will be launched into *outer* space. Parker recognises that the paradox of having capitalists in space[27] is embodied in Max Weber's retort to capitalism, observing that 'the pursuit of wealth, stripped of its religious and ethical meaning, tends to become associated with purely mundane passions, which often actually give it the character of sport.'[28]

Essentially, the means become the end, and playing the game becomes the purpose; a profane voyage in the pursuit of spiritual enlightenment.[29] This aimlessness is further compounded by the emergence of an *Adult Infantile Narcissism* personality type predominantly in the West, where many of the most economically and socially dominant individuals are failing to adequately grow up.[30] Although this personality trait is at its extreme, elements from this hyper-rich elite and affluent society are developing a cosmic elite with narcissistic characteristics, taking to the universe as yet another object to be dominated.[31] This will inevitably become a catalyst for aspiration, perhaps even to some Mars One shortlisted candidates.

No doubt, as evidenced by the advances within space industry and space tourism, the pro-space movement the 'NewSpace Revolution,'[32] which seems less concerned with the impact on nature and increase in the associated risks, has gained more traction than those in opposition, particularly in terms of access to media. Naturally, this is not a surprise, given the space industry is the embodiment of progress and technological capability, and an undeniably distinctly virile industry. In addition to capturing the allure of adventure, this industry is backed with the vast availability of capital, political influence, and scientific, academic institutions.

Meanwhile, on the other hand are social interest groups – in many cases more traditional activists – with far less access to funding – continuously raising concerns of the side-effects of capitalism,

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[27] Martin Parker, *Capitalists in space*, 57 SOC. REV. 1, 83-97 (2009).

[28] MAX WEBER, TALCOTT PARSONS, & R.H. TAWNEY, THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM (1930).

[29] Parker, *supra* note 27.

[30] DICKENS & ORMROD, *supra* note 3.

[31] *Id*. at 622

[32] Rick Tumlinson, *Apollo's Children and the NewSpace Revolution*, HUFFINGTON POST, July 22, 2011, http://www.huffingtonpost.com/rick-tumlinson/apollos-children-and-the-b906500.html.

along with their deep concern of the use of space for military purposes, such as Global Network Against Weapons and Nuclear Power in Space (2015) and the Institute for Security and Cooperation in Outer Space (ISCOS).[33]

In between are organisations, which to some extent capture the essence of both sides of the spectrum. One example is the Institute of Noetic Sciences (IONS), founded by former US astronaut Edgar Mitchell, promoting both the advance of space exploration and science, and advocating strongly for expanding the horizon with a higher collective consciousness for the benefit of nature.[34]

Conscious that the contribution of the humanities will be essential to the future of space exploration, in 2007 the European Science Foundation (ESF), the European Space Agency (ESA) and the European Space Policy Institute (ESPI) through their 'Humans in Outer Space (HiOS) – Interdisciplinary Odysseys' advocated for strengthening the profile of social science disciplines such as law, philosophy, ethics, culture, art and psychology.[35] It is pertinent to note that at this point in time, ESA and the Royal Society UK, do not have any formal structured expertise in the area of humans in space.

While the importance of the HiOS cause found extensive academic support, the financial interest abated after three years. While understandable, this is concerning.

As we stand on the threshold of becoming a space faring civilisation, Sagan reflects on our global problems, with its vast national antagonisms, nuclear arsenals, rising populations, increased disparity between the poor and the prosperous, food and resource shortages, and the impact on natural environment – a system it seems to some, destined to collapse.[36] Meanwhile, Mitchell and Staretz argue that an element of our long-term survival depends on the ability of humanity to prevail over the obstacles and perils of

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[33] *The Treaty*, INSTITUTE FOR SECURITY AND COOPERATION IN OUTER SPACE, www.peaceinspace.com/index.php/the-treaty (last visited Jan. 22, 2015).

[34] *History*, INSTITUTE OF NOETIC SCIENCES, http://noetic.org/about/history (last visited May 21, 2017).

[35] J. WORMS, J. SWINGS, N. WALTER & R. WEEHUIZEN, SPACEROAD: A SOCIAL SCIENCES AND HUMANITIES-BASED RATIONALE FOR HUMAN SPACE EXPLORATION, (2010).

[36] Carl Sagan, *The Quest for Extraterrestrial Intelligence*, ART OF MAKING (2011), http://www.artofmaking.com/2011/03/the-quest-for-extraterrestrial-intelligence-by-carl-sagan/.

exploration. So far, the rewards have always far exceeded expectations, even if we were never able to predict the magnitude and range of the risks nor the extent of the benefits.[37] Nonetheless, they raise the importance that ethics and morality rest within humanity, as nature takes no moral sides.

Nature remains available for exploitation for good and for evil. For instance, one of mankind's many discoveries, is how to unleash energy stored within atoms. This knowledge has been used for peaceful purposes such as generating electricity as well as for weapons of mass-destruction. In other words, our morals, values and ethics have not kept pace with our technological prowess.[38] This renders us subject to live through an unstable era of *Technological Adolescence*,[39] without a dependable assurance that we as a human race can command these powerful technologies without the risk of self-destruction.

Self-discipline is likely to be the prerequisite to continue to evolve ethically and technologically.[40] This adds a familiar element of purity of the conquest,[41] as it bears witness to the absence of a sound *ethical* governance system to guide us through this unstable technological adolescence. After all, although morals are there to constrain *our* behaviour, values still boil down to how effective we are at influencing the behaviour of others.[42]

VII. TRIAL WITHOUT ERROR WRAPPED IN COLLECTIVE ANXIETY

Wynne poses the ever-relevant question, of whether collective participation can keep the pace that decision making in complex advanced technology demands, and if not, who deserves priority? What is the appropriate balance between process and product?[43] Or perhaps in this context it is better framed as: 'what is the appropriate balance between process and *progress.'* One side asserts that historically progress has been favoured in what can hardly be described as a balanced debate, albeit with more and more strains of

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[37] MITCHELL & STARETZ, *supra* note 4.

[38] *Id.* at 55.

[39] *Id.*

[40] *Id.*

[41] IMMANUEL KANT, CRITIQUE OF PURE REASON (1999).

[42] Martyn J. Fogg, *The Ethical Dimensions of Space Settlement*, 16 SPACE POL'Y 3, 205-211 (2000).

[43] Wynne, *supra* note 2.

a reflexive collaboratory approach.[44] Nonetheless, when reflexivity is both limited *and* late, even if providing at least the differing viewpoints a chance to be heard, it is only a matter of time before it will be drowned out by the capitalist stampede.[45] Meanwhile, the camp in favour of progress interprets the same reality with impatience and almost disdain for an apparent lack of vision for progress. Which may seem unfair, as they are more likely to have political influence to further their agenda.

There is a balance to be struck here. Ethical and moral guidance need to be inherent within the governance framework, but not to the extent that it stifles progress. Progress and conscience *can* advance together, while maintaining the moral imperative.[46] The key will likely be found in the propensity to accept risk[47] in what is likely to become a collective application with tacit consent of the *precautionary principle*, or as dubbed by some environmentalists 'trial without error.' The biggest concern is that it ignores the most dangerous source of error; the unexpected.[48] In relation to space exploration, that is a considerable factor. The difficulty rests within reaching consensus on if or when catastrophe strikes. While one side wishes to stop the experiment, the other is pushing on to see what might be learned from pushing ahead. The question is, which bias is the safest?[49] Safety comes from use, with pioneers suffering the costs of premature application. For the most part, technologies become safer over time, and needless to say the second generation cannot learn from the first generation, if there is none.[50]

One of the elements that will ensure a continuous reflexive society is a strong balanced multi-faceted debate. Driven by a deep collective anxiousness and fueled by methodical scepticism in an increasingly aware public,[51] it will pave the road for a collaboratory and participatory process with broad participation empowered even

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[44] CHRISTOPHER HOOD & DAVID K.C. JONES, ACCIDENT AND DESIGN: CONTEMPORARY DEBATES IN RISK MANAGEMENT (UCL Press, 1st ed. 1996).

[45] WEBER, PARSONS, & TAWNEY, *supra* note 28.

[46] RALPH NADER, UNSAFE AT ANY SPEED: THE DESIGNED-IN DANGERS OF THE AMERICAN AUTOMOBILE, (1965).

[47] JOHN ADAMS, RISK (1995).

[48] A. Wildavsky, *Trial and Error Versus Trial Without Error, in* RETHINKING RISK AND THE PRECAUTIONARY PRINCIPLE 22, 22-45 (Butterworth-Heinemann 1st ed., 2000).

[49] *Id.* at 3.

[50] *Id.* at 35

[51] BECK, *supra* note 1, at 49.

at grass roots level. This constant dynamic tension is needed to govern these decisions as we fare into unchartered territories of private exploration of outer space.

VIII. SOCIAL LEARNING IN AN ADOLESCENT RISK SOCIETY?

The social cognizance of the complexity of space activities is growing exponentially, and there is general agreement that it is important. The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) acknowledges the increasing demand for regulatory structures,[52] while the European Science Society cautions that space law 'will become urgent.'[53] Then why doesn't the European Space Agency have a department to deal with humans in space, either from a natural science or a social science point of view? More understandably perhaps, neither does the Royal Society, UK, which has otherwise been known to provide scientific and ethical guidance to the public with the development of new technologies. Why is it not gaining traction? Could it be that the 'softer' social sciences indeed *are* moving forward, but compared to technology developing at neck-break speed and governance moving at a notoriously diffident stride, it has simply not been possible to detect the modest advance of the social sciences? All going to plan, there are still ten years until Mars One will have 'space activities.' In relative 'space years,' that is right around the corner.

Determining whether society is equipped to govern this development, one indicator is whether social learning is taking place. The ideal collaborational environment is a complex public debate built on antagonisms with strong incentives to promote rival values where opposing forces are deliberately juxtaposed.[54] It is clear that only limited reflexivity and collaborationism seems to be occurring.

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[52] *Report on the United Nations/Thailand Workshop on Space Law on the theme "Activities of States in outer space in the light of new developments: meeting international responsibilities and establishing national legal and policy frameworks,"* (Nov. 2010) U.N. COMM. ON THE PEACEFUL USES OF OUTER SPACE, http://www.unoosa.org/pdf/reports/ac105/AC105_989E.pdf.

[53] Agnieszka Lukaszczyk, *Interdisciplinary Odysseys: The ESF/ESA/ESPI Vienna Conference on Humans in Outer Space*, 24 SPACE POL'Y 1, 50-52 (2008); *What is Mars One's funding model?*, MARS ONE, http://www.mars-one.com/faq/finance-and-feasibility/what-is-mars-ones -funding-model (last visited Jan. 27, 2015).

[54] HOOD & JONES, *supra* note 44.

This is unlikely to change, as the polarised debate is rooted in extremely opposing ideologies with very little middle ground, being either passionately for or against opening up space. Add to that the natural bias towards progress driven by aerospace industry resources and political influence.

Even if there is a public debate, it is not perceived to be transparent, nor balanced. In the case of Mars One it is experienced to be more of a multi-way communication with an either deliberately non-risk averse demographic or one that is ignorant of the real risk, than that of an informed debate. It can be argued that the debate and the media attention on the topic are not a balanced, informed dialogue by a long shot, nor are they prioritising risk communication – *au contraire*.

It can also be argued that the topic of a one-way mission to Mars is not really what is being discussed or promoted in the public domain. It is rather the contemporary phenomenon that private space exploration *is* possible. It is within reach for anyone – not only a cosmic elite. It is an expression of technological advance forging its way ahead, not only symbolically loaded,[55] but perhaps even symbolically *saturated* in the sense that the argument seems to have long left the realm of rational deliberation and reductionist logic based on the concrete implications and merits of the case at hand. It has entered a realm where the project is evaluated on its *symbolic* value, becoming the product of long-held assumptions, preferences and prejudices of what it represents for the industry [or ideology] as a whole.[56]

Mars One represents not only a nimble Dutch non-profit enterprise, with a vision to settle humans in outer space, but also whether society has the right and the prowess to do so and, as it would appear, ruffling a few feathers in the process. In a contemporary late-modern industrial risk society,[57] driven by a collective degree of adolescent immaturity and individualism,[58] the collective signature of the contemporary phenomenon will be heavily biased in favour of progress. Add to that, the element of capitalism through the broadcasting rights to a TV reality show or through extraction

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[55] Wynne, *supra* note 2.

[56] *Id.* at 349-350.

[57] BECK, *supra* note 1.

[58] DICKENS & ORMROD, *supra* note 3.