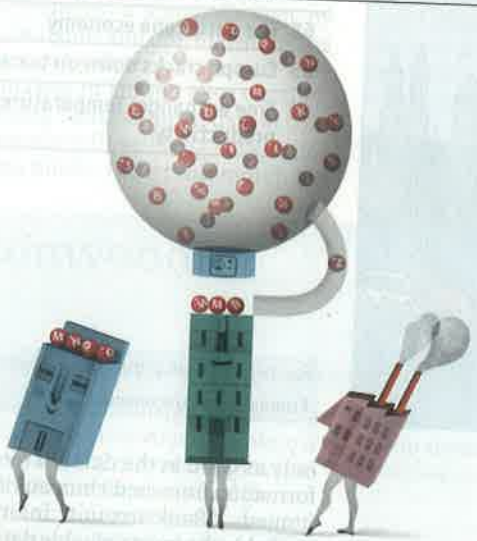
Schumpeter | Nine billion company names

Businesses are coming up with ever-sillier ways to identify themselves



ARTHUR C. CLARKE'S "The Nine Billion Names of God" (1953) tells the story of a group of Tibetan monks who believe that an ethereal "bingo!" moment will arrive when they have discovered all the possible names for God. They calculate that this will take 15,000 years to complete if they continue with their old-fashioned method of writing by hand. So they rent a computer to speed things up. The computer duly gets to work—and when it spits out the final combination of letters the monks get what they wanted: "without any fuss" the stars begin to go out.

The world may one day discover whether there is a corporate equivalent of that bingo moment when all the possible names for companies have been tried. The West is creating start-ups at an unprecedented rate. Emerging-world companies are going global. Established companies are merging to form mind-boggling combinations: the soon-to-be ABInBev/SABMiller beermoth is rooted in five separate companies, Anheuser-Busch, Interbrew, AmBev, South African Breweries and Miller Brewing.

Companies are right to devote a lot of effort to thinking up names: they are the best chance of making a good first impression. Great names such as Google can provide the ultimate bonus of turning into a verb. Dismal ones like Monday (briefly the name of a consultancy) can cast a pall. But overcrowding is only one reason why finding a name is becoming more difficult. Globalisation has increased the possibility of giving offence in one language or another. Copyright law is a pain: companies have to go to great lengths to make sure that nobody has staked a claim to their favourite names. The biggest culprit is the internet: companies put a premium on finding convenient "domain names" that direct you to their websites, but many of the good ones have already been grabbed by name speculators.

The naming business has been shaped by four developments that suffer from the same generic problem: they briefly expand the number of names available but then succumb to tedium. The first is the fashion for made-up names that don't mean anything in any known language but have a vaguely classical ring (Totvs, a Brazilian software firm, even uses a Latin-looking "v"). The trend probably began with Zeneca when it separated from ICI, a British chemicals company, in 1993. Two recent additions to the genre are Mondelez International, maker of Oreo biscuits, formerly part of Kraft, and Engie, the new identity for French utility GDF Suez. These ersatz names may be mildly preferable to an alphabet soup, but they actually do the opposite of what they were intended to do: rather than putting a human face on companies, they emphasise their lack of soul. Diageo imprisons some of the world's most storied brands such as Guinness in one of the world's blandest words.

The tech boom gave the naming industry a boost by introducing a new stream of tech-words: Google got its name from the mathematical term for ten to the power of 100 (a googol) and Tesla from a unit for measuring the density of a magnetic flux. But it is also responsible for a lot of tripe. Too many tech companies are either tediously wacky (Yahoo) or overly familiar (PayPal). Tech firms are as plagued by naming-imitation as by product-imitation: witness the fashion for incorporating "Buzz" in your name (after BuzzFeed) or the "-ify" suffix (after Spotify).

The third development is the fashion for "creative" names—the nominal equivalent of hipster beards. These are supposed to be the opposite of generic corporate names: concrete rather than abstract, eye-catching rather than bland. But, like hip beards, they suffer from the law of diminishing returns. Orange was probably the last company to get away with calling itself after a fruit. There are now so many financial-services companies giving themselves "pally" names (Wonga and QuickQuid) that you long for the good old days when banks called themselves after their founders (Lloyds) or even adopted bland initials (HSBC).

The most disappointing development has been globalisation. Some rising multinationals have memorable names that derive from their founding families, such as India's Mahindra & Mahindra, a vehicle maker. But globalisation has not brought a naming renaissance. Mark Lee of Watermark & Co, a (cleverly named) branding consultancy, points out that four of the world's ten biggest public companies have the word "China" in their names, such as PetroChina. Latin American companies are heavy on "x"s but light on inspiration, as in Cemex and Pemex. Brazil's Eike Batista put an "x" in all his companies' names to signify that he would multiply his investors' capital—but then went bankrupt.

Rathr Xstrme

The result is that companies are resorting to ever more desperate means in order to stand out from the crowd. They are running words together into a verbal hodgepodge (PingStamp), misspelling familiar words (Kabbage), or jamming unrelated words together (Digital Marmalade). The most irritating fashion is for creating names that look like typographic errors: dropping letters in arbitrary ways (Flickr) or adding ampersands for no apparent reason: poor old Booz & Company, a consultancy, has been taken over and forced to call itself Strategy &.

In Clarke's story the computer-programmers devise "suitable circuits to eliminate ridiculous combinations". In the world of corporate naming the best defence against absurdity is common sense. We are still a long way from finding the equivalent of the nine billionth name. There are plenty of good English ones left: Google came up with the clever name Alphabet for its holding company earlier this year. And after that there are lots of non-English words that won't offend anyone. It is also better to be old-fashioned than absurd: rather Smith & Jones than what looks like a Scrabble spillage. The biggest mistake is to expect too much. Great companies can survive boring names but even the best names cannot save dismal companies. ■

Free exchange | Putting Goldilocks to work

A new study shows that climate change is likely to sap productivity in the rich world

"ALWAYS pack a sweater," one local businessman advises visitors to Singapore, "because the best thing about our weather is the air conditioning." Singapore's first prime minister, Lee Kuan Yew, would have agreed—he considered the air conditioner the greatest invention of the 20th century. Another Singaporean politician once remarked that if it had not been for artificial cooling, local workers would be "sitting under coconut trees" rather than labouring away in high-tech factories.

Singapore is rich enough to keep its indoor spaces cool. Neighbouring Indonesia is not. Economists used to think that rich countries' greater cooling power would enable them to limit the damage to their economies from the higher temperatures brought by global warming. A cross-country comparison* published in 2012 found that higher temperatures did not seem to sap growth in rich countries, but did in poor ones. It is hard to compare the impact of temperature on growth in hot and cold countries directly, since there are too many variables to control for. Instead, the study compared growth in a given country during hot years with that during colder ones. It found that in poor countries, on average, higher temperatures were associated with slower growth. But some rich countries grew faster in hot years, and some in cold ones, suggesting that there was no clear correlation between temperature and growth in the developed world.

A paper published this week in *Nature* challenges this finding. The authors—Marshall Burke, Solomon Hsiang and Edward Miguel—suspected that economists had been looking for the wrong thing: a linear relationship between temperature and growth. Instead, they looked for an optimal temperature, on the assumption that excessive cold could harm growth as much as punishing heat. That is exactly what they found: hotter-than-usual years benefit countries, rich and poor alike, up to an average annual temperature of 13°C, after which hotter weather begins to sear growth. That allowed them to draw inferences about the likely effect of climate change: for Brazil, for example, an increase in temperature of 3°C will lead to a fall in output of 3% (see chart).

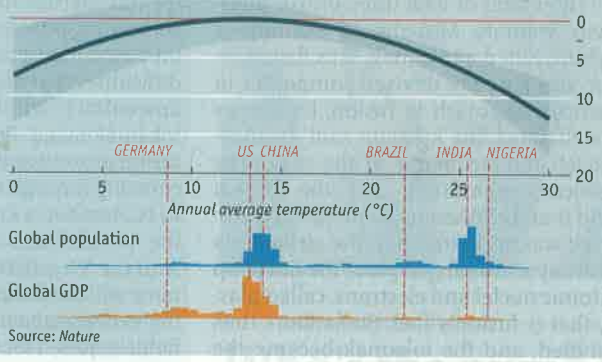
The apparent heat resistance of rich countries, it turns out, is simply because some of them, such as Germany and France, lie on the colder side of the optimum, so grow faster in hotter years, whereas others, such as America and Australia, lie on the hotter side, and so wilt as temperatures rise. Within individual counties in America, for instance, every hot day (with an average temperature over 24 hours of 24-27°C) lowers the average income per person that day by 20%, according to a working paper from the National Bureau of Economic Research by Mr Hsiang and Tatyana Deryugina. Very hot days (over 30°C) lower income per person by 28%. Looking at the average impact of rising temperatures in rich countries as a group had obscured such strong responses.

Ironically, the fact that global temperatures are changing has prompted some economists to question these results, since it means there is no firm baseline for comparison. But there is plenty of evidence for an optimal temperature at the micro level. Crops, for example, flourish when it is neither too hot nor too cold. Workers, too, do better in mild settings. The British navy commissioned the first research on temperature and productivity in the 1940s. In one experiment, Morse-code operators were placed in rooms of varying temperature. Those in rooms heated to 40°C made more than ten times more errors than those in rooms that were 30°C.

In a similar vein, a paper published in the *Journal of Labour Economics* last year found that American workers in construction, manufacturing and transport knocked off earlier when the temperature rose above 29°C, working an hour less per day on average. As the incidence of hot days increases, either more workers will be needed to finish the same project, or workers will need to be paid more to persuade them to stay on, just as workers are paid extra for the inconvenience of night shifts. Industries in which workers are exposed to the weather employ 28% of America's workforce, according to a recent study looking at how climate change will affect America's economy.

Cold comfort

Projected impact of changes in temperature on GDP per person, %



Source: *Nature*

Cool but costly

Countries can try to mitigate the effects of warming, but cooling things down is expensive. In Singapore, air conditioning consumes 40% of the power used in buildings. If nothing is done to stop global warming, the world will see an 83% increase in electricity consumption between 2010 and 2100, due simply to greater use of air conditioning, fans and refrigeration, according to a paper published in the journal PNAS in March by Lucas Davis and Paul Gertler. Richard Tol of the University of Sussex points out that homes and offices in cold countries are built to conserve heat, with large south-facing windows. Refurbishing such buildings could help keep people cool, but at great cost.

There are many other ways, of course, that global warming will harm rich countries besides falling productivity tied to higher temperatures. Climate change will not only heat up the planet, but will also lead to sea-level rises and an increase in extreme weather, such as hurricanes. Since many big cities are on the coast, they will require protection. Environmental economists have already been working for decades on Doomsday calculations, such as whether it would be better to build costly flood defences for Singapore's business district or let it be inundated.

Moreover, even if rich countries manage to fend off the worst effects of global warming, they will still feel its repercussions. Trade with more vulnerable places would decline; refugees would proliferate. The Paris climate conference this December is supposed to come up with policies to avoid such outcomes. The new findings on the baleful impacts of high temperatures should give rich countries an extra incentive to compromise. ■

* Studies cited in this article can be found at www.economist.com/heat15

Economist.com/blogs/freeexchange

Fusion startups

Nuclear proliferation

Can private enterprise do for fusion what governments cannot?

FOR six decades, research into fusion power has been ruled by giant national and international projects that have failed to turn a penny of revenue, let alone profit (see previous article). Not, you might think, promising territory for entrepreneurs. But if you did think that, you would be wrong. The past few years have seen the appearance of a sprinkling of firms that claim to know how, given an appropriately open cheque book, to overcome the problems that the bureaucracy and group-think of the established endeavours cannot.

Some of these startup ventures have raised only enough money to keep garage-scale efforts ticking over. Others have attracted considerable sums. Steven Cowley, the boss of Britain's Atomic Energy Authority, reckons there is more than $450m of private investment in various schemes around the world, and in May ARPA-E, an American government agency, put $30m more into the pot. None of the startups, in truth, is likely ever to construct a commercial-scale reactor. But their journeys may unravel bits of thorny plasma physics, or discover elegant engineering tricks, that help others to do so. They may thus reap rewards for their shareholders indirectly, via the patent system.

Freed from the constraints of mainstream thinking, the imaginations of the physicists and engineers behind these startups can run riot. Some propose new ways of tweaking the fields at the heart of magnetic confinement: dense plasma focuses, field-reversed configurations, magnetic mirrors, polywells and spheromaks are all bits of jargon that often pop up. Others seek to tweak the design of tokamaks, the current workhorses of the field. A version that resembles a cored apple rather than a doughnut (the most common shape) looks promising.

Some want to give their gizmos different wrappings. Several groups are looking into magnets made of "high-temperature" superconductors, that operate at the temperature of liquid nitrogen, rather than the liquid helium now used. And a couple of companies are re-imagining the physics of fusion altogether, by advocating unusual fuels or exotic reactions that involve unstable particles called muons.

The most common schemes, though—and the ones being paid for by ARPA-E—belong to a class called magnetised-target fusion. These use magnets to wrangle the plasma before bashing it with huge pistons or the like to compress it to the point where fusion can take place.

There is, then, no shortage of ideas. But there is still a credibility gap. The history of government projects shows it is easy to get promising early results from some clever piece of apparatus, and use these to suggest that, with only a bit more work or investment, success is assured. Usually, it isn't.

Another trap is scale. A lot of startups have designs that are small, and therefore look cheap. Again, though, history shows that what starts off small rarely stays that way. Fusion energy, if it can be made to work at all, may simply be impossible on a small scale. But "venture capitalists don't want you to say it's going to cost five billion," says Stephen Dean, an old hand in the field who now runs a foundation called Fusion Power Associates. "They want you to say five million, and there's a tendency to tell them that."

tion Facility has discovered to its cost. (NIF is designed to carry out what is called "inertial confinement", by hitting pellets of frozen deuterium and tritium hard with lasers, to heat and compress them at the same time. It fits its design specifications perfectly, but still refuses to generate more energy than it consumes.) Earlier experiments with a smaller stellarator do however mean that the machine's masters at the Max Planck Institute for Plasma Physics are pretty confident.

Even if the Wendelstein 7-X does perform as predicted, though, the behemoth that is ITER will not go away. The fallacy of sunk costs and the national pride of the host and the other participants in the project will see to that. But ITER may find itself relegated from being the flagship of fusion to acting as a proving ground for technology, such as neutron-resistant materials, that ends up being used in stellarators.

None of this, meanwhile, answers the question of why fusion power is needed at all. Even if stellarators work well, the 30-year rule, or something pretty close to it, is likely to apply. And, by the middle of the century, the world's energy landscape will probably look completely different from now. Perhaps there will, indeed, be a gaping hole in supply that only fusion can plug. More likely, cheap photovoltaic and energy-storage technology will mean that much of humanity's energy comes from a different fusion reactor—one 150m kilometres away, called the sun. ■

Birth order and intelligence

Who's the number one son?

First-born children are different, but not as different as some once suspected

IN 1874 Francis Galton, a British polymath, analysed a sample of English scientists and found the vast majority to be first-born sons. This led him to speculate that first-born children enjoyed a special level of attention from their parents that allowed them to thrive intellectually. Half a century later Alfred Adler, an Austrian psychologist, made a similar argument relating to personality. First-born children, he thought, were more conscientious, while the later-born were more extrovert and emotionally stable. Many subsequent studies have explored these ideas, but their findings have been equivocal—some supporting and some rejecting them. Now a team led by Stefan Schmukle of the University of Leipzig, in Germany, has collected the most comprehensive evidence on the matter yet. Its conclusion, just published in the *Proceedings of the National Academy of Sciences*, is that Adler was wrong, but Galton may have been right.

The main problem with previous studies is that they have been, in several ways, too small. This would be true even if the statistics needed to analyse them were simple, but they are not. Distinguishing birth-order effects from those caused by family size complicates matters, meaning still bigger samples must be analysed to obtain meaningful results. And one particular approach often used, interviewing individual family members about themselves and their siblings, has generally been restricted (for reasons of cost) to one

interview per family, with researchers using these lone interviews to collect all the information they need. Not only does this restrict the sample size, it also introduces an obvious source of bias.

To try to end the confusion, Dr Schmukle and his colleagues analysed three huge sets of data from America, Britain and Germany. These data sets, though collected for other purposes, included personality and intelligence tests run on 20,186 people at different stages of their lives. The American tests were on those aged between 29 and 35. The British tests were conducted on 50-year-olds. The German tests ran the whole span of adult life, from 18 to 98.

Dr Schmukle and his colleagues knew that the large numbers involved meant they stood a good chance of detecting even quite small birth-order effects on personality or intelligence, if they existed. They also knew that, by working with surveys from three countries, and with such a wide range of ages, they would diversify the data and iron out confounding variables.

Birth order, they found, had no effect on personality: first-borns were no more, nor less, likely than their younger sibs to be conscientious, extrovert or neurotic. But it did affect intelligence. In a family with two children, the first child was more intelligent than the second 60% of the time, rather than the 50% that would be expected by chance. On average, this translated to a difference of 1.5 IQ points between first and second siblings. That figure agrees with the consensus from previous studies, and thus looks confirmed.

It is, nevertheless, quite a small difference—and whether it is enough to account for Galton's original observation is moot. In any event, it is clearly not deterministic. Galton was the youngest of nine. ■

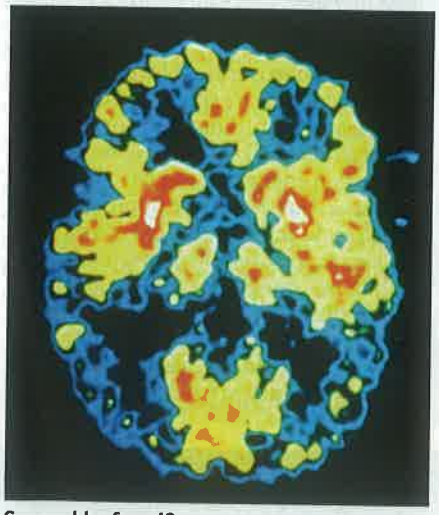
Alzheimer's disease

Fungus, the bogeyman

A curious result hints at the possibility dementia is caused by fungal infection

LIKE cancers and heart disease, Alzheimer's is a sickness of the wealthy. That is because it is a sickness of the old. A study carried out in Spain in 2008 suggested that the risk of developing it doubles for every five years you live beyond 65. A richer world means a longer-lived world—and that, in turn, means a world which will suffer more and more from dementia. At least 40m people are thought to be affected by it already. The true number is likely to be higher, as many sufferers, particularly in the early stages of the disease, have yet to be diagnosed.

What actually causes Alzheimer's disease, though, is obscure. Workers in the field know that tangles and plaques of misshapen proteins play a big role. These accumulate in and between nerve cells, eventually killing them to create voids in the brain (see picture). It may be that the accumulation of these proteins is merely a biochemical ill to which human flesh is unfortunately heir, and which is a normal (if unwelcome) consequence of ageing. But some researchers doubt that, and are searching for external causes. There is evidence, in varying degrees, for everything from bacterial or viral infections, via head injuries to smoking. But a paper just published in *Scientific Reports* adds another possibility to the pot. A group of researchers led by Luis Carrasco of the Autonomous University of Madrid, in Spain, have raised the idea that the ultimate cause of Alzheimer's is fungal.



Scarred by fungi?

Dr Carrasco and his team examined brain tissue from 25 cadavers, 14 of which belonged to people who had had Alzheimer's disease when alive. The other 11 (who had an average age of 61, versus 82 for the Alzheimer's sufferers) had been Alzheimer's-free. That may sound like a small sample from which to draw conclusions, but the signal the researchers found was overwhelming. Every single one of the Alzheimer's patients had signs of fungal cells of various sorts growing in his or her neurons. None of the Alzheimer's-free brains was infected.

Assuming Dr Carrasco and his team have made no methodological errors (and there is no suggestion that they have), then the question is one of causation. Do fungi usher in the disease, or does the disease usher in the fungi? An observational study like this cannot answer that question. But Dr Carrasco and his colleagues point out that what is known about Alzheimer's fits with what is known about fungal infections. Alzheimer's progresses slowly, as do untreated fungal infections. Alzheimer's patients exhibit signs of inflammation and an aroused immune system, which fungal infection might be expected to trigger. And the damaged blood vessels observed in many people with Alzheimer's fit with Dr Carrasco's observation of fungus growing in these vessels.

If fungal infection did turn out to be responsible for Alzheimer's, that would be excellent news. Medicine already possesses plenty of anti-fungal medications that could be raided to produce anti-Alzheimer's drugs. But Dr Carrasco's evidence, while intriguing, is far from conclusive. John Hardy, a neuroscientist at University College, London, points out that one (albeit rare) cause of Alzheimer's is well-understood. In a few unlucky families the disease appears to be an inherited disorder, caused by mutations of one of three genes. If a fungal infection were the ultimate cause, then those genetic mutations would have to make their carriers so susceptible that 100% of them end up infected, something he believes is unlikely. And the very clarity of Dr Carrasco's result also makes Dr Hardy suspicious.

If that result is right, though, it is still possible that the correlation runs the other way, with Alzheimer's opening the brain to fungal infection. After all, says Ian Le Guillou of the Alzheimer's Society, a British charity, the disease is thought to damage the blood-brain barrier, an immunological shield which keeps the brain safe from pathogens and toxins. The presence of fungi might merely reflect a greater susceptibility to infection.

Dr Carrasco and his team think a clinical trial of anti-fungal drugs is the next logical step. But there is yet another possibility. In the absence of a definitive ultimate cause, it may be that the symptoms of Alzheimer's disease can arise from many different types of insult to the brain. There have been several papers, says Dr Le Guillou, that have found correlations between various infectious organisms and Alzheimer's. "It could be a bit like the Mississippi river," says Dr Hardy. "You can start in all sorts of places, but eventually you're going to end up in New Orleans." If Alzheimer's is a general response to all sorts of neurological triggers then it may be that the fungal infections found by Dr Carrasco are simply one of a long list of causes. ■