



Stars & Stripes from the International Space Station Cupola - 14 June



Carly Chynoweth talks to **Loizos Heracleous** about how the US space agency is having to re-model itself as competition to unlock the secrets of the universe hots up

STRATEGY

NASA's new space race strategy

Four decades ago NASA had the public's imagination in the palm of its space-suit clad hand: its rocket ships had orbited the Earth, its astronauts had won the race to the Moon and its technologies were and are still helping humankind in fields as diverse as healthcare, solar energy and

food preservation. In recent years, however, things have become more difficult. It no longer has a monopoly on space technology in the US, thanks to the arrival of private companies such as Elon Musk's SpaceX, many of which license NASA's technology, compete for its contracts and employ its scientists.

NASA is operating under continuous budgetary pressure and a high degree of financial uncertainty – its \$18 billion in annual funding has to be agreed each year, making long-term planning more problematic. And it has come in for criticism from bodies such as the US National Research Council, which found that its 10 field centres are not managed in an integrated way; that it is constrained by a multitude of laws and regulations; and that it is not well enough funded to accomplish all the missions outlined in its strategic plan.

But there is a way for the agency to return to greatness, according to research by Loizos Heracleous, Professor of Strategy at Warwick Business School, and NASA's Steven Gonzalez. Their recent paper, *Two modest proposals for propelling NASA forward*, suggests that implementing performance-based HR and infrastructure processes, and becoming a real network organisation, would contribute to this.

The first would increase employee revitalisation, facilitate two-way movement between the agency and the private sector and encourage cross-fertilisation between the two. Becoming a network organisation – that is, integrating properly both internally and externally – would support creativity and collaboration.

Implementing these proposals is not without its challenges, says Heracleous, but the agency has already started moving in this direction through experimentation with open innovation.

Heracleous is now looking at how NASA could use an approach called 'dual strategy' or 'ambidexterity' that has helped companies such as Apple, Toyota and Singapore Airlines to manage competing pressures.

"This approach is about implementing strategies that balance capabilities or positions that are in tension," he says. "In 1993 Derek Abell suggested that companies should operate with two time horizons: one focusing on how to exploit their current capabilities, and one exploring how to develop ideas that will be useful in the future."

The tension comes in because making the most of the present means reducing costs, while innovating for the future can be expensive. The other duality, explored by thinkers such as Constantinos Markides, is around not time but business models; for instance, how to balance global standardisation versus local customisation, or high quality against low cost.

"Another example could be a full-service airline that develops a low-cost subsidiary and has to decide to what extent to integrate the operations," says Heracleous.

His research into the implementation of dual strategies has identified a number of potential pitfalls, however. Over-focusing on one aspect can compromise the whole strategy, while thinking in binary (either/or) rather than ambidextrous (both/and) terms prevents organisations

from being able to continue innovations.

"Yet companies that can find a way to balance or transcend tensions by framing their strategic challenges in a new way can outperform their competitors and develop sustainable advantage," he says.

This idea contradicts theories developed by some of the big names in leadership and strategy.

"Michael Porter, the guru of strategy, said that you could have a strategy that was about innovation and quality on the one hand, or cost leadership on the other," says Heracleous. "So, for example, Maserati differentiates itself on its quality, while a company like Suzuki is a cost leader.

"But if you could somehow have a product that was both very low in production cost and/or cost to the customer as well as of excellent quality, you would be accomplishing a dual strategy in a way that traditional strategic thinking said wasn't possible.

"And some companies have accomplished this already. If you look at Apple's cost base, on many dimensions they are actually more cost effective than Dell. Who would believe that unless they saw the numbers?

"Then there's Narayana Hospital, a private hospital in India, which can do open heart surgery for about \$1,600 whereas in the US it costs \$120,000. And what is most interesting is that the quality is the same or better when it comes to post-operative complications and infection.

"Or if you look at Toyota and lean manufacturing, they have the highest

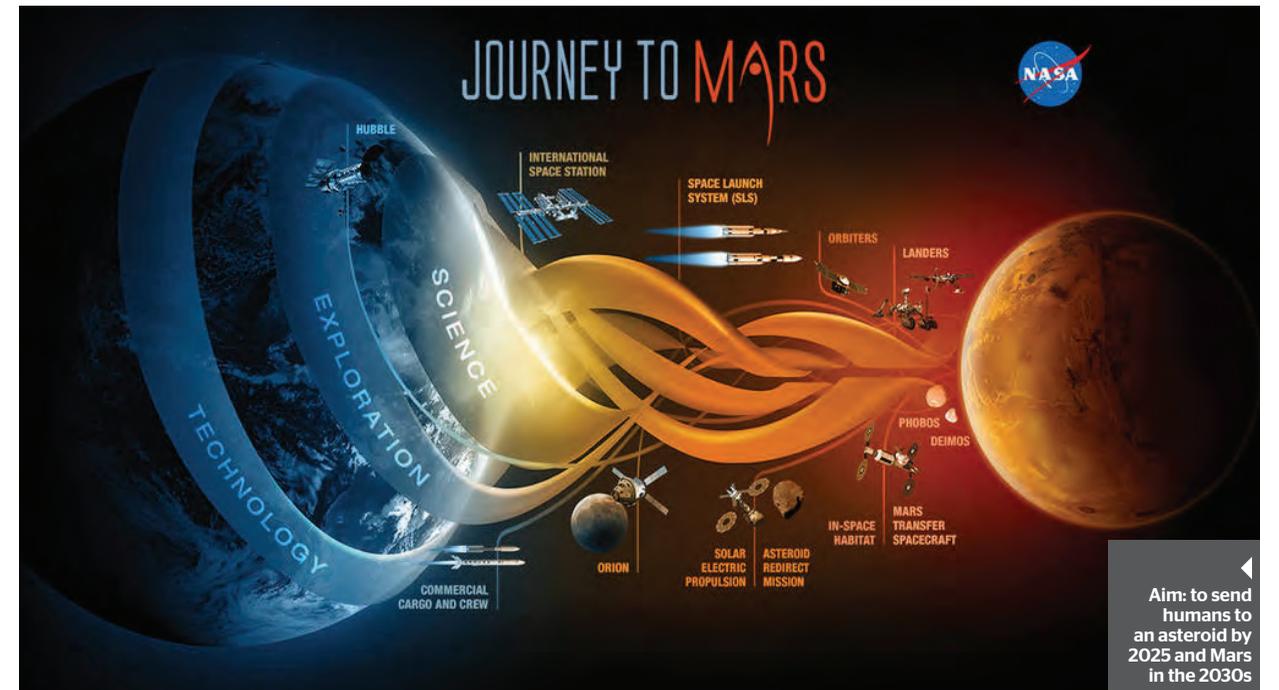
quality in the sense of lowest warranty claims... and at the same time one of the lowest production costs. And it ends up with one of the highest profitability rates because of the ability to unite these two, and the difficulty of imitation."

Achieving this sounds, then, like the Holy Grail for any politician or public sector organisation: high-quality public services at minimal cost. Unfortunately, regulatory constraints plus cultural and structural differences between it and the commercial world make implementing ambidexterity particularly difficult. One of the most challenging aspects is around engagement with the private sector; this needs to go beyond traditional customer-supplier relationships, he says.

"If you really want the public sector to achieve ambidexterity this engagement with the private sector has to be on a broader spectrum, for example on joint innovation processes," says Heracleous. "One of the five principles of dual strategy is the power of networks and business systems. No company has all the knowledge and tech that it needs to move forward so it is crucial that there are collaborations, networks."

Any public sector organisation that hopes to achieve ambidexterity needs to cut back bureaucracy – "of course maintain accountability, but not rules for their own sake"

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The five principles of ambidexterity

1. Strategic use of technology
2. Invest beyond financials
3. Configure culture and processes
4. Harness the power of networks and business systems
5. Develop ambidextrous leadership

– and create a culture where all staff are proud of their organisation and what it does.

Heracleous adds: "At Singapore Airlines, which is half-owned by the government, cabin staff are happy to talk to you about the wine, the cuisine, and they are proud of its quality, but at the same time they are very careful about wastage. They do not open a new bottle of wine until the first is finished." That is, the airline's staff share a culture of delivering good service without wasting money.

Heracleous' work with NASA is still in progress but he can see the foundation of a culture united by a belief in what the organisation does, he says.

"Many people talk of why they joined NASA in the first place and interestingly it has to do with what their competitor, Elon Musk, is saying, which is that humans have to be interplanetary to survive," he says. "The vision is what motivated almost everyone to join NASA... that spark is still there, waiting to be lit." ■

Watch a film exploring how NASA can rise above its competition at wbs.ac.uk/go/nasa