1- How does the privatization of space conform to the country's narrative?

DOC3 (TXT) - The new space race: how billionaires launched the next era of exploration

The launch of SpaceX's Falcon Heavy rocket into deep space has fired dreams of a new era of 21st-century discovery - Alan Yuhas - 9 Feb 2018 – THE GUARDIAN

Scientists and aerospace veterans, many of them still in awe at the cascade of smoke and fire, the roar of a 20-story machine hurtling into the sky, and the sight of a billionaire's electric car floating past Earth welcomed Elon Musk to the podium in Cape Canaveral this week. "We want a new space race," Musk told a press conference. "Races are exciting."

Given that Musk's private aerospace company **SpaceX** (see CULTURAL NOTES) had just launched the most powerful working rocket in the world, casting a Tesla towards the asteroid belt, it was hard to find anyone who disagreed with him. The Falcon Heavy rocket was years in the making, costing about half a billion dollars, but its maiden success has galvanized scientists, engineers and businessmen, seemingly overnight. "He's being Elon again. I'd call it competition, and competition is the American way of life," said John Logsdon, professor emeritus at George Washington University and founder of the Space Policy Institute. "SpaceX has challenged the traditional launch industry in the United States and in Europe and in China and in Russia."

In just over 15 years, SpaceX has muscled its way into spaceflight, a realm long dominated by space agencies like Nasa and their main contractors [...]. Nor was Musk alone: Amazon billionaire Jeff Bezos beat him to landing a reusable rocket through his own company, Blue Origin, and Richard Branson and a slew of other entrepreneurs have followed with lighter-lift rockets.

"The space age was born out of a race between governments, starting with the Sputnik moment," said Phil Larson, a senior science adviser in Barack Obama's White House and a former SpaceX official, referring to the first satellite launch into orbit, in 1957 by the Soviet Union. "What we're seeing in the last five to 10 years is this fomented competition between companies," Larson said, "and sometimes between governments and companies [...] The Falcon Heavy shows how far we've come," he said. "There are many new rockets being developed, some light, some superheavy, some in between. That's the new paradigm we're in."

The new space race is something stranger than the cold war contest between the US and the Soviet Union. Government agencies, like Nasa, Roscosmos and the European Space Agency, have been collaborating with each other for decades – and now face friendly competition and partnerships with corporations, which have their own long-term goals. "What's new is that the companies themselves have ambitions beyond government contracts," said Casey Dreier, director of space policy at the Planetary Society, an advocacy group. He compared it to **the Gilded Age** (see CULTURAL NOTES), when billionaires sought to single-handedly reshape the future, or at least the marketplace, for good or ill. "There's really no downside for Nasa," he said. "They've got this new capability at their disposal, and will be wiping away the drool thinking about all the opportunities they have for that rocket to reach out to other planets." [...]

Nasa is working on its own super rocket, called the SLS, which would be the most powerful ever designed, and its likely tool for a new space station or deep-space exploration. The agency faces its own hurdles, however: it has gone a year without a confirmed administrator, due to Senate inaction around Donald Trump's controversial nominee, and for decades Congress has kept Nasa's funding around only 0.5% of federal spending, a tiny amount compared with social security, defense, or the infusion of money Nasa received during the Apollo era. But the success of the Falcon Heavy, experts said, was one more device in the toolbox for Nasa's many missions – all the more attractive for its low cost.

SpaceX and Blue Origin have made reusable rockets a reliable business for Nasa and telecom companies, and are advertising at a fraction of the price of government rockets. SpaceX's Falcon 9 rockets operate at an average cost of about $60m per flight, and its Falcon Heavy at a cost of $90m to $160m, depending on modifications. Nasa estimates that its SLS will cost about $1bn or more per flight – the price of reliability and safety over reusability. […]

Nasa has set strict safety requirements for human spaceflight, but Congress and the Obama and Trump administrations have taken a light touch to regulating the private space industry. Logsdon, the professor, said that in due time those regulators will face a problem: "whether somebody with enough discretionary money to take a joyride around the moon cares about Nasa's human safety requirements".

For the moment, however, the experts mostly enjoyed the moment. "SpaceX is pushing the boundaries on what is possible, and upping the ante for others," Dreier said. "You couldn't have had a better day for SpaceX. […] Honestly it was just a really exciting day to be a human," he added. "It's a reminder of excitement and success, but also a little bit of strangeness to what's possible. Something kind of weird and fun, because that's what makes us human."

READ THE TEXT AND ANSWER THE FOLLOWING QUESTION:

- ⇨ **According to the author what characterizes this new phase in the history of space exploration?**

DOC4 (TXT) – We once marveled at Neil Armstrong. Now space is a playground for the rich

John Harris – 17 Oct 2018 – THE GUARDIAN

I am a child of the 1970s, when the first space age was slowly drawing to a close. In those days, fired by the deep rivalries of the cold war, space exploration and travel were collectivist endeavours, and the monopoly of the two super-powerful governments that had unique access to the necessary funds (in the case of the Apollo programme, which put people on the moon, well over $100bn [£76bn] in today's prices). As is portrayed in the new Neil Armstrong biopic *First Man*, American astronauts were apparently modest and unrufflable men, chosen for precisely those qualities. At the space race's peak, the teams that oversaw their amazing journeys dissolved into a sea of respectable haircuts and short-sleeved shirts, so anonymous that the names of some of the key people in charge – the Nasa administrator James E Webb, or the agency's deputy associate administrator, George E Mueller – have been all but lost to history. In retrospect, this represented the ultimate triumph of the postwar bureaucratic state, before the early 1980s began the era in which it was endlessly dismantled.

While the idea of state-led space travel may yet be decisively revived by China, the new space race in the west is something almost surreally different: a competition between rich, often knowingly "flamboyant" entrepreneurs, whose motivations are open to speculation. For sure, some of their innovations are genuinely useful: witness SpaceX's reusable rockets. But too often, there is a telling gap between these people's professed ambitions, and the anticlimactic stunts that currently earn them the biggest headlines – something perfectly symbolized by Musk's talk of colonies on Mars, and that stupefyingly pointless spectacle of a mannequin in one of his sports cars, launched into space back in February, and then stranded in orbit. Such spectacles, perhaps, are a distraction from rising questions about how exactly private space flight should be regulated, both because of its dangers (in 2014, a pilot was killed while testing one of Virgin Galactic's space-

planes), and the rising sense that some elements of the new space race are built on a very earthly kind of greed. The latter is evidenced by the companies that have plans for asteroid mining, prospecting on the moon – and, by way of a punchline provided by a Japanese firm called ispace Inc, projecting adverts on to the lunar surface.

Tellingly, the roots of a lot of what is happening lie in the thinking of small-state libertarians who [...] saw Nasa's retreat from space exploration as decisive proof of the uselessness of government. A good example is Peter Diamandis, who has worked with Branson on space flight and founded the X Prize Foundation. [...] "Throughout all of history," he wrote, "the greatest accomplishments of the human race have been instigated and acted upon by the individual or the small group – never have the masses brought about innovation." In this vision, it seemed, space travel was to be the preserve of a self-conscious elite largely untroubled by governments and less interested in exploring new frontiers on our behalf than in leaving the rest of us behind. And so, perhaps, it is proving. Blue Origin will reportedly soon be offering brief trips to the edge of space for up to $300,000 a throw. As soon as 2023, SpaceX will transport the Japanese retail tycoon Yusaku Maezawa around the moon, a privilege for which he has paid an undisclosed sum. The US company Axiom Space is working on a private space station it claims will be launched in 2022. The people in charge promise "a microgravity laboratory where educators, scientists and researchers conduct life-improving research", but the most remarkable part of the plan is a proposal to take "high-worth" individuals into space for eight days, at a cost of $55m each.

You can only wonder: in place of Armstrong's first small step, what will that give the rest of us to marvel at? The revelation that rich people experience weightlessness too?

Even if they are not up there with the colossal amounts spent by Nasa in the 1960s and 70s, the sums of money going into the new space race are still mind-boggling. Virgin Galactic came into being thanks to an initial $100m of funding from Branson's Virgin Group, and subsequently received around four times that amount from a sovereign wealth fund based in Abu Dhabi. Bezos is funding Blue Origin to the tune of at least $1bn a year; SpaceX is reckoned to have an annual turnover of nearly $2bn.

Meanwhile, an emergency is happening back on boring old planet Earth: the growing crisis of climate change, dramatically highlighted by the recent IPCC report that warned we have no more than 12 years to avoid an ecological catastrophe. Many of the new space entrepreneurs, including Branson and Bezos, are funding some research in this field; Musk's electric cars are an undoubtedly worthwhile contribution. But if the same people have a shared vision of innumerable private rockets leaving Earth whenever there is enough business, it may be worth bearing in mind the volume of carbon emissions that will entail, and the much-reported view of a California-based rocket engineer called Martin Ross, who says: "We now understand that the climate and ozone impacts of rocket exhaust are completely intertwined." Besides, an even bigger question surely cries out for an answer: if the Earth is burning, why is so much money being frittered away on sending cars, pop stars and bond traders into orbit?

We may now be faced with a kind of space exploration that doesn't hold out any of the romantic promise of yesteryear, but simply reflects the kind of terrestrial injustices to which the new spacemen perhaps give far too little thought.

READ THE TEXT AND ANSWER THE FOLLOWING QUESTION:

According to the author, why and how should the new entrepreneurial spirit be reined in?