

The new space race

The sheer number of pressing challenges facing our planet can make it easy to forget the rest of the universe. But as a packed schedule of launches blasts ever more craft into the great beyond, we take a moment to explore the role space could play in humanity's future.

Space is just 80 miles away from every person on Earth. As political scientist Daniel Deudney once observed, that's closer than most people are to their own national capitals. And yet, in the four decades since our first giant leap, the great beyond has slowly drifted out of the world's consciousness.

But a different kind of space race could be about to change that. As Voyager-1 explores new frontiers beyond our solar system, growth in space is becoming a far more accessible ambition for countries and organisations the world over.

"The number of countries with a presence in space is growing," says **Theresa Hitchens**, Director of the UN Institute for Disarmament Research, and a Member of the Global Agenda Council on Space Security. "There's a growing interest around the world in the use of space in a deeper way than in the past."

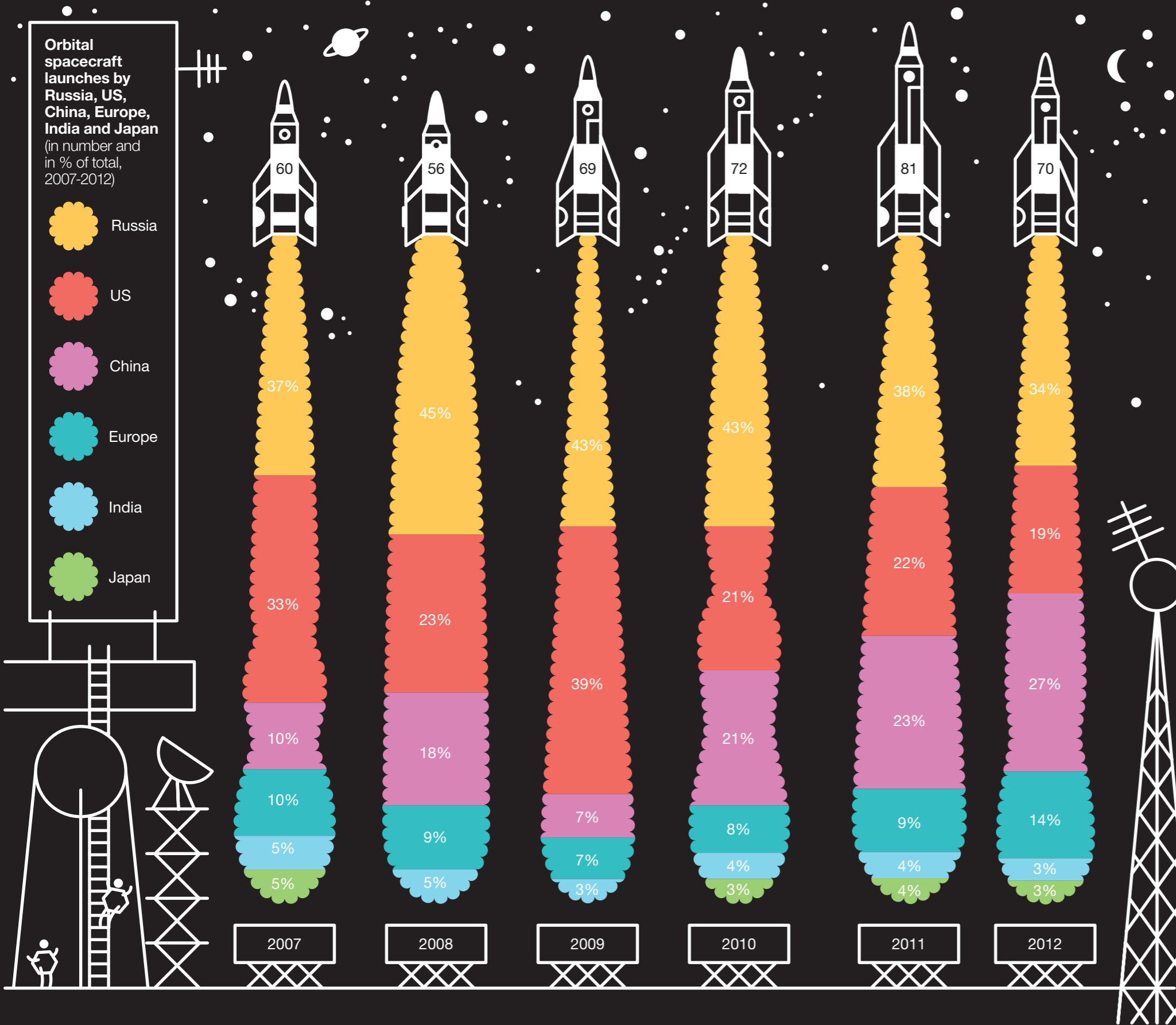
There are around 250 satellite launches scheduled for this year, almost 40% more than in 2010. Such a steep growth rate reflects the benefits that a presence in space can bring to our daily lives on Earth; from public health and communications to agriculture and education, nations of all sizes are looking to the skies to improve life on the ground.

"There is a larger recognition today, particularly among developing countries, of space as a fundamental building block to development," says Hitchens. "In India, they are heavily reliant on satellites for things like tele-education. Nigeria is using Small Remote Sensing (SRS) satellites to monitor crops and drought, while Vietnam has become the newest country to own its own satellite. And for countries that have really big land masses, satellites offer a cheaper alternative to fibre optic cable for providing internet access." ▶

Conservative estimates of space budgets of G20 countries



Source: The Space Company at a Glance 2011, OECD



Source: Federal Aviation Administration, Commercial Space Review Report, 2007-2012

All of which means that space is becoming an increasingly crowded place, both physically and politically. Traditional space players like Russia, the US, the European Union and China are becoming concerned that as the useful orbits become more congested and debris population increases, so do the chances of accidents.

“Space is a very under-regulated environment,” says Hitchens. “We don’t have a very good system, neither a legal system nor even an international regulatory system, of how to control activities in space.”

And that’s not the only geopolitical stress point: satellites also provide huge military advantages to countries that are trying to project power outside their own borders, a fact not lost on the world when China successfully tested its first anti-satellite missile in 2007. “When China became the third country to test an anti-satellite weapon, it caused real concerns about whether we’d be facing some kind of race around their use,” says Hitchens.

China’s ambitious long-term space plans – lunar landing, space exploration and construction of a manned station by 2020 – make it the exception to the norm. Most national space programmes have short-term aims, meaning that no human has left low Earth orbit since 1972. But if ambition in space runs on funding and curiosity, the private sector has plenty of both. “I don’t think the new space race is really government versus government,” says **Gwynne Shotwell**, President of SpaceX, and also a Member of the Global Agenda Council on Space Security. “This is a race being run by entrepreneurs.”

PayPal entrepreneur Elon Musk’s SpaceX made history when his Dragon spacecraft carried out a successful mission to dock with the International Space Station for the first time in May 2012.

Richard Branson’s Virgin Galactic has done much to reignite interest in space tourism, while Blue Origin, the company set up by Amazon founder Jeff Bezos, is also working to democratise space travel. And meanwhile other companies, such as Shackleton Energy Company, are looking to mine the moon and asteroids.

“VCs are investing in new space companies in far greater numbers than they ever have,” says Shotwell. “I think the impact will be felt maybe five or so years from now – it’ll be very interesting to see whether private companies overtake government spending

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on space. The increase in space-based revenues from 2011 to 2012 grew almost 7% to \$304 billion. Space-based GPS and other similar systems facilitate enterprise in the order of \$3 trillion. It’s an enormously helpful system to the world’s economy; it far exceeds the expenditures on space and space-related capabilities.”

But while there are obvious commercial opportunities in space exploration, Shotwell believes that private companies are also driven by ideals. “If you look at the list of CEOs who are doing this, they’ve got space backgrounds. And space-folk tend to be very humanitarian-focused,” she says. “I’m sure they believe that decades from now they’ll be making money, but I’d say that the primary rationale for doing this is to make the Earth a better place, and to make what exists beyond the Earth a better place too.” ■