

Six Degrees: The Science of a Connected Age
by Duncan J. Watts (New York: W.W. Norton, 2003,
368 pp., \$27.95)

As a marketer, I do not know what to make of this book. As a network researcher, I do not know what to make of this book. As a consumer of pop-science readings, I do not know what to make of this book.

There is already quite a bit of hype around *Six Degrees: The Science of a Connected Age*, and the result is a network phenomenon itself. The buzz that the book has generated is functioning much like the game of telephone: The earliest sources may have actually read the book, but later players almost assuredly have not, given the errors in the publicity that the book has received. For example, reviewers in both the popular press and at Web sites where the book can be purchased hail Watts as a pioneer of the “six degrees of separation” or “small-world phenomenon.” Given that Milgram’s small-world experiment (“Can a random sample of Nebraskan citizens reach a particular stimulus Boston stockbroker?”) was published in 1967, and *Six Degrees’* cover puts Watts at 31 (i.e., born in 1971), he must have been precocious indeed to have been one of the phenomenon’s pioneers. Fortunately, Watts himself makes no such claims and appropriately gives Milgram his due (pp. 37–42), though he also pulls out the rug from under Milgram when he presents Judith Kleinfeld’s attempt to replicate the research (pp. 133–35). Kleinfeld discovered that a third of the sources asked to contact the Bostonian broker actually lived in Boston, another third lived in Nebraska but were in the stockbrokerage business, and of the remaining third (truly random people in Nebraska who were not in the financial field), fewer than 20% of their attempts to contact the stimulus person were successful at all, never mind in six links. Hmm....

It is easy enough to see why *Six Degrees* has a good deal of broad appeal. Consider its opening paragraph (p. 19):

The summer of 1996 was a sizzler. Across the nation, the mercury was climbing to record highs and staying there, a mute testimony to climatic unpredictability. Meanwhile, closeted in their domestic fortresses, Americans were stacking their refrigerators, cranking the air-conditioning, and no doubt watching a record amount of mind-deadening television. In fact, no matter what the season or the weather, Americans have become increasingly reliant on a truly staggering and ever growing array of devices, facilities, and services that have turned a once hostile environment into the lifestyle equivalent of a cool breeze. No amount of inventiveness or energy is excessive if it results

in the creation of leisure, the increase of personal freedom, or the provision of physical comfort. From climate-controlled vehicles the size of living rooms to climate-controlled shopping malls the size of small cities, no effort or expense has been spared in modern America’s endless crusade to impose strict discipline on a once unruly and still occasionally uppity planet.

An example of a power outage and the interconnections in the electric grids across the nation follows the introduction. As the excerpt illustrates, the writing is clear, lively, and engaging. It is also rather glib for an academic.¹ This tone carries throughout the entire book, which is probably fun for the nontechnical reader, but the serious academic tires of the constant “Aren’t I clever!” overtures. My first question about this book is a marketing one: What is the book’s intended target audience? I can only presume it is intended to be a popularization of networks and systems science for a general-science readership, analogous to Stephen Hawking’s books that popularize astrophysics (e.g., *The Universe in a Nutshell*). Hawking achieves this so much more effectively, but he is a genius. Still, Hawking gives his readers a sense of “Wow!” “Oh my gosh!” and “The world is magnificent!” whereas Watts at best elicits an “Oh, hey, yeah, that’s cool.” Still, I suppose that is more affect than the typical journal article yields.

What is the point of popularizing network and systems science? Perhaps it is a personal agenda, or perhaps it is an attempt to convince the National Science Foundation of the area’s importance and worthiness of additional funding. However, I do not believe that there is enough depth in *Six Degrees* for even the casual reader to change his or her thinking about the world. The book is too long to be an elementary introduction, the type a popular science magazine might offer readers.

Assume that popularizing this particular science was Watts’s goal. There are many examples spanning many disciplines that Watts abstracts and incorporates into network (connected systems) thinking. He treats most topics superficially (though to be fair, he develops a few examples more completely). Here are examples of the puff and many superficial treatments that Watts discusses:

¹The criticisms of U.S. energy usage (even if readers agree) rattle unless Watts considers himself to have adopted his host nation (he is an expat, of the Australian variety—a comment only on the book’s author, certainly not of Australians in general).

- Exercises equivalent to children's party games (e.g., origami tricks to build a torus [the doughnut-shaped function learned in calculus], p. 85).
- Current manifestations of networks, such as chain e-mails (p. 158).
- The "Kevin Bacon game" (p. 93; i.e., an actor who stars in a movie with Bacon is assigned a score of 1, an actor who stars in a movie with an actor who starred with Bacon receives a 2, and so on), which is a contemporary version of the Erdős numbers (i.e., if someone has published with this prolific mathematician, that person's Erdős number is a 1; if someone has published with one of Erdős's coauthors, that person is a 2; and so on, p. 137). Apparently, the biggest challenge with Erdős numbers is tracking the network to determine one's own number (I'm a four, if that helps anyone who has worked with anyone I've worked with). This reduces quickly to parlor games.
- AIDS and the central character in a network that helped the medical community turn the corner in learning about the disease's epidemiological spread (p. 164), as is also depicted in a fabulous though brief scene in *And the Band Played On* in which a blackboard is covered with a network diagram.
- The network phenomenon of *contagion* in general: The word can mean communication or friendship patterns, but originated in medical applications, and is applied to the spread of viruses among humans (e.g., Ebola plagues), animals (e.g., foot-and-mouth disease), and computers (he boldly offers prescriptions to Microsoft, making at least this reader wonder, If Watts wanted to talk to Bill Gates in person, what room would be big enough for both of their egos?).
- Word of mouth (e.g., Harry Potter, *The Blair Witch Project*), opinion leaders, and cognitive networks and information processing.
- The puffery of the dot-coms, which now seems a bit stale and even a little mean-spirited given their massive passing.
- The Bible, which he boldly misinterprets (p. 108), which surely carries the penalty of going to network hell (presumably watching the movie *Six Degrees of Separation* and all Kevin Bacon movies over and over or inverting huge sociomatrices by hand).

What is the point of all the illustrations? "Here's an example of networks!" "Look, here, too!" To what end?

Watts discusses several phenomena and disciplines, attributing their underlying mechanisms to networks. It is acceptable that networks are the lens through which he tries to make sense of his world, but he is not successful in convincing readers that several examples have much to do with networks at all (e.g., the synchrony of runners in a race clumping together around a track [p. 32], the rich getting richer [p. 108]).

Yet I type these criticisms with a grin on my face. The guy has guts. Who do you know who likens "a pack of hungry physicists" to both "lords of the academic jungle" and to intellectual "scavengers" who "descend with fury" (p. 62)? The breadth of network applications offered in this book speaks for itself, and it means to me that Watts is intellectually playful and curious, which is an admirable (and surprisingly rare) quality in a scientist. However, I cannot determine his actual depth of understanding. He gleefully admits trying to learn about network issues without reading the literature so as to allow for creative solutions and to be unencumbered by existing paradigms. It is not clear whether he has subsequently read a few literatures deeply, rather than

many literatures broadly and lightly, because the level of discussion is so superficial. However, for a popular press outlet, it probably must be so. Still, his discussions, knowledge, references, and disciplines cited seem spotty. The transportation literature seems an obvious oversight; nowhere does Watts address difficult network issues (e.g., sampling, modeling), and our own personal network idols and revered cites overlap only a little, with few actors spanning both cliques. Thus, an exhortation to budding academics: Begin by steeping yourself in the literature, and know a few things very well.

Watts's book is not a work of scholarship. The bibliography is rather good (more extensive than it would be if the target audience is indeed a popular readership). However, with the exception of the studies that he actually discusses, Watts spends no time giving credit where credit is due (which may well have led to the popular, though mistaken, belief that he is one of the original small-world thinkers). This error violates a chief principle to which academics adhere.

What does the author claim that the book's contribution is? The conclusion (p. 299) states that "distance is deceiving" (presumably, Watts means physical distance, rather than social or perceptual distance). Another conclusion offered is that cause and effect are difficult to pinpoint in interconnected systems. Finally, he closes with a praise to scientists and their heroic endeavors. Again, I say, hmm....

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Marketing and the Bottom Line: Creating the Measures of Success, 2d ed.
by Tim Ambler (London: Financial Times/Prentice Hall, 2003, 336 pp., £21.99)²

Understanding and Justifying Our Existence

"Accountability" is the new (old) buzzword in marketing today. Managers report intense pressure to justify the worth of marketing activities in a flagging economy. For the third consecutive cycle, the Marketing Science Institute's top research priorities include marketing metrics and marketing productivity as key topics (Marketing Science Institute 1998, 2000, 2002). Other institutions such as the Marketing Leadership Council in Washington, D.C., and the Chartered Institute of Marketing in the United Kingdom are urgently researching how to best measure and report the impact of marketing, usually in financial terms.

²This edition of *Marketing and the Bottom Line* was released in the United Kingdom in May 2003.

Sporadic attention has been paid to measuring marketing performance for decades. Economic research on the productivity of marketing in the overall U.S. economy dates back to the 1920s (for a review, see Bonoma and Clark 1988). In the 1960s and 1970s, the first financial perspectives were brought to firm-level activity. Books by Sevin (1965) and Goodman (1970, 1972) advised managers on how to derive the profit effect of marketing from an accounting perspective, and more academic writing tried to bridge the marketing-accounting and marketing-finance interfaces (Shapiro and Kirpalani 1984). When marketing researchers used performance as a dependent variable at all, they tended to focus on sales and market share as the key results.

Sometime during the 1980s, nonfinancial perspectives began taking hold in both academic and management imaginations, beginning with both rigorous research and management success stories in the area of customer satisfaction. From the late 1980s onward, new concepts in performance measurement ran riot. Customer satisfaction, customer loyalty, and customer value management competed for attention as key intermediate performance figures that would ultimately lead to profits. At the same time, brand-measurement research burgeoned and drew attention to other marketing assets as well. Finally, the apparently paradigm-shifting impact of electronic commerce whipped measurement schemes into a frenzy of data, measures, and concepts.

The Party Is Over

Unprotected by tenure, marketing managers' imaginations, if not their budgets, are being circumscribed. Although the new measurement concepts of the 1990s have not disappeared, a faltering economy has driven managers into survival mode. To paraphrase George Orwell, all measures are equal, but some measures are more equal than others, and financial survival drives an emphasis on financial measures.

The marketing budget has traditionally been considered a possible source of spare change, but there are two reasons to believe that the cries of anguish emanating from marketing managers are worse this time. First, as Sheth and Sisodia (1995) observe in a prescient article, previous recessions and new management practices have led to dramatic rationalization of manufacturing and administrative costs, meaning that the last big item on the income statement to squeeze is the marketing expense. Second, the explosive growth of data and the market-research firms that provide them has changed the problem from a lack of data on marketing performance to the interpretation of vast quantities of data that just might provide a true understanding of the marketing-business performance link.

What Is a Manager to Do?

Into this miasma of fear and loathing steps Tim Ambler, Senior Fellow at the London Business School and former Joint Managing Director at International Distillers and Vintners, which is now a unit of Diageo. The second edition of Ambler's *Marketing and the Bottom Line* is an ambitious effort to "provide a complete guide to making marketing fully accountable" (p. 3), especially to senior management. The book examines a broad variety of potential measures, how to report marketing performance effectively to key

audiences, and how to use measures to manage the marketing efforts of the organization. Although the book is not perfect, it is far and away the best book for a senior manager who is interested in understanding marketing's impact on his or her organization.

Marketing and the Bottom Line's thesis can be boiled down to five themes: First, top management, not just top marketing management, has a fundamental obligation to measure the performance of marketing activities. Ambler argues that understanding the future financial wealth of an organization requires understanding from where cash will come. The primary provider of future cash flow is customers, so it is necessary to understand exactly how and why customers give organizations their money. Allowing marketing to remain a black box is unacceptable both in terms of accountability to senior management and shareholders and in terms of organizational learning and growth. This book, Ambler notes (p. 3), "is not a paean of praise for marketing." Indeed, the book seems aimed at the board of directors and chief executive officer more than midlevel marketing managers (marketing executives may resist measurement precisely because understanding the effects of their budget can undermine justification of their budget), but marketing executives will still find the book useful in considering what they need to understand and how to report marketing upward in the organization.

Second, financial measurement is not enough. Although understanding the financial impact of marketing is important, it is insufficient on two grounds. First, there is the problem that many income statement measures (e.g., sales, profit) are fundamentally backward looking. The income statement perceived in time t is the product of myriad marketing and other activities that stretch back years and sometimes decades and often reveals surprisingly little about what the income statement in time $t + 1$ will look like, as recent accounting scandals attest.

Ambler argues that many of the popular financial methods to guide marketing (return on investment, shareholder value analysis, customer lifetime value) are seriously flawed in their application. For example, disagreements among the valuation methods are often pedantic, in that they become debates about how to label cash flow within an organization. He points out that valuation methods for different equities usually rely heavily on discounted cash flows. For example, brand equity can be valued as the incremental cash flows a company would earn beyond those it would earn from an unbranded product. Customer lifetime value similarly examines the total cash flow from a particular customer (or, more frequently, a customer segment). Market capitalization has long been considered a projection of overall future cash flows to the firm. An organization's cash flow can be broken up on the basis of how much each brand brings in or how much each customer group brings in. Either way, it is the same cash.

Third, marketing performance is equal to the outcome of an organization's marketing activities in a given period, adjusted for change in the organization's underlying "marketing assets." Marketing activities have short- and long-term effects. Scholars and practitioners have argued that the assets marketing creates for the corporation (e.g., a strong

brand) are too often ignored in the measurement of marketing performance (see Srivastava, Shervani, and Fahey 1998). For example, a promotion might increase sales in the current period but have damaging effects in the long run if it erodes brand equity. Conceptually, Ambler's means of dealing with the long/short distinction is to adjust short-term results for long-term effects on the assets that marketing has created for the organization. This is best done by using a blend of financial and nonfinancial and intermediate and final measures, taken over time and compared to organizational goals. Practically, this does not appear to be so much a quantitative adjustment (e.g., take profit and reduce by 10% because brand equity was damaged) as is the entirely appropriate analogy from financial analysis that changes in both the income statement (short-term activities) and the balance sheet (long-term capabilities) can be used to assess the health of the organization.

Fourth, strategically, the marketing asset represents the reservoir of future customer-based cash flow that has been built up by the firm's previous customer-related activities. Ambler construes the marketing asset broadly: It arises from multiple audiences (e.g., consumer, trade customer, employee, journalist, shareholder, supplier) and thus must be measured in multiple ways. A definition of total (marketing) equity, he avers (p. 42), would be "the sum of the equities in each stakeholder segment." He devotes chapters to brand equity, employee satisfaction, innovation, and investor relations as underlying components of the marketing asset. Given that there are vast research bases in each of these areas, experts in each might disagree with some of Ambler's arguments, but the overall approach is quite practical and managerial.

Fifth, measurement is equal to strategy is equal to management. Ambler effectively turns the aphorism "you can't manage what you can't measure" on its head, making a compelling case that whatever an organization is currently measuring is its strategy and correspondingly its management implementation. Measurement indicates and, in an emergent sense, drives the organization's strategy and implementation. In this sense, tightly controlled measurement is problematic. Ambler argues that tying executive bonuses to measurement is an invitation to counterproductive gaming. Close benchmarking of competitive measurement systems guarantees measurement uniformity in an industry and thus strategic uniformity.

I suspect that practicing managers will ignore this particular theme. The temptation to tie compensation to numbers is too well ingrained to resist in many organizations, and managers seem inordinately fascinated with the measurement schemes that other companies use. In the latter sense, managers will appreciate *Marketing and the Bottom Line* because it provides so many concrete examples of good measures and good measurement from both individual companies and benchmarking surveys.

The Research

The source material for *Marketing and the Bottom Line* is a broad swath of academic and benchmarking studies of marketing performance measurement. The first edition of the book was based heavily on the Marketing Metrics project in

the United Kingdom, a 30-month research effort cosponsored by several marketing-practitioner institutions and the London Business School. The second edition broadens this base significantly, drawing on two major studies by the U.S.-based Marketing Leadership Council, Jean-Claude Larreché's Global Competitiveness project at INSEAD, and a host of more specialized studies from various academics and practitioners. Ambler also has conducted dozens of interviews with U.S. and U.K. executives to pin down specific examples of practice. Indeed, a drawback of the book is that it is sometimes hard to tell the exact scope of the underlying research: An appendix with a paragraph or two on each of the key research projects would have clarified the knowledge base significantly. The book still seems somewhat focused on the United Kingdom, partly because of the preponderance of U.K. firms among Ambler's examples. However, the range of U.S. and European examples (there is relatively little coverage of Asia) should not trouble executives in an increasingly global world.

The Marketing Asset Is an Elephant

In terms of measures, Ambler's treatment of the marketing asset is the most innovative part of the book. The breadth of his conception is both a strength and a weakness. While Ambler discusses brand equity, he alludes to the tale of blind men each trying to identify an elephant by feeling one part of the animal. Strategically, it is clear that the sum of customer-related activities in an organization is as big as an elephant. Senior management will appreciate this book precisely because it steps aggressively across organizational boundaries: Marketing performance is not a marketing department issue but an issue that cuts across all customer-related parts of the organization.

Unfortunately, because the definition of the marketing asset is so broad, the reader may occasionally be hard-pressed to understand where the elephant ends. If the asset encompasses a half-dozen diverse stakeholders, their concerns, and all the activities that affect them, what part of the organization is *not* the marketing asset? The case is not helped by some idiosyncratic definitions of terms. When readers have become accustomed to the definitions, there is no problem, but the initial reading can be jarring. For example, brand equity is not specifically tied to a brand name but is defined (p. 34) as "any market-based asset, be it reputation, goodwill or customer satisfaction ... even though the term 'brand' is not generally used by some sectors."

To be fair, Ambler claims that "brand equity" is the term companies most frequently used for the asset in his research, and he is also scrupulous in his examples to identify what each company calls the asset. Other definitions, though, are either more broad or narrow than a marketing reader might expect. Innovation refers (p. 132) to "management inspired changes that alter the firm's position in the market ... [including] introducing new brands and products, finding new customer segments for existing products ... or new ways of selling, [and] servicing or using the brand." The marketing mix is defined (p. 193) as "all expenditures intended to strengthen brand equity" and explicitly excludes spending on promotions and discounts under the assumption that these do not build brand equity.

Managing with Measures

Leaving aside the specific measures that senior management might use, an important strength of the book is its treatment of the management issues regarding marketing metrics. Ambler describes a pattern of metrics evolution that is intriguing in its implications. On the basis of his research, he posits five stages of evolution (pp. 80–81): (1) Top management of the company is unaware of the issue of assessing marketing performance; (2) on becoming aware, management considers assessing marketing in terms of financial evaluation; (3) in response to the inadequacy of financial measurement alone, a multitude of nonfinancial measures are added to the financial ones; (4) the resulting company confusion leads to a streamlined set of financial and nonfinancial metrics that gives a coherent view of the market; and (5) mathematical modeling of a measure database provides a short list of predictive marketing metrics.

The evolution appears to suggest a U-shaped relationship between the measurement stage and satisfaction with measures. Because the company is blissfully ignorant in Stage 1, it is relatively satisfied. Early attempts to value marketing financially lead to increasing frustration, and the many-measures stage probably represents a company nadir before satisfaction climbs again across the final two stages. Ambler further suggests that not only is it difficult to shortcut this evolution, but it may not be advisable to try because it will limit the organization's ability to learn. Furthermore, depending on data availability and industry sector, it may not be feasible for all organizations to progress to the fifth stage.

Ambler provides voluminous advice on how to manage marketing metrics regardless of stage. The book provides several sets of useful diagnostic questions to help managers understand their current situation and metrics needs. Ambler dives into the details of managing measurement, is definite in his opinions, and is often quite witty in expressing them. The book is full of provocative metaphors and vivid writing. (I cannot remember the last time I laughed out loud, in a good way, while reading a marketing book.)

Ambler clearly distinguishes the measurement problems of small and medium-sized enterprises as compared with large ones, though the book is definitely slanted toward large firms. He devotes an entire chapter to the tension between developing and applying a single set of global metrics and creating strategy-specific measurement sets for different units, as in strategy maps (Kaplan and Norton 2000). I began this chapter firmly in the strategy-specific camp, and Ambler himself admires the tailored approach, but by chapter's end I found myself seduced by the logic underlying his general set of nine basic marketing metrics. He provides enough detail, including useful diagnostic questions, to help the thoughtful manager pursue either approach.

Ambler also diligently tackles the thorny problem of how to measure in multidivisional, multinational organizations, suggesting separate reporting for the key brand-market units (one brand in one market) that provide the bulk of an organization's shareholder value while relegating the remaining units to aggregate figures. The book is similarly strong in discussing internal and external reporting issues.

Sisyphus with a Spreadsheet?

Ancient Greeks told the tale of Sisyphus, who was eternally condemned in the afterlife to roll a boulder to the top of a hill, from where it would tumble back to the bottom only to be pushed up again. Marketing performance measurement sometimes seems like just such futile labor. It is difficult to identify the performance impact of any single marketing activity, much less marketing as a whole. Given a sufficient sample size, statistical significance can be generated, but the R^2 or practical significance of a given variable is often low. The teasing out of causality among the many factors that might affect overall performance is particularly challenging even with a large sample size. Whether this is because of myriad interactions or because, ahem, no causal path exists between marketing and overall business performance is difficult to discern. By the time researchers figure out what has happened, the market may have changed.

The practical realities of organizational life also mitigate against strong measurement. Given the "fire fighting," "solve-the-latest-crisis" mode that absorbs so much of management time, it will be difficult to devote attention to developing a measurement system when that distracts from tasks such as selling, advertising, and product development. This is probably especially true in the current economic environment, which ironically is simultaneously creating greater pressure to justify marketing activities. In discussing innovation, Ambler notes the paradox that whereas every company needs new initiatives, most managers are buried in what he calls "initiative overload," which leads to lower morale and probably poorer marketing. A marketing metrics system will be one more big, ugly initiative on the organization's plate.

Career incentives to do this measurement spadework are probably low. The costs in time and money are immediate and concrete, whereas the benefits are distant and diffuse. Ambler notes that even if senior marketing managers wanted to develop a strong metrics system, the time it might take probably exceeds their likely tenure in their positions. Furthermore, performing companywide measurement well requires gathering often incompatible data from the four corners of the organization, which the chief marketing officer may not have the power to achieve. Ambler suggests that a better course may be having the chief financial officer in charge of marketing metrics, since he or she is already accustomed to collecting and aggregating data from across the organization. Although marketing managers may pale at this suggestion, it does have the virtue of moving the costs of measurement to the chief financial officer's budget. Ambler also believes that it may give marketing metrics higher credibility, given the profession's reputation for being selective or manipulative with information. At the least, a serious metrics system will need to be developed in consultation with the finance function to ensure comparability of units across financial and nonfinancial measures.

"Pretty Good Measurement"

In 1991, the programmer Phil Zimmerman released an encryption software product called "Pretty Good Privacy." Basic in its functionality, the program would not stop dedi-

cated snoopers, but it provided sufficient privacy to stop most attempts to read data in transmission, enough so that the U.S. government tried to prevent Zimmerman from exporting the product. Ultimately, “pretty good measurement” is probably the best that can be done to understand marketing performance. Even if perfect measurement is possible, by the time it is achieved, the strategy will have changed.

Ambler adopts a similar perspective in describing what he calls “the fuzzy future” of marketing metrics. Metrics can be considered as representing a mechanism for control (everything will occur as planned or it will be known why it did not) or direction (where is the firm and where should it be going?). Ambler suggests (p. 237) that “fuzzy future” means that metrics should be used for “broad positioning rather than precision and for illumination rather than control.” Rather than worry about precisely identifying the level of an organization’s health, a firm should be able to sense whether it is getting sick or better. Perfect alignment between strategy and measurement is not only infeasible but inadvisable as well, because it will cause the company to ossify rather than experiment and change.

Ambler notes that in his research, some respondents found “fuzziness” in measurement uncomfortable, desiring the perfect alignment that an information technology–driven Balanced Scorecard dashboard seemed to promise Kaplan and Norton (1996), but others embraced a freer future. He suggests that a balance between alignment and flexibility is the answer. I agree.

I recommended the first edition of this book to advanced MBAs and executives and will happily do the same with the second. It is most suited for individual reading by senior managers at larger organizations, but it could be used as a text for a performance measurement seminar. Although the book is occasionally idiosyncratic in approach, it has a strategic sweep and insight that will help any senior manager interested in measurement think through the relevant

issues. The many practical examples, measures, and implementation tips will maximize the likelihood of any measurement effort being a success. In summary, although it is not perfect, this book is definitely “pretty good,” and it is the best general book available on the topic.

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