Innovating by simplifying: Seven ways to make things better

August 2007

Executive summary – Simplification is an important route to innovation that can provide savings in costs, time and effort. Making things easier can also enable and engage a larger community of possible participants and innovators. New perspectives, standardization, attention to human factors, automation, education, illustration and trust are seven approaches they may suggest effective simplifications. However, all approaches have trade-offs and dangers, so attempts at simplification must include engaging relevant stakeholders and examining potential scenarios.

This Executive Technology Report is based on a personal essay by Peter Andrews, Consulting Faculty Member at the IBM Executive Business Institute in Palisades, New York.

Sometimes you innovate to create whole new markets and capabilities, and sometimes you just want to make an improvement. The latter, though less flashy, provides very real benefits in cutting costs, saving time, improving quality and generally making experiences more pleasant and engaging. In many cases, such improvements come as a result of simplification. Before beginning simplification three questions need to be answered:

1. What results are you looking for?
2. What method will you use?
3. What are the dangers?

Let’s begin by looking at what you can get from simplification.

What you are looking for?

There is overlap in benefits. For instance, work to save on costs may also speed things up. But it’s worthwhile to think about each individually, in terms of simplification:
Reducing costs
The simplest way to save money is to stop doing wasteful, unnecessary things. New tools and processes tend to be overly complex because the development process is not complete. It is only in use that the essence of something new becomes clear, which is why prototypes are often so ugly. In addition, large components may be put together by people who have little understanding of the underlying structures.

Older tools and processes often suffer from an accretion of new functions, reworkings, bureaucratic requirements and protections that are not rationalized or integrated with the original concept.

Saving time
In addition to reducing steps, some actions can be combined, done in parallel or handed off to specialists. Simplification approaches often identify bottlenecks and provide ways to work around them. All of these speed things up.

Improving quality
There is an elegance to truly simple tools and processes that is appealing on many levels. Often the end result of rethinking and reengineering is a better marriage of form and function.

Engaging a larger community
When a tool or a process is simpler, more people want to use it and more people can use it. In addition, new creative opportunities are often opened up that go well beyond the original tool or process.

What simplification method will you use?
More than one method may be used at once, but a deeper understanding of the options available can help provide guidance.
Take a fresh look

Sometimes, complexity is just a point of view. The solar system was no less complex when Copernicus proclaimed that the Earth revolved around the Sun, rather than the reverse. But this description made it easier to explain natural phenomena and make predictions. This eliminated barriers to imagination and creativity that had stood for most of history. (Objectively, there is no right or wrong view, but the simpler model is more useful.)

Similarly, we can use a new perspective to solve business and technical problems, often by working at a higher level. How? A full view of the steps of a process can allow reengineering to remove or re-sequence steps in a way that reduces waste and redundancy.

Solving at a higher level reveals new alternatives, including centralization, coordination and integration. This broader view can reveal opportunities for specialization and sharing. It can clarify roles and commitments. Often, reengineering techniques can be put into effect to get results.

Example. Most films are not shot in sequence anymore. That is, the shots are not made following the chronological order of the story. Rather, shots that are all at the same location are done together. This reduces the number of camera set ups, reduces rental of equipment, props and settings, and better uses the time/availability of actors and other staff.

Benefits. Results in quicker turnaround, clearer responsibilities, fewer transactions, easier staffing, less waste. Saves money.

Risks. Loss of flexibility, expanded permission requirements, ownership issues, lack of customization, removing essential elements.

Guidance. Some of the techniques that a different point of view enables are centralization (which allows specialization and sharing of resources), coordination and integration. Looking broadly requires the active participation of many stakeholders, so facilitation and change management approaches are needed. Comparison with relevant models can be useful.
Standardize
Imagine trying to get a coherent game going on a field with a dozen strangers if there were no discussion of rules, equipment or even which game to play. It would be chaos. This is an ongoing problem with emerging technologies, when specifications and processes may be put in place by independent vendors without much coordination or participation by relevant stakeholders. Parts don’t match up, applications can’t share data, language lacks uniformity, uses are restricted and the adoption rate lags.

Standardization simplifies by reducing the world of possibilities of tools and approaches from infinite to an agreed-to set. In addition to allowing people to work in larger realms of endeavor, it invites wider participation and facilitates new uses.

Example. Mash-ups or situational applications are hybrid Web applications that are only possible thanks to a proliferation of standardized tools, programming interfaces, specifications and processes. Standardization has simplified certain kinds of software development to the point where people who have imagination and domain expertise can create valuable applications, even though they may have only moderate programming skills.


Risks. Loss of flexibility and options for customization. Can be disrupted by something new. If the standards are not open, they can become control points.

Guidance. Actively seek commonalities. Be aware of relevant technologies and practices. Build collaborative skills, especially people skills, and train those who work on standards bodies.

Make it intuitive
Designers simplify our lives by making tools and approaches “user friendly.” Obviously, this is audience-dependent, but if a user can take on something new immediately with little help other than common experiences and knowledge, the designer has succeeded. This extra effort in design pays dividends later in less need for education, documentation and user support.
Example. The Web browser became such a familiar interface that it is now used for many applications. The best of these browsers have taken advantage of knowledge of human factors by using eye-tracking, observation and user interviews to confirm that pictures are placed appropriately, distractions are minimized, language is clear, typeface, letter size and color help direct attention and the overall look is appealing.


Risks. Intuitive for whom? Often, it is only intuitive for the engineer or the designer. Success is exquisitely dependent on the sequence of development activities, since certain elements are frozen along the way. Deeper applications may never be exposed to most users, as with some graphics programs.

Guidance. Primarily, there must be good knowledge of the audience: their skills, knowledge, media preferences and motivations. Testing is essential, and this may include ethnographic studies. One of the easiest ways to make use easier is to provide templates and examples.

Make it automatic
For the user, the best sort of simplification is that which is done under the covers or in the back room. Running water is easier than running down to the river for water and hauling it back up. This simplification has been realized as a technology, and we have regularly taken the best thinking of our creative people and turned it into (often patentable) tools and processes.

From a user’s perspective, services are also a way of making things automatic, even though it may be other people, rather than devices, taking on the burden. If someone cleans your house or interprets a contract or cuts your hair, they have simplified your life (though not necessarily theirs).

Outsourcing becomes a tool for business design simplification because some necessary functions, such as managing a call center or handling payrolls, are automatically taken care of by a third party. With the best of partners, this helping role can be taken for granted, while attention can be focused on a firm’s core competencies.
Example. A word processing program allows writing to occur without the complications of handling paper and ink. Printing, if it occurs at all, may be done at the final draft, rather than with each version along the way, and it is done by a printer rather than a typist. In addition, some formatting and spell checking is done in real-time without the writer's intervention. Proofing of the entire manuscript is supplemented by running an automated spelling and grammar check.

Benefits. Engages more people. Allows specialization for higher quality and lower cost. Reduces the need for physical action. Provides opportunity for focusing efforts.

Risks. Where devices take the load, the requirements (as with online applications) may constrain and confuse users. Things may happen under the covers that reduce security and privacy, or have unintended consequences. Where someone else does the work, as with delegates or outsourcing, communications may become onerous or ineffective, and agreements and measures may create their own burdens.

Guidance. Delegation, whether to a machine or to a person, is an investment. A clear understanding by all of expected outcomes is essential. In addition, agreements regarding quality, control and sharing of value must be thought out ahead of time. Any capability handed over is a capability that can begin to degrade.

Raise the skill level
Playing scales is simple for a master pianist and a struggle for a new student. Training informs people (literally puts forms into people) so that they can immediately deal with even objectively complex situations that are repeated, or they have an array of approaches at hand for new situations. Leveraging the talents and natural abilities of people is one of the most effective ways to simplify the environment.

Example. Perhaps the best example of training as a simplifier is literacy. By encapsulating knowledge, advice and instruction in written words, our lives are made easier. The requirements for mentors and memorization are decreased. Everything from street signs to recipes to menus to to-do lists makes life easier. Illiterate people know this. So does anyone who has spent a significant amount of time in a country where all the writing is in an unfamiliar language.

Risks. Learning always involves an investment that takes time. It may be difficult to measure the results of education. Once someone has learned something, they may over generalize its use and unlearning may be necessary in the face of change.

Guidance. Education needs to be focused on results, but, with the exception of repeated skills, it may be difficult to measure those results. The impact of education in leadership, creativity and teaming may be subtle, and alloyed with the specific experiences and situations of the learners. At the same time, the highest margins are migrating to talent that is leveraged, and knowledge and capability are essential to taking full advantage of personnel.

A picture beats 1000 words (for some people)
Hold a party at a new location, and you would be well-advised to provide both a map and step-by-step directions. People have multiple modes of perception, and for some a picture allows for immediate understanding, while for others, written words, a diagram, verbal instructions or an example may be the simplest form of communication.

Example. Being a successful consultant requires the integration of subject matter expertise with logic, communications skills (including listening), empathy, discretion and creativity. Structured, linear training in consulting provides a good base, but is necessarily fragmented. However, a realistic role-playing exercise can provide an effective way to provide experience in integrating these skills within the context of a safe, supportive environment.

Benefits. Engages with new participants. Clarifies and speeds understanding.

Risks. Providing for all modes can be costly. It is easy, through more free-form modes, for lessons to be missed, for the wrong lessons to be learned and to create distractions. A bad, misleading illustration is worse than no illustration at all.

Guidance. Learn about other modes, especially visual modes (graphics, illustrations, video). Test communications to ensure they are effective. Target to one audience at a time and learn about that audience.
Engender trust
Trust is often overlooked as a means to simplification. Clearly, getting into an application without a password or into an office without a key would be convenient. A business agreement secured by a handshake does not require complex contracts or lawyers. We pay a price in complexity for not being able to trust everyone.

Example. One of the most common ways that people accelerate trust is through social networking. Within a social network, there is an understanding of who information can be shared with, who can be counted on to get the job done and who is competent. This is managed by the recommendations received by individuals and by the reputations that get established. The anonymity and lack of face-to-face contact has been a barrier to establishing trust and it comes with costs. The eBay Web site uses over 20 ways to verify identity, establish commitments and guarantee behavior. Now, sophisticated social networking tools and reputation management systems are taking up the challenge, helping people to establish trust and work with more people than those they simply know directly.


Risks. Cliques, gaming the system, commitments growing in scope, privacy.

Guidance. Many of the new tools for trust can be integrated into today’s organizations, but not without attention to the concerns of individuals and the legal ramifications. In addition, trust is something that is “soft” and hard to measure, so it often does not get sufficient investment and management attention. In fact, trust may be challenged by pressures to meet business objectives. This means a limited approach to trust, without sufficient leadership commitment, can often backfire.

What are the dangers of trying to simplify?
Some of the problems are covered in the risks above, but particular attention needs to be focused on a few:
Trade-offs
Simplification can be taken too far in one direction or another. Delegating too much can allow greater attention to what is most important, but it leads to a measure of “deskilling” – the reduction of skills within an organization, therefore leading to the reduction of capabilities and even the context for providing oversight and guidance. This can create dependencies and difficulties with management and communications. Moving to online, anytime training may cut costs and avoid coordination difficulties, but some people and some lessons do not work well without face-to-face contact.

Burden shifting
Often, what is called simplification is really putting the work onto other people. Flatter organizations look better on the chart, but may stretch the capabilities of a manager. Self service may appeal to the “do-it-yourself” crowd, but may raise costs or make life impossible for those with out specific knowledge or capability. (Think of elderly people who depend on kind strangers for automated checkout at grocery stores.)

Unintended consequences
RFID tags may make toll plazas more efficient, but not without a cost to privacy. Virtual teaming allows expertise to come from anywhere and the convenience of working from home, but it also leads to isolation and can reduce loyalty to the team.

One size fits all
Standardization may not provide the flexibility that some people and teams need to be effective. Rules and practices may not take into account the essential needs and preferences of individuals.

Suboptimization
It may have looked good on paper, but some companies lost their connectors and their institutional memories during layoffs. With a focus on near-term measures and abstract models, new relationships needed to be formed, and knowledge both of how to get things done outside the formal processes and lessons from past mistakes were lost.

Simplification provides a rich and valuable means to innovate on many levels, but it requires judgment, effort, honest assessment and creativity. Albert Einstein is quoted as saying, “Make everything as simple as possible, but not simpler,” though apparently his actual phrasing was more complex.
Technology to watch

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Radical Simplification


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*Executive Technology Report* is a monthly publication intended as a heads-up on emerging technologies and business ideas. In each *Executive Technology Report* issue, you not only find out what technologies are emerging, but how and why they'll make a difference to your business.

Anyone who has tried to innovate knows how difficult it is. The first step is understanding the full value of the innovation you want and being able to communicate this. But even an idea whose time has come will face common obstacles of funding, working across the organization, dealing with change and managing risk.
The IBM Executive Institute class, "Breaking down the barriers to innovation" is designed for executives, strategists and innovators who want to improve their innovation management processes and increase the success rate and impact of their organization's best ideas. For more information on this course and other offerings, see http://www-03.ibm.com/ibm/palisades/courses/bbi/bbi.html

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