Making the Leap:
Creating new, breakthrough platforms while sustaining existing ones

Summary
Organizations cannot indulge an either/or choice: Either commit to existing approaches or pursue innovative breakthroughs. The pace of technological innovation plus the fluidity of markets means they need to do both, simultaneously. They need to sustain impeccable service levels with existing offerings while also introducing new ones at speed and without interruption. The obvious risk is that one will confound the other, meaning neither is done well.

Key Points
There are key points to consider when pursuing a successful ambidextrous approach—continuing to operate existing systems and business processes while inventing and introducing new ones.

1. External: Does the innovation change the role of the firm in its markets?
2. Internal: Does the innovation change the nature of collaborative relationships within the firm?
3. Maturity: Is the innovation ready to be mainstreamed or does it need further in the development lane before it can be used in design or more time in the design lane before it can be slotted into the delivery one?
4. Scale: Can the ‘giant leap’ innovation (regardless of which lane it’s in) be decomposed into manageable ‘small steps’?
5. Piloted vs. Deployed: As an idea advances can it be piloted in incubators to allow allow high speed fast feedback learning cycles rather than deployed en masse?
6. Trial and Error vs. Feedback generating experiments: When an idea is tried, do we find out if it worked or not or do we learn more about why it might have succeeded or failed?

For the purposes of developing an innovation strategy, each of these questions can be introduced with an organizing framework and can be illustrated with examples. Participants and then develop strategies relevant for fostering their own organization’s success.
1. The firm in its markets: Sustaining or disruptive innovation?

Management theory guru Clayton Christensen\(^1\) wondered why existing ‘incumbent firms’ succumbed to ‘disruptive’ intruders. His explanation distinguishes between two complimentary forms of innovation. There is innovation that is ‘sustaining,’ that offers better performance along measures that are already important to existing clientele. For instance, disk drives that provided faster access to increasing volumes of data were sustaining, in his doctoral studies. They, and the firm offering the innovation, are already well aligned. The new offering may be difficult from a technological perspective, but it fits well into already existing business processes.

In contrast, there is innovation that is (potentially) ‘disruptive.’ It is different enough in its value proposition (and inferior enough when compared to established metrics) that it may not appeal to existing customer, and it certainly won’t register with the firm’s existing business processes. In Christensen’s original research, smaller disk drivers were surely inferior in terms of speed and capacity. But...the smaller footprint let them be incorporated in smaller devices—eg workstations rather than main frames, or desktop computers versus workstations. These innovations may require creating a ‘stand alone’ organization that can create new metrics and corresponding processes to succeed.

**Resulting question:** Is your innovation sustaining or disruptive? If disruptive, can you establish a ‘stand alone’ organization to advance it?

2. The internal organization of the firm: Architectural innovation or not?

Eric von Hippel and Rebecca Henderson\(^2\) wondered why technologically outstanding organizations were fabulously successful with some innovations but stumbled with others. They found that certain innovations were consistent with the ‘dominant architecture’ of existing product and service offerings. In there research, it was looking at microchip making equipment as organizations pushed for tighter and tighter tolerances in order to achieve thinner and thinner line widths.

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These innovations were consistent with how responsibilities were already allocated—who did what, who worked with whom in what fashion, and how individual contributions were communicated and coordinated. Those were no problem (left side of diagram). Other innovations changed the necessary patterns of interaction. For instance, shifting from components getting closer and closer but never touching compared to when even tighter tolerances demanded that components come into contact, not just close proximity. New interdependencies needed to be managed, but the organizations existed structures and routines did not enable that well.

Resulting question: To be developed, does your innovation require a change in relationships in terms of who has to collaborate with whom about what topics? If yes, can you consider a subsidiary organization in which new patterns of working together can be created and tested?

3. **Technological maturity: Is the innovation ready for mainstreaming?**

Jet engine maker Pratt and Whitney ran into a recurring problem. Its industry is brutally competitive with a few rivals (Rolls Royce, General Electric) competing for every major commercial and military contract. The rewards for winning are gigantic—not only sales but also service parts and maintenance contracts that can extend decades. Losing is potentially catastrophic, given the multi-billion dollar cost of the development program.³

Given all that, the temptations were great to put the latest and greatest new advances into the development flow, to win some performance advantage. The problem was, if an advance wasn’t mature

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enough, it wasn’t a source of advantage. Rather, it caused disruption and turmoil because it was unreliable. The solution was to have tests of “technological readiness” through which new concepts had to advance before moving from research, through development, into the main design flow.

**Resulting question:** Is your innovation proven capable of the reliability expected in existing systems, eg is the mean high enough and the variable low enough? If not, can you create separate ‘swim lanes’ into which innovations of varying maturities can be parsed, and can you create ‘readiness tests’ to advance innovations from one swim lane into the next?

### 4. Decomposing Giant leaps into Small Steps

In May 1961, US President John Kennedy committed “achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the earth.”

In July 1969, Astronaut Neil Armstrong put a booted foot on the moon, calling it “A small step for man, a giant leap for mankind.”

One could argue, however, that there never was a single giant leap. Rather, the objective of getting men to the moon and back safely was broken into millions of small steps, an incredible number of micro innovations that collectively allowed advances in propulsion, navigation, communication, life support, etc. that cumulatively allowed the appearance of a giant leap.

Resulting question: How ambitious are your breakthrough ambitions? Assuming they are large scale and complex, how do you decompose the whole into smaller parts that can be developed incrementally?

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5. **Incubators vs. Deployments**

When an idea is brought into practice, for sure, there are factors that had not been considered. So, no matter how refined the conceptual idea, there will have to be learning cycles to address factors that are new to the consideration. The same is true when a concept—once at a particular level of maturity in one phase—is being prepped for transition to the next phase. There are conditions that hadn’t matter at one level of maturity that will matter at the next.

Given that, we have a choice. At the start of a phase, we could start developing an idea at the full scale we need it at the end. However, given that we’ll be more likely wrong than not on v.1 and we’ll need multiple iterations to learn our way to the right answer, then starting large means slow learning cycle times but fast burn rates on resources. Alternatively, we could start with a small first commitment, thereby allowing faster learning cycles and lower burn rates of resources.

The latter, incubator approach lets us build new capabilities, prove their relevance at a new maturity stage or I a new application, cultivate a cadre of subject matter experts, and develop mechanisms for bringing the new approach into the mainstream.

6. **Trial and error into rapid experimentation**

The natural temptation is to generate new ideas and test them in a trial and error fashion, letting the tests sort or filter between those molecules that work and those that don’t. Then, with that determination made, the natural temptation would be to further build on, refine, or otherwise develop the ideas that have worked better, discarding the ones that haven’t worked quite as well.

The problem with that approach is that it takes a lot of time, costs a lot of money, and depends—to an uncomfortable extent—on good luck to get to good solutions. And more to the point, while trial and error will tell you what worked and what didn’t it doesn’t provide much information as to why things worked or failed. More productive is taking the time to understand why something “crashed.” After all, it was entered into the trial/test because there was reason to think it might work. That it didn’t proved wrong some understandings we thought were true.
Biologists and chemists at a major pharmaceutical firm are charged with inventing new chemical compounds that will be effective in treating diseases. These people truly are working on “the cutting edge,” right at the frontier that separates what is known about diseases, their causes, and their therapies from what has still to be figured out.

The scientists decided on a more structured approach. Rather than generating “good ideas” and then testing chemical compounds to see how they worked, they added a new discipline. Before testing any compound, first they declared _why_ they were generating that particular molecule, explaining what is was that gave them confidence that it would behave in certain ways when tested.

That changed the meaning of the tests. They not only reported _how_ molecules behaved, they validated or refuted the justifications/hypotheses that were attached to each design.

The benefit? When piloting this approach, the team hit a critical milestone in six months versus a more normal 13 and got to that milestone in one-third the necessary design-make-test cycles than typical.
Resulting question: What new ideas are you testing? Before you test them, can you make clear the rationale/justification so your tests not only determine what works and what does not, your tests also reveal what underlying thinking is sound and what is not?