Hick's Law

Idea In Short

Do not assume that offering more options automatically improves decision quality or user freedom. Hick's Law is the classic reminder that the time required to make a decision rises as the number of choices and the information load increase. First developed by William Edmund Hick and extended by Ray Hyman, the law links reaction time to the uncertainty a person must resolve before acting. Its strategic importance goes far beyond interface design. Leaders, product teams and operators often overload customers and employees with menus, approvals, formats and pathways in the name of flexibility. But more choice can produce slower action, hesitation and lower throughput. The practical lesson is not to eliminate choice altogether, but to reduce unnecessary complexity so that people can recognize, compare and select what matters with less cognitive friction

Choice feels empowering, so organizations often add more of it. More products, more menu items, more settings, more approvals, more pathways. Hick's Law explains why that instinct can backfire. Decision time rises as the number of alternatives and the uncertainty among them increase. The issue is not just the count of options. It is the information load a person must process before acting.

What Hick's Law says

Hick's Law, often called the Hick-Hyman Law, states that the time required to make a choice increases logarithmically with the number of possible alternatives1. William Edmund Hick published the foundational work in 1952 and Ray Hyman extended the relationship to more general information conditions. In the simplest case of equally likely options, the law is commonly written as reaction time increasing with the base-2 logarithm of the number of choices.

That phrasing matters because the law is not just counting buttons or menu items. It is relating decision speed to uncertainty. More possible responses mean more information

must be processed before the correct response can be selected.

This is why the law sits at the intersection of psychology and information theory rather than simple intuition.

Why information load matters more than raw choice count

A useful way to understand Hick's Law is to focus on uncertainty rather than quantity alone. Ten choices do not always feel like ten equal burdens. If one choice is clearly dominant, categories are obvious, or defaults guide attention well, the cognitive load is lower. If options are similar, ambiguous, or poorly organized, the burden rises.

This is why later formulations emphasize stimulus information or entropy rather than mere option count. Hyman showed that reaction time tracks the informational uncertainty of the decision set, not only the visible number of alternatives2. The same nominal number of choices can therefore produce different decision speeds depending on probabilities and structure.

For leaders and designers, that is the key insight. Information architecture matters as much as option volume.

Why more options can slow action

More options often seem customer-friendly or employee-friendly because they promise flexibility. But flexibility has a cognitive cost. Each added option must be scanned, interpreted, compared and ruled in or out. When alternatives are numerous or hard to distinguish, hesitation rises and throughput falls.

This is why Hick's Law is so relevant to digital products, service design and organizational processes. A bloated navigation system, a long pricing page, a dense dashboard, or a policy workflow with too many branches can all impose enough cognitive friction to slow performance noticeably. The system may look comprehensive while functioning poorly.

Classic human-factors treatments preserve exactly this point: choice reaction time rises with the amount of information that must be resolved before response3.

Why the relationship is logarithmic

Hick's Law is often remembered because the increase in decision time is not linear in the number of options. Doubling the number of choices does not double the time. Instead, decision time rises roughly with the logarithm of the number of alternatives. In information-theoretic terms, each doubling of equally likely choices adds one bit of uncertainty.

That mathematical structure explains why moderate increases in choice can be manageable while uncontrolled expansion eventually creates serious drag. The cost of extra options is real, but it compounds through information load rather than simple counting. What matters is how much uncertainty each added branch introduces.

Reviews of Hick's work continue to describe this result as one of the few widely acknowledged empirical laws in psychology linking reaction time to stimulus-response uncertainty4.

Where leaders encounter Hick's Law

Leaders encounter Hick's Law whenever people must choose under time or attention constraints. Customers face it in pricing plans, checkout flows and product assortments. Employees face it in approval chains, software tools, dashboards and documentation portals. Managers face it when reports contain too many competing metrics without clear prioritization.

In each case, the issue is not whether choices exist, but whether they are being surfaced at the right time and in the right structure. A system can preserve richness while still reducing cognitive burden if it sequences decisions, uses defaults, groups similar items and reveals complexity progressively.

This is why Hick's Law is not just a UX concept. It is a broader principle of operational clarity.

What the law does not mean

Hick's Law does not mean fewer choices are always better. Too few options can reduce fit, conceal important distinctions, or force people into bad defaults. The point is not austerity

for its own sake. It is managing information load intelligently.

Nor does the law mean that every decision should be simplified to a single click. In some contexts, deliberate consideration is desirable. Complex purchases, ethical decisions and strategic trade-offs should not be reduced thoughtlessly in the name of speed. The goal is appropriate complexity, not minimalism as ideology.

This distinction matters because the law is often misused as a slogan for blunt simplification when it is really a principle for structuring choice well.

What leaders should do with it

First, reduce unnecessary branching. If many options are rarely chosen or poorly differentiated, combine them, hide them until needed, or remove them. Clarity often improves more from subtraction than from explanation.

Second, structure decisions in stages. A long flat list creates higher information load than a guided sequence that narrows possibilities progressively. This lets people process one layer of uncertainty at a time.

Third, use defaults, grouping and visual hierarchy to lower ambiguity. The law is about information load, so any design move that helps people parse the decision space more clearly can improve speed without sacrificing real choice.

The deeper lesson

Hick's Law matters because it reframes decision delay as a design problem rather than a purely human weakness. People are not always slow because they are indecisive. Often they are responding normally to too much information presented too early or too poorly.

That is the executive lesson. If a system seems to create hesitation, do not ask only whether users need better training. Ask whether the decision environment is making them resolve more uncertainty than necessary. Good design speeds action by making meaning easier to see.

- 1Hick's Law

- 2Hick-Hyman Law
- 316.400 Human Factors Engineering, Lecture 21 Notes
- 4Hick's Law For Choice Reaction Time: A Review

Summary

Hick's Law remains useful because it clarifies a simple but often ignored constraint of human cognition: decision time rises with the amount of information that must be processed. In real systems this means clutter, overlapping options, ambiguous categories and excessive branching can slow users down even when every option is technically available. The best leaders use this insight to simplify menus, structure defaults, sequence choices and expose complexity only when it becomes relevant. That does not make people passive. It helps them move with greater confidence and speed. The enduring lesson is that good design is not just about giving access to options, but about managing information load so the right choice can be made at the right moment