15.320 Strategic Organizational Design

Session 14
How are things changing?

Thomas W. Malone
Two key messages of this course

• There are patterns in organizational design.

• Organizational design is changing.
Outline

• Quick review
  – Organizational design patterns for hierarchies

• How are things changing?
  – Organizational design patterns for crowds
Elements of organizational patterns

Who \(\leftrightarrow\) Why

What \(\uparrow\) How \(\downarrow\)

Strategy

Staffing

Incentives

Structure

Process
How can activities be grouped?

**Functional Organization**
- CEO
  - Engineering
  - Marketing
  - Manufacturing

**Geographical Organization**
- CEO
  - Eastern US
  - Western US
  - Canada

**Product Organization**
- CEO
  - Product 1
  - Product 2
  - Product 3

**Matrix Organization**
- CEO
  - Marketing
  - Manufacturing

Product 1
Product 2

How can activities be grouped? (cont.)

Front-Back Organization

CEO

Back-end units
- Products
- Functions

Front-end units
- Customers
- Regions

## When are different groupings useful?

<table>
<thead>
<tr>
<th>Structure</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
</table>
| Functional | Economies of scale within functional departments  
In-depth knowledge and skill development  
Enables organization to accomplish functional goals  
Best with only one or a few products | Slow response time to environmental changes. Less innovation  
May cause decisions to pile on top, hierarchy overload  
Poor horizontal coordination among departments  
Restricted view of organizational goals |
| Divisional (Product, Geography, Customer, Market) | Suited to fast change and innovation in unstable environment  
Higher client satisfaction because product responsibility and contact points are clear  
Easier to adapt to differences in products, regions, clients  
Decentralizes decision-making | Eliminates economies of scale in functional departments  
Duplication of resources and poor coordination across divisions  
Less in-depth competence and technical specialization  
Integration and standardization across divisions (products, regions, etc.) more difficult |
| Matrix | Achieves coordination to meet dual demands  
Flexible sharing of human resources across divisions  
Suited to complex decisions and rapidly changing environments  
Opportunity for both functional and divisional skill development | Dual authority can be frustrating and confusing  
Participants need good interpersonal skills and extensive training  
Time-consuming: frequent meetings and conflict resolution sessions  
Requires great effort to maintain power balance |

When are different groupings useful? (cont.)

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</table>
| Front-Back | An alternative way (in addition to Matrix) to optimize on multiple dimensions at once (e.g., products, functions, customers, regions)  
Often suited to large, complex organizations                                                                      | Very complex to manage (needs top-down management from CEO and Executive Committee combined with lateral coordination throughout organization) |
How can different groups be linked? (lateral coordination processes)

In order of coordination capability (and management time and difficulty)

- Informal communication (e.g., voluntary conversations, informal groups, networks)
- Formal groups (part-time teams, simple to complex)
- Integrating manager (full-time)
- Matrix organization

Hierarchical reporting relationship

**Grouping**
(How are units grouped in hierarchy?)

**Linking**
(How are groups linked?)

<table>
<thead>
<tr>
<th></th>
<th>Unitary</th>
<th>Dual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grouping</strong></td>
<td>Functional</td>
<td>Matrix</td>
</tr>
<tr>
<td></td>
<td>Divisional</td>
<td></td>
</tr>
<tr>
<td><strong>Linking</strong></td>
<td>Informal</td>
<td>Formal groups</td>
</tr>
<tr>
<td></td>
<td>communication</td>
<td>(part-time)</td>
</tr>
<tr>
<td></td>
<td>Integrating</td>
<td>Integrating</td>
</tr>
<tr>
<td></td>
<td>manager</td>
<td>manager</td>
</tr>
<tr>
<td></td>
<td>(full-time)</td>
<td>(full-time)</td>
</tr>
</tbody>
</table>

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How are things changing?

- New technologies are decreasing the costs and increasing the desirability of organizations where
  - more people make more decisions (freedom)
  - activities are more distributed geographically (globalization)
  - Intangible needs are more important (non-economic)

- What will these organizations look like?
What is collective intelligence?

Collective intelligence -

Groups of individuals doing things collectively that seem intelligent
New examples of collective intelligence

- Google
- Wikipedia
- eBay
- InnoCentive
- Digg
- YouTube
- ...

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The Question

How can people and computers be connected so that—collectively—they act more intelligently than any person, group, or computer has ever done before?
Mapping collective intelligence “genomes”

- Different types of collective intelligence embody different design patterns.

- Let’s call these design patterns “genes.”

- For each gene (and common combinations), we can map:
  - Examples
  - Situations where useful
  - Limitations
  - ...

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Every activity must have genes to answer four questions

- What
- How
- Who
- Why

- Strategy
- Structure
- Process
- Staffing
- Incentives
Types of organizational genes

Create
Decide

Who

Crowd  Hierarchy

<table>
<thead>
<tr>
<th>Crowd</th>
<th>Create</th>
<th>Decide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>Collection</td>
<td>Individual</td>
</tr>
<tr>
<td>Dependent</td>
<td>Collaboration</td>
<td>decisions</td>
</tr>
</tbody>
</table>

Why

How

What

Money
Glory
Love
### How?

<table>
<thead>
<tr>
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<tr>
<td></td>
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<td><strong>Create</strong></td>
<td><strong>Collection</strong></td>
<td><strong>Collaboration</strong></td>
</tr>
<tr>
<td></td>
<td>• Contest</td>
<td></td>
</tr>
<tr>
<td><strong>Decide</strong></td>
<td><strong>Individual decisions</strong></td>
<td><strong>Group decision</strong></td>
</tr>
<tr>
<td></td>
<td>• Market</td>
<td>• Voting</td>
</tr>
<tr>
<td></td>
<td>• Social network</td>
<td>• Consensus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Other</td>
</tr>
</tbody>
</table>
When are different genes useful?

<table>
<thead>
<tr>
<th>Question</th>
<th>Gene</th>
<th>When useful</th>
</tr>
</thead>
</table>
| Who      | Crowd         | - Resources useful in doing activities are distributed widely or in places not known in advance  
- Activities can be divided into pieces satisfactorily (necessary information can be shared; gaming and sabotage can be managed)  
- Crowds can do things cheaper, faster, with higher quality, or with higher motivation |
|          | Hierarchy (or, Management) | Conditions for crowd aren’t met                                                                                                             |
| Why      | Money Love Glory | Many factors, too complex to list here, are relevant, with two rules of thumb  
- Appealing to Love and Glory, rather than Money, can often (but not always) reduce costs  
- Providing Money and Glory can often (but not always) influence a group’s direction and speed. |
| How—Create | Collection     | Conditions for Crowd, plus…  
- Activity can be divided into small pieces that can be done (mostly) independently of each other. |
|          | Contest        | - Conditions for Collection, plus…  
- Only one (or a few) good solutions are needed. |
|          | Collaboration  | - Activity *cannot* be divided into small independent pieces (otherwise Collection would be better)  
- There are satisfactory ways of managing the dependencies among the pieces |
When are different genes useful? (cont.)

<table>
<thead>
<tr>
<th>Question</th>
<th>Gene</th>
<th>When useful</th>
</tr>
</thead>
</table>
| **Group Decision** | | • Conditions for Crowd  
| | | • Everyone in the group needs to abide by the same decision, *plus* … |
| Voting | | • Conditions for Voting, *plus*…  
| | | • Decision consists of estimating a number  
| | | • Crowd has no systematic bias about estimating the number |
| Averaging | | • Conditions for Voting, *plus*…  
| | | • Achieving consensus in reasonable time is feasible (group is small enough or has similar enough views) |
| Consensus | | • Decision consists of estimating a number  
| | | • Crowd has some information about estimating the number (biases and non-independent information are okay)  
| | | • Some people may have (or obtain) much better information than others  
| | | • Continuously updated estimates are useful |
| Prediction market | | • Conditions for Crowd  
| | | • Different people can make their own decision, *plus* … |
| Individual Decisions | | • Money is needed to motivate people to provide the necessary effort or other resources |
| Market | | • Non-monetary motivations are sufficient for people to provide the necessary effort or other resources  
| | | • Individuals find information about other’s opinions useful in making their own choices. |
Summary

• Just as there are *patterns* for designing hierarchical organizations, there are also patterns for designing crowd-based organizations.

• Mapping the “genes” for four basic questions—Who, Why, What, and How—can help understand these patterns and when to use them.

• And this, in turn, can help you take advantage of the new organizational possibilities enabled by information technology.