Corporate Strategy: Resource Redeployment and the Pursuit of the New Best Use

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Abstract

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Shifting economic circumstances may suggest some degree of resource redeployment of capacity-constrained capabilities. However, a separate question remains as to how corporate actors operate within the space of this economic logic. While prior literature on diversification has tended to highlight the fungibility of resources as a basis for their redeployment, we point to an additional consideration of the complementarity of resources that make allocation within the firm attractive, what we term a "new best use." Further, we point to a potential tension as the economic logic suggested by this property of complementarity, and more generally interdependence with the firm's other resources and activities, may make assessing what constitutes what we term the "new best use" of a resource challenging. The latent fungibility of a resource may differ from the range of reliable assessment of relative value creation. The allocation of resources and capabilities across a firm of any scale or scope is generally guided by the organizational and task structure of the enterprise. Building on these arguments, we consider two classes of factors that might impact the realization of the latent opportunities of resource redeployment. One is the "pipes" of organizational structures and grouping of business units and allocation of decision rights of specific managers to those units, and the other is the "prisms" of the various metrics of performance and value creation that may make resource use across different domains of the business more or less comparable.

1. Introduction

Corporate strategy research on diversification has remained one of the most vibrant areas of strategy research. From Penrose's (1959) early discussion of the role of slack capabilities and related diversification, to careful consideration as to what constitutes relatedness (Rumelt, 1974; Bettis, 1981; Montgomery and Wernerfelt, 1988; Chang, 1996; Silverman, 1999), and in more recent years the introduction of inter-temporal scope economies (Helfat and Eisenhardt, 2004; Folta, Helfat, and Karim, 2016) and the possible option value of firm resources and capabilities that this implies (Sakhartov and Folta, 2014 and 2015), we have gained enormous insight as to the economic logic of firm diversification.[1] However, a separate question remains as to how corporate actors operate within the space of this economic logic. Shifting economic circumstances may suggest some degree of resource redeployment of capacity-constrained capabilities (Levinthal and Wu, 2010); however, how salient and clear this new logic of resource redeployment is to organizational actors is an open question. Generic resources of capital and labor are well-priced by external factor markets and hence their opportunity cost of use within the firm is transparent. We suggest that the very properties that make redeploying resources within the firm attractive — the interdependence or complementarity with the firm's other resources and activities that gives rise to greater value if redeployed within the firm than if the resource were released to external factor markets — also complicates the assessment of the "new best use" of the resource.

We consider two classes of factors that might impact the realization of the latent opportunities of resource redeployment. One is the "pipes" of organizational structures and grouping of business units and allocation of decision rights of specific managers to these units; the other is the "prisms" of the various metrics of performance and value creation that may make resource use across different domains of the business more or less comparable.[2] In this spirit, the agenda of corporate strategy research on

[1] See recent reviews by Ahuja and Novelli (2017), Maritan and Lee (2017), Feldman (2020), and Folta (2021).
[2] The imagery of "pipes" and "prisms" has been used previously in the management literature, most notably in Podolny's (2001) work on networks, with networks serving as "pipes" by which resources, particularly information, may transfer, and "prisms", meaning in this context that network ties can serve as informational signals to others, such as conveying status. More recently, in the strategy literature, Wu, Wan, and Levinthal (2014) have used this imagery to convey the role that complementary assets play in firms' response to technological change, with

diversification should be a dual agenda of not understanding only how capabilities can be leveraged across domains, a Penroseian consideration, but also an assessment of the structures and processes by which the allocation and redeployment of resources are managed through the visible hand of corporate management (Chandler, 1962 and 1990), a problem of organizational design (Thompson, 1967; Nadler and Tushman, 1997; Puranam, 2018).

In developing this argument, we first consider the question as to why a new best use of a strategic resource or capability will often lie within the firm (Section 2).[3] Both transaction cost theory (Teece, 1982) and work on resource redeployment have highlighted the role of adjustment costs (Helfat and Eisenhardt, 2004; Sakhartov and Folta, 2015; Lieberman, Lee, and Folta, 2017) in determining why resources might be redeployed within the firm rather than released to external markets. We highlight an additional consideration which serves to amplify the tendency for within-firm reallocation, and that is the value creation associated with the best use of a given resource or capability stemming from the firm-specific quality of the resources, whether knowledge-based or associated with distinct complementary products and processes within the firm (Argyres and Zenger, 2012). The range of possible applications of these resources within the firm can be considerable --- the question of fungibility. Separately there is the question as to how the new best use might be identified and what might be some of the barriers and constraints in this process of identifying a new best use of a resource?

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complementary assets serving as buffers to such changes as well as the "prism" by which such changes are viewed. In addition, Ocasio, Laamanen, and Vaara (2018) use the terminology of "pipes and prisms" to characterize communication channels (pipes) and the nature of information processing (prisms) within the attention-based view. Our use of this imagery here links with the role of structure (pipes) in Podolny's discussion of networks and Ocasio et al (2018) of organizational forms and the prism sensibility of Poldolny (2001), Wu et al. (2014) and Ocasio et al. (2018) in terms of how signals of potential economic opportunity are perceived.

[3] The literature has long noted the distinction between resources and capabilities (Amit and Schoemaker, 1993; Zhou, Ethiraj, and Yang, 2023). We recognize the important distinction between ownership of various assets and the organizational capacity to create economic value out of a set of resources (Helfat and Peteraf, 2003). However, for the purpose of the argument developed here, the critical issue is whether these resources are capacity constrained or not (Levinthal and Wu, 2010). We suggest that capabilities, such as the capacity of Honda to make high quality engines at low-cost cited in the classic work of Prahalad and Hamel (1990), are often capacity constrained as this capability at engine production, per this illustration, is the product of a set of engineers and managers with a high degree of firm-specific skills. Therefore, we at times will treat "resources" and "capabilities" jointly under the assumption that the resources and capabilities to which we are referring are capacity constrained.

If the value of a resource in a particular use can be reliably mapped onto the metric of a present value calculation, then allocation to a new best use reduces to a straightforward problem of corporate finance. The beauty of money as a basis of comparison is its universality. However, as Kuem (2022: 376) observes "the idiosyncratic nature of firm-specific resources subjects their value to significant uncertainty and makes it almost impossible to evaluate optimal and unbiased allocation (Bettis, 2017). We view this lack of reliable NPV projections and the resulting allocative uncertainty as an irreducible feature of non-financial resources and their allocation in the internal capital market." The question of whether the best use of a software engineer who has been working on the firm's back-end systems for five years or the best use of a relationship with a distribution partner that a manufacturer has consists of its current application within the firm, repurposing these resources to some other purpose within the firm, or possibly divesting the resource, is often not obvious and not readily evaluated on the common metric of monetary payoff.

Non-financial metrics within a given domain may offer a richer set of measures by which to make relative comparisons of possible value creation via resource redeployment, even if more limited in the scope of activities to which they can speak. For instance, when one considers applying a particular resource, say a car assembly line, to one use [car model] or another, a number of operational measures are available such as current inventory of each model, margins on each and other such measures. Even in the absence of putting a precise dollar amount to the value of shifting the production line from one model to another, these operational metrics can facilitate making an informed marginal calculation.

Thus, the latent fungibility of a resource may differ from the range of potential uses over which reliable assessment of relative value creation can be made. Further, the allocation of resources and capabilities across a firm of any scale or scope is generally guided by the organizational and task structure of the enterprise (Karim, 2006; Sengul and Gimeno, 2013; Brahm and Tarziján, 2016; Joseph and Gaba, 2020; Raveendran, 2020; Keum, 2022). The domain of influence and responsibility of the managers making such an assessment imposes yet another constraint on the consideration of relative assessment of value creation and what is identified as the new best use.

The rest of the paper elaborates the above thesis according to the following roadmap. In Section 2, we develop the logic of opportunity cost and, in particular, argue why the "new best use" of resources and capabilities is often likely to be within the firm. Section 3 explores some of the factors that may inhibit these latent advantages of resource redeployment from being realized, focusing on the "pipes," the implications of the internal organizational structure of the firm, and the "prisms," the metrics and challenges around comparability, that structure and inform these resource redeployment decisions. Section 4 concludes with some speculations regarding future research questions and implications that build on these ideas.

2. Opportunity Costs and New Best Uses

2.1. Internal vs. External Logics of Opportunity Costs

The construct of opportunity cost is a basic and important concept in economics that addresses the question of resource use and allocation: what is the best alternative use of a resource foregone by its use in the current or proposed application (Samuelson and Nordhaus, 2010). In the strategy literature, the issue of opportunity costs has garnered considerable attention in the context of the value-added approach and the associated discussion of value appropriation (Brandenburger and Stuart, 1996; MacDonald and Ryall, 2004; Chatain and Zemsky, 2007; Chatain, 2011; Almeida Costa and Zemsky, 2021). The focus of this line of argument is the value of a resource to a focal firm relative to another firm (Peteraf, 1993).

However, lying underneath the "corporate hood" of these discussions of value-add and quasi-appropriable rents (Klein, Crawford, and Alchian, 1978; Mahoney and Qian, 2013) is the fact that a given corporation may have many possible uses of a given resource — the issue of fungibility highlighted by the resource redeployment literature (Penrose, 1959; Helfat and Eisenhardt, 2004; Sakhartov and Folta, 2014 and 2015). Fungibility points to the possibility of redeployment and, in conjunction with a consideration of both transaction costs and adjustment costs that may be higher for external rather than internal redeployment, may suggest that redeployment within the firm may be attractive. We suggest an additional basis for internal redeployment of resources: it is often the case that the second (and third) best

use of a resource, independent of transaction or adjustment costs, may lie within the firm rather than being redirected across a firm boundary.

For a generic resource — money, kilowatts of energy, hours of unskilled or non-firm-specific skilled workers — it is unlikely that the next best use would be inside the focal enterprise. The world is a big place and the competitive dynamics that influence the marginal value of a given input are likely to play out in a complex, variegated manner across firms. However, if the resource has some value that is firm-specific beyond the narrow confines of the specific task or activity to which it is currently allocated, then the second-best use being internal to the firm goes from being a highly unlikely situation to being a common and even expected situation. Workers, whether front-line operators or high-level management, develop firm-specific expertise, such as organizational codes (Arrow, 1974), routines (Nelson and Winter, 1982), transactive memory (Argote and Ren, 2012), complementary capabilities (Teece, 1986; Argyres and Zenger, 2012), and a wide variety of firm-specific practices. As a result of these attributes, an individual manager, a team, and even broader organizational units may be more valuable if redeployed within the firm rather than released to the external labor market. Redeployment within the firm of non-human capital may also be more advantageous due to various complementary resources, capabilities, and organizational processes, what Teece (1986) terms co-specialized assets.

There are two rather distinct mechanisms by which firm boundaries impact the redeployment of resources within and across these boundaries. One important class of considerations comprise what can be considered direct costs of the redeployment, whether transaction costs associated with external transfer of a resource (Teece, 1982) or the adjustment cost associated with the redeployment (internal or external) of a resource (Helfat and Eisenhardt, 2004; Sakhartov and Folta, 2015; Lieberman, Lee, and Folta, 2017). Transaction costs and adjustment costs jointly influence how slack resources that emerge in a Penrose-like growth dynamic are used, whether internally within the enterprise, leveraged in a market arrangement with other firms, or sold off to another enterprise (Belenzon and Tsolmon, 2016; Dickler and Folta, 2020; Giarratana and Santaló, 2020; Sohl and Folta, 2021). Amazon's and Microsoft's/Azure's entry into cloud computing are useful illustrations of this issue. The extensive computer network and associated

engineering expertise that was developed in their core businesses was able to be monetized through selling access to this resource to others. However, Amazon or Microsoft did not sell off some fraction of their computing capabilities, but rather diversified into a new service in order to leverage this resource.

A different logic relates to the question of whether, absent any transaction cost or adjustment cost consideration, the new best use of a resource lies within the firm. We argue that the presence of firm-specific knowledge and complementarities among the firm's resources and capabilities will result in the new best use of a resource in response to changing circumstances often lying within the firm. The power of resource redeployment can stem from superior value creation possibilities, which in turn can result from the degree of co-specialized knowledge and capabilities that create a wedge between the internal and external usage of a given resource or capability. That is, even in a world absent transaction or adjustment costs, this "wedge" may still be present.

Consider a simple algebraic representation of the firm's decision calculus to add clarity to our discussion. Consider R_A as representing the use of resource R in domain A. Now imagine that economic circumstances have changed — relative market prices, technological change, etc. — which pose the possible value of redeployment. Redeployment could be within the same firm, which we denote as R_{BI} with the "I" indicating internal redeployment, or redeployment to a different firm, which we denote as R_{BE} with the "E" denoting external redeployment to another firm. The decision calculus would be as follows:

If $R_A > \text{Max}\ \{R_{BI} - AC_I\ ,\ R_{BE} - AC_E - TC\}$ then no redeployment

If $R_{BI} - AC_I > \text{Max}\ \{R_A\ ,\ R_{BE} - AC_E - TC\}$ then redeploy internally

If $R_{BE} - AC_E - TC > \text{Max}\ \{R_A\ ,\ R_{BI} - AC_I\}$ then redeploy externally

where AC_I is the internal adjustment cost, AC_E is the external adjustment cost, and TC represents the transaction cost associated with external allocation of the resource.

Our focus on value creation is on the relationship between R_{BI} and R_{BE}. Given the enormous number of firms operating in a vast number of sectors, one might tend to presume that in most instances $R_{BI} < R_{BE}$. However, we suggest why, in many instances, the new first best will

be such that $R_{BI} > R_{BE}$. This setting where the new first best is internal to the focal firm will occur when there is a significant firm-specific nature to the value creation of the resource, prompting a shift from the initial application domain "A" to the new internal application domain "B." Organizations have distinct cultures and work processes. The social capital of managers can transcend the application domains ("A" and "B"). Even technologies may be co-specialized to a firm's overall strategic and technological approach to markets. There are also resources that are less firm-specific in their ability to create value. We would suggest that for these latter sort of resources the relationship $R_{BI} < R_{BE}$ would tend to hold. However, per the consideration of adjustment costs noted in the literature on redeployment (Sakhartov and Folta, 2014 and 2015), the fact that $R_{BI} < R_{BE}$ is not a sufficient condition for external redeployment to occur. One would also have to consider the relative magnitude of the internal and external adjustment costs and the associated transaction cost. In contrast, if $AC_I \leq AC_E$ and the internal adjustment costs are lower than the external costs, then $R_{BI} > R_{BE}$ is a sufficient condition for the redeployment to occur internally.

Engaging in an opportunity cost calculation of this sort can be a complex consideration as it involves a form of counter-factual reasoning: if instead of doing "x" with this resource or capability we made use of it in a "y" way, what would be the consequences, where "y" could be any one of a number of alternative uses. In this regard, it is useful to contrast the fungibility and value creation of a resource across firm boundaries and capabilities where this fungibility is an intrinsic property of the resource with settings where the degree of fungibility is influenced by the presence of complementarity resources or the degree of co-specialization. The discourse in the literature around resource fungibility and firm diversification tends to consider this issue as a function of factors of the industry (Chang, 1996; Neffke and Henning, 2013), technology (Lee, 2008; Lee and Parachuri, 2016), or application domain (Wu, 2013). A different sort of fungibility, or constraint on fungibility, is present when there are independencies across activities and capabilities. This later consideration may influence the degree to which value is created by redeployment both within the same firm and through external redeployment.

To help illustrate these ideas, consider a marketing manager at a consumer product firm working in the firm's home goods division. Given their expertise as a marketer in home goods, the manager could move to an alternative firm's home goods division doing the same task from a functional point of view, as their marketing skillset may be perfectly germane in a functional sense. However, this manager's current effectiveness may depend on their working relationships with colleagues in the same operating unit and broader organization and the breaking of those ties might make the manager less effective in another organization (Grosyberg, Lee, and Nanda, 2008; Ethiraj and Garg, 2012). In this regard, we can contrast the fungibility across domains within a firm versus the fungibility across firms within the same application domain (Corredoira and Rosenkopf, 2010; Bidwell, 2011; Ganco, Ziedonis, and Agarwal, 2015).

2.2. Dynamics of the New Best Use

We now develop further our argument as to why internal redeployment may often represent the "new best use" of a resource. Our interest is not just in a static comparison of best use of a resource across possible domains, but rather the dynamic question of what, as economic circumstances change, constitutes the *new* best use. As a given product market matures, new market niches open up, and new technologies emerge, the question becomes what constitutes the new best use of a resource rather than a static comparison of best use. Figure 1a provides a representation of the contrast between internal next best use and possible external next best uses. The standard question of opportunity cost and quasi-rents speaks to whether a resource creates more or less value in Firm A, B, or C and what the magnitudes of those differences are. However, as suggested by Figure 1b, a given firm is not a monolith. Not only is there a population of enterprises to which a resource might be put to use, a given firm may have multiple business units and initiatives to which a given resource might be applied. As characterized in Figure 1b, the current best use of the resource is in Firm A. More specifically, the best use is in unit 1_A of Firm A. Further, the second-best use also lies within Firm A — its unit 2_A. Imagine that there is some shift in the business environment that results in a random change in the value of the resource across all possible uses.

If there is a new best use of this resource, it is likely to still lie within Firm A — perhaps unit 2_A. Alternatively, a shock may not be identically distributed across firms and their sub-units and might systematically be a "bad news" event for Firm A. In such a case, the new best use of the resource might shift to an alternate firm. However, the point remains that in many instances where a resource has a strong firm-specific quality, the dynamic of shifting best use will lead to that new best use being within the same enterprise.

Insert Figure 1 here

The issue of the internal opportunity cost to resource usage becomes relevant when these resources are not readily available on factor markets and internal resources are capacity-constrained (Levinthal and Wu, 2010).[4] Thus, a critical role of the corporate strategist is to allocate these capacity-constrained firm-specific resources across the evolving best-use applications within the enterprise. Indeed, an important challenge for the corporate strategist is the dynamic allocation of her highly firm-specific, capacity-constrained managerial attention (Ocasio, 1997; Joseph and Ocasio, 2012; Lo et al., 2022).

[4] "Non-scale free," "capacity-constrained," and "congestible" are used interchangeably in this paper. One could imagine situations in which there are meaningful distinctions among these constructs. For instance, some physical systems, such as a power system or computer server, might not suffer any degradation in performance until a capacity limit is reached. Such a resource would be "capacity-constrained" but not suffer "congestion" effects until that limit is hit. Other resources, such as the time and energy of a team of engineers, would suffer congestion effects, e.g., degradation in performance with additional demands on the team, even before a hard capacity limit is reached. In contrast, a "scale-free" resource, such as a brand-name for a luxury good manufacturer, suffers no congestion effect from a "supply-side" perspective with regard to its use, though its domain of application may be limited and there may be adverse demand-side effects as it is applied more broadly. Thus, while are there are some distinctions among the constructs "non-scale free," "capacity-constrained," and "congestible," those distinctions do not play a role in the broad arguments developed here. Finally, as modeled by Levinthal and Wu (2010), a firm's scale-free resource may have some interdependence or joint production with the firm's capacity-constrained capabilities. As a result, even a digital technology firm whose focal resource is scale free (Asmussen, 2015; Adner, Puranam, and Zhu, 2019) may still need to allocate its efforts across domains, as constrained by managerial time and attention (Ocasio, 1997; Joseph and Wilson, 2018) and other co-specialized resources (Giustiziero et al., 2023).

The next best, and new best, use calculation is made more problematic by the presence of interdependencies among an organization's activities (Levinthal, 1997; Aggarwal and Wu, 2015). The simplest interdependency is what Thompson (1967) terms "pooled" interdependence. This form is illustrated by Levinthal and Wu's (2010) consideration of the allocation of a firm's capacity-constrained capabilities in the context of a firm's diversification decisions. In their analysis, whether an established firm finds it of interest to diversify is a function of both the value of a given capacity-constrained resource in its current use and the potential that its application in a new domain might offer. Even more challenging with regard to a consideration of the internal opportunity cost of redeploying resources within the firm is the presence of more complex interdependencies among activities. While the possibility of achieving synergies is often highlighted in discussions of corporate strategy (Puranam and Vanneste, 2016; Giarratana, Pasquini, and Santaló, 2021), corporate initiatives and resource sharing may not be Pareto improving — that is, while the overall organization performance may be enhanced by these choices, not all units may realize a benefit and certainly not all need benefit equally (Rawley, 2010; Zhou, 2011; Natividad and Rawley, 2016; Chen, Kaul, and Wu, 2019; Parker-Lue and Lieberman, 2020). As a result, an opportunity cost calculus must incorporate not only the direct benefits and losses of using a resource in one domain or another, but the broader implications, or "ripple effects," of such a reallocation. As we develop in Section 3, the assessment of these tradeoffs will be a function of the organization structure that determines the authority for resource allocation decisions to specific managers and organizational units and the metrics available to these managers to make these assessments of relative value.

2.3. Opportunity Costs and Shadow Price of Capacity-Constrained Capabilities

Capacity-constrained resources necessitate a trade-off regarding their best use. We have further argued why a new first-best use of a resource is often likely to reside within the firm. There remains the possibility, however, of the firm over time relaxing the constraint associated with any given capacity-constrained resource. While the opportunity cost is the cost associated with using a fixed resource in one

way or another, the shadow price is the value associated with relaxing a constraint in an optimization problem (Dantzig and Thapa, 1997). In that regard, we can consider the shadow prices associated with a set of capacity-constrained capabilities as indicating the value of capability development.

The shadow price associated with the various capacity-constrained resources informs the priority that should be given to expanding a given resource and thereby relaxing the associated resource constraint. Given this decision as to which resource constraint to attempt to "relax," one can consider a "dynamic opportunity cost" reflecting the difference in value of developing the firm's resources to relax one constraint or another. The opportunity cost in this context is the difference in the shadow price of the most binding constraint versus the second most binding constraint. When the shadow price associated with a given capacity-constrained resource is zero, it is a situation that Penrose terms a slack resource. When the shadow price is greater than zero, a firm can push on any of the N constraints it faces. However, when the firm pushes on the ith constraint, it might need to forego the jth. Ethiraj's (2007) work on the development of the technologies associated with the micro-computer provides an interesting illustration of this tension as he shows that the bottleneck component of the interdependent micro-computer ecosystem that constrains firm performance drives firms' allocation of R&D investment. Hannah, Bremner, and Eisenhardt (2016) find a similar pattern regarding the need to relax bottlenecks from a demand side perspective in the context of the US residential solar industry.

The role of shadow prices on capacity-constrained capabilities has an interesting relationship to the notion of dynamic capabilities. A dynamic capability is associated with the capacity to move through the state space of firm capabilities (Winter, 2003). Shadow prices, or the dynamic consideration of opportunity cost — the opportunity cost of relaxing one capacity constraint or another — do not reflect a distinct ability to shift the firm's capability in a particular manner, but rather reflect the economic incentive to do so. Clearly capabilities have, to an important degree, an emergent and path-dependent quality (Nelson and Winter, 1982). But a firm's stock of capabilities is also the result of conscious, forward-looking investments, even if that "forward look" is limited in a variety of ways (Winter, 1987; Maritan, 2001). The paths on which the firm may wish to push are not just a function of external

opportunities, but also the firm's existing capability set (Helfat, 1997; Wu, Wan, and Levinthal, 2014). What are the gradients that the firm should climb? In that regard, there is an opportunity cost logic that can provide a framework to inform the trajectory of capability development.

There is not only the issue of what gradient to climb, but also the desired mechanism by which to do so (Capron and Mitchell, 2012). Capron and Mitchell (2012) point to alternative mechanisms of "build" [internal development of a capability], "borrow" [licensing and alliance arrangements to engage a desired capability] or "buy" [acquiring a resource, typically via a corporate acquisition]. A further consideration lies in how this new resource assemblage should be organized (Karim, 2006; Karim and Capron, 2015; Karim and Kaul, 2015). Resource orchestration (Sirmon et al., 2011) addresses the important challenge of the potential gap between latent scope economies and their realization. There is a long-established tradition of work on the "integration" challenge associated with merger and acquisition activity (Paruchuri, Nerkar, and Hambrick, 2006; Puranam, Singh, and Zollo, 2006; Graebner et al., 2017). We point to a different sort of potential gap in the context of resource redeployment — the gap between the latent economic benefit of redeployment and the realization of that latent benefit as firms and managers within them operate within the constraints of the particular "pipes," organizational structures and partitioning of initiatives within the firm, and the "prisms," the metrics by which alternative uses of a resource can be compared.

3. Corporate Strategy and Resource Redeployment

Our argument to this point has highlighted some basic issues as to why resource redeployment might occur within the firm, rather than the divestment of these resources to external markets. This economic calculus needs to be paired with a managerial calculus — what are the levers under a given manager's control, what are their incentives and motivations, how do these managers come to understand and perceive the comparison of relative value creation of a resource across alternative uses? Capacity-constrained resources pose the question of *relative* value creation. The question shifts from whether devoting a programming team to a particular project has merit in some absolute sense —is the value

likely to be generated in excess of their compensation —to one of whether their value creation will be superior in that focal project or alternative projects in which the employee and the firm might engage. A fundamental factor in corporate strategy is how firms navigate the challenge and assessment of the best use of a given resource or capability.

While the literature has highlighted the critical role of fungibility of resources (Levinthal and Wu, 2010; Anand, Kim, and Lu, 2016), fungibility is a necessary but not sufficient consideration for effective resource redeployment. Managers must be able to make the relative value-added comparisons of a resource used in one application or another. We suggest that this challenge of assessment and valuation can be thought of as the "prism" by which redeployment is considered (discussed in Section 3.1), while the consideration of organizational structures as the "pipes" that guide and constrain this process. In Section 3.2, we discuss the role that organizational structures and the partitioning of initiatives within the firm to different business units overseen by managers with distinct decision rights play in this redeployment process.

Figure 2 provides a stylized, but suggestive representation of our argument. Fungibility, the range of applications to which a resource or capability may be productively applied, circumscribes the range of value creating redeployability. However, whether a resource is redeployed is, to an important degree, a function of whether a given manager or organizational unit has the right to apply the resource in a given application domain — a new use case. This issue of decision rights expresses itself at all levels of the organization's hierarchy. Resource redeployment may occur within a business unit, as the shift of a product development team from one initiative to another, in which case the division manager has the decision rights over both the source, the current use of the resources, and the proposed new best use of the resource. In other instances, the shift in resource may span intra-organizational boundaries, for instance a shift in engineering talent from the traditional combustion engine product line of an automobile manufacturer to an electric vehicle division. In these intra-organizational boundary spanning settings, the common authority figure with decision rights over both the current use of the resources (the combustion engine division) and the potential new best use (the electric vehicle division) might be as high in the

organization as the CEO. Clearly, resources may be redeployed across these intra-organizational boundaries, but the frictions around that redeployment, potential organizational politics around the shift, the challenge of reconciling the potential loss in competitiveness and profits to the unit that is incurring a resource loss, and the potential gains to the unit that is being strengthened, will tend to be amplified the greater up the hierarchy lies the "common boss" who internalizes these gains and losses. Thus, the range of managerial decision rights and the degree to which that range spans or does not span source and recipient application domain are important factors as to whether redeployment will occur or not.

Insert Figure 2 here

These properties of the organizational structure, so-called pipes, impact who is making the decision within the organization regarding resource redeployment. A separate question is how do these actors come to understand and assess the relative value of the resource in one use case or another? What are the metrics that they use to make that assessment? If one could reliably map the incremental value creation of applying the resource in one domain or another onto a dollar amount, this task of assessment would be trivial. But, as we have suggested earlier, and argued by others (Bettis, 2017; Keum, 2023), this mapping of incremental value of resource use to a measure of valuation creation can be challenging. As we argue immediately below, the more similar the market context in which the resource is used, the richer the number of operational measures of value creation are likely to be available to the manager to inform their assessment of relative value creation. In contrast, as the range of application domains become more diverse, the basis of comparison will necessarily be pushed to be based on less operational measures, with the ultimate "generic" or abstract measure being financial calculations of NPV and ROI.

3.1. Fungibility and Comparability

The fungibility of resources has been central in the consideration of firm diversification (Penrose, 1959; Montgomery and Wernerfelt, 1988) and resource redeployment (Helfat and Eisenhardt, 2004;

Sakhartov and Folta, 2014 and 2015). However, a separate issue of scope is the range over which accurate assessments of relative value creation can be made. When initiatives are in a similar line of business, there are a variety of metrics by which one can compare alternative projects; in contrast, as projects become increasingly diverse, a corporate headquarters is forced to increasingly rely on the common denominator of financial forecasts and expected returns. Consider, for example, an oil & gas firm that is involved in exploration, drilling, and retail sales of gasoline.[5] Such a firm would have a variety of geological indicators that would indicate which tracts might be more or less attractive in which to drill an exploratory well. Similarly, it would have a variety of metrics of retail sales and population demographics with which to consider where it might wish to invest in incremental retail outlets. However, the comparison of money invested in drilling versus in retail establishments does not have meaningful operating measures in common. Rather, the relative merits of the two investments would have to rely on macro-economic assessments of different sectors and ultimately a bottom-line assessment of financial merit. In a more diverse enterprise, financial assessment becomes the only common language of assessment, whereas units with a greater commonality in the nature of their operations offer the possibility of a rich array of tangible, operational bases of comparison.

Clearly, for a profit-seeking corporation, a financial basis of comparison would seem sufficient and unproblematic. The challenge is that claims about future project or divisional financial returns are conjectures. Outside of very stable business settings, these conjectures, while necessary, are inherently challenging (Bettis, 2017; Keum, 2023). An *NPV* calculation is premised on resolving a forecasting problem — a projection of future earnings stream and potentially even more complex a projection of the future option value of current investments — a projection that may have an inherent incalculability (Bettis, 2017). That is not to say that estimating such future earning streams is not a useful exercise, but rather to note its limits and challenges.

[5] We thank xxxx for providing this example.

Having some shared operating context reduces the challenge of assessing relative merit. This argument has been developed in the "tournament" literature that examines the efficacy of relative rewards when actors are subject to both common and idiosyncratic shocks and uncertainties (Lazear and Rosen, 1981). For instance, members of a sales force serving different regions have the shared uncertainty of how the overall market might respond to the product or service, as well as idiosyncratic uncertainty associated with specific customer sets. A rank order compensation scheme eliminates the need to impose risk on the agent as a result of the former sort of uncertainty. This sort of logic applies as well in thinking about the financial returns from corporate investments. One might not know the ultimate mapping of operating metrics to future expected payoffs, but ranking units that share a common set of operating metrics is a less demanding task than conjecturing bottom-line financial returns. In the absence of these common metrics, one is left with contrasts based on estimates of financial returns and all the ambiguities associated with such estimates — ambiguities that make the calculation difficult for a focal actor and even more challenging to communicate to others (Kaplan, 2008; Benner and Zenger, 2016).

Building on these arguments, while the fungibility of resources influences whether resources are applicable across different business lines (Penrose, 1959; Montgomery and Wernerfelt, 1988), we propose a new dimension — the comparability across business lines — that importantly determines the effectiveness of the redeployment of resources. Comparability refers to the ease with which firms can use a variety of operating metrics to compare alternative businesses. If comparability is high, firms can use a variety of operating metrics to compare the use of a resource in alternative businesses; alternatively, if comparability is low, firms may have to use financial performance to assess relative returns in the use of a resource across different business units. These contrasting considerations are highlighted in Figure 3.

Insert Figure 3 here

Figure 3 illustrates the contrast between fungibility and comparability as distinct constructs that may apply differently across resource domains — and need not be co-determined. With regard to this

later point, as the figure illustrates, a resource could have a narrow range of potential applications that lend themselves to rich operational bases by which to compare value creation from alternative uses, such as the example of allocating a production line among distinct products. Alternatively, as in the example of dedicating someone with a distinct technical skill, say a biochemist, to one application domain, such as the development of new battery technologies, or to another application domain of their distinct skill set, such as the development of new pharmaceutical products, makes assessments of relative value creation challenging as those assessments are not likely to be premised on operational measures of outcomes from a common context. In such circumstances, the question of value creation would have to be addressed through the use of more abstract measures, such as an assessment of the overall likely profitability of the different markets. While common detailed operational measures are less likely to be present when comparing resource use across diverse contexts, the case of digital firms monetizing user attention illustrates the possibility of rich metrics regarding alternative use across a diverse range does provide an example. Digital firms such as TikTok and YouTube can monetize user attention, a scarce resource they amass based on proprietary user data, through placing advertisements across an enormously wide range of possible product areas. These firms have very detailed metrics about user responses, such as watch time, scrolling frequency, likes, comments, shares, and re-watches, that inform the (re)deployment of this scarce resource, which in turn guides their advertising placement across these possible areas. The ultimate abstract basis of comparison that is applicable across all potential domains is a financial assessment of return. The breadth of applicability of being the ultimate common denominator is the strength of such financial measures, but the mapping of the complexity of particular contexts to a single metric of value can be challenging in many circumstances.

Implications of Fungibility and Comparability for Resource Redeployment

The argument to this point has laid out some of the basic considerations as to how properties of the organization and the degree of comparability of value creation across resource uses might impact resource redeployment. We now pull these arguments together to consider their implications for resource

redeployment. Figure 4 provides a broad overview of the suggested implications — linking redeployment to the degree of fungibility, the traditional consideration in the corporate strategy field, with the degree of comparability in assessing relative value creation. Perhaps most challenging is the cell of high fungibility within the firm and low comparability. In such a setting, there is a latent opportunity for valuable resource redeployment; however, the challenge of comparability of metrics of what constitutes a more or less promising use case for a given resource may make fully realizing the potential benefits of such opportunities for redeployment problematic. Value-creating strategies may be possible in such a setting, but this evaluation is challenging internally and even more problematic externally (Benner and Zenger, 2016).

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Insert Figure 4 here

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This cell indicating resources that are fungible but challenging to evaluate with respect to their best use captures some core tension firms face in the context of technological change and changes in relevant product markets. Firms are faced with the possibility of errors of omission, not repurposing resources and capabilities developed in a prior context to a new one for which they may be more profitable; but, firms also face the possibility of errors of commission, repurposing resources to a new context in the absence of a competitive advantage through the application of these resources in the new context. While it is common for observers to make ex-post critiques of firms that chose not to engage in a strategic reorientation in response to a technological change that proved to have substantial impact on the competitive dynamics of their industry, ex-ante the question of next best use of resources is often not clear. For instance, Benner and Ranganathan (2012; 2013) show the contestation of "best use" of financial capital, managerial energy, and downstream assets between leading phone companies and the investing community in the context of the rise of the technology of voice over internet protocol (VOIP).

These challenges played out in the introduction of digital photography, which generated a heterogeneous response among key firms (Benner and Tripsas, 2011). Both Kodak and Polaroid

responded aggressively from the point of view of investments in the digital technology and even early products. In contrast, Fuji profited from reapplying their chemical-based capabilities to new areas such as life sciences.[6] Tripsas and Gavetti (2000) show that a key part of Polaroid's challenge in responding to digital imaging was that the business model of digital imaging was hard to compare with their traditional instant photo products because the metrics of business performance were so different. This made it difficult for Polaroid to make appropriate resource redeployment decisions necessary for the success of its digital division. This quandary also occurred in the print media industry (e.g., newspapers and publishing) where firms needed to make a transition toward the digital economy (Gilbert, 2005). In particular, in the context of digital media, the different performance measures — audience reach and digital advertising incomes versus revenue from classifieds ads and print subscription fees — made assessment of the economic logic of the new digital initiative challenging.

One solution to mitigate this problem is to insulate the unit addressing the new business challenge in a separate entity, so that the new initiative would not be deprived of resources (Christensen, 1997). Separating the "old" and "new" into separate business units allows for more comparable performance metrics within each of the business units. However, for the firm as a whole, there still is the challenge of allocating resources across the business units and the associated "apples" and "oranges" problem of comparing these different business models and their evaluation on different performance metrics.

In the cell where resources are highly fungible within the firm and businesses are also very comparable, there is not only the possibility of value add being created by redeployment of resources, the allocative efficiency of such efforts should be high as a result of the comparability of opportunities across initiatives within the firm. Multi-unit enterprises, such as Walmart, with multiple units across geographic space and business formats, illustrate this setting as such firms are able to make ongoing marginal calculations regarding the best use of managerial talent, retail real estate, geographic and format growth opportunities, and production and supply chain capacity. Indeed, Sohl and Folta (2021) find evidence to

[6] https://www.economist.com/schumpeter/2012/01/18/sharper-focus

this effect in the global retail industry. More challenging, but still relatively comparable, would be product line extensions or diversification into closely related markets.

In the cell of low fungibility within the firm and high comparability, the value of the resource in its current use relative to other potential uses should be clear due to the high comparability; however, given the "sticky" low fungible nature of those resources, the opportunities for alternative use of the resource within the firm may be limited. We use the term "divestment" for this cell reflecting the fact that the low fungibility may imply that the "new best use" may not lie within the firm. Per the "divestment" label, it may be that the resource maintains its current application domain but is employed by another firm, as often occurs when industries consolidate (Lieberman, 1990; Anand and Singh, 1997; Kaul and Wu, 2016). In some instances, there may not be an alternative use outside the firm either, in which case the resource, say an unused physical asset, may become "dormant" as there would be no outsider buyer; for instance, a former steel plant or a no-longer economically viable coal mine may become a "white elephant." Alternative, it may be that an alternative external use emerges only with time, such as the repurposing of a coal strip mine to a solar panel "farm." In other cases, say an employee with very specific human capital, such an individual may not only lose their current job but may find that their "value-add" to potential employers is lowered to the value of their more generic human capital. An important manifestation of such a shift has been the loss of wage income among those in highly skilled, but also highly specialized, manufacturing jobs with the decline in industrial production in many Western economies.

The low-fungibility and low-comparability cell suggests the possibility of some degree of inertia, and hence we label this cell as "hysteresis." The absence of a compelling new best use of a resource within the firm inhibits redeployment. Further, the lack of clarity of the full costs of sustaining a business that may be viable from an accounting point of view of a profit and loss statement, but one that is commanding of managerial time and attention, and various financial and non-financial corporate resources, may lead to a tendency to continue with the "status quo" of the on-going operation. In this light, it worth noting that errors of omission, delaying exit on an initiative that no longer merits the direct

and opportunity costs associated with it, are likely to be less salient than errors of commission, initiating a change or a new initiative that turns out ex-post not to be viable.

3.2. Implications of Organizational Structure

The internal hierarchy within firms is an important structure by which resource redeployment is managed. The firm allocates resources to its various operating units and these units in turn allocate their portion of resources to the initiatives that lie within them. Organization structure (e.g., M form, or simple hierarchy) changes the opportunity costs that different managers in the firm face. Consider a delegated hierarchy of resource allocation in which, instead of one manager with N units, there is an executive with two managers below them, and each of these two individuals manages half of the activities. This delegated hierarchy changes the opportunity cost because now one of the managers is allocated some fraction of the investment capital and this manager, in turn, will allocate that sum across a distinct set of opportunities. A given division manager will tend to think about opportunity cost as it relates to the initiatives under their authority. Shifting business opportunities among a unit's existing set of businesses is more likely to suggest resource redeployment when an executive has decision rights over a broader range of businesses and hence a wider set of options for redeployment (Sakhartov, 2017; Chang and Matsumoto, 2022; Chang, Kim, and Park, 2023). In contrast, if division managers have a modest number of opportunities among their existing activities, they may be more likely to look for adjacent, new initiatives than a manager with a broad range of initiatives under their purview. This argument implies that a decentralized firm (few lines of business per executive with resource authority) would, other things being equal, be more likely to further diversify (a shift on the extensive margin) than a more centralized firm (more lines of business per executive with resource authority) which might shift resources among its activities (akin to a shift on the intensive margin), holding the total scale constant. The more decentralized form may be more likely to diversify not only because it is more flexible (Siggelkow and Levinthal, 2003; Zhou, 2013), but also because its managers would be more opportunity seeking given the more limited opportunities within their existing array of activities.

A key question of organizational design for a diversified firm is a tradeoff between the evaluation and monitoring capabilities of a given manager and the degree of interdependencies that might be masked by the bracketing of activities across managers. For instance, a large, diversified corporation such as Samsung could, hypothetically, allocate all resources centrally across its vast array of products. But such an approach would entail an overwhelmingly complex problem with lots of "apples and oranges" comparisons. Instead, the firm allocates resources to consumer electronics, appliances, semiconductors, etc., and then each business unit allocates within these domains. The power of "de-averaging" in resource allocation stems from its capacity to highlight variation that is masked with more coarse-grained categories (Ghemawat, 2002; Levinthal, 2021). The best use as characterized by average value can be different from the best use of more granular elements.

At that same time, "deaveraging" can obscure the impact of interdependencies that may be present across the enterprise. The basic logic of activities occurring within a firm rather than being organized by market processes hinges on the superior capability of a firm coordinating activities that have important degrees of interdependence (Williamson, 1975 and 1985; Grossman and Hart, 1986). Simon (1962), in characterizing the "architecture" of complex systems, whereby complex he refers to systems with a high degree of interdependencies, contrasts what he terms nearly decomposable with fully decomposable systems. Nearly decomposable systems have a modular like quality in which most interdependencies are clustered and can be largely contained within a given module of a technical system or subunit within an organization in an organizational system. If the corporation were a fully decomposable system, individual initiatives could be evaluated in isolation. However, as noted, the logic for a corporate form and joint ownership of activities stems from some degree of interdependencies among initiatives (Williamson 1975 and 1985; Grossman and Hart, 1986). In an interdependent system, modifying resources allocation to a particular initiative may have broader implications and, as a result, a change in an initiative in one subunit may generate costs and possible benefits beyond those experienced in the focal subunit.

This partitioning of business initiatives among different operating units within the firm is, what we term, the "pipes" that channel and potentially constrain resource redeployment. The M-form organization (Chandler, 1962 and 1977) facilitates the management of a diversified enterprise as a rich set of interdependencies can be managed locally within a subunit. The initiatives within a subunit, particularly given a product-based structure to the organization, are likely to be related and therefore fungible across the subunit. Not only may resources have some inherent fungibility in use within the subunit, but the specialized attention of a dedicated management team is likely to lead to expertise and the development of metrics that enhance the comparability of the various initiatives within the subunit and help inform the issue of what constitutes the best use of a resource within the subunit. These metrics and the understandings around them constitute the "prisms" by which organizational actors make sense of the new best opportunities under their purview. Per Figure 4, this stronger capacity to evaluate and compare best-use may shift redeployability from "strategic reorientation" to "on-going redeployment" and from "hysteresis" to "divestment." However, in considering redeployment with regard to the M-form and in particular divestment, it is important to consider what unit of analysis one is addressing, such as individual products or broader product lines, or even organizational units as a whole. Redeployment within the subunit requires there be other options to which the resource could be deployed and divestment of a particular product or product line poses a different calculus for a division manager when there are remaining products and product lines and when there are not. Again, the opportunity cost from the perspective of a particular decision-maker within the organization is a function of the opportunities available to them.

Along this line of argument, if sub-units [business units] differ in their size and diversity, optimizing for the whole organization will tend to privilege the specific strategic needs of the larger units relative to the smaller business units due to the smaller weights the latter contribute to the total sum of corporate performance. The value-maximizing choices of the smaller unit would tend to be sacrificed for the good of the whole (and the bigger pieces of the whole). If there are substantial operating synergies across these business units, this sub-optimization of a particular business unit, especially a smaller one,

may make sense as part of the corporate strategy. However, the synergy versus sub-unit optimization tradeoff can reach a point at which the smaller business units might benefit from being spun off so they can optimize their own business systems (Bennett and Feldman, 2017; Kaul, Ganco, and Raffiee, 2023). Even before such a threshold is reached, the internal political contestation around such strategy choices may prove costly in time and may increase the challenges associated with realizing latent benefits of resource sharing and reallocation (Meyer, Milgrom, and Roberts, 1992; Aggarwal and Wu, 2015). This tension between optimizing from the perspective of particular subunits and the firm as a whole underlie some of the tensions Christensen (1997) points to as to why firms may have challenges in navigating disruptive technological change as units addressing the emerging technology or application domain may, in the early stages of this emergence, not loom large in the decision calculus of an established firm.

4. Conclusion

Corporate strategy, and in particular the question of firm diversification, is a central topic in the strategy field. However, like the strategy field itself, the discussion tends to get balkanized across theoretical frameworks and levels of analysis (Gavetti and Levinthal, 2004; Mintzberg and Waters, 1985). The economic logic of leveraging resources animates our discussion of diversification. In contrast, issues of organizational design and behavioral mechanisms of coordination tend to underlie our understanding of appropriate structures for the diversified firm (Nadler and Tushman, 1997). Resource redeployment is evaluated with regard to alternative use within the firm (Wernerfelt, 1984; Levinthal and Wu, 2010) as well as potential uses external to it (Capron and Mitchell, 2012; Kaul, 2012; McGrath and Singh, 2016; Garg and Zhao, 2018; Aggarwal, 2020; Cabral, Deng, and Kumar, 2020). How this consideration projects onto the decision calculus of particular organizational actors is, in turn, a function of the partitioning of initiatives within the firm and the particular role and decision domain of managers within that partitioning — the “pipes” influencing redeployment. Further, the assessment of relative value creation is often not self-evident for managers responsible for making these possible redeployment choices. While financial measures create a common numeraire, it is challenging to reliably project strategic resource redeployment

onto a financial metric. A simpler, and generally more reliable, calculus is when one can contrast relative value creation on the basis of common operating metrics. The metrics by which one can compare value creation and best use are the "prisms" which inform executives' resource redeployment choices.

This perspective offers a number of possible pathways for future work. In particular, the problem of organization design in the context of corporate diversification is often thought about as the mechanisms and structures by which the diversified firm can best be managed and its diverse initiatives linked. However, by changing the opportunity cost logic of actors within the firm, the structure of the enterprise may also impact the proclivity of the firm to diversify or divest itself of initiatives. In particular, decentralized structures may beget greater diversity of initiatives for the firm as a whole as a result of the limited set of options for identifying new best uses of resources and capabilities within the domain of division managers, while more centralized firms may have a greater proclivity of divesting of activities given the greater range of opportunities within the purview of individual divisional managers.

Further, the metrics by which business are evaluated help guide the resource redeployment process. For instance, Activity-based Cost Accounting (Cooper and Kaplan, 1992) was introduced to help guide multi-product firms in their understanding of the true profitability of their diverse products. Standard accounting systems were developed in an era when direct labor and input costs were the key drivers of costs for firms and various "over-head" costs, which could range from managerial expenses to a firm's engineering and product development, were allocated in proportion to these direct costs. However, this method of cost allocation distorted decisions in favor of small volume niche products and away from higher-volume, and by the structure of the accounting system, what appeared to be lower margin products. More generally, the metrics by which the performance of business units and initiatives within them can be understood can be varied (Kaplan and Norton, 1992). On-going resource redeployment is likely to be most frequent in settings where rich operating metrics of performance span a number of different initiatives within the firm.

Empirical research on resource redeployment has been growing as scholars leverage both new conceptual insights (e.g., Leiberman et al, 2017) and increasingly rich empirical measures developed

using specific industry studies (e.g., Sakhartov et al., 2023), census data (e.g., Chauvin, Inoue, and Poliquin, 2023; Chauvin, Poliquin, and Folta, 2023; Sabel and Sasson, 2023), inventor and IP ownership information derived from patent data (Devarakonda, Goossen, and Mulotte, 2023; Tandon, Nandkumar, Mogra, and Srikanth, 2023; Kim, Guler, and Karim, 2023), and large scale digital data sets stemming from annual reports (e.g., Albert, Eckland, and Tang, 2024). In addition, it is important to be mindful of the wide array of useful exogenous shocks which can form the basis of examining possible redeployment from technological (e.g., Tripsas and Gavetti, 2000), demand (e.g., Miller and Yang, 2016; Aggarwal and Wu, 2017), or regulatory (e.g., Natividad and Rawley, 2016), and (de)globalization (e.g., Morandi Stagni, Santaló, and Giarratana, 2020; Wan and Wu, 2014) changes that can disrupt existing resource complementarities and interdependences (Cozzolino and Verona, 2022), possibly influencing how resources are subsequently redeployed and reconfigured across different products, technologies, geographies, and business models. These shocks act as inducements for resource redeployment, but the business models of different enterprises and associated performance metrics against which various opportunities are compared may lead to very different redeployment choices among firms. On the technological front, for instance, Google trailing behind Microsoft in redeploying human and computing resources towards generative AI might not be attributed to Google's lack of technological capabilities — considering Google invented the Transformer algorithm that underlies the development of neural networks for generative AI (Vaswani et al, 2017). Rather, it may be due to the alignment of performance metrics in the business model for generative AI being more attuned to Microsoft's existing productivity-focused business than Google's search/ad-oriented business. Geopolitical tensions and de-globalization trends can prompt firms to reshuffle their global supply chains and product markets. The immense economic and political uncertainty, coupled with inter-country differences, makes comparing and evaluating new opportunities as challenging as in the face of technological changes. These dynamics present exciting opportunities for researchers to extend prior work on resource allocation within multinational firms developed in a prior era (Bartlett and Ghoshal, 1989; Ghemawat, 2007).

We hope to contribute to and stimulate further work on resource redeployment. Relatedness as a determinant of the value that a resource may create when shifting from one domain to another (Montgomery and Wernerfelt, 1988) has appropriately been a central focus in the consideration of the redeployment. However, it can be understood as a necessary but not necessarily sufficient condition or determinant. The value of the new best use of a capacity-constrained resource needs to be perceived and understood by the relevant actors. Understanding how this economic logic is realized in a complex organization with actors having distinct arenas of responsibilities and distinct metrics of performance is an important corollary effort to which we hope to contribute and bring attention. Examining the "pipes" and "prisms" through which the resource redeployment is (or is not) carried out will help give us a fuller understanding of the important question of resource redeployment.

Figure 1: Ecology of Opportunities

Figure 1a: Ecology of Opportunities: Across Organizations

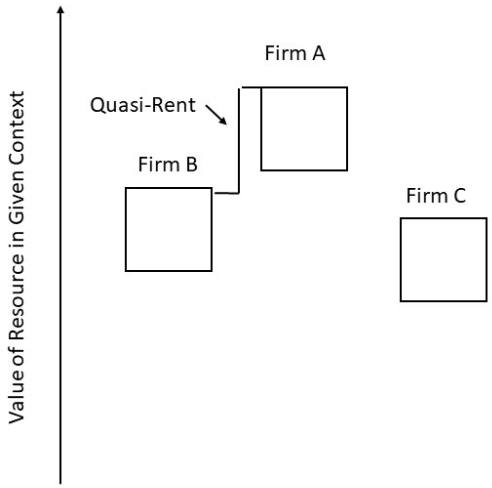


Figure 1b: Ecology of Opportunities: Within and Across Organizations

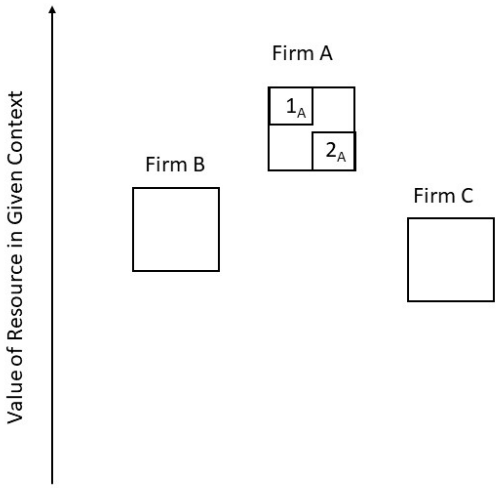


Figure 2: Pipes and Prisms of Resource Redeployment

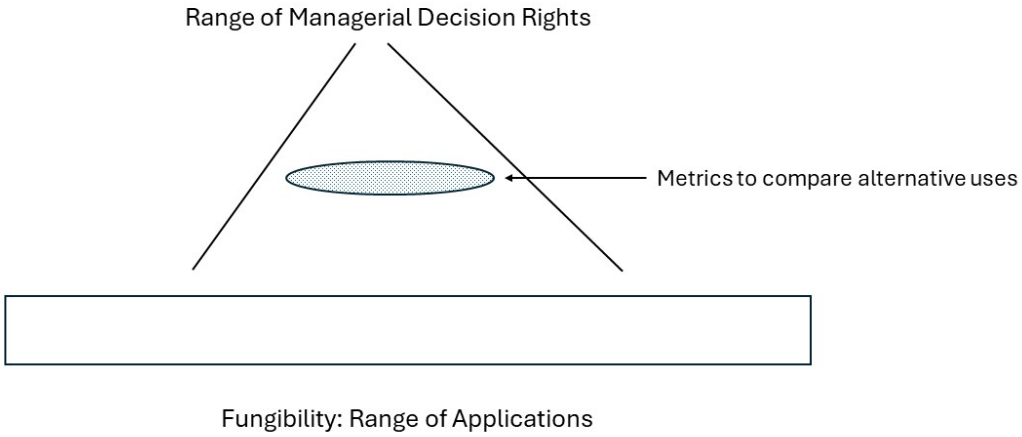


Figure 3: Variation in Comparability and Fungibility among Resources

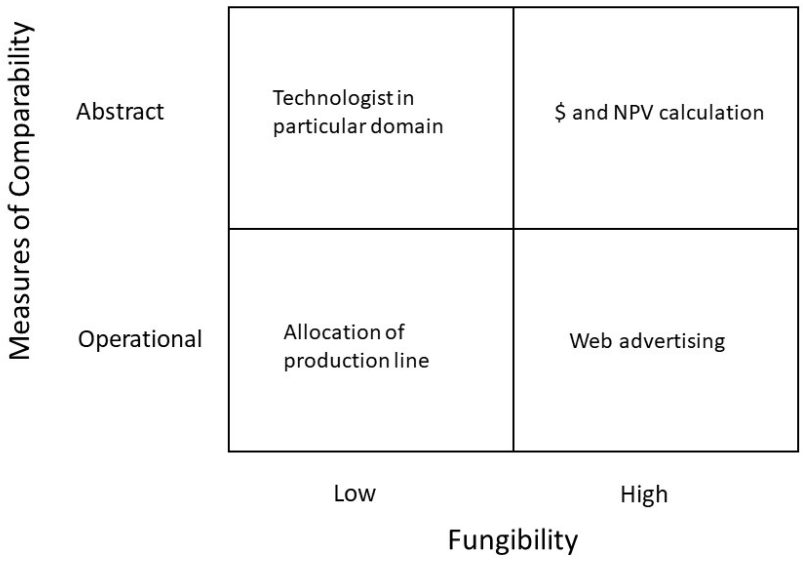
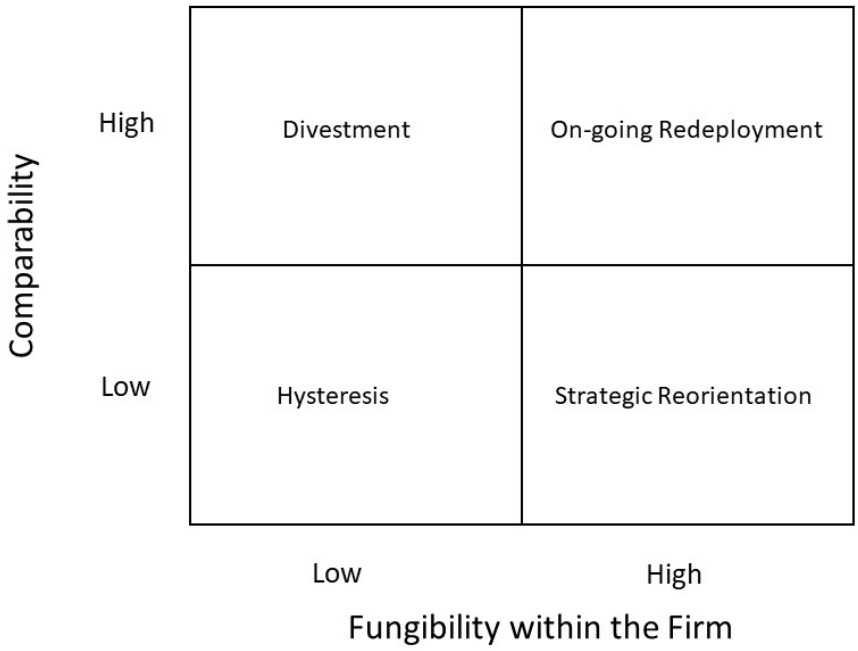


Figure 4: Implications of Degree of Fungibility and Comparability for Redeployability



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