

## NOTE ON ANALYSING ORGANIZATIONAL MACROSTRUCTURES

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This note provides a framework within which to analyze organizational macro-structures, their relative merits, and the circumstances for changing them.

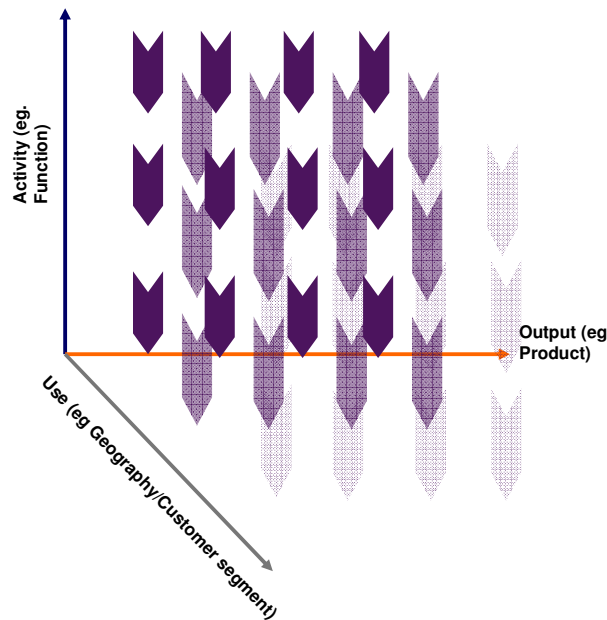
The structure of an organization refers to the stable pattern of interactions between the individuals who compose it. The formal structure of an organization is explicitly mandated by those with authority; and “macro-structure” captures these patterns at high levels of aggregation- as in an organization chart. The informal structure, in contrast, is emergent. This does not necessarily mean the two are orthogonal (except perhaps in the short run); the emergence of the informal organization is influenced by the formal organization, and the choice of formal organization may depend on the current informal organization. Organization design (noun) refers primarily to choices about the formal organization; organization design (verb) is the process of constructing such designs.

Large corporations have a bewildering variety of macro-structures- functional, divisional, customer centric, matrix, hybrid structures and so on. But as we will show, a few simple concepts suffice to understand and analyze most of these.

### **Corporations as collections of value chain activities**

The first conceptual step we take is to think about the company as a collection of value chain activities (Porter, 1985). The various economic activities conducted by a business have, either explicitly, or implicitly a series of value chain activities underlying them. A single business firm may have only one value chain; a multi-business firm has many. In other words, each business a company operates may be thought to have a distinctive value chain.

A value chain, by definition has two dimensions, as it comprises a set of (sequential) *activities* necessary to generate an *output*. Thinking about a collection of value chains along the dimensions of activity type (e.g. R&D, manufacturing, sales) and output should thus be intuitive. Consider one additional dimension: *use*. Two value chains may be largely identical in terms of activities and outputs, but may serve two different categories of *users* of the output as illustrated in Figure 1 - for instance, Unilever’s Dove Soap business in India and the UK. We could think of different users by geography, as in the example above, or by segment within a geography - for instance small and medium sized businesses vs. Fortune 500 companies. We *could* split customer and geography into two distinct kinds of user categories, but as human beings our ability to conceptualize 4-D spaces is limited.... for present purposes, the loss in “intuitiveness” doesn’t seem justified.



**Figure 1: Corporations as value chain bundles along 3 dimensions**

### Basic elements of formal organizational structure: Grouping & Linking

Even the most causal observer of organization charts would surely have picked up on the fact that they seem to contain two kinds of elements- boxes and lines (see Figure 2). These perform important functions in the formal structure; boxes represent the *grouping* of activities together, whereas lines represent *linking* of activities across groupings (Nadler and Tushman, 1997).

Boxes correspond to sub-units within an organization. A box is a shorthand way of saying “the activities within this box are subject to common authority, goals, incentives and procedures”. Departments and divisions are common instances of “boxes” in an organization. Putting a set of activities into a box is an attempt to ensure high levels of integration across all the activities within the box- by aligning incentives, generating common knowledge to aid coordination by using standard procedures, subjecting them to common oversight and authority and by formulating common goals.

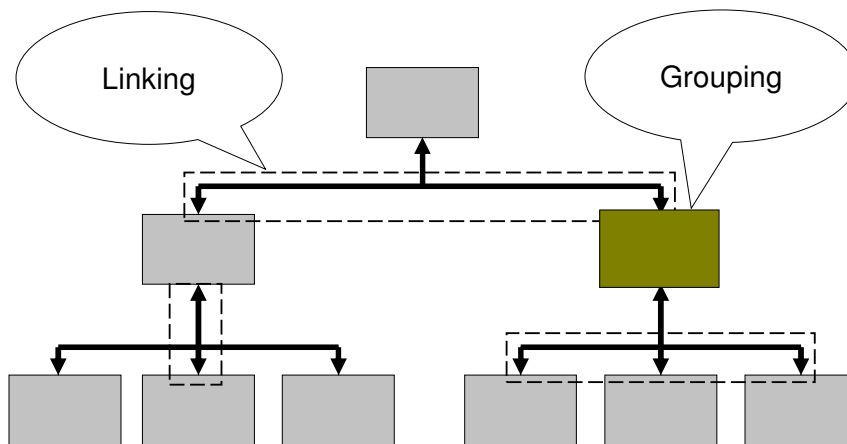
However, boxes cannot be infinitely large, otherwise we would solve all the problems of integration across activities by putting them into one big box! As we include more activities in a box, monitoring, communications and incentives can all grow weaker. There are “organizational scale diseconomies” in increasing the size of the boxes. This leads to a few basic principles about the design of organizational macro-structures:

1. Organizations beyond some size are bound to have lots of “internal differentiation”- boxes within boxes.

2. Boxes enhance the integration of activities within them, but also impede integration across activities in different boxes; integration benefits and “silo syndrome” are really two sides of the same coin, and are both consequences of the grouping decision (Gulati, 2009).
3. Because activities can either lie within or outside a box, there is an inescapable “discreteness” to organizational structures; designers face some hard choices as to which activities they would like to prioritize for integration by placing them together within a box (and by extension, which activities are not deemed a priority to be integrated) (Nickerson & Zenger, 2002).

That brings us to the lines- the linking mechanisms. These include vertical (reporting) relationships, as well as horizontal (lateral) relationships, such as committees, dedicated integrators, task forces, teams and of course incentives. Some of these may be temporary and specific to a particular project, as in “project based organizations”. However, grouping is the more powerful integration mechanism- linking mechanisms are necessarily weaker because they cannot bundle common authority, incentives, objectives (and often collocation) as powerfully as the grouping structures do. This suggests another principle:

4. The linking elements provide the “residual integration” that i) cannot be provided by the grouping structures (boxes), ii) but is still desirable iii) even if not fully achievable.



**Figure 2: Elements of Formal Organization Structures**

A corollary to principles 3 & 4 is that to the extent that organizations are designed with these principles in mind, one should be able to read the corporate strategy of a company in its organization chart: what kinds of activities does the top management

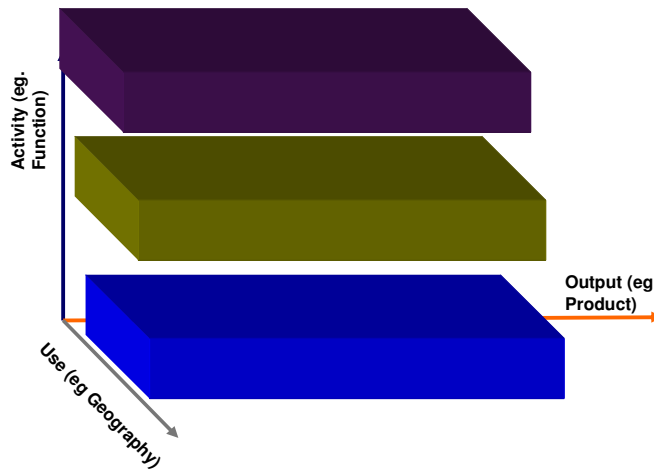
feel are essential to integrate (and which ones are not seen as being as essential to integrate)?

### Structural options

We are now ready to make sense of a number of commonly occurring organizational macro-structures, by combining the two concepts discussed above a) organizations as bundles of value chains in 3 dimensions (activity/output/use) and b) grouping as the primary mechanism for achieving integration across activities.

#### *Pure forms*

Let's start with what are known as "pure forms". These correspond to grouping activities along one of the three dimensions: by activity (e.g. put all R&D activities together), by output (group all the activities necessary to produce an output into one box) or by use (e.g. put all the activities needed to serve a particular user segment in one box).

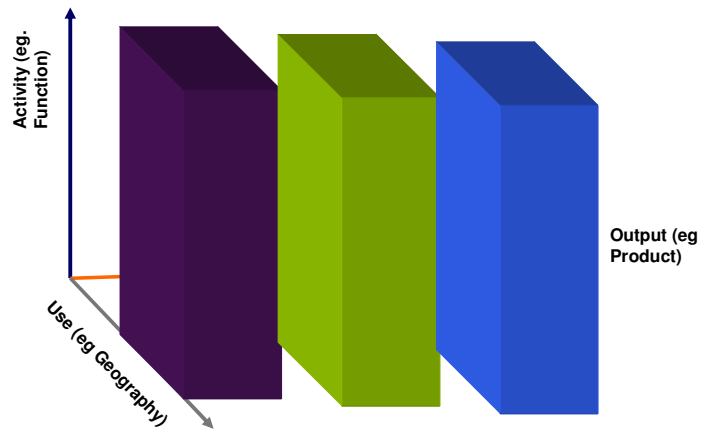


**Figure 3: The Functional (F) or Unitary (U) form**

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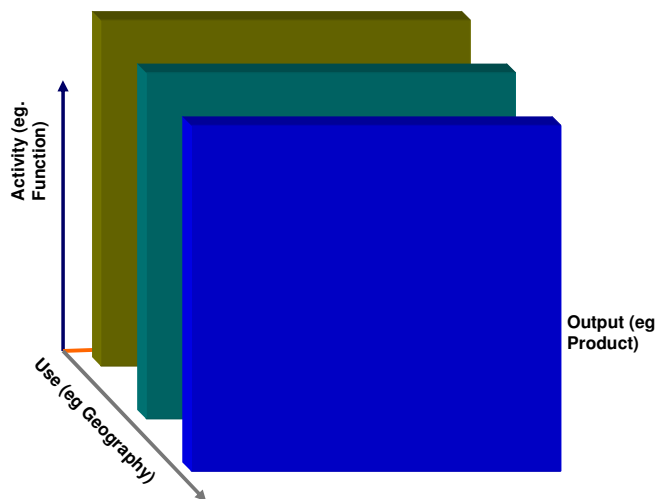
The functional form, Figure 3, emphasizes integration across all similar value chain activities (e.g. integration across all R&D activities, across all manufacturing activities etc). The product divisional or multi-divisional form ("M-form"), Figure 4, emphasizes integration across all activities that are necessary to generate an outcome (e.g. the soaps division and the detergents divisions). The customer centric form, Figure 5, emphasizes integration across all value chain activities meant to cater to the needs of a customer segment (e.g. the Indian vs. UK subsidiaries of an FMCG company, or the Government vs. BFSI verticals in a technology company).

We leave it to the reader to apply principles 2 and 3 discussed above to understand the strengths and weaknesses of each structure, and what kind of a strategy is implicitly entailed.



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**Figure 4: Multidivisional structures (M form)**



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**Figure 5: The Customer-centric organization**

It should be evident that there is a fundamental difference between the functional form and the other two pure forms; the functional form has a grouping comprising homogenous activities (all R&D activities are together, all sales activities are together etc.) whereas the M-form and the customer centric forms combine heterogeneous types of activities inside the boxes (e. g. R&D, sales, manufacturing etc.). A corollary of principle 2 is that these forms have different “footprints” in terms of costs and benefits, summarized in Table 1. The essential idea is that homogenous groupings emphasize economies of scale at the expense of economies of scope; whereas heterogeneous groupings do exactly the opposite.

The difference between M-form and customer centric forms arises primarily on the benefit side – by integrating across different sets of value chain activities (i.e. functions), these two structural forms set different strategic emphases for the organization: whereas the M-form focuses on collaboration across functions which improves time-to-market of the products and in general achieves high levels of integration across all steps needed to sell a product, the customer centric form focuses the organization on the breadth of a users’ needs, which enhances its responsiveness. However, what is common to both is an emphasis on inter-functional integration- in which grouping is primarily around heterogeneous value chain activities.

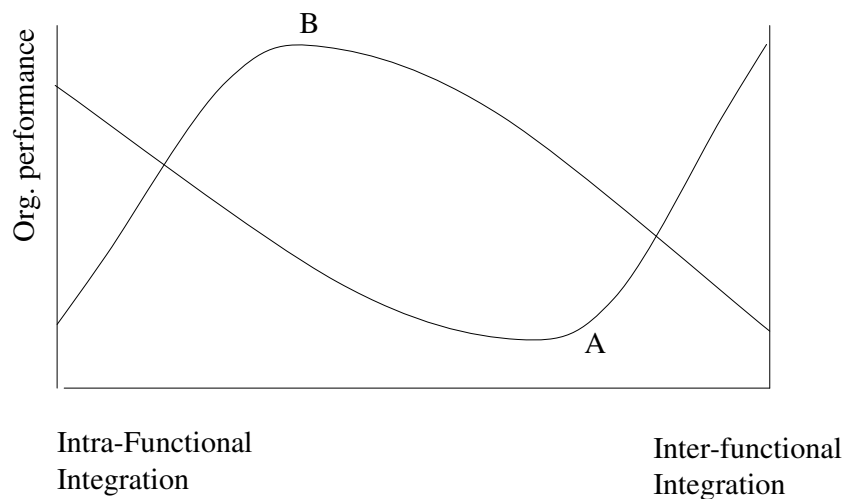
## Grouping Logics & Effects

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• <b>Homogeneous activities</b></li> <li>– Eg. Function</li> <li>– (+) Efficiency             <ul style="list-style-type: none"> <li>• Cost efficiency</li> <li>• Critical mass effects</li> <li>• Scale economies</li> </ul> </li> <li>– (-) <b>Silo syndrome</b></li> </ul> | <ul style="list-style-type: none"> <li>• <b>Heterogeneous activities</b></li> <li>– Eg. Customer/Geography/Product</li> <li>– (+) Effectiveness             <ul style="list-style-type: none"> <li>• Responsiveness</li> <li>• Collaboration across functions</li> <li>• Scope economies</li> </ul> </li> <li>• (-) <b>Duplication</b></li> </ul> |
|--|---|

**Table 1:**  
**The benefits and costs of grouping homogeneous vs. heterogeneous activities**

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Looking at the pure forms exposes the stark tradeoffs that confront organization designers- a choice between forms that emphasize *intra-functional integration* vs. those that emphasize *inter-functional integration*. If companies faced competitive environments in which it was obviously correct to emphasize one or the other (curve A in Figure 6), life would be simple....and boring; it is much more common to find companies struggling to achieve some degree of both (see performance curve B in Figure 6) (Gulati and Puranam, 2009). And that's exactly what gives rise to the plethora of organizational macro-structures one sees in practice. Let's take a look at two important categories (within which there may lots of variations).

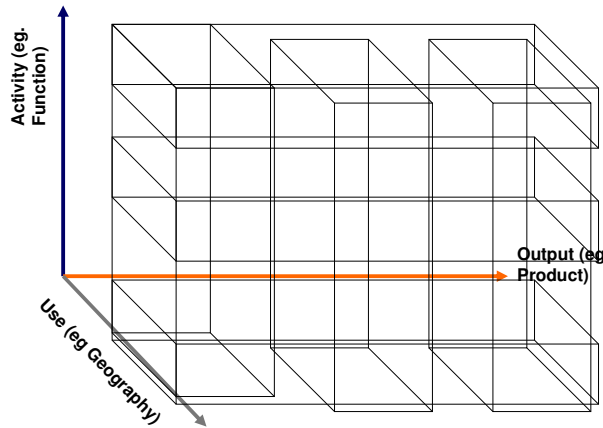


**Figure 6: Performance Implications of Intra- vs. Inter-Functional Integration**

*The Matrix form*

Matrix structures represent an ambitious attempt to circumvent principles 2 & 3; in essence the idea is that the same activity could belong to multiple groupings (boxes) at the same time.

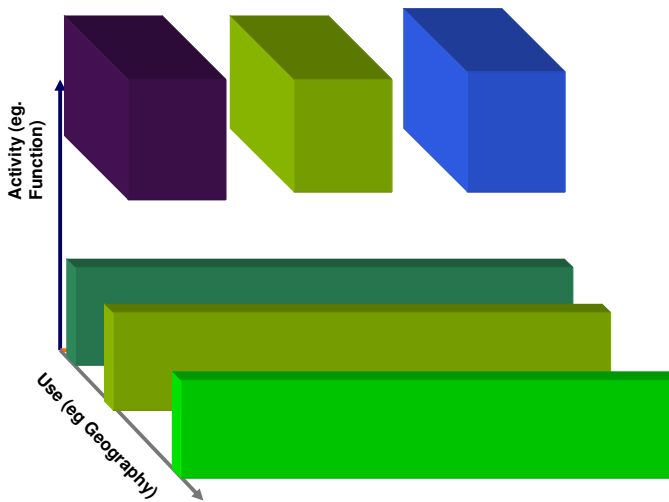
Figure 7 shows a two dimensional matrix, but one can also imagine a three dimensional one (with geography being the third, for instance). Do matrix forms work? In a manner of speaking.... yes. In practice, one of the dimensions of the matrix often is dominant, so that what might be an intended matrix form actually is a pure form with some linking mechanisms cutting across the boxes. Further, it is not an easy structure to manage. It is extremely coordination intensive, and requires managers who can manage and be managed around at least two dimensions of accountability simultaneously (Foss, 2003; Sy and Cote, 2004).



**Figure 7: The Product-Function Matrix**

*Hybrid forms*

In hybrid forms, or what are referred to somewhat inelegantly as “front end back end” structures, the direction of grouping can be different for different parts of the value chain. See Figure 8 for an example of a macrostructure in which R&D is grouped by product line, but sales is grouped by customer segment. Many technology companies and investment banks have adopted such a structure, because it is conducive to the notion of bundling solution of products together for particular customer needs, while retaining the benefits of homogenous grouping (scale and cost efficiency) in technology development. As with all organizational macro-structures, the problems arise “at the edges” of the boxes – getting sufficient integration across the boundaries of the groupings, which also effectively become “silos”. One approach features a dedicated integrating unit (often called the “Solutions” group) that sits between the technology and sales units.



**Figure 8: A Hybrid Technology/Customer grouping**

### **When is it time to change?**

Broadly speaking, the need for macro-structural change in organizations can arise from external factors and/or internal factors.

It is useful to think of two broad categories of external factors. First, a change in the competitive environment could arise, such that the integration requirements for the firm shift from curve A to curve B in Figure 6. For instance, when the technology in an industry is mature and there is a well defined efficiency frontier, then Curve A may be applicable- there are gains from focus. A classic example is Michael Porter's injunction to choose one of the generic strategies – differentiation or cost advantage- but avoid being stuck in the middle. In contrast, a shift in technology could create periods in which it is better to pursue both differentiation and cost advantage simultaneously as the efficiency frontier moves (see also Gulati and Puranam, 2009). A relatively less dramatic change could occur when external factors, such as a change in product demand lead to a shift of the inflection point, i.e. a shift in the optimal balance between inter-functional and intra-functional integration.

There are also two important internal factors that could cause a re-organization, even in the absence of any external changes. First, as we have noted, every macro-structure prioritizes certain activities to be integrated, and effectively de-emphasizes others. There are opportunity costs arising from those activities “left out” of the formal groupings: for instance, redundancies and cost inefficiencies in product divisions, and bottlenecks and delays in product development in functional structures. At some stage management may find these opportunity costs to be past a tolerance level and initiate a re-organization. In this view, managers pay sequential attention to problems, and

reorganize to solve one problem, which gives rise to secondary problems, which in turn are solved by a future reorganization and so on.... Second, a more subtle effect has to do with the informal organization- the off the chart pattern of linkages and connections between individuals and the culture of an organization. A shift towards one particular form only directly realigns the formal structure, whereas the informal organization, the channels of communication and cooperation in the organization, will only adapt with a time lag (Nickerson and Zenger, 2002). Under certain conditions this can actually be beneficial for the firm, in the sense that the formal incentives reward the employees for one course of action, whereas the informal organization is still geared towards a different set of activities. This generates a useful form of “compensatory fit” when doing some combination of activities is superior to doing either alone (curve B in Figure 6). However, this beneficial effect will wear off over time, so that a re-organization may again be necessary to achieve such a state of compensatory fit (Gulati & Puranam, 2009). Thus, even in the absence of any external changes, there may be an internal driver for organizational change that arises from the gradual adjustment of the informal organization towards the formal organization.

### **Conclusion**

It has been remarked that organizations are “a mess but not a mystery” (Gibbons, 1999). With the simple ideas presented here, we hope to have helped you see why organizational macro-structures are sometimes a mess, but seldom a mystery. We conclude by pointing out three important features of organizational macro-structures:

- a) ***No structure is perfect***: every macro-structure emphasizes the integration of certain activities to the exclusion of others
- b) ***No structure is permanent***: as external and internal conditions change, so will the appropriate structure
- c) ***The formal structure isn't the whole story***: the informal organization can play an important complementary role- either by supplementing the formal organization (i.e. enabling the same kind of actions that the formal organization does) or by compensating for it (i.e. by enabling distinct but also valuable actions not adequately encouraged in the formal organization).

Despite these caveats, it is worth bearing in mind that the macro-structure offers a powerful set of levers directly accessible to the top management; one cannot easily change the culture or informal organization. The trick is to use these levers with a sophisticated understanding of their strengths and limitations.

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