Practices based in cost control logic flow out to the edges from central leadership as they attempt to minimize local variance from afar. But without intentional resource allocation, edge-practices are not likely to flow up against their own inertia. In order for local knowledge to upwards toward decision-makers, there needs to be an engine for overcoming long-standing traditions of centralized control over decision-making.

Nowhere is this distinction more apparent than in the retail industry, where there is generally geographic distance between central headquarters and each of its stores. This physical gap makes it all the more challenging to move knowledge upwards, often depending on various telecommunications technologies. This research investigates a large retail chain as it grapples with how to learn from the edges. Management of this chain—
called Chainage, Inc. for the purposes of this research—had been weaned on the importance of cost control and the consequent need to minimize variation across stores. They worked hard to achieve this, but despite all their standardization efforts, they were confronted with significant performance variation across stores. Understanding that knowledge management had innovative practices to teach, they created a system for inculating knowledge movement between stores. This system was based on an incentive structure that rewarded explicit knowledge sharing practices and was still routed in the value of driving out variance. Predictably, the system rewarded simple practices but ignored important systemic problems. Pushed to innovate, they needed to learn to embrace variance at the edges, but the cost-cutting mentality was deeply embedded in their practices.

We present the story of how this organization’s knowledge management practices got stuck in three parts. In part one, we describe the knowledge management (KM) systems that were put in place in an attempt to institutionalize knowledge movement at Chainage, Inc. and discuss why they were less than effective. Next we describe three managerial archetypes, the ways that two of them gamed the KM systems, and the impact of this on knowledge movement outcomes. Finally, we discuss systemic aspects of this KM solution and illustrate how effectively the parts work together to ensure that no substantial learning takes place. With no mechanisms for learning from the edge, anything that challenges the systemics is rebuffed, yet the appearance of learning is maintained to obfuscate this. The organization falls into a tailspin—it cannot adapt.
**Background: Outside-in Innovation**

The edges of the organization are increasingly recognized as an important source of innovative capability, as customers are getting tapped for their design preferences (Simon, 1993) as lead users (Volberda, 1997) and personal tastes (Zuboff and Maxmin, 2002). But while the perspective of the customer is increasingly recognized as a source of value, the practices of front-line workers as they interact with customers have not received much attention. In service industries, disbursed workers located at the boundary of the firm serve as the first line of interpretation. The practices that emerge from their interactions with customers reflect ongoing adaptation to a dynamic environment. We refer to this dynamic edge-driven adaptation capability as outside-in innovation. Outside-in innovation is an interactive, social process that is mediated by the relationships between front-line workers and their customers. These relationships generate novel informational inputs that are necessary for knowledge creation (Nonaka, 1994). They function as weak ties (Granovetter, 1992) for sourcing the kind of variation necessary to enact new practices. And they serve as a window into the changing needs and preferences of customers.

However, front-line workers are at the bottom of the organizational hierarchy and hence not typically tapped as an important source of innovation. And since the practices they enact through ongoing interactions with their customers tend to produce tacit, relational knowledge, the knowledge generated from these practices tends to get stuck at the edges. While the notion that local knowledge is sticky is not a new one (VonHippel, 1994), results of this study suggest that some kinds of local knowledge are more likely to stick than others. Some kinds of knowledge move more easily (and cheaply) from the
edges toward central leadership, and the design of systems for moving knowledge affects what can be learned and what cannot. In this paper we suggest reasons why some knowledge moves up the hierarchy from the edges and other knowledge does not, with potentially deleterious consequences. We use examples from a case study of a large retail chain to illustrate how this can happen.

Knowledge must move upward in a reverse hierarchy to support outside-in innovation. This exacerbates its inherent stickiness with the additional requirement to move against the current of traditional top-down knowledge flows. For this reason, the knowledge created from the practice of ongoing customer interaction does not move easily up to centralized leadership. Absent institutionalized mechanisms for moving it, the primary channel for moving local knowledge up is via the relationships between front-line workers and their immediate supervisors, and then between these supervisors and those above them. This identifies the criticality of two boundaries—one between the front-line worker and her supervisor and the other between the supervisor and his superior. How knowledge moves across these two relationships can either stymie or support outside-in innovation. Because the boundaries reflected in these two hierarchical relationships are crucial for moving local knowledge up, we focus on them through the lens of three managerial archetypes observed in the field. The way that these archetypes interact with the formal knowledge movement system illustrates that the most inexpensive knowledge to move is that which reflects only small differences between the practices on each side of the boundary. Important practice knowledge is challenging and expensive to move, since it embodies greater differences between cross-boundary practices. The wider this gap, the more there is to be learned by moving knowledge.
across it, but the more expensive it is to do so. Figure 1 below illustrates these realms of local practice in the retail domain, separated by permeable boundaries.

![Realms of local practice in the retail industry](image)

**Figure 1.** Realms of local practice in the retail industry

Before we tell the story of knowledge management at Chainage Inc., we provide a brief overview of the retail industry below, followed by a discussion of the research methods used to explore it.

**The Context: Large Retail Chains**

The context for this research is the large retail organization. Large retail chains do not innovate by producing products. Yet they face turbulent and heterogeneous markets and so must be innovative. A potent source of variation and novel market information exists at the edges of these organizations, in the form of the customers entering their stores. For this reason, large retail organizations offer an excellent opportunity for
understanding edge-driven innovative practices. They also command a significant piece of the economic pie: The top 123 North American retail chains achieved sales revenues of $337 billion in 2004, and sales have risen steadily since (RetailNet.com, 2005).

Despite the fact that retail chains are ideal laboratories for understanding knowledge movement at the organizational edges, they are under-researched in this domain. On the contrary, prescriptive research has guided the management of large retail chains toward exploiting economies of scale across stores by minimizing variation. Nelson and Winter’s (1982) early work on replication established the need to reduce variation across outlets in order to control costs. Cost control has been a central preoccupation of retail managers ever since, and exploitation (March, 1991) represents the dominant learning mode for company-owned retail chains (Sorenson and Sorenson, 2001). In this vein, Winter and Szulanski (2001) developed their theory of replication strategy to explain how new outlets can be rapidly diffused by centralized leadership when these outlets are small and carry limited product lines. However, replication theory does not address how large established outlets with a broad spectrum of product lines can harness their edges in service of learning and innovation. Nor is the literature on franchising relevant, since franchising generally involves decentralized managerial decision-making, and often the means of production is located within the franchise itself. There are no production processes at the edges of large retail organizations, and prescriptive theory has dictated that managerial decision-making in large retail chains be centralized. Overall, prior research has not addressed the problem of how knowledge can be moved from the edges of large retail organizations.
Retailers vary in the amount of noise they allow into their processes and hence can learn from. By minimizing the need for personalized service, retailers like Walmart curtail the amount of noise they choose to attend to. They create standardized interfaces that utilize the self-service capacity of their customers. Other retailers, particularly those that offer high-ticket items, are less standardized. Customers expect service when they are making investment choices. By providing the service necessary to meet this demand, these retailers generate variation in the form of customer service interactions. This variation is there wherever customers express their preferences to sales staff, and the organization must decide what to read from this noise, if anything. Each customer service interaction is novel, reflecting new incoming information, and retail organizations have the option to create systems that can decide what to read from it. When the legacy of centralized management is bureaucratic control through cost-cutting, those at the edges, closest to the novel information, have little room and few guidelines for exploring how to adapt to it.

The empirical portion of this research took place at a large North American retail chain. The leadership of this organization had been adhering to prescriptions to minimize variation across retail outlets through standardization (Nelson and Winter, 1982). In the spirit of business process re-engineering (Hammer and Champy, 1993), senior management viewed store standardization as a critical vehicle for cost-cutting. Centralized staff members determine the buying, merchandising, advertising, promotions, inventory levels, and computerization processes for all store outlets. By minimizing variation and maximizing economies of scale, the organization had been able to reduce costs. But despite these efforts, they continue to experience significant performance
variation across stores. Having controlled as much as possible centrally, they began to look to the edges for clues as to the source of these unexplained performance differences, focusing on the areas of organizational learning and knowledge management (c.f. Zollo and Winter, 2002). To this end they established several centrally driven initiatives for fostering edge-based innovation. What follows is an account of how these initiatives have played out and, in particular, why they have not succeeded in a meaningful way. First, we discuss the research methodology used to generate this account below.

**Site Description and Research Methods**

This research investigates a large North American retail corporation we refer to as Chainage Inc., a pseudonym. This department store chain employs 45,000 people across 123 retail stores and its headquarters. It earned $6.2 billion in sales in 2002, across product categories as diverse as apparel, home, appliances, and hard goods. It does no production itself. Its decision-making is centralized and most of its processes are standardized across stores. For example, headquarters determines which products will be sold at each store, along with appropriate inventory levels. Human resources are allocated based on a formula that is consistent across stores. Each store is provided with identical computer software capabilities.

There are four types of stores, based on their sales-volume-per-square-foot and their customer profile. Certain item category availability is more limited at the smaller stores than at the larger ones. All stores except for the smallest category have assistant store managers reporting to the store managers. Most assistant managers and all store managers have their own offices and their own computers. They use their computers to
access email and also a “dashboard” that consists of a number of analytical tools available to store management.

Qualitative data was collected in the form of observations and 30 semi-structured interviews. These took place at four store sites—two of which were categorized as high-performing by senior management at headquarters, and two of which were categorized as low-performing. Two researchers conducted the interviews, one each in two major North American cities. In each location, one day was spent interviewing at a high-performing store and one day at a low-performing store, with seven to eight interviews conducted each day. Interviewees ranged in job role from store manager to lowest sales associates. Other roles included were associate sales managers, sales team leads, support leads, inventory control managers, a floating human resource specialist, buyers, and a customer service representative. Semi-structured, open-ended interviews were conducted to elicit informants’ perceptions regarding store processes in their own terms. In this way we sought to understand when, why, and how innovative practices were enacted in these stores.

A two-stage process was undertaken to analyze the data collected in these interviews. First, content analysis of the data was performed following the procedures outlined by Spradley (1979). A domain analysis was performed to identify major themes. This was accomplished by taking notes on the data, searching for categories within the data as it was being collected, and using these categories to code it. The coded data were then placed into domains (first-order), and a taxonomic analysis was conducted by mapping informants’ perceptions onto the domains they had identified. With the first-order analysis complete, a second-order analysis (Van Maanen, 1979) was performed in
order to move beyond the data-induced domains and toward interpretations of the relationships among the domains and themes in the first-order data. A dominant theme that emerged from the data was the existence of several archetypes of store manager. We explicate these archetypes below and use them to illustrate how they foster patterns of knowledge movement such that important tacit practices get stuck to the edges while mundane explicit ideas fly fast and furious throughout. Further, the fact that new ideas are circulating obfuscates the need to look beyond them for substantive innovative practices. Before we present these archetypes, we describe the initiatives that have been designed and implemented by centralized senior management to explicitly foster innovation.

**Part I. A Knowledge Management Perspective**

Senior executives at Chainage have driven cost controls throughout the organization by centralizing as much decision-making as possible and by providing store managers with a bevy of computer-based analytical tools designed to wring any remaining fat out of the system. Despite these efforts at standardization, large variations in store performance remain. In response, with an ear to managerial trends, Chainage leadership looked to innovation and learning as potential sources of higher and more consistent performance. To this end, two activities have been institutionalized. First, all sales associates—the lowest sales position in the hierarchy—are required to submit innovative ideas called OFIs (Opportunities for Improvement) once per quarter to their supervisor. These are collected by the store manager, with the intention that he or she implements them. Sales associates are rewarded on the basis of these, since they must
generate at least one OFI each quarter to avoid a black mark on their performance record. For an innovative idea to qualify, it must be actionable within that particular store, without necessitating systemic changes that would require the involvement of those at headquarters. An example of an OFI we heard about is to print out the bridal registry lists for customers on paper of a distinct color, so that sales associates on the store floor could readily see that a customer was shopping for a bridal gift and could approach and service them with this in mind. Another example was the suggestion to post the maximum allowed dimensions of carry-on baggage for each of the major airlines in the luggage section so that customers shopping for carry-on baggage would have this information. Both of these example OFIs were submitted by stores deemed to be high-performing. They represent two of the best, most functional OFIs we heard about. Many ideas merely paid lip service to the concept so that sales associates were in alignment with the performance incentive. Other OFIs attempted to recognize large systemic problems, solutions to which could not be implemented in a single store. For example, one sales clerk was very frustrated by the highly cumbersome nature of returns processing that was also a source of frustration for his customers. He was cynical about the OFI initiative, since, from his perspective, most submitted OFIs are trivial compared with larger systemic problems that would have a big payoff if they were solved. A mechanism does exist for store managers to submit OFIs that involve systemic issues to be submitted to headquarters, and this particular sales associated submitted the returns processing issue as an OFI under this program but had not received information on the status of the suggestion for almost a year. In general, submitted ideas pertained to products rather than processes or ways of interacting with customers.
The other initiative instituted by senior leadership for fostering local innovation was designed to move best practices horizontally between stores. This was simply a phone conference in which store managers were required to participate daily, by region. During this phone conference, managers shared the ideas and best practices that were working within their own stores. The sales manager for that region also participated in this, and a senior executive from headquarters sometimes listened in as well. No mechanisms were in place to follow through on particular ideas to see how well they were moving across stores, however. We refer to this initiative as the Clearinghouse, since it is where best practices are vetted and potentially moved out.

During Clearinghouse phone conferences, some store managers get more airtime than others. Those that do are most likely to be core members who are in the good graces of senior management, since the most senior manager present serves as the de facto moderator of the phone conference. Thus store managers that are given the opportunity to contribute more of their ideas are also those that the other managers accord high levels of credibility to, since they know they are the darlings of management. And since people generally are more likely to follow the advice of those they see as highly credible (Hovland, 1951) the OFIs contributed by those favored by management are most likely to become enacted in practice. In this way, what is getting moved is divorced from the validity and quality of the knowledge itself. A potential solution to this problem would be to split the OFI ideas from those sourcing them such that they were anonymous, as the U.S. Army does with many of its lessons (Thomas, Sussman and Henderson, 2001).

At Chainage the OFIs are moving fast and furious – vertically from the salespeople to the store managers and then up to senior management, and, via the
Clearinghouse, horizontally to other store managers and back down to their sales
associates. The vastness of this OFI flow creates noise that masks the fact that few of
them actually get implemented and that the implementation process is an arbitrary one
dominated by low hanging fruit. No mechanisms are in place to assess their quality, their
impact, or whether they actually get implemented.

Yet best practices can be effectively moved around an organization as large as the
U.S. Army (Thomas, Sussman and Henderson, 2001). However, the Army invests
considerable resources in creating and refining mechanisms for moving them. Further,
Army members share knowledge across relationships characterized by a common
language and with the mutual interest to avoid death (Carlile, 2004). Both the common
language and interdependence in the face of high risk create trusting relationships that are
ideal for moving important knowledge, so the system is less likely to get gamed. It would
be relatively straightforward to create a filter to weed out the truly trivial ideas at
Chainage. The U.S. Army undertakes a group vetting process by which many lessons are
deemed not important enough to be distributed en mas. In an intensive meeting, team
members put aside their functional loyalties to decide which lessons should be widely
distributed. This process acts as a filter to prevent all but the highest quality lessons from
getting released and increases the likelihood that lessons will be widely assimilated into
new practices. If Chainage were to implement such a process in an attempt to align the
incentive structure around OFI quality rather than quantity, they could reduce the current
noise level and perhaps increase implementation accountability. However they lack the
common language and incentives of the Army, so that such a process would most likely
select the OFIs submitted by the store managers currently in favor, reinforcing current practices.

Chainage Corp. utilizes computer technology for analysis, but with the exception of email, they do not use it for communication. This is an opportunity lost. For example, collaborative on-line groups can provide a forum for efficiently integrating the views of diverse members' (Finholt, Sproull & Kiesler, 1990). Again at the U.S. Army, analysts "hang" new knowledge on accessible electronic bulletin boards for simultaneous review by multiple members and experts. This creates competency networks in which members have the opportunity to challenge evolving interpretations - a process that promotes rich debate and leads to high quality content. By enabling input from many members, computer-mediated communication expands the scope of the consensual basis for acceptance of new knowledge. By providing a means by which new knowledge can be widely shared, it also enhances the reliability of learning by creating a forum for constructing and sharing beliefs (March et al., 1991), for confirming consensual interpretations, and for preventing rejection of novel ideas.

Such practices would also have the added benefit of splitting the knowledge from its source. In any case, even if filters and telecommunications technologies were installed to increase the quality of OFIs, this would simple improve the ability of the system to direct attention away from the fact that real knowledge is not being moved by the OFI-Clearinghouse system. Note that both the Army and Chainage treat knowledge as explicit and unembodied, a “thing” to be moved around the organization. Both organizations create templates for widespread knowledge sharing. But the U.S. Army fits best practices into its template after it has been vetted twice – both by an online community of experts,
and by a small group designated to prioritize best practices such that only the best get into
the template. Chainage inserts their practices into their template (i.e. the OFI) before they
have been vetted. This distinction seems important for raising the quality of the
knowledge share such that it is credible. Knowledge that is not credible is not likely to
get adopted (Hovland, 1953).

Next we go beneath the design of the KM system at Chainage to understand the
managerial behaviors that this system engenders. We invoke three managerial archetypes
to do this, archetypes that emerged from analysis of our semi-structured interview data.
These archetypes illustrate the range of behavioral responses to the incentive structure
created by the KM system. They also speak to the potential for authentic relationships
between sales associates and their store managers, and between these store managers and
their superiors at headquarters. And since real knowledge must move across these
relationships for outside-in innovation to occur, these relationships play a central role in
both blocking the flow of valuable tacit practices and supporting the movement of minor
explicit ideas.

**Part II. A Relational Perspective**

Our data suggest that the following three managerial archetypes exist at Chainage
Corp.: the self-promoting “Impressionista,” the terrified “Deer in the Headlights,” and the
cloistered “Bean counter.”

The impressionista has a dynamic, charismatic personality. She is an attractive
middle-aged woman with a very polished professional appearance. She isn’t a computer
person – the only numbers she looks at on the computer are last years’ sales figures for
the same day of the same week. She spends her time out on the floor pressing her young sales force to sell and innovate. She works hard and expects her staff to do so also, giving them the freedom to experiment with their OFI ideas. She believes that by giving her subordinates the freedom to implement their ideas, she has engendered their loyalty and respect. She waxes poetically about how strong her relationships with her subordinates are. She is focused on impressing central management with the innovativeness of her unit, by providing them with as many visible, measurable OFIs as possible. Many of her subordinates view her style as superficial and the experiments that she allows them to undertake as trivial. They are not as loyal as she believes them to be, readily sharing her limitation with the researchers. Yet the impressionista is the darling of senior management. She rides her staff hard enough to keep her costs within acceptable margins and also to maintain high sales figures. She is very adept at presenting herself and her store as highly innovative. She sends a steady stream of OFIs to headquarters, and is quick to share stories of how innovative her staff is able to be in response to her dynamic management of them. She makes sure that her OFIs are given airtime at the Clearinghouse phone conferences. She has secured for herself an identity as the premier innovator in the eyes of senior executives.

The Deer in the Headlights is paralyzed with fear. Like the Impressionista, she spends her time on the store floor with her sales staff rather than at her desk working her computer-based analysis tools. Her store is in the suburbs and hence widely viewed as less glamorous and desirable than the Impressionista’s city store. Self-presentation is not her forte. Her sales staff consists primarily of women of retirement age that choose to work but do not need to. These women have been salespeople their entire lives and are
experts at it. They have long-term, trusting relationships with many customers. Thus they have deep tacit knowledge of particular customers and more generally of ways to engage new customers. Many of them have been working together at this store for decades. These saleswomen come to work for the gratification that being an expert brings them, for the social network that their store provides them with, and because they prefer it to staying at home with their retired husbands all day. As expert salespeople they drive sales, and the store typically has very high sales figures. They also drive costs, since they have been working for the Deer for decades and she treats them well, both because she genuinely cares for them and because she needs the sales they bring in. Unfortunately, costs generally exceed sales slightly, resulting in a negative overall performance profile for the store. Her high cost figures and lack of self-promotion skills conspire to keep her in the doghouse – she has been branded a low performer by senior management. Yet the Deer’s relationships with her sales women are authentic, characterized by trust, openness and mutual respect.

Innovation is not high on the Deer’s priority list. She feels the need to protect her sales staff from the myriad of injunctions that seem to continuously rain down from headquarters, intoning either the latest management fad-of-the-month or correcting the numerous buying and promotions errors. Her sales associates do not have high regard for the OFI initiative and, since they could retire if they chose to, are not motivated by its associated performance incentives. They do not bother to submit OFIs since their sales are off the charts and they seem to understand that their tacit knowledge does not fold up neatly onto the forms that are used to submit OFIs. Thus the Deer has few OFIs to submit to the Clearinghouse ritual. Nor does she implement the ideas she hears at them – she
does not have the time or other resources to commit to experiments, and she knows she will not be held accountable for doing so. Her loyalty is to her staff and she is loathe to ask them to try new ways of doing things when she knows they do an excellent job as it is. Her lack of enthusiasm for the Clearinghouse does nothing to improve her precarious relationship with senior management, however. By not participating in this ritual, she appears un-innovative and resistant to learning new practices. This, combined with her high cost figures, has her in a defensive dynamic whereby she is afraid to make a single false move.

The Bean Counter is a familiar archetype in his likeness to Dickens’ scrooge. He spends much of his time in his office, at his desk, running numbers on his computer. He makes good use of all the computer-based analytical tools available to him and consequently does a very good job of controlling his costs. So, while his sales figures are lower than those of the Deer, his costs are also, and he is able to consistently post profits. He leaves the selling process to his sales associates, but treats them very hierarchically. His staff contributes OFIs but they tend to be of the token variety – his staff understands that he sees them primarily as resources. Unlike the impressionista, he is not able to tap their creative potential. He shares some OFIs at the Clearinghouse, but primarily listens closely for best practices developed by other managers that he might implement to lower his costs even further. Senior management does not see him as innovative, but they do appreciate his consistent profits and the fact that he does participate actively in the Clearinghouse.

These three managerial archetypes were mentioned explicitly by some of our non-manager interviewees. They also characterize the store managers we interviewed in our
eyes. The following table summarizes the differences among these archetypes on the various issues discussed above:

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<td>Sales</td>
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<td>Quality of Relationships</td>
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<td>with Subordinates</td>
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<td>Quality of Relationships</td>
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<td>with Senior Management</td>
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<tr>
<td>No. of OFIs contributed to the Clearninghouse</td>
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<td>No. of OFIs implemented from the Clearninghouse</td>
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<tr>
<td>Quality of Relationships:</td>
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<tr>
<td>Salespeople &amp; Customers</td>
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<td>Tacit sales Knowledge Accumulated</td>
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Key:

= Impressionista
= Deer in the Headlights
= Bean Counter
At Chainage, the gap between headquarters and the retail stores is more than geographic. Except for the bean counter and impressionista, all interviewees intimated the existence of an intractable legacy of disrespect between these two populations. Store workers believe that those at headquarters have no appreciation for the challenges they face daily, and that they make matters worse by making many significant errors and asking them to do unreasonable things. Executives at headquarters believe that store practices need to be heavily controlled and have removed virtually all local decision-making rights. This implicitly asserts their superiority by suggesting that store workers are not capable of making good decisions. Because the relationship between stores workers and those at headquarters is characterized by disrespect, important tacit knowledge cannot move across it.

Executives at headquarters seem to be driven either by the importance of minimizing costs, or the need to be innovative in order to drive new sales. Store managers do well to align themselves with these models, since their career advancement is in the hands of those at headquarters. So the Beancounter speaks the language of the cost accountants at headquarters and in this way minimizes the gap between himself and those at headquarters. The practice-based knowledge he produces is not costly to represent and transfer (i.e. spreadsheets). The Impressionista presents herself as the queen innovator and so finds refuge among the champions of innovation at headquarters. Individually the gaps are minimized, but organizationally they remain, simply moved to a lower hierarchical level, located within the stores rather than at the geographic boundary between store and headquarters. Yet these managers know that their relationships to those at headquarters are not genuine, for if they were they would be given greater decision-
making autonomy. Perhaps they might be given input into prioritizing which of the maddeningly frustrating systemic problems to address first. This lack of relational authenticity seems to minimize any qualms they might have about gaming the system—submitting and implementing the required OFIs—thus masking the fact that most of the OFIs are trivial and that they don’t have strong enough relationships with their subordinates to move their tacit practices. Such arbitrage practices are the logical product of an OFI system that picks up those ideas that are non-systemic and explicit, and consequently inexpensive to transfer across the boundary to headquarters. We cannot blame the Impressionista for engaging in this arbitrage—she is simply giving the KM system what it is looking for.

The Deer is too frozen to align herself with either the cost accountants or the innovators at headquarters. This would be difficult even if she was mobile, since she is not in their favor. For her the gap remains in its geographic space between the store and headquarters, since she speaks the language of her sales associates and sees them as having more knowledge of salescraft than those at headquarters. Valuable tacit knowledge moves between her and her sales associates but it has nowhere to go from there.

Figure 2 below illustrates how the two managerial archetypes of Beancounter and Impressionista are aligned with one of two managerial practices, leaving no room for the Deer.
The design of this knowledge movement system – OFIs plus Clearinghouse –
captures explicit ideas that are easy to move but cannot capture modus operandi practices. This is partly because it is tied to a performance incentive system that recognizes and rewards explicit ideas but not practices. The easiest knowledge to move is that reflecting the smallest practice differentials between the stores and headquarters, and the easiest to move are also the least costly to move. Explicit ideas are also easiest to measure and to embed into procedures manuals. This legacy of procedures manuals exalts organizational cannons and echoes Xerox corporations’ HR-dominated ill-fated attempts to move knowledge about machine repairs (Orr, 1996; Brown and Duguid, 1991). Each of the managerial archetypes participates in keeping tacit knowledge embedded in its locus at the edges. They provide OFIs because that is what they are being reward to do, and cannot be blamed for the consequential gaming of this system.

Clearly it is much easier to design systems that move explicit “ideas” than ones that move tacit practices. But it is not the explicitness of these ideas that undermines this
KM system, it is their local focus of change, since the system does not recognize ideas that have a wider sphere of influence than the store itself. In part three we discuss this and other insidious aspects of this system, and suggest that the lack of real learning perpetuated by it is potentially highly deleterious to long-term organizational health.

**Part III. The Death Spiral**

It is not only middle management that is caught either in this game or out of it. Senior management is bound by allegiance to the kind of cost control practices that created the legend of Walmart. Chainage Inc. is not Walmart – their product lines generate customer interaction with sales staff as customers try on perfume, purchase a large appliance, or select a prom dress. But the cost control infrastructure runs deep, consisting of explicit ideas about variance reduction that infuse tacit practices. Senior managers respond to cost control pressures by rewarding the bean counters and impressionistas beneath them. Both of these managerial styles are byproducts of the cost control climate. Meanwhile, ironically, it is the deer that is sitting on real value, since the practices of her sales associates meet the personalized needs of their customers, and personalization can demand high rent (Zuboff and Maxmin, 2002). Currently the older women sales associates that work for the Deer do this personalization work, but it is expensive. It is a more expensive management style than the Bean Counter’s by definition, since his work drives out variation and hence costs. To the extent that these personalization practices have evolved over decades, the young staff of the impressionista cannot make avail of them.
And not only is the Deer sitting on potential high rent value, she is also in a position to move some of these practices up and around the organization: her relationships with her subordinates are real enough, and the differential between her practices and there is small enough, to enable her to move the sticky knowledge embedded in age-old sales practices. She has access to valuable knowledge, and the capability to move it, yet this knowledge does not fit neatly into the system of OFIs and clearinghouse, nor does she have the ear of senior management, even if it did.

But even more sinister than this lost potential is the fact that Chainage’s KM system works so well to reinforce the practices of senior leadership at central headquarters. By focusing on changes that affect only individual stores, it filters out edge practices that might illustrate systemic problems demanding changes at headquarters (Osterlund and Carlile, 2005). No mechanism exists for decision rights to evolve, and since the allocation of these (or lack thereof) reinforces the relationships between the managerial archetypes and senior executives, the system neatly perpetuates itself. In this way systemic problems are kept from surfacing and the status quo remains intact. From the perspective of senior management the system is very sensible – it reinforces their practices, shields them from having to relinquish decision rights, and creates the appearance of knowledge movement. However, it leaves the overall organization with little capacity for moving the kind of real knowledge that could have the biggest impact.

Moving knowledge around the edges or a large disbursed organization is no small achievement and Chainage Corp has been able to accomplish this. However, a number of factors have conspired at Chainage to promote the movement of low quality ideas: The misaligned incentive structure, the lack of processes for developing and vetting the OFIs,
and dysfunctional practices during the actual Clearinghouse conference. Certainly not all knowledge merits widespread integration into practice. Further, the demonstrated ability to move some good ideas around the edges of such a large organization obfuscates the fact that real substantial innovation is being suppressed. The system makes it very apparent that knowledge is moving, and management can be proud of this accomplishment and move on to new cost control practices. Problematically though, it is not the important knowledge that is moving.

One kind of important knowledge that is stuck is the systemic variety. Every store uses a very cumbersome returns processing routine that is frustrating to both sales associates and customers, who both see it as a dinosaur. The fact that this process has not been improved in decades decreases the credibility of senior management and so further reduces the likelihood that their directives will be integrated into practice. The OFI/Clearinghouse process moves only those practices that do not require changes to the way things are done at headquarters. But since all important decision-making is performed at headquarters, there is no possibility that improvements to practice that are identified at the edges can be anything but trivial. Nor are processes in place for aggregating issues across stores, such that systemic problematic practices might be identified on the basis of their critical mass. By veering attention away from systemic problems towards trivial ones, the OFI/Clearinghouse initiative simply shifts the burden from underlying problems to their symptoms.

The other important area of stuck knowledge is the vast store of tacit knowledge embodied in the Deer’s expert sales associates. These women have the highest sales figures in the company because they have accumulated retail sales wisdom over many
decades. But this knowledge is stuck – in their heads, in their practices, in the suburbs. Their subtle tricks of the trade cannot be moved by writing down a few sentences on an OFI form. They have a wealth of tacit knowledge that has been fostered by the Deer because she recognizes it. They hear the needs of their customers because they know their customers. They can read the needs of new customers like a book because they have been doing it all their lives. But they work together. They have no apprentices. No practices are in place to tap into this deep store of organizational knowledge. And since they are getting too old for the rigors demanded of them by headquarters, they will soon be leaving together. Their deep embodied knowledge is about to walk out the door. When it does, Chainage Corp will have foregone the opportunity to innovate at the edges in a meaningful way. Perhaps it is time to turn off the headlights and let the Deer run.

Local knowledge must have the potential to move up. And certainly the interfaces across the boundaries of all complex system must be standardized. In the more predictable world of manufacturing, some things must be held constant so that results of experiments can be observed and learned from (Toyota…?). In retail, experimental results, and novelty stemming from customer interactions, take place at the edges, where they are interpreted by lower-level staff members. Without the decision rights to determine which issues are important and which are trivial, there is no filtering mechanism. Certainly it is easier and less expensive to create a system whose success is measured by easy-to-represent artifacts than it is to allocate decision rights locally. In manufacturing, Toyota and others have been able to institute a level of clan control that enables local decision rights to trump bureaucratic control (ref). To the extent that each customer/staff member interaction is unique, they entail potentially high levels of
variation. This increased level of novelty demands more flexibility to determine what knowledge is important enough to move, not less, particularly since this source also reflects demand criteria. To put service up front, Chainage needs to recognize that their cost-cutting logic only applies where there is lack of variation – lean principles cannot be applied to all parts. They need to understand what variation they can control and what they cannot, and embrace that which they cannot by learning from it. This distinction must be made at the locus of the variation – in this case at the edge.
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