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Resource Allocation Process: Contributions, Synthesis and Future Directions

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RESOURCE ALLOCATION PROCESS: CONTRIBUTIONS, SYNTHESIS AND FUTURE DIRECTIONS

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Abstract

The resource allocation process (RAP) articulated by Bower, Burgelman and their colleagues tries to understand how organizations decide to commit their resources, the forces that influence such decisions, and the strategic consequences of the resource commitments made. Since its inception 43 years ago, this stream of research has significantly evolved in terms of its conceptualization of RAP, providing evidence of a wide range of antecedent forces or factors that influence resource allocation decisions. However, these research efforts are fragmented and focus on one or two key factors. Moreover, there is not even a single scholarly review article, at least to group the related work under one head. Hence, there is a real need not just to group and synthesize these contributions, but to develop an integrated model that directs future research. This review addresses this task in five main parts. First, it maps the research on RAP to the field of strategic management. Second, it tracks down the evolution of the RAP research. Third, it synthesizes the results from various contributions focussing on the forces (and the underlying factors) that influence RAP. Fourth, it gives a brief methodology review. Fifth, it sets the agenda for future research.

Last month, Google Inc – the internet search giant, decided to invest $390 million in a Belgium data center [1]. But, Google owns and operates many data centers around the world. Why then, the investment in the continental European data center alone? Who has made this decision? All that the news talks about is that an organization has allocated its capital resources to a specific project. This is how news eventually reaches the rest (that are not involved in the decision) most of the times. Everything here seems ok, until one stops to ask "How could an organization decide where to allocate its resources? There obviously should be someone behind the decision!". And it's from there that the spate of questions start to pour in: "Who is the one responsible for the decision? Always the CEO? How many would have been involved in the decision? What all factors or forces would have influenced this decision making process, and thus the final decision? Would this particular decision end up changing the strategic direction of Google?". Let me forcefully stop the questions there in order to lay out the review of all the significant contributions to

[1] Economic times, 10th April-2013

the rapidly growing stream of research on "Resource Allocation Process" that sets out to answer all these questions and many more.

The resource allocation process(RAP) articulated by Bower, Burgelman and their colleagues looks inside the blackbox of resource allocation and tries to understand how organizations decide to commit their resources, and how this process of resource allocation and the consequent resource commitments influence strategic initiatives, and thus the realized strategy. Unlike the conventional view of strategy that presumes a single decision maker or quantitative comparability amongst various investment options, this stream of research has started and has been built on the premise that strategy is made by multiple participants that are involved in the resource allocation process, amongst whom the power to make resource commitments is distributed. Emphasizing the importance of the process of resource allocation and the way the consequent resource commitments shape the realized strategy of a firm, this stream of research proposes an administrative model [2] (Bettis & Prahalad, 1983) of RAP that has gained a space for itself in the strategy process research.

The purposes of this paper are to describe the process of resource allocation, to lay out the evolution of the resource allocation process research and to give a synthesis of the various contributions to this stream of research. The paper is organized around five sections. First, this stream of work has been mapped on to the strategic management literature. Second, the evolution of the resource allocation research has been laid out. Third, a synthesis of all the contributions was done starting with the identification of the forces (and the underlying factors) that influence the resource allocation decisions. Following that, a brief methodology review was done in the fourth section before concluding with the fifth section that sets the agenda for future research

For the review, all the scholarly (peer reviewed) articles that mention 'Bower', 'Burgelman' and 'Resource allocation' anywhere in the text were shortlisted. After a cursory reading, only those papers amongst these that add to the theory (contrary to just applying it) were filtered for the review. Random key word searches[3] along with the usual citation tracking were then done in order to make sure that a paper is not excluded. Apart from the contributions thus obtained, this paper has clearly benefitted from the first and the only review (a book) (Bower & Clark, 2005) of this stream of literature.

Building on Bower and Gilbert's previous review (Bower & Clark, 2005), the paper further tracks the work past 2002 and clearly synthesizes the forces (and the underlying factors) that influence the resource allocation decisions, all the way emphasizing the inter-relations between these forces (and the underlying

[2]Bettis and Prahalad identify three models on resource allocaiton – the economic model of resource allocation, administrative model of resource allocation, political and ideological model of resource allocation – depending upon the characteristics of the sector of the economy and the primary source of capital for the firms in that sector

[3]with resource allocation as the subject unit, with other keywords such as impetus, definition, context etc.

factors). This is done with the objective of developing a clear understanding (at a micro-level) of all the levers that management can play with in order to influence the resource allocation decisions.

MAPPING THE RESEARCH ON RESOURCE ALLOCATION TO THE FIELD OF STRATEGIC MANAGEMENT

Strategic management literature has looked at strategy formulation from positional and managerial aspects, with a clear separation between the two. The positional frameworks focus on the movement in the position of the firm from one to another while the managerial frameworks focus on the process of managing this movement by concentrating on development of goals, allocation of resources, coordination amongst stakeholders etc. Irrespective of this focus, the fact remains that even while viewing strategy as the output of the positional approach to management, the influence of social and political forces on the determination of the position of the firm and thus on strategy formulation cannot be ruled out (Bower & Doz, 1979). Thus, the underlying personal and motivational aspects behind these social and political forces that complicate the strategy formulation (Selznick, 1957) call for an integration in both the approaches (positional and managerial). This is where resource allocation process research, which views strategy process as the "evolution of a crude concept of corporate purpose" (Trevelyan, 1974) either as a response to administrative intent or as a reaction to environmental forces (Bower & Doz, 1979), and the top management (specially the CEO) as "shapers of the premises of the thoughts of the rest (others in the organizanization) and as the source of balance in the personal interactions of others" (Bower & Doz, 1979, Pg 157), enters into the picture. Any such research is best placed in the domain of strategy process research that concentrates on the journey towards a strategy outcome by looking at how strategy is formulated, implemented and changed (Pettigrew, Thomas, & Whittington, 2002). Thus, the research on resource allocation, which has its origins from economics and sociology, has emerged as a new school of process research in the strategic management field, whose one of the primary distinctive competencies has always been such inter-disciplinary research (Pettigrew et al., 2002).

THE EVOLUTION OF RESOURCE ALLOCATION PROCESS RESEARCH

Questioning the assumption that the resource allocation decisions were simple capital budgeting decisions made in the boardroom, this stream had its genesis 43 years ago in Bower's insightful description of how the resource allocation process worked within a single large chemical company (Bower, 1970). Since the first field research by bower (Bower, 1970), many authors have built upon the original resource allocation process (RAP) model. I chronologically track these contributions inorder to lay out the evolution of

Table 1: Brief snapshot of phase1

Period	1970-82
Main contributor(s)	Bower
Conceptualization of RAP	A result of three internal processes
Dominant research question	How do firms allocate financial resources to projects?
Resources	Capital
Lens	Socio-Political
Dominant key words	Impetus, Definition, Structural-context, Initiating phase, Integrating phase, Corporate phase

the resource allocation process research. I also use this section to describe the process of resource allocation and to draw attention to some significant contributions. Guided by the search for a dominant theme, many contributions belonging to a particular period (time range) have been grouped together and presented as belonging to one phase. These phases are arranged chronologically to give a clear sense of the evolution: Thus phase1 is the phase of research that precedes phase2, which precedes phase3, and so on. At this point, it is worth explicitly stating that research in line with phase1 may still continue in phase2, however any such research may not have re-defined the conceptualization of RAP or may have been an exception in research largely guided by the dominant theme of phase2.

Phase1: RAP as three processes and three phases across three levels

After two years of observation throughout many offices and locations of a large diversified firm, Bower (Bower, 1970) presents the phenomenon of resource allocation as a set of three basic processes acting over three phases influenced by an identified set of forces (refer to Figure 1). The cognitive process that shapes the economic and technical specifics of the project is called 'definition', the largely socio-political process that determines the projects that eventually make it to the finance committee is called 'impetus', the process that involves the set of organizational and administrative forces that influence the first two processes is the determination of the 'structural context'. Each of these processes take place in three phases – the 'Initiating' phase, the 'Integrating' phase and the 'corporate' phase. Given that the managerial levels are firm specific, these phases refer to the activity and not to the managerial level of the organization at which the activity happens. Explicitly indicating this, Bower maps these phases with the corresponding managerial levels that are specific to the firm in question (Bower, 1970) and mentions that depending upon the firm these levels can even overlap (Bower & Doz, 1979).

Implicit behind involving all the levels of managers in the resource allocation process is the assumption that power is distributed across the organization and that knowledge is dispersed among the various levels. These differences in knowledge and power reflect in the various roles (refer to Appendix – Table7) that these managers play in the resource allocation process. For a satifactory fulfillment of the responsibilities that

come attached with these roles, the structural context should be determined in such a way that it aligns these responsibilities with the aspirations of the managers by linking the incentives to these responsibilities. These aspirations guide managers by provoking them to take initiatives whenever reality constrains them from meeting the expectations on them.

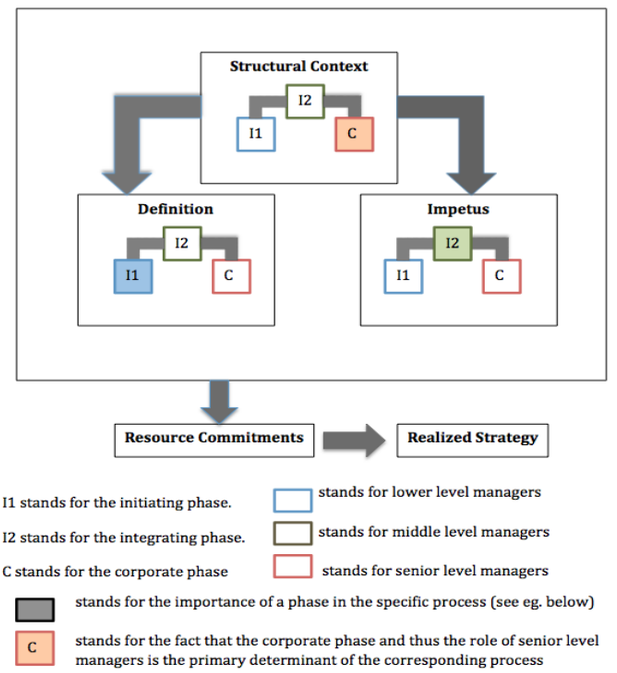

Figure 1: Conceptualization of resource allocation process – phase1

Even before Mintzberg (Mintzberg & McHugh, 1985) emphasized the fact that realized strategy may deviate from the intended strategy, Bower (Bower, 1970) had attributed any such deviation from intended strategy to the simultaneity of action at these multiple levels (operating, middle and corporate managers) of an organization. Thus, the realized strategy is clearly shaped by the resource commitments which is further shaped by the structural-context (as shown in Figure1), clearly implying that structure shapes strategy or (written differently) that "strategy follows structure" converse to Chandler's "structure follows strategy" (Chandler, 1962). In addition to the discussed link to realized strategy [4], this seminal work brings in the importance of the middle level managers that play the integrating role by understanding the languages of both the top level and the lower level managers (refer to Figure 1). Another interesting observation is the hierarchical relation between the three phases with the "initiating phase triggered in product-market terms, the corporate phase in company-environment terms and the integrating phase in terms of the part-whole relationship" (Bower, 1970, p 79), and the corresponding map between the hierarchy of managerial levels and the phases (refer to Figure1). The validity of these observations has been confirmed by a few of Bower's students and their contributions have later been surveyed by Bower (Bower & Doz, 1979).

[4]Note that the term "realized strategy" has not yet been coined by then.

Phase2: RAP as four processes across three levels

So far, it is clear that the structural context of a firm influences its realized strategy (in Phase1). But what influences the structural context? It obviously is not exogenous to the firm, given that the top management has full control of its determination! The solution to this puzzle (and Burgelman's entry) marks the beginning of phase2.

Table 2: Brief snapshot of phase2

Period	1983-95
Main contributor(s)	Burgelman
Conceptualization of RAP	A result of four internal processes
Dominant research question	How do firms decide which projects get the manufacturing and capital resources?
Resources	Manufacturing facilities and Capital
Lens	Evolutionary
Dominant key words	Impetus, Definition, Structural-context, Strategy-context, corporate entrepreneurship, corporate context, internal and external selection, autonomous and induced strategic initiatives

Burgelman solves this problem by introducing another process called "strategic-context determination" (Burgelman, 1983a) (Burgelman, 1996) into RAP. Before placing both structural and strategic context in the RAP model, he presents a model of strategy process that subsumes the contrary propositions of Chandler – "structure follows strategy" – and Bower – "strategy follows structure" (Burgelman, 1983b). This subsumption (refer to Figure2) [5] is made possible by differentiating between those strategic initiatives that are within the scope of current concept of strategy and those that are outside the scope. The former are referred to as "induced strategic initiatives" and the latter as "autonomous strategic initiatives". The middle managers attempt to convince the top management, who are usually aware of any problems in the current strategy but are not sure how to change it, of the merit of these autonomous strategic initiatives that fall outside the scope of the current strategic-context. This political process through which middle managers delineate in concrete terms the content of new fields of business development for the corporation and attempt to convince top managers that the current concept of corporate strategy needs to be changed so as to accomodate the autonomous strategic initiatives is called "strategic-context determination" (Burgelman, 1983b). In evolutionary terms Burgelman refers to this process as an internal selection mechanism and observes that the role of the top management in this process is limited to either rejecting an initiative or retroactively rationalizing the current strategic-context. The fact that the strategic-context

[5] Exact details are out of the scope of the review – Please refer (Burgelman, 1983a)

attempts to integrate the autonomous strategic initiatives into the firm's strategy makes it a perfect complement to the structural-context that is often fine-tuned to encourage the induced strategic initiatives (Burgelman, 2005a). The overlaying processes of strategy and structural context (refer to Figure2) determination thus set the corporate context. According to Burgelman, this corporate context is powerful enough to be equated to ecological selection process and hence to decide what types of internal ventures could succeed and what types couldn't succeed (Burgelman, 1994).

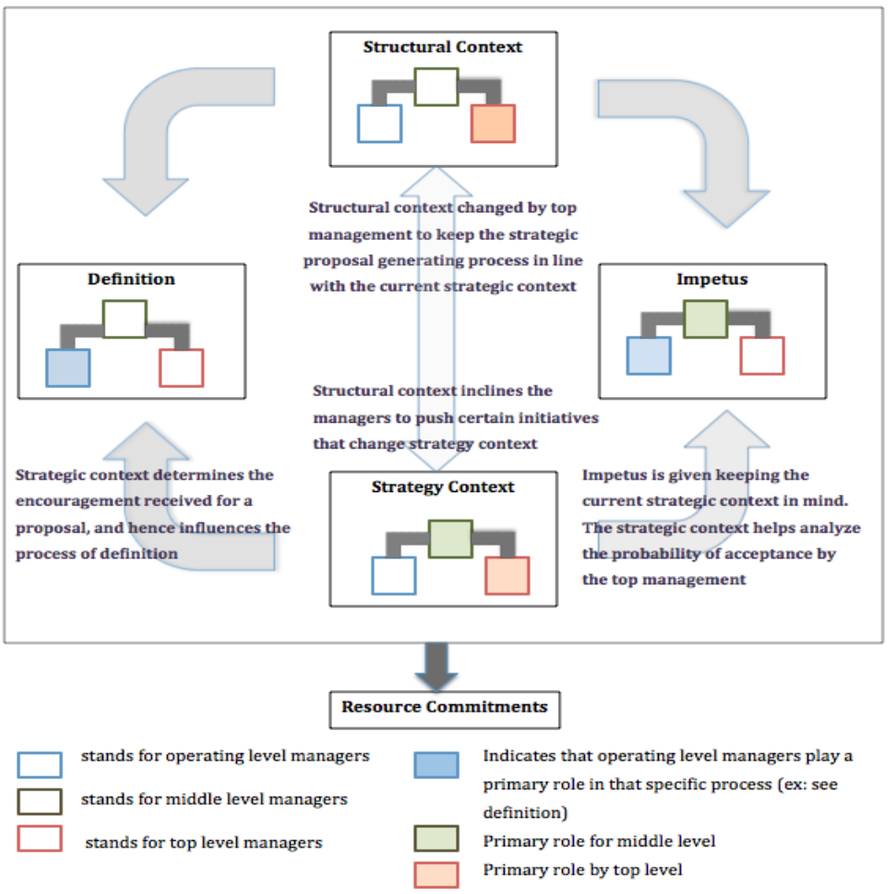

Figure 2: Conceptualization of resource allocation process - phase2

The "initiating", "integrating" and "corporate" phases of Phase1 of RAP research do not appear in Phase2 (contrast Figure2 with Figure1). However, this should not make any conceptual difference given that the managerial levels – operating level, middle level, top level – have anyway been defined in terms of their responsibilities in such a way that they match the activities of these phases. To illustrate with an example, a manager taking care of the "initiating" phase is classified into operating level and this level is further used to (also) refer to the corresponding phase. Also, with each field study coming in, researchers have slowly begun to accept that the two processes –"impetus" and "definition" – are primary bottom-up, while the two processes – "structural" and "strategic-context determination" – are primarily top-down. Amongst these processes, the structural context is clearly seen as a mechanism that corporate management uses to implement the corporate strategy.

Phase3: RAP as an iterative bottom-up process influenced by top-down forces and other internal/external forces

This phase differs from the previous one in two aspects. First, contrary to looking at the determination of structural and strategic contexts as two processes, researchers in this phase view the corporate context as a top-down force acting on the bottom-up resource allocation process (consisting of the definition and impetus processes), which generates the strategic intiatives. Second, whereas research in the previous two phases has concentrated on the finer internal details of the process of resource allocation, research in this phase primarly[6] looks at the bigger picture of resource allocation and concentrates on two specific areas (refer to Figure 3): the influence of the external forces on the resource allocation process, the circumvention of bottom-up process by the top management. Thus, while previous phases have attempted to describe RAP, this phase (except that of Noda and Bower) has begun to confront the prior work by finding anomalies (C. Gilbert & Christensen, 2005)

By observing the resource allocation processes in regional Bell operating companies that were formed simultaneously at the break-up of AT&T, Noda and Bower (Noda & Bower, 1996) show that resource allocation is an iterative process and that further resource commitments are usually made depending on the intermittent operating results. Though this research differs from the rest (in this phase) in its focus on the finer details of the resource allocation process, the way this study brings out the influence of capital market context on RAP makes it a clear candidate for Phase3.

Forces that influence RAP

In this phase, researchers identify a wide range of internal and external forces that influence RAP. Christensen and Bower (Christensen & Bower, 1996) show the influence of powerful customers by looking at

[6](Noda & Bower, 1996) clearly an exception

Table 3: Brief snapshot of phase3

Period	1996-2002
Main contributor(s)	Noda and Bower, Christensen, Sull, Gilbert, Eisenmann
Conceptualization of RAP	A bottom-up iterative process influenced by top-down forces along with other internal/ external forces.
Dominant research question	What forces influence the bottom-up RAP? When should top management circumvent bottom-up RAP?
Resources	Capital, Time-and Attention-based resources
Lens	Varied (Resource dependence, cognitive psychology to name a few)
Dominant key words	Bottom-up, Top-down, capital providers, customers

how these customers can effectively capture RAP. By highlighting the differential treatment meted out to innovations (in this case disruptive innovations[7]) that are not useful to the current customers, they bring out the way the corporate context favors the innovations that are useful to these customers. Almost in parallel, Noda & Bower (Noda & Bower, 1996) and Sull (D. N. Sull, 1999) show the influence of capital markets on the resource allocation process. Later, from his work (Kuemmerle, 1999) on international R&D decisions where he contrasts the R&D investment decisions of established companies with start-ups, Kuemmerle finds that the the structural context, specifically the number of layers of middle managers, influences RAP (Kuemmerle, 2005). He finds that the multi-layered organizations are at a disadvantage because of the increased probability of the middle management getting into political conflicts with the operating managers in a multi-layered organization. A few years later, Gilbert shows that even when structural and strategic context remains unchanged, different cognitive frames can lead to very different definiton and selection processes (C. G. Gilbert, 2001) (C. G. Gilbert, 2006). Almost in parallel, Eisenmann finds that the investment decisions also depend upon the CEO's equity ownership and The higher the CEO equity ownership, the higher the risk-taking propensity

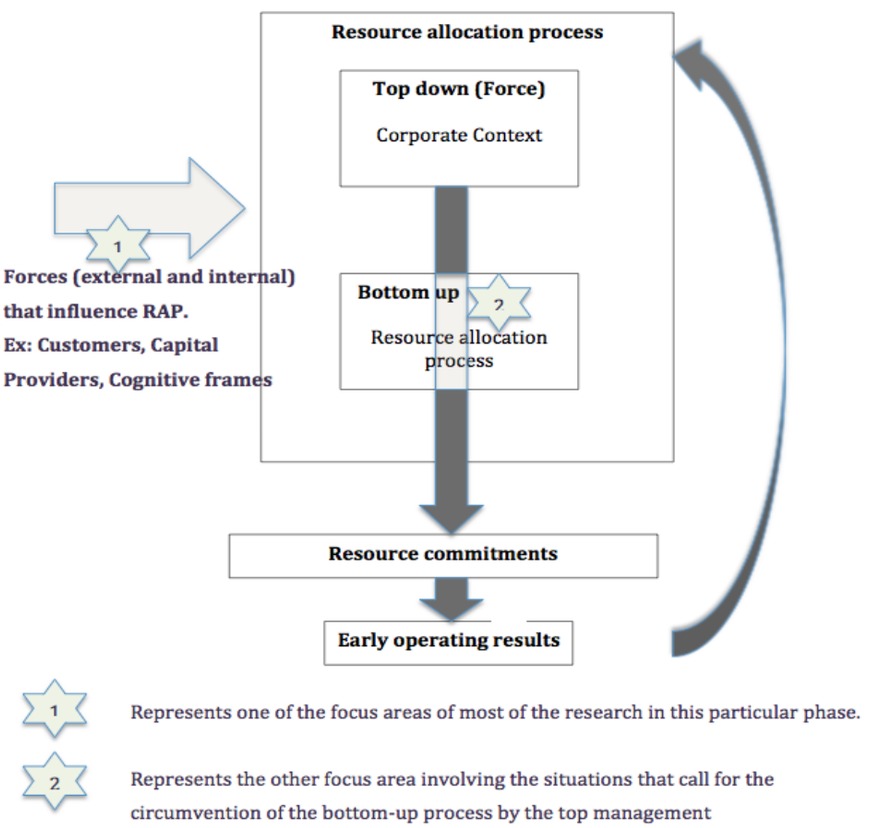

Figure 3: Conceptualization of resource allocation process - phase3

The circumvention of the bottom-up process

[7]innovations that disrupt an established trajectory of performance improvement, or redefine what performance means

Senior managers can not only control the bottom-up process (through corporate context) but also circumvent this process totally. The resulting top-down resource allocation process comes attached with a few risks though. First, the cognitive biases of these managers can lead to improper decisions. Second, such a process may not only fail to capture the specific knowledge embedded at lower levels but also fail to hold the commitment required by the lower level managers. However, despite these risks, such a circumvention proves to be useful in situations such as those where the decisions run counter to the employee's interests (ex: disinvestment (D. N. Sull, 1999)) or those where the traditional process is too slow, costly or inefficient. For example, as shown by Eisenmann and Bower (T. R. Eisenmann & Bower, 2000) , corporate intervention may be needed to promote strategic integration that requires huge resource commitments that are beyond the budget, knowledge or risk appetite of the divisional managers. This is especially the case in a turbulent environment where a slow response may deprive the organization of first mover advantages (T. R. Eisenmann & Bower, 2000). Apart from these situations, this circumvention is also needed when the bottom-up resource allocation process fails[8] (ex: when customers dictate the bottom-up resource allocation (Christensen & Bower, 1996)) or when the distinction between "bottom-up" and "top-down" is in itself not clear (ex: MNCs[9] that usually have complex nonlinear organizational structures that span various geographies, product lines and functions).

Apart from the differences mentioned above, another interesting observation is that the different authors in this phase refer to the three managerial levels differently depending upon the structure of the firms in their sample (refer to Appendix: table7). However, as noted before, there is something predominantly common in the way these authors define the levels – Most of them[10] define their managerial levels depending upon the phases (initiating, integrating and corporate phases) in the resource allocation process that the managers are responsible for [11].

Phase4: RAP as an investment specific process

The path-breaking research of Maritan that focuses on the differences between investments rather than on commonalities across investments marks the beginning of this phase. Deviating from the previous phases, this phase highlights four different aspects. First, the investment-specific nature of RAP. Second, the role of search abilities and search routines in identifying an investment opportunity. Third, the dynamic capability view of resource allocation. Fourth, the link between definition and impetus.

[8] For a detailed review refer to (T. Eisenmann, 2005) and (D. Sull, 2005)

[9] Refer to Doz's review of his work from resource allocation perspective – (Doz, 2005)

[10] Not all because few authors do not explicitly mention the levels. They bring in the individuals and the departments that perform the different phases. For example, Christensen (Christensen & Bower, 1996) observes that the financial and marketing departments approve of the promotion of a product developed by the engineers implying that a department (not a managerial level) takes on the integrating role in this case

[11] Thus, depending upon the activity the manager is responsible for

Table 4: Brief snapshot of phase4

Period	2001-13
Main contributors	Maritan and Gilbert
Conceptualization of RAP	An investment-specific influenced by various forces
Dominant research question	How does the process of allocating capital resources to capabilities differ from the standard process of allocating to projects?
Resources	Capital
Lens	Varied (Resource based view, Evolutionary, Complex Systems to name a few)
Dominant key words	Search routines, search ability, dynamic capability, standard-process model (B-B model), top-down, bottom-up

Viewing RAP as an investment-specific construct rather than a firm-specific construct, Maritan emphasizes that investment decision making research does not systematically measure the issue of procedure rationality [12] (Maritan, 2001). Borrowing various constructs from capital budget process literature [13], Maritan uses the standard process model comprising of proposal initiation, proposal development, proposal management, project management [14] and focuses on the capital investments in capabilities while looking for any deviations from the bottom-up RAP suggested by Bower & Burgelman. She observes that though the investments that add to an existing capability or maintain an existing capability follow the standard bottom-up procedure, the investments in new capabilities are almost exclusively championed by senior division managers. Her research shows that RAP is an investment-specific process that depends on various factors such as the search abilities of managers at different levels, the uncertainty associated with the investment and the risk appetite needed to invest. She also finds that when senior managers initiate and participate in the development of a proposal, the stages of the investment process can be blurred because of "quasi-decision making – that is, a formal procedure enacted when the decision has in effect already been made" (Maritan, 2001, Pg 11). Figure4 indicates this with a blurred lines for the various phases of impetus. This clearly brings out the lower procedural rationality (failure to gather information) in these cases and most importantly the fact that RAP varies with each investment type.

An important aspect of resource allocation is to search for investment needs and the appropriate investment options. So far, this has not been explicitly considered by research in the previous phases. Research in this phase attributes the investment specific nature of RAP to the different search routines that are needed to come up with an investment. In phase1, it was merely acknowledged that managers widely vary in terms of their knowledge and perspective. However, Phase4 takes this further and emphasizes

[12] Extent to which the decision process involves the collection of information relevant to the decision and the reliance upon analysis of this information in making the choice (Dean & Sharfman, 1993)

[13] That focuses on "the way the investment opportunities are identified and analyzed, the way the decisions are made, the way the returns on investments are evaluated" (Keršytė, n.d., Pg 2) (Ducai, 2009)

[14] She emphasizes the fact that despite the various labels that researchers in that literature use these are stages of the investment process: proposal initiation, proposal development, proposal management, and project approval

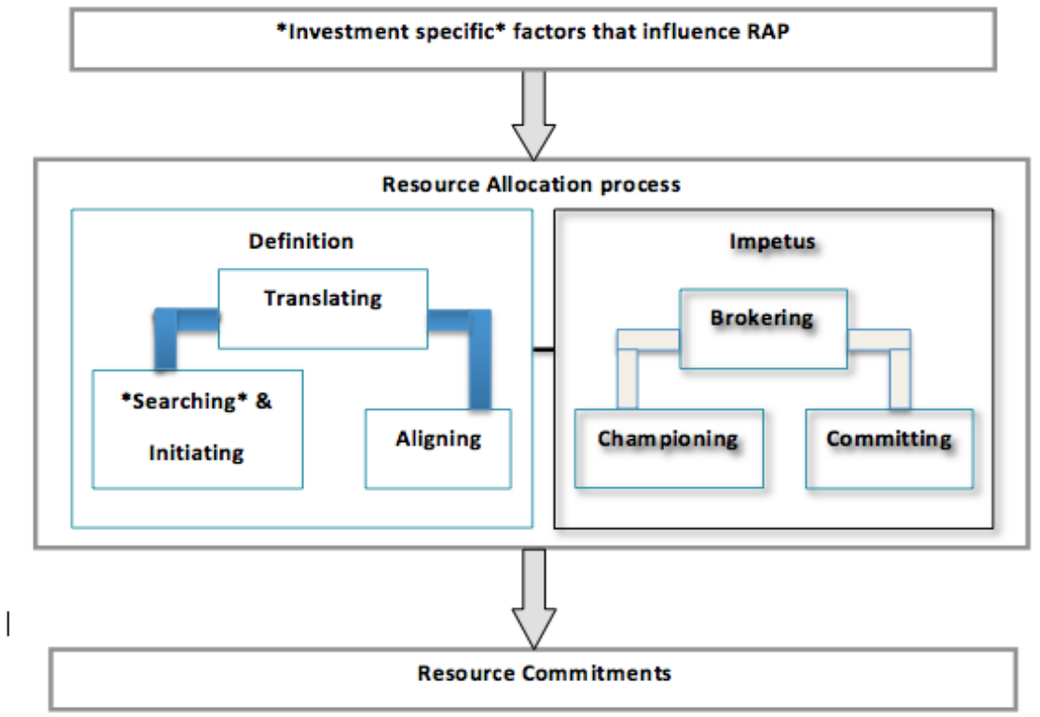

Figure 4: Conceptualization of resource allocation process - phase4

that different investment options demand knowledge in different domains, and hence originate at different managerial levels and are processed differently depending on other contextual forces. Though Bower and Gilbert exclude Maritan's work from their review, they indirectly hint at this investment-specific nature of RAP by emphasizing the fact that any phase of the bottom-up process can occur at any managerial level (Bower & Clark, 2005). This investment-specific nature of RAP is emphasized even further by treating resource allocation as a capability (Eisenhardt & Martin, 2000) (Coen & Maritan, 2011) – one that exactly matches the appropriate investment decision process to the investment type. The tricky part is to make full use of the search routines at various managerial levels and to invest in operational capabilities important to the firm [15].

In this phase, Gilbert (C. G. Gilbert, 2006) brings out the interaction between definition and impetus triggered by the high pace of commitment and the concentration of authority in the hands of few senior management. He shows that this interaction eventually led to a rigid strategic definition. Remotely revisiting this link between definition and impetus, Choudhary (Choudhury, 2010) highlights the role played by information asymmetry between the managers involved in the definition process and those involved in the impetus process in an MNC context. He finds that intra firm mobility and communication across layers can help bridge this gap. Despite these two studies, the interaction between impetus and definition

[15] This involves striking the appropriate balance between exploratory and exploitative activities

remains significantly under-researched. However, this phase still marks the beginning of any such efforts [16] .

SYNTHESIS

Apart from Bower and Gilbert's (Bower & Clark, 2005) attempt to revise the RAP model, there has been no attempt to synthesize or to integrate these diverse set of contributions (refer to Table5 for the list of significant empirical contributions) into a coherent whole. Such an integration is especially important for three reasons. First, most of these studies are done on small samples within a single industry, making it important to collect together the various findings in order to build a reliable theory (C. Gilbert & Christensen, 2005). Second, resource allocation process is one of the underlying themes running in various streams of research such as corporate entrepreneurship, strategy making, corporate venturing, R&D investments. Though these streams focus on different aspects, their findings prove to be insightful in understanding the process of resource allocation and the forces that influence it, and hence should be integrated into resource allocation process research. Third, most of the studies identify one or two factors that influence the resource allocation decisions. Integrating these studies would highlight the bigger picture by emphasizing the inter-relations between each of these factors.

The literature related to resource allocation processes can be viewed in four parts. One dealing with the forces or factors that influence the resource allocation process or decisions (refer to the "first part" color coded in transparent green in Figure6). Another dealing with process of resource allocation – the subprocesses, the roles and responsibilities of various actors involved (refer to the "second part" color coded in transparent blue in Figure6). Another dealing with the implications of resource allocation process, the decisions and commitments (refer to the "third part" color coded in transparent violet in Figure6). And the last one dealing with any feadback effects that further influence resource allocation decisions (refer to the "fourth part" color coded in transparent orange in Figure6). As was tracked in the evolution of RAP research (previous section), it is just the second part that was the focus of this stream in its first two decades, and the latter parts got added as the attempts at generalizing the model increased. Figure 6 synthesizes all these parts and the key research that has been done so far.

[16]Note that 2001 is included in both phase3 and phase4 in order to capture two separate dominant themes and Gilbert's contribution in both of them

Table5: Chronological summary of empirical works related to the resource allocation process (the four parts)

Ref no	**Studies/Year**	**Research Focus**	**Method**	**Theoretical Lens**	**Core Findings**
1	(Bower, 1970)	Business planning/ investment procedure in large diversified organization	Qualitative: Longitudinal field study – a large diversified company	Political and Behavioral Theory	Resource allocation is a multi-level, multi-role process. Three processes – definition, impetus, context determination. Three phases – corporate, integrating and initiating.
2	(Burgelman, 1983b)	Strategy process by which new ventures take shape.	Qualitative: Longitudinal field study – diversified, US based, high technology firm	Evolutionary	Strategic context determination should be added to RAP. Autonomous strategic initiatives by product champions can change the strategic context.
3	(Duhaime & Baird, 1987)	Role of business unit size in divestment decision-making	Quantitative: Mail survey and interviews	Strategy decision making process	The nature of involvement of various managerial levels in the divestment decision making process is a function of unit size.
4	(Bahrami & Evans, 1989)	Process of strategy-making in emerging firms that operate in volatile technology sectors	Qualitative: Case studies – 15 silicon valley high-tech firms	Strategy making process	Escalation of resource commitment to an initiative takes place after a period of experimentation, after which the initiative is integrated into organizational context.
5	(Baysinger & Hoskisson, 1989)	Implications of different types of diversification strategy on R&D investment decisions	Quantitative: COMPUSTAT	Not specific	Choice of diversification strategy systematically affects resource allocation to R&D in large multiproduct firms
6	(Skivington & Daft, 1991)	Relationship between individual strategic decisions and the organizational mechanisms used to implement them	Quantitative Analysis: Interview data	Not specific	Depending upon the strategic decisions, the significance of various resource allocation processes and the allocation of resources differs. [17]
7	(Garud et al., 1992)	Comparision between trial-and-error learning and action persistence (despite negative consequences)	Quantitative regression analysis: Longitudinal field data	Not specific	Resource allocation through trial-and-error learning is likely to occur when either the level of ambiguity is low or when slack resources are not available. Despite any negative outcomes, entrepreneurs persist in their actions otherwise.
8	(Day, 1994)	Impetus process and the roles of various managerial levels	Quantitative regression analysis: Questionnaires and secondary data	Not specific	Championing process of innovative ventures may be bottom-up or top-down. Top-down when ventures are expensive, visible and represent new strategic directions or resource reconfigurations.

[17] In the case of differentiation strategy, the process of impetus is put to greater use and the resources are allocated to market and training related activities. Wheras in the case of low-cost strategy, the rewards system and thus the structural context determination is put to greater use and the resources allocated to operation related activities.

9	(Burgelman, 1996)	Managerial activities that constitute the strategic process by which a firm exits from a core business	Case study design: Intel's exit from DRAM business	Evolutionary	Internal selection procedure is much more powerful in the case of SBE than ICV. Middle-management play a significant role in strategic context determination.
10	(Noda & Bower, 1996)	Different responses and strategic commitments by firms facing similar opportunities.	Field study: BellSouth and U S WEST—two of the seven Bell regional holding companies ('RHCs') created	Capital Market Theory	Strategy making in a large complex organization is an iterated process of resource allocation.
11	(Christensen & Bower, 1996)	Faiure of leading firms when faced with particular types of technological change	Qualitative study (Interviews and secondary data): World disk drive industry	Resource dependence	Customers can effectively capture the process of impetus i.e the demands of a firm's customers shape the allocation of resources in technological innovation
12	(Birkinshaw, 1997)	Initiatives (identification of an opportunity and commitment of resources) in MNC subsidiaries	Qualitative and quantitative: Interviews and Survey data on 39 initiatives	Network theory and Corporate entrepreneurship	Structural context and resource allocation systems influence the types of initiatives facilitated. For facilitating full scope of initative types[18], structural context needs to be differentiated at the sub-subsidiary level, and a dynamic approach is needed for its determination.
13	(D. N. Sull, 1999)	Process of disinvestment	Iterative cycling between inductive case data (corporate archives) and existing theory: Tire Industry	Institutional Theory	Capital providers can influence the resource allocaiton. It may be optimal to impose a top-down resource allocation process for a period to drive disinvestment.
14	(Birkinshaw, 1999)	Corporate entrepreneurship in MNCs	Quantitative Regression analysis: Case-study companies and questionnaire data	Corporate entrepreneurship	Subsidiary capabilities, extent of decision centralization, subsidiary credibility and corporate-subsidiary communication influence and get influenced by subsidiary initiatives (RAP)
15	(T. R. Eisenmann & Bower, 2000)	The need to rely upon an activist CEO in a successful strategic integration	Cases: Global Media Firms	Agency Theory	Industries rich with risky expansion opportunities that require large resource commitments and coordination among multiple business units call for corporate intervention
16	(Kisfalvi, 2000)	Role played by CEOs and their personal issues in strategic persistence	Qualitative: Interpretive longitudinal field study – small entrepreneurial firm with an active founder	Strategic persistence	Strategist's character-based personal issues can contribute to strategic persistence and escalation of resource commitments despite losses

[18](Birkinshaw, 1997) identifies the following four initiative types: Global, internal, local, and global-internal hybrid initiatives

17	(Thomas & McDaniel, 1990)	Influence of context on CEO's interpretation of a strategic issue	Quantitative regression analysis: Questionnaire and secondary data	Cognition	Information-processing structure [19] influences how CEOs interpret a situation (and hence influences resource allocation decisions).
18	(Maritan, 2001)	Decision processes used to make capital investments in capabilities.	Field study – Quantitative analysis of qualitative data: a large US paper and pulp firm	Resource Based View	Investment in existing capabilities followed a bottom-up process, new capabilities did not
19	(Stiles, 2001)	Role of board of directors in strategy process	Qualitative analysis: interviews, survey, case study	Not specific	The board sets the strategic context and maintains it by playing the role of a gatekeeper, a confidence builder, and by functioning as a selector of the CEO and other directors.
20	(C. G. Gilbert, 2001)) (C. G. Gilbert, 2006)	Strategy problem despite the allocation of resources	Multicase design (interviews, field-data, secondary data)	Cognitive Psychology	Cognitive frame as a force. Threat as impetus – Increases the pace of resource allocation but strategic plans would be rigidly defined
21	(Dutton, Ashford, O'Neill, & Lawrence, 2001)	Shaping change from below through various issue selling moves	Qualitative analysis: large not-for-profit regional hospital	Change process	Resource (time, management attention) allocation is influenced by issue selling moves, including packaging, involvement, and timing
22	(Branzei, Ursacki-Bryant, Vertinsky, & Zhang, 2004)	The influence of the feedback loops between action and cognition across organizational levels on strategy formation	Quantitative analysis: Survey and interviews	Control theory, Goal theory, Escalation of commitment	Expectancy of success, perceived performance, commitment by organizational leader influence the strategic commitment (that manifests in resource allocation decisions).
23	(Watson & Wooldridge, 2005)	Upward influence on strategy formulation by business unit managers associated with implementation	Quantitative regression analysis: Survey data	Not specific	The business unit managers directly reporting to the CEO, those that manage core business of the corporation, those that manage larger units, those that manage better performing units have higher influence on resource allocation decisions.
24	(Burgelman & Grove, 2007)	Managing cycles of autonomous and induced strategy processes for corporate longevity	Qualitative: Longitudinal field research – Intel Corporation	Complex adaptive systems	Top management should appropriately balance the induced and autonomous processes depending upon the strategic dynamics through strategic context determination for corporate longevity

[19] Information-processing structure defined in terms of three dimensions – participation, interaction and formalization. "A high level of participation and interaction, and a low level of formalization facilitate a high level of infomration processing"(Thomas & McDaniel, 1990, Pg 5)

25	(Pappas & Wooldridge, 2007)	Relationship between network centrality and middle managers' divergent strategic activity	Quantitative regression analysis: survey and interviews – Catholic Hospital	Social network theory	Middle managers' participation in autonomous strategic activities[20] is associated with their centrality (closeness, degree and eigenvector centrality) and boundary-spanning responsibilities.
26	(Güttel & Konlechner, 2009)	The role of balancing and orchestrating capabilities to concurrently perform explorative and exploitative activities	Case study: European multi-unit research firm	Behavioral theory	The strategic corrider that is specified by top management influences the trade-off between the autonomous and induced strategic initiatives.
27	(Raman, 2009)	The way middle managers enact their roles and the challenges they face	Qualitative: Case study – Indian based auto componenets manufacturer	Behavioral theory	Resource allocation decisions depend on middle managers' knowledge of employee mind-sets and existing reporting relationships.
28	(Choudhury, 2010)	Influence of two mechanisms on bottom-up resource allocation at emerging market R & D centers of MNCs	Quantitiative: hand-collected data	Knowledge Creation	Inefficiencies in the process of impetus: Information asymmetry exists between sponsors of knowledge creation projects of MNCs and inventors at emerging market R&D centers [21]
29	(Bardolet, Lovallo, & Rumelt, 2010)	Impact of corporate management on capital allocation decisions	Quantitative - Compustat	Not specific	Single and multi-business corporations have different investment behavior: Multi-business firms invest more intensively in those that are less profitable
30	(Robert Mitchell, Shepherd, & Sharfman, 2011)	Influence of metacognitive experience and perceptions of the external environment on strategic decisions	Quantitative - Interviews of a sample of CEOs obtained from CorpTech database	Strategic decision-making process	CEOs allocate resources depending upon their metacognitive experience, perceptions of environmental hostility and environmental dynamism
31	(Coen & Maritan, 2011)	Performance implications of the dynamic capability of resource allocation to invest in operational capabilities	Simulation model	Evolutionary and Complex systems	Firms with lower levels of initial capabilities benefit most from superior search abilities (resource allocation to new capabilities); improving a firm's search abilities increases performance only within a bounded range.
32	(Ethiraj, Ramasubbu, & Krishnan, 2012)	Firms' response to customer requests for innovation as the complexity of innovation increases	Qualitative and Quantitative: client software for bluetooth protocol analyzer	Innovation Theory	Organizational considererations decide whether or not to allocate resources, customer demands decide how firms implement an investment. The primacy of customer focus in incremental innovation decisions cannot be presumed.

[20](Pappas & Wooldridge, 2007) refers to this as divergent activity – "activities that challenge the 'dominant logic' of the firm, help organizations enter new markets, and spark the development of new capabilities activities" (Pappas & Wooldridge, 2007, Pg 2)

[21]Can be bridged by communication across layers and intra-firm mobility (Choudhury, 2010)

Literature in the first part identifies a number of complex forces that provide context and shape to the resource allocation process. Of these forces, the most stable and the persistent one is the structural context, which refers to the various organizational and administrative mechanisms (refer to Figure 5 for a few mechanisms) such as formal organizational structure and other organizational levers such as information systems, performance goals, performance measures, rewards, organizational design, and compensation plans that top executives can manipulate (Bower, 1970). Figure5 lists a few levers (in the hands of top management) that alter structural context and their corresponding influence on the attributes that determine resource allocation decisions. Top management uses these levers to implement the current corporate strategy (Burgelman, 1983b) and to influence indirectly what type of strategic initiatives are defined and selected. Refer to appendix for a detailed discussion on these levers and the various components that constitute the structural context.

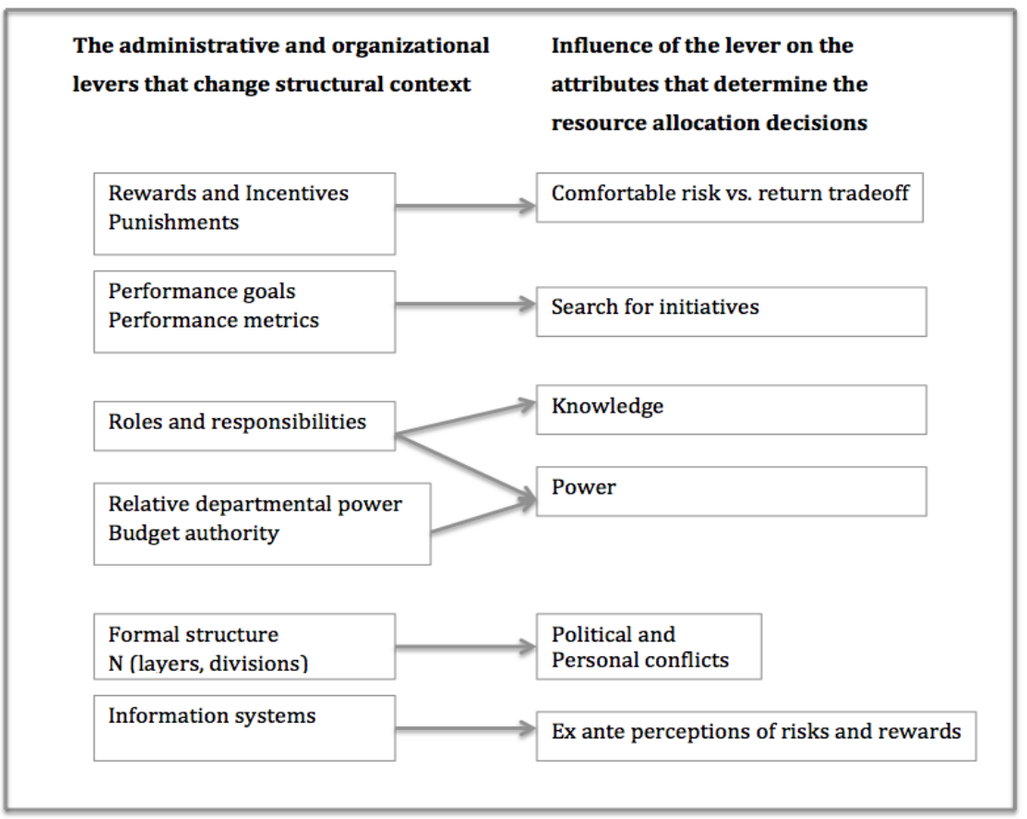

Figure 5: A brief set of levers (in the hands of corporate management) related to structural context

Strategic context (corporate-level and business-level (Noda & Bower, 1996)) also influences the resource allocation decisions by discouraging autonomous strategic initiatives that fall outside an organization's official strategy (Burgelman, 1983b) and by determining the parts of the environment that are relevant to the organization and hence are scanned by the organization. In line with resource dependence theory that posits that managers' decisions will be influenced by the demands of external stakeholders who provide resources necessary for continued survival (Pfeffer & Salancik, 1978), it was found that resource providers such as customers, investors and lenders influence resource allocation decisions. Customers capture the

impetus process (Christensen, 1997) and hence direct the proposals defined by the operating levels; lenders can not only directly influence the resource allocation decisions through review rights on major investments and caps on expenditure but also indirectly do so by increasing financial executives' power within the organization, and by influencing the timing of top executive turnover, choice of CEO selected (Furtado & Karan, 1990), and most importantly the disinvestment decisions (D. N. Sull, 1999); Venture capitalists can inculcate a spending discipline (Kuemmerle, 2005) and often influence even regular investment decisions. Added to the list of these contextual (structural and strategic contexts, capital and product market contexts) forces, are other environmental, social and political forces that influence resource allocation decisions. For example, a turbulent environment demands a faster resource allocation process. More often than not, such an environment calls for corporate intervention because the use of slow, bottom-up planning processes risk may forfeit first-mover advantages and other opportunities (T. R. Eisenmann & Bower, 2000). Political conflicts between managers also influence resouce allocation decisions, and so do other interpersonal relations.

All these contextual forces (listed in the previous paragraph) influence the resource allocation decisions through the cognitive frames – "underlying structures of belief, perception and appreciation" (Schön & Rein, 1995, Pg 23) through which information is collected, interpreted and retained – of employees. According to Gilbert, structural-context, strategy-context, product-market context and capital-market context themselves operate like cognitive frames: "The structural and strategic context, as well as customers and capital markets operate like cognitive frames in that they shape the collection, interpretation and retention of information used in the resource allocation process" (Bower & Clark, 2005, Pg 207). Beyond these contexts, even the decisions made by the senior executives and the way they carry out their actions on a day to day basis (Bower & Doz, 1979) affect the perceptions of organization members. These perceptions influence resource allocation decisions because if the employees are worried that the firm will not adopt their projects, be it because of the feedback from the external environment or because of the top management's concerns in light of the existing strategy, they are unlikely to spend effort on the project in the first place. Highlighting the role of these cognitive frames, Gilbert shows that the resource commitments of firms differed when an environmental change is perceived as a threat compared to when it is perceived as an opportunity (C. G. Gilbert, 2006). It is important to note that the role of cognitive frames goes beyond a single decision because these frames determine the information the manager collects in the future (Daft & Weick, 1984). In line with this argument, Noda and Bower show that the firms that differed in their interpretations not only differed in their strategies but also in the data they seek out for (Noda & Bower, 1996).

Along with these forces, literature identifies various other factors such as CEO equity ownership (T. R. Eisen-

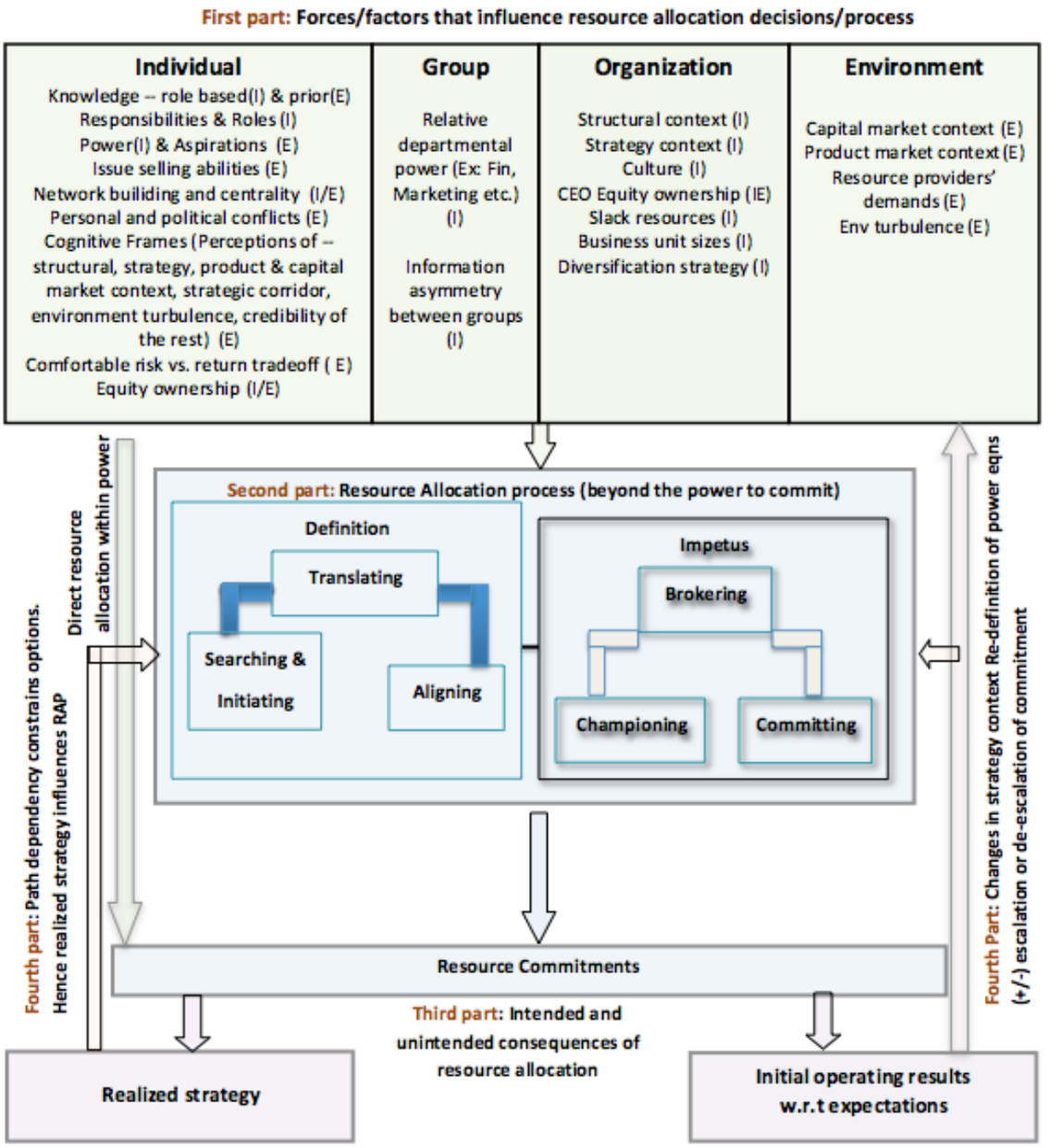

Figure 6: synthesis of research on resource allocation processes

mann, 2002), strategist's character based personal issues (Kisfalvi, 2000), information processing structures (Thomas & McDaniel, 1990), issue selling abilities of employees at various roles (Dutton et al., 2001), investment-specific risk (T. R. Eisenmann & Bower, 2000), slack resources available (Garud et al., 1992), diversification strategy (Baysinger & Hoskisson, 1989), centrality of the involved managers and their boundary spanning responsibilities (Pappas & Wooldridge, 2007), the perceptions of strategic corridor (Güttel & Konlechner, 2009), and information asymmetry (Choudhury, 2010) (as can be seen from table5). This lengthy list of factors calls for a proper grouping and prioritization of the factors in order to give the decision maker any discerning capability [22]. Not intended as a comprehensive catalogue, Figure 6 highlights these significant forces and the factors that influence RAP at various levels. It makes a subjective distinction between the forces that are in control of the organization (marked internal in Figure6) and those that are not (marked external in Figure6). Contrary to the current conceptualization of the various forces that influence RAP, it identifies various underlying factors that influence RAP and represent them at various levels – individual, group, organizational, environmental – in order to give as comprehensive a picture as possible.

Coming to the second part, Figure 6 highlights the investment-specific nature of RAP, in line with the latest phase (Phase4, previous section) of research. Note that the phases are not mapped to any managerial levels, that the process of impetus is blurred in line with Phase4 (Figure 4) and that the influence of the listed forces varies with each investment – all indicating that RAP is investment-specific. The contributions to this part have been detailed before and hence, owing to space constraints I refrain myself from revisiting them here.

Literature in the third part identifies various implications of resource allocation process, the allocation decisions and commitments: A few studies concentrate on the link to realized strategy (Bower, 1970) (Noda & Bower, 1996), a few concentrate on the balance between exploratory vs exploitative strategic initiatives (Burgelman & Grove, 2007) (Birkinshaw, 1997), a few on performance implications (Coen & Maritan, 2011), and a few on corporate longevity (Burgelman & Grove, 2007). Figure 6 mentions only the temporary performance results and the realized strategy because the rest are seen to be a result of these two factors in the long-run. However, any such inter-relations and inter-dependencies between these implications is outside the scope of this review.

In its representation of the fourth part, contrary to Bower and Clark's version (Bower & Clark, 2005), this synthesis clearly differentiates between the influence of the realized strategy and the intermittent operating results on the next iteration of RAP. Whereas the early results from operations either confirm or disconfirm the premises of the previous investment and the credibility of the champions (Noda & Bower, 1996), the earlier commitments and the consequent realized strategy constrain the options available for

[22] Thanks to Prof. Sourav Mukherjee for raising this point

subsequent allocation by locking in strategic outcomes (Bower & Clark, 2005). Top management learns more about the investment from these incremental commitments made in every iteration, thus building the confidence on the investment over time. Depending upon the results of this confidence building exercise, the official corporate strategy is then changed. Thus, managers wishing to manage strategic outcomes need to manage the resource allocation process and the forces that shape it. The fact that each force mentioned above directly or indirectly interacts with every other force makes this task easier in a way and complicated in a way: easier because the interactions provide the manager with an opportunity to harness the external forces using the internal forces, complicated because of the unpredictable ripple effects these forces can have.

METHODOLOGY REVIEW: PROBLEMS WITH THE CURRENT RESEARCH

The tradeoff between large-sample numerical data vs field observation, qualitative vs quantitative research has always confronted researchers. However, an extensive review of the various methods (refer to Table5) used by researchers of RAP reveals that the choice of method is clearly associated with the conceptualization of the process model, which is guided by the research question. Figure 7 identifies each empirical study (listed in braces are the reference numbers of the studies as per Table5) with the corresponding conceptualization of the process model. The list of process models has been obtained from Van de Van's research note on studying strategy process (Ven, 1992), in which he identifies the three common meanings of process as "a logic that explains a causal relationship between independent and dependent variables; a category of concepts or variables that refers to actions of individuals or organizations; and a sequence of events that describes how things change over time". Attempt has been made to map these three process models with the four parts of research identified in the previous section. However, because of the inadequacy of research related to the fourth part that explicitly identifies itself with resource allocation, the fourth part is omitted. Also omitted due to lack of corresponding studies, is the view of process as a logic that explains causality.

Researchers that view process as a sequence of events have predominantly opted for qualitative, field observations. Studying resource allocation process as a sequence of events is demanding for several reasons: the complexity of the process, the involvement of multiple levels of organizational hierarchy and external resource providers, the direct and indirect influence of environmental context on the resource allocation decisions etc. Hence, most of the researchers go for small-sample, qualitative research designs. However, this makes external validity and generalizability a huge problem. Though a few studies, which test their findings on large-samples (Christensen & Bower, 1996) (C. G. Gilbert, 2001), or which rely on simulations

Process Model	First part: Literature dealing with forces or factors that influence RAP or allocation decisions	Second part: Literature dealing with the process of resource allocation: the sub-processes, the roles and responsibilities	Third part: Literature dealing with the implications of resource allocation decisions, implications and commitments
Process as category of concepts Process constructs operationalized as variables, transforming the constructs into attributes	Count = **12** (3, 5, 6, 7, 14, 17, 22, 23, 25, 28, 29, 30)	Count = **1** (8)	Count = **1** (12)
Process as developmental event sequence Sequence of incidents, activities, and stages that unfold over the duration of a central subject's existence	Count = **9** (10, 11, 13, 15, 16, 20, 21, 26, 27)	Count = **6** (1, 2, 4, 9, 10, 19)	Count = **4** (1, 10, 24, 31)

Figure 7: Mapping the first three parts of the literature with the corresponding process models

(Coen & Maritan, 2011) exist, they represent a minority. Also, though Gilbert and Christensen (C. Gilbert & Christensen, 2005) rule out any questions about the reliability of the theory because of the anomaly-seeking nature of the reasearch and because of the large data-set of cases established by the cumulative effort, this still remains a very loosely coordinated stream of research with minimal attempt to find patterns across findings of various studies.

Researchers that view process as a category of concepts have predominantly opted for quantitative, survey based studies. Contrary to the previous set of research, this set aims at obtaining a generalizable solution to a specific problem at hand. However, these studies risk ignoring important contextual variables or losing sight of the bigger picture.

The problems with each of these methodologies should not affect the reliability of the theory as long as an appropriate balance is maintained between the number of studies that use each of these complementary methodologies. However, this balance is clearly lost in the case of the second and third parts that rely heavily on small-sample based studies (refer Figure 7). Though, there is no one fixed solution to this problem, apart from attempting to validate the findings using large-sample data, observing patterns across studies could help. Viewing the literature in parts, as is done in this review, would be helpful in finding such patterns across studies. However, as mentioned before, exclusively focussing on this is again a problem. Having said that, I end this section by noting that insightful small-sample studies that focus on the bigger picture, beyond any single part, do exist (Ex: (Noda & Bower, 1996)). In case the reader has

not already noted, this is the reason behind the total count of studies represented in Figure 7 exceeding the maximum reference number from Table5. These studies that concentrate on the bigger picture complement the research that focusses on one of the individual parts.

FUTURE RESEARCH DIRECTIONS

Structurally assessing the various aspects of RAP, this section gives the possible future research directions for this research stream. Starting with resources, to the forces that influence the allocation of these resources, to the various ways these resources can be committed, to the implications of such commitment to strategy and performance, this section brings out the possible future research directions by sequentially concentrating on these various parts. Along with a gist of these possible directions, a few others are listed in table 6.

Resources

The gamut of resources

Most of the studies focus on capital resources (Bower, 1970) (Maritan, 2001) (Coen & Maritan, 2011), probably because of the visibility of the process of capital allocation. Though recent developments in strategy research highlight the significance of time-and attention based resources, there has been absolutely no work in this area except for Gilbert's study (C. G. Gilbert, 2001) . But, it is the allocation of these resources that precedes the capital allocation decisions. Hence, future research can look at the differences in the allocation process of various resources.

Significance of resources

One expects huge variation in the magnitude of investment demands of a firm, and the patterns of resource allocation may vary with this magnitude or with the significance of the resource. For example, an expanding opportunity that demands $1000mn could be processed separately compared to one that demands $100mn. This process could also be a function of the current cash flows of the firm. Though, RAP can be investment-specific, there could still be insightful patterns existing across these investments, making it an option for future research.

Forces

The group-level forces

As shown in figure 6, the group-level forces are significantly under-researched. Though the cases clearly spot a significantly higher influence of a few groups in the final resource allocation decisions, it has not attracted the attention of researchers so far and merely ended up in the detail. Given that the efforts of the entire team are expected to lie behind a project, this proves to be a significant future research direction.

Priorities amongst the forces

Amongst the various forces acting on RAP, not every force works in the same direction. The final decision in such cases gets made depending upon the power associated with each force. For example, though an investment does not fall under the strategy context, it could still be supported by customers. Would that investment be made?

Resource commitment

Pace of resource commitment

The motivation behind a resource commitment influences its pace. Gilbert's study (C. G. Gilbert, 2001) confirms that threat as a motivation leads to an intense replication of the previous behavior (March, 1991) and to the contraction of authority by senior management, thus increasing the pace of the commitment. This pace of commitment further influences the definition of content and has implications for strategy and hence, future research should concentrate on the possible motivations and their corresponding influence on the pace of resource commitment.

Implications of resource allocation to strategy and performance

Looking at performance implications of RAP is tricky because this needs one to separate the performance implications of the utility of the resource. Simply connecting performance with allocation of resources without considering the way they are put to use, or the capabilities that in turn use these resources is clearly not possible. This calls for much rigorous research in order to accurately assess the implications of RAP on strategy and consequently on performance.

Optimal resource allocation process

So far, research has been mostly descriptive. Though it prescribes managers to manipulate the internal forces to achieve the desired results, and to develop the resource allocation capability (Coen & Maritan, 2011), the prescription part seems to be significantly under-researched. Answering questions such as: Which force is more powerful than the other? How does each force interact with the other? What is the

best way to process a particular type of investment? On what dimensions can the success of a process be determined? etc, are the next logical steps in this direction.

Table 6: Future research directions

Research Area	**Research Questions**
The gamut of resources	• How are RAPs of various resources related to each other? How do they differ from each other? • What is the relative significance of each of these processes (corresponding to each resource) in terms of its influence on strategy?
Forces	• What are all the group-level forces that influence RAP? • Do cognitive frames only influence the pace of commitment? • When two forces influence in opposite directions, which one wins? • How do interpersonal relations influence congnitive frames and consequently RAP?
Resource allocation process	• Difference in RAP of un-affiliated firms and business groups? MNCs? • What additional factors influence RAP in these businesses? • What are the performance implications of the commitments? • What is the optimal resource allocation process for a particular investment? • How does allocation process differ with the significance of resources or the magnitude of commitment?
Resource commitment	• Apart from pace and magnitude, what are the various dimensions on the basis of which resource commitment can be assessed? • How do different motivations influence the pace of commitment and the final allocation decisions?
Resource Based View and Resource Allocation Processes	• What are the characteristics of the resource allocation processes that are associated with high adaptiveness? and those that are associated with high inertial tendencies?
Resource dependence and Resource Allocation Processes	• The relative influence of each resource provider on the resource allocation process? • Managers' choice in choosing amongst the resource providers? • How do these managers evaluate various resource providers?
Bottom-up vs Top-down	• Where is the balance between explorative and exploitative investments? • The difference between resource allocation constraints of top-down and bottom-up processes ?
Generalizability and Separability	• To what extent are the forces that influence RAP generalizable? To what extent is RAP and the implications of RAP generalizable? • Can any of the above mentioned parts be separated from the influence of the other to facilitate large-sample study?
External and internal actors	• How does the role of external actors such as consultants differ from that of internal actors?

APPENDIX

Structural-context: Components

Performance measures and rewards, a critical component of the structural context, can exert a strong influence on the proposals defined (Eisenhardt, 1989). This is because employees have incentives to define and support successful projects to the extent their rewards, such as job secutity or reputation, are a function of the success of the proposal (Bower, 1970). Those decisions such as disinvestment[23] (be it in the context of capital budgeting decisions or R&D initiatives or internal corporate venturing) that jeopardize the reputation and job security of the individual or simply endanger the *incentives* would not be taken (Jensen, 1993) (D. N. Sull, 1999). Thus, these rewards and incentives guide the decisions of managers and hence can be used to steer RAP in the desired direction. For example, though managers are usually reluctant to bear the risk associated with the high variance in potential payoffs of their bets ((T. R. Eisenmann, 2002), (Hoskisson & Hitt, 1988), (Hoskisson, Hitt, & Hill, 1991)), they can be incentivised to do so by attaching even higher rewards to the successful bets or by providing a culture that cherishes a well-intended failure etc..

Performance goals represent an important component of structural context because a gap between an organization's aspiration and current performance stimulates a search for initiatives to close this gap, and the choice of *performance metric* (revenue growth, shareholder returns, profit etc.) will guide the search (D. N. Sull, 2005).

The structural context also defines the *roles, responsibilities and budget authority* of a manager. The different roles and responsbilities, the consequently acquired *knowledge* along with prior knowledge shape the perspective of the manager and hence influence their proposals. Even a required proposal may not be put forward if the magnitude of investments required are not within the budget authority of the managers (T. R. Eisenmann, 2002) . Also, the narrowly defined organizational roles and the lack of clear boundaries in terms of responsibilities may inevitably lead to *conflicts* (Bower & Clark, 2005), further amplifying the role that power plays in RAP.

The *number of middle management layers* also affect the investment decisions. As shown by Kuemmerle, the layer of middle management may be a source of failure as these managers can block good proposals because of *political and personal conflicts* with operating managers below (Kuemmerle, 1999). The politics of resource allocation in *multibusiness firms* were also shown to differ from stand-alone firms because of the difference in the degree of exposure to competition (Barnett, Greve, & Park, 1994).

[23] reduction of productive capacity such as closure of factories, offices etc. without exiting the business altogether

Table 7: Attributes, roles and responsibilities of managers at various levels

	First Level General Managers (Specialist/ Business unit level)	**Second Level General Managers (Intermediate level)**	**Third Level General managers (Corporate level)**
Broad Designation as per –			
(Bower & Gilbert, 2007)	Operational managers	Divisional managers	Senior executives
(D. N. Sull, 2005)	Front line	Middle managers	Top executives
(Kuemmerle, 2005)	Front-line scientists	Corporate Staff	Top management
(Burgelman, 1983b)	Venture manager and team	Senior management	Corporate management
(Burgelman, 2005b)	Front-line or bottom (BU officers)	middle	top managers (Corporate officers
Knowledge	Specific market / technology / product knowledge	Broader product / geographic / functional. Detailed knowledge about the responsible unit	Knowledge related to the competitive environment, the resource providers[a] and very broad firm specific knowledge
Aspirations	Meet the targets set	Increase their credibility: Importance and success of their Business units	Growth and profitability from business where the company has a strategic advantage
Broad role in the resource allocation process	Take care of the *initiating phase* in each of the processes	Take care of the *integrating phase* in each of the processes	Take care of the *corporate phase* in each of the processes
Role in the definition process	Develop business plans with functional managers	Integrate corporate and business unit thinking	Set corporate mission, financial goals and objectives, policies etc.
Role in impetus process	Champion new businesses, new capabilities etc.	Sponsor (or cut) the business unit plans: Probe assumptions and projections.	Authorizing
Role in the structural context determination	Look for any discrepancy between strategy and results that are attributed to structure	Mediating role: Analysizing the discrepancy, the alternative options and suggesting.	Design the formal organization
Role in the strategy context determination	Gate keeping, idea generating and boot legging.	Evaluate the merit of the activities and products in strategic terms. Iterative and aggregative delineating the content of new strategic initiatives	Set the initial context and maintain the fit while retrospectively rationalizing the current strategic context given the newer strategic alternatives

[a]capital, customers, government etc.

The relative departmental power also plays a substantial role in influencing RAP as was shown in Sull's study of the world disk drive industry (D. N. Sull, 1999). Though engineers did develop disruptive innovations [24], the marketing organization's predisposition towards customers' demands and the finance colleagues' predisposition towards profit margins ensured that the resources were withdrawn from the projects, thereby slowly starving such disruptive innovations.

In the presence of sophisticated *systems of planning and compensation*, most of the resource allocation decisions are based on *ex ante perceptions of risks and rewards* that depend on the *information* available within a firm and hence on its *information systems*.

In the presence of sophisticated *systems for planning and compensation*, most of the resource allocation decisions are based on *ex ante perceptions of risks and rewards* as is clear from Sull's observation – ' The criteria used (by the top management) in most of the decisions were essentially the total return perceived in each project, adjusted by the perceived riskiness of the project, as these data (proposals with product and technological details) were presented to them by middle managers'. These ex ante perceptions are framed from the *information* available within a firm.

An effective *monitoring system* that does an *ex-post evaluation of past decisions* not only reduces the incidences of tweaking the forecasts but also increases the probability of reversing unsuccessful resource allocation decisions. Kuemmerle points out the significance of the monitoring systems while contrasting the behavior of the entrepreneurial (start-up) with that of established firms in the context of resource allocation decisions for foreign expansion (Kuemmerle, 2005).

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[24] innovations that disrupt an established trajectory of performance improvement, or redefine what performance means

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