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ON THE COVER



**Mangbetu Terracotta Vessel
in the Form of Conjoined Twins**
Circa 19th–20th Century
19.25 inches × 6.5 inches

This sculpted terracotta vessel, in the form of conjoined twins, was produced by the Mangbetu tribe who began to settle in north-east Zaire in the nineteenth century from Sudan. The more decorated and sculpted pots of the Mangbetu tribe are known for having human or animal figures (mostly their heads) at the opening of the jar. The vessels are molded with the heads and figures on the openings and handles, while the patterns on the surface are carved using small tools, such as shell scrapers and wooden roulettes. After the pottery is formed, they are fired in open bonfires. It is possible that the decorations on such pieces are designed to repel the negative effects of 'Likundu'—evil spirits—or witchery, which is a major belief in Mangbetu society. This piece and other antiquities are available through Barakat Gallery in Los Angeles, California. Visit www.barakatgallery.com to view more objects.

At the risk of appearing to be a depressing killjoy or an old stick-in-the-mud, I feel compelled to write about a topic that constitutes a real investment challenge: innovation and its likely pace of development. Who has not heard pronouncements of the demise of some old paradigm soon to be replaced by some new and exciting alternative? Let us be clear, progress is moving apace and, if anything, the scope of innovation is broadening and its pace quickening. Yet, how many of the predictions of the last decades effectively came through as and when expected? How many forecasts from well-respected futurologists of the second half of the 20th century came even remotely close to accurately predicting today's reality? Intellectual honesty forces one to note at least three points: First, although predictions often get the direction right, they most often err, at times substantially, on the pace at which they come to pass. Second, many of the obstacles that slowed the pace of innovation were in fact reasonably predictable, if one had only taken the time to look for them. Third, it does seem that innovators, be they scientists or entrepreneurs, often exaggerate the importance of their endeavors, either in order to satisfy an understandable human desire for attention or, more prosaically, to secure funding in a highly competitive environment.

Our main point is thus not to criticize optimists, scientists, entrepreneurs, or even the press for discussing what could be. Our point, rather, is to offer insights as to how investors—particularly, but not solely the wealthy—can avoid falling prey to being too early or on the wrong side of the famous unintended consequences. In short, we are not debating the beliefs that certain investors may have already formed; we are simply offering a framework to test assumptions and conclusions. Using two examples of innovations from the automobile industry, let us suggest a few rules that can help investors avoid the most obvious traps.

Our first example is the internal combustion engine. It is surely possible—if not highly likely—that it will be replaced by some new technology at some point. After all, history demonstrates that change has been the norm. Nicolas-Joseph Cugnot (1725–1804) built the first working self-propelled, land-based mechanical vehicle, powered by steam. The next iteration, in 1808, was an internal combustion engine fueled by hydrogen. It was not until 1870—less than a mere 150 years ago—that Siegfried Marcus designed the first gasoline-powered combustion engine. The first diesel engine came on the scene in 1892; turbo technology was introduced in the late 1930s, and the common rail system emerged in the mid-1940s. More recently, the next step in development has been the addition of electric motors to an internal combustion power plant; note that the first such vehicle—the Toyota Prius—was first sold in Japan in 1997, 20 years ago. It was only five

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short years ago that the technology was extended to the world of high-performance cars. Today, a few all-electric vehicles are being produced and sold, often with some government subsidy.

What lesson can we learn from this first example? The most obvious one is that innovation never stops. Man excels at enhancing the performance—however defined—of current products by incorporating new technology.

Two other points are worth noting. New technologies eventually find their way into commercial use. The use of electronics is a good example. As BMW's global sales chief says, "An Airbus A 350 has 4,000 sensors and generates 2.5 terabytes of data per day... A (7 series) BMW generates 4 terabytes of data per car per day..." Interestingly, though, the electronics in this example are not limited to propulsion, but include many other facets of the vehicle, including steering, suspension, climate control, etc. This is the good news.

The bad news is that teething problems take a while to be resolved. It is one thing to sell fully electric vehicles. It is quite another to have a solution that can, on its own, generate the kind of profitability required by entrepreneurs. One can honestly question whether the hype that at times accompanies new developments may not also create monsters. History, again, shows us what can happen when things do not work out as dreamed, be it Japan in the 1990s when interferon proved not to be the universal cure for cancer as hoped, or in the United States in 2000 when the so-called dot-com bubble burst.

Thus, investors might focus on the likely obstacles to the adoption of any given innovation. In the case of electric vehicles, investors may concern themselves with many vexing problems including manufacturing costs, range, battery weight and bulk, heat dispersion, etc.—but it would be very surprising if these obstacles were not surmounted in due course. However, one of the biggest hurdles electric vehicles are likely to face is generating enough electricity to power them. Surely, better use of current electricity supplies could help; for instance, improved battery capacity might reduce the need for recharging at peak hours, or charging could be restricted to off-peak hours when power use is lower. But it stands to reason that the production and distribution of the massive amount of additional electricity

required to power electric cars is a serious obstacle. It has been estimated that it takes more than 10 years for a U.S. electric power plant to go from design to completion (a substantial part of which is taken up by permitting).

One would think that investors might want to have a fair dose of cynicism and think more about what could go wrong. They might ask themselves whether likely delays are capable of killing the project entirely, not just prolonging its development period. One might also ask whether there may be other, less direct, but also less popular ways of benefiting from the trend toward electric vehicles. Uranium mining and nuclear power anyone?

Our second example from the auto industry is self-driving vehicles. Who has not heard of predictions that self-driving vehicles will likely make it unnecessary for our children to learn to drive? Yet, a recent article in the British magazine *Car* maps out five steps for self-driving to go from concept to reality: 1) a single aspect is automated; 2) chips control two or more elements; 3) the car can control safety-critical functions; 4) the car is fully autonomous in controlled areas; and 5) the car is fully autonomous everywhere. It suggests that the earliest manufacturers will be able to reach level 4—automation in controlled areas—will be the middle of the next decade (the current trial run in Las Vegas, for instance, runs on a circuit that is 0.6 miles long, whereas a pilot project in England is much broader—41 miles—but involves only 100 cars and limited broadcasting of road conditions ahead!).

Investors should be sure their partners are capable of separating the wheat from the chaff. Here are three steps investors should follow before making meaningful investments in new technology.

- (1) What does it take for a technological breakthrough to produce all the expected results?
- (2) Behavioral finance teaches us that we often make the mistake of extending findings from a narrow framework to a much wider environment without accounting for the challenges associated with incremental scale or scope. It was only in the mid-1980s that Australia celebrated the fact that the road circumnavigating the continent had finally been fully paved! What about Africa

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today? While some self-driving functionality may well be operational within well-delimited, dense urban areas, it is quite a different proposition to extend it to the whole world, or at least to the whole of a few developed countries. There still seems to be a solid future for drivers.

- (3) What investment is needed, and by whom, to provide the infrastructure required for the technology to work? For self-driving cars, this means we should ask what self-driving infrastructure is required. The needs for a vast array of sensors and for more precise and reliable GPS services are significant; they will take a while to develop and install. Consider the rate of penetration of smart meters in the United States: about half the country is less than 20% of the way through the deployment process; only four states account for half the total installations. While the process at first went relatively quickly, it has now slowed to less than half its original annual pace. (Consider smart credit cards...) A key question is whether the required investments are economical in places but not financially sensible in others. Who will promote the investment in question (industry, governments or some partnership), and how will it be financed?
- (4) What are the technical hurdles, and how will they be addressed and resolved? For instance, how does a hybrid environment—comprising both self-driving and human-driven cars—function? Is the current ubiquitous answer—artificial intelligence—truly reasonable? How does one plan for random adverse events (someone tips a hot cup of coffee into his lap or has a heart attack while driving)? What are the peripheral infrastructural implications of prohibiting all human-driven vehicles in certain areas, such as the center of major urban centers: parking at the periphery; accessible, affordable, timely, and safe public transport; other forms of personal transportation? What is involved to create these, who will pay for them, and how long will it take?

In addition to these questions, investors should ask the following series of simple questions before jumping

in with both feet. They all revolve around a simple dichotomy: What will it take for “it” to work? How and why could “it” fail?

- (1) What desirable need will a new technology address at this point?
- (2) To what extent is the new solution capable of meeting that need in the real world?
- (3) Is there a simpler way to achieve the desired need without calling on a technological revolution?
- (4) What further development, if any, may be required?
- (5) Is there any substantial infrastructure functionality critically required for the solution to work? If yes, who will finance it, and how long will it take for it to be in place?
- (6) Is there any additional peripheral infrastructure required? If yes, who will finance it, will it be an economical proposition, and how long might it take to be operational?

These deceptively simple questions suggest the basic need for any investor to display a fair dose of cynicism. It's sometimes true that some innovations have a way of generating their own momentum, with new benefits becoming visible only later in the cycle. But it is also true that a disciplined process allows one to avoid a number of traps, at the unfortunate cost of occasionally missing something big.



The Spring 2018 issue of *The Journal of Wealth Management* is as diverse as usual. Hopefully, all readers, whatever their individual specialty, will find topics of significant interest.

The first two articles focus on issues related to the broader issue of investment policy. The first of these, by Javier Estrada, a frequent contributor, suggests that there are limits to the use of the failure rate or shortfall years as policy variables, and he introduces a new variable, years sustained, that focuses on success rather than on failure. The second, by Philippe Rohner and Matthias Uhl suggests that a holistic wealth overview is the ideal basis for wealth management, a development which may be

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facilitated by new technologies and a shift in focus of financial advisors.

The next four articles consider two non-investment dimensions of the wealth management problem. The first, by Bernd Scherer, asks a crucial question: Are you rich enough for a family office? He suggests that a cautious analysis is required of the family's investment management skills and costs versus the family benchmark alternative, as well as its risk aversion. The second, by Zvika Afik, Arie Levy, and Hagai Katz, focuses on the fact that the amounts of money that private foundations allocate and the duration of the grants they give affect both the impact of foundations and the sustainability of the nonprofits they support, looking for a connection between payout ratios of foundations and multiyear support to grantees. The third piece, by Yuanshan Cheng and Charlene Kalenkoski, looks at compensation paid to financial advisors, investigating whether clients are able to estimate accurately how much compensation they pay to their primary financial advisor and concluding that the shrouded nature of advisor fees leads to the underestimation of the amount paid for financial advice. The final article in this group, by Edward Chang, Thomas Krueger, and Mark Wrolstad, focuses on a typically U.S. problem (parents and grandparents saving for descendent children and grandchildren's college expenses seek to leave as large a nest egg as possible) and identify a couple of variables that seem to allow a more effective selection of tax-advantaged 529 plans.

The next two articles, though firmly in the investment management field, straddle other dimensions of wealth management because they deal with portfolio diversification. The first, by Martin Florea, Stefan Florea, Iliya Kutsarov, Thomas Maier, and Marcus Storr, looks at Commodity Trading Advisors (CTAs), seeking to identify their true portfolio contribution and concluding that, when incorporated into traditional portfolios, they do provide improved risk-adjusted returns, but that CTAs do not have above-average risk-adjusted returns on a stand-alone basis. The second, by Srinidhi Kanuri, Davinder Malhotra, and James Malm, covers a

familiar topic but with a special focus on evaluating the performance and diversification benefits of emerging-market exchange-traded funds (ETFs). The authors conclude that U.S. investors should add some emerging-market ETFs to their domestic allocation to ETFs based on their risk tolerance for better performance (absolute and risk adjusted).

Our next three articles could be viewed as individual entries or consolidated as focusing on other issues. The first, by Manu Sharma, Puneet Gupta, and Rouhi Gopal, analyzes the variation of Dow Jones Global Select Dividend Index (DJGSD) with the GDP growth rates of major economies of the world, namely the United States, the United Kingdom, and Germany, concluding that there is a low positive correlation between DJGSD and the principal component of that index and that more than 20% of the variation in DJGSD is explained by dividend payout rates. The next piece, by Amanjot Singh, more specifically directed at our quantitatively oriented readers, attempts to highlight short-run dynamic interactions (return spillover effects) and predictions between the United States and other developing economies, employing a Bayesian VAR framework, along with its branches. The final piece in this group, by Ketan Limaye and Achut Pednekar, analyzes the effect of various financial ratios on the long-term performance of M&A deals in India in terms of shareholder wealth of acquirers. The authors conclude that an increase in average ratio of total income to total assets is positively related to M&A performance.

Our last piece is a set of book reviews by Jean Brunel. In *Wealth Management Unwrapped*, Charlotte Beyer, a member of JWM's Ambassador Board, strikes again with her sharp focus, lucid prose, and humor. *Grappling with Legacy* is a fascinating family history of Rhode Island's illustrious Brown family, written by a family member, Silvia Brown.

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