

Innovation for Sufficiency and Sustainability

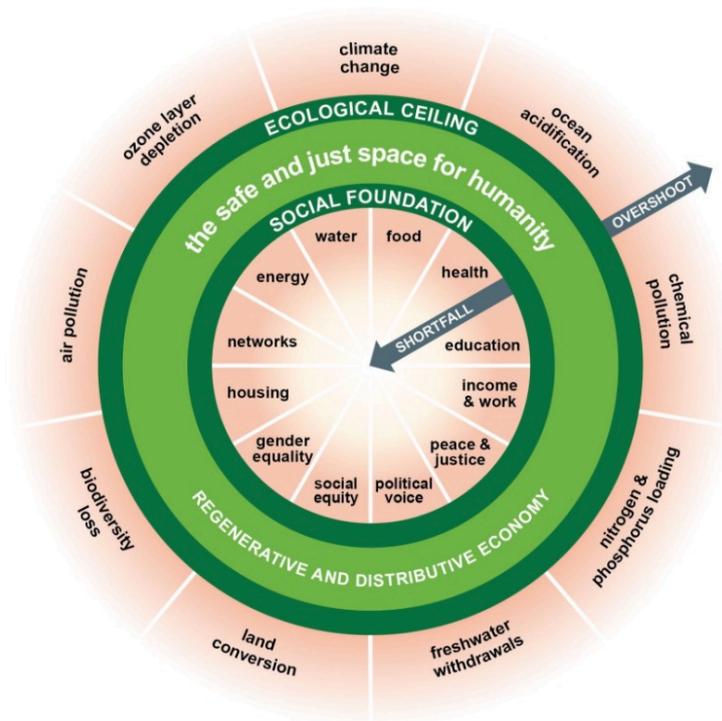
Proposal for a Mass Media Moonshot¹

Peter T. Knight²

INTRODUCTION

How can we meet the basic needs all people on Earth in a way that is sustainable in four dimensions: economic, social, political, and ecological? That is perhaps the greatest challenge facing us today. Another way to describe this challenge is: how can shortfalls in access to basic needs be eliminated while staying within the safe and just space for humanity – that is within ecological planetary boundaries. Figure 1 depicts this challenge.

Figure 1: Kate Raworth's doughnut of social and planetary boundaries



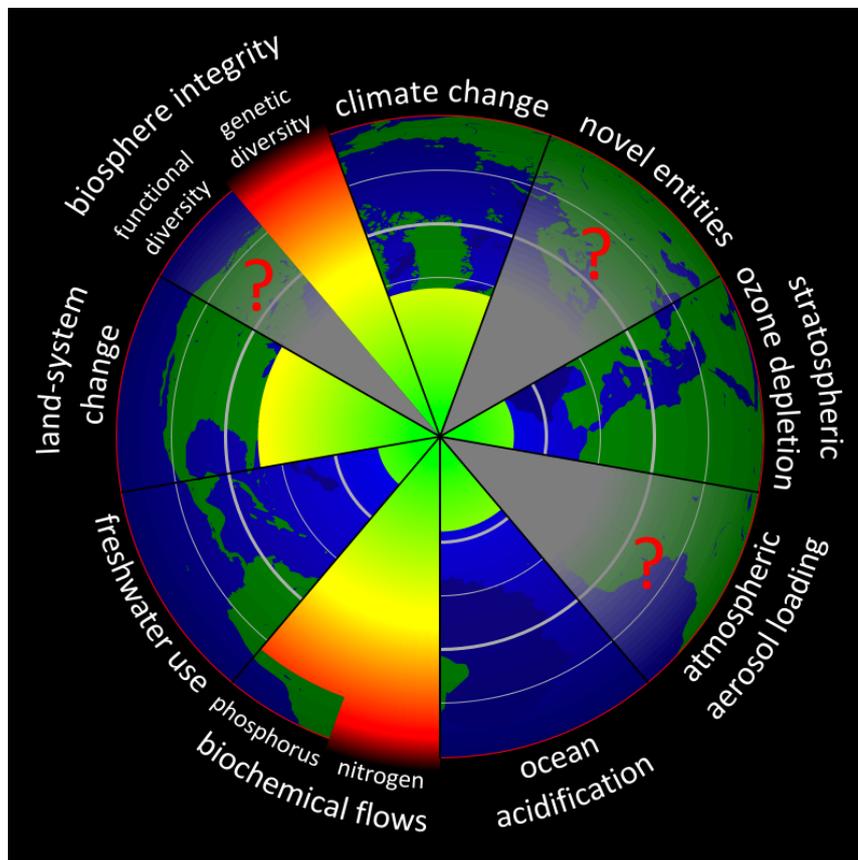
Source: <https://www.kateraworth.com/doughnut/>

¹ This article is a journalistic version of the author's academic article, "Innovation, Sufficiency and Sustainability Media Moonshot" to be published in *International Journal of Social Ecology and Sustainable Development*, 10:1 (2019). That version contains full documentation and references for statistics and concepts used in the present article.

² Coordinator, Sufficiency4Sustainability Network (<https://www.sufficiency4sustainability.org/>) and Founding Member, Fernand Braudel Institute of World Economics (<http://en.braudel.org.br/>) Email: peter@sufficiency4sustainability.org.

A growing number of analysts argue that some of the planetary boundaries are already being breached (Figure 2)³ and an estimated 736 million people, or 10 percent of the world's population, lived in extreme poverty (less than \$1.90 a day) in 2015.

Figure 2: Planetary boundaries



Source: https://en.wikipedia.org/wiki/Planetary_boundaries

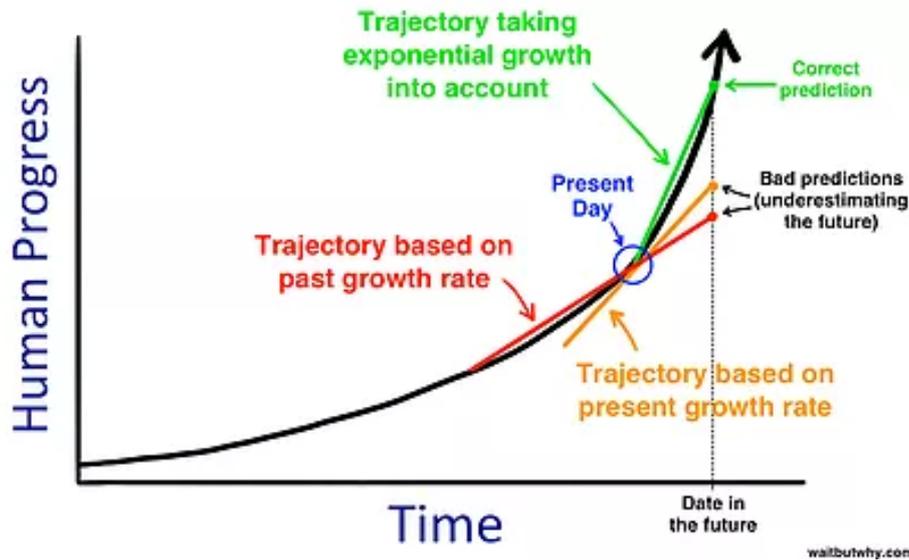
Current economic trends, driven by fast-evolving technology – including robotics, biotechnology, nanotechnology, information technology, and artificial intelligence – pose threats to employment and social stability as well as ethical challenges. These trends spur a move toward populist and authoritarian political movements that seek to maintain an unjust distribution of income and wealth. Examples include the Trump administration in United States and the rise of right-wing governments and political parties in Europe. These techno-economic developments threaten economic, social, political, and ecological sustainability.

Institutional development has lagged behind the accelerating pace of economic change led by these exponential technologies. By exponential technologies I mean those powered by computing power that evolves at rates governed by Moore's Law, namely that the number of transistors in a dense integrated circuit doubles about every two years, with a corresponding increase in computing power and fall in its cost). Figure 3

³<https://scripps.ucsd.edu/news/earth-has-crossed-several-planetary-boundaries-thresholds-human-induced-environmental-changes> (accessed 01/03/2019).

shows why projections based on linear extrapolations of past development will understate their impact.

Figure 3: Projections based on past or present vs exponential growth rates



Source: Urban, Tim (2015). "The AI Revolution: The Road to Superintelligence." Wait But Why, January 22 Available at <https://waitbutwhy.com/2015/01/artificial-intelligence-revolution-1.html>

New public policies are already needed. Among them are universal/unconditional basic income (UBI) as a human right, more progressive taxation of income and wealth, and incentives guiding technological change to meet the sufficiency and sustainability challenge rather than work against it.

A massive change in public opinion and policies, a veritable paradigm shift, is needed at the global level to leverage exponential technologies to meet the sufficiency and sustainability challenge. Building consensus on such policies and implementing them becomes ever more urgent as exponential technological change proceeds. I argue below that films and television programs in various formats can help build public awareness and shape needed public policies.

The size of the film and TV markets is impressive. According to UNESCO, in 2015 almost 10,000 feature films were produced in 93 countries. Box office and home entertainment (video content sold, rented, or streamed for home use) generated revenue of \$136 billion in 2018 for the global film and 609 million cinema tickets were sold. In 2015 an estimated 1.57 billion households owned at least one TV set. In 2016 the average number of minutes of TV watched per person in some key countries was 270 in the US, 254 in Brazil, 248 in Russia, 193 in South Korea, and 144 in India.

A television show or film can easily be streamed online. The number of internet users passed 4 billion in 2018 and continues to grow rapidly. More and more individuals and households are viewing video content via internet streaming services on computers, tablets, and smartphones. Global video on demand revenues topped \$84 billion in 2017 compared with \$35 billion in 2016, and this does not include content

available free over the internet through sites like YouTube. The percentage of internet users who watched online video content on any device in January 2018, was 95% in Saudi Arabia, 82% in China, and 85% in the United States, India, and Brazil.

MASS MEDIA, PUBLIC OPINION, AND POLICY FORMATION

The impact of films and TV on public opinion can be powerful. These visual media – whether delivered conventionally in movie theaters and broadcasts or by streaming over the internet – can help raise public awareness of issues, set agendas, focus public interest on particular subjects, inform debate, and shape public policies. Here are some important examples of films and TV programs and their impact.

The China Syndrome (1979) is a film starring Jane Fonda as a California TV reporter filming an upbeat series about the state's energy future. While the reporter was visiting a nuclear power plant, a near meltdown occurred and the plant's owners tried to cover it up. Twelve days after the film opened, a real nuclear accident occurred at the Three Mile Island nuclear plant in south-central Pennsylvania. While this accident didn't produce any deaths, injuries, or significant damage except to the plant itself, it did produce a widespread panic, stoked by *The China Syndrome*. The nuclear industry, already foundering as a result of economic, regulatory and public pressures, halted plans for further expansion.

The Day After (1983) is a TV film first broadcast by the US television network ABC on November 20, 1983. Interestingly, it was inspired by *The China Syndrome*. The film depicts a fictional war between NATO forces and the Warsaw Pact that rapidly escalates into a full-scale nuclear exchange between the United States and the Soviet Union. *The Day After* may well be the most impactful film ever made about the devastation of nuclear war. More than 100 million people, nearly two-thirds of the viewing audience, watched the program during its initial broadcast.

The Day After influenced the debate on nuclear arms control. Many of the effects went beyond those who watched as the widely publicized controversy that surrounded the movie contributed to its impact. Thirty-five years after its first broadcast, Dawn Stover wrote in *The Bulletin of Atomic Scientists*,

On Columbus Day in 1983, Ronald Reagan was at Camp David, the wooded presidential retreat in Maryland. That morning, before he boarded a Marine helicopter to fly back to the White House, he previewed an ABC made-for-television movie with the tagline "Beyond imagining." The Day After deeply affected Reagan, himself a product of Hollywood. He wrote in his diary: "It is powerfully done—all \$7 mil. worth. It's very effective & left me greatly depressed... My own reaction was one of our having to do all we can to have a deterrent & to see there is never a nuclear war." In an interview last year, Meyer said Reagan's official biographer told him "the only time he saw Ronald Reagan become upset was after they screened The Day After, and he just went into a funk."

On November 18, 1983, two days before the film aired on network television, Reagan wrote in his diary of "a most sobering experience" in the Situation Room, where he received a military briefing "on our complete plan in the event of a nuclear attack." In his 1990 autobiography, An American

Life, Reagan recalled the briefing: “Simply put, it was a scenario for a sequence of events that could lead to the end of civilization as we knew it. In several ways, the sequence of events described in the briefing paralleled those in the ABC movie.”⁴

By 1987, the year that *The Day After* was first shown on Soviet television and President Regan and Mikhail Gorbachev reached agreement on the Intermediate-Range Nuclear Forces Treaty, as many as one billion people may have seen the film.

Дом (*Apartment Building*, 1995) is a dramatic Russian TV serial with ten fifty-minute episodes in which economic topics relevant to the transition from a centrally planned to a market economy were discussed. Defense industry conversion; real estate privatization; launching new enterprises; the workings of markets for goods, labor, capital, and foreign exchange; and fighting the Russian Mafia were treated in a way that entertained, but also educated viewers. This approach, known as “social marketing” or “edutainment”, is widely used in other countries including Brazil, Egypt, India, Mexico, the United Kingdom, and the United States. Social marketing can help develop public awareness of social and political issues and contribute to their discussion. *Дом*’s characters all had names drawn from well-known Russian novels and short stories, including Dostoevsky’s *Crime and Punishment* and Chekov’s *The Cherry Orchard*. So, their psychological profiles and social characteristics were quickly recognized by Russian audiences. The characters lived in a well-known Moscow apartment building (one of the seven Stalinist skyscrapers) on the Kotelnicheskaya embankment beside the Moscow River. Much of the serial was filmed in and around this iconic building, a symbol of the Stalinist past, falling into disrepair, and threatened by a Mafia takeover.

Дом was broadcast by Russia's then independent premier private television station, NTV, in December 1995. This dramatic serial sought to help Russians (and other Russian speakers – it was also broadcast in other countries of the former Soviet Union) learn about the workings of a market economy, build hope in the country's renaissance as a democracy, encourage privatization, promote establishment of legitimate business enterprises, and fight the criminal structures that have become an international as well as a Russian menace.

I conceived the project when I was leading the Pilot Electronic Media Center (EMC) of the World Bank. The EMC provided some of the funding for the series. Several of Russia's leading economists at the time – including Economy Minister and Member of the Board of the National Training Foundation, Yvgeny Yasin; Deputy Economy Minister and Chairman of the Board of the National Training Foundation, Sergey Vasiliev; and Chairman of the State Duma's Economic Committee, Sergey Glasiev – endorsed the series. *Дом* was seen as a major cultural event, important in the rebirth of the Russian film industry. In December 1995, Deputy Premier of the Moscow Government, Vladimir Resin, along with former Deputy Premier of the Russian Federation Alexander Shokhin, hosted a one-hour program on Moscow Television (MTK, Channel 3) about the series, including interviews with the Producer, Director,

⁴ Stover, D. (2018). “Facing Nuclear Reality: 35 years after The Day After”, *Bulletin of the Atomic Scientists*”, December 4. Available at <https://thebulletin.org/facing-nuclear-reality-35-years-after-the-day-after/>.

Scriptwriter and stars. This program, broadcast on MTK, included excerpts from some of the episodes featuring scenes of Moscow, at 8:00 PM on December 15, 1995 prior to the last episode in the series. Call-in questions were taken from the audience. It is possible that *ДОМ* contributed to the victory of Boris Yeltsin over his Communist rival Genady Zyuganov in June 1996.

An Inconvenient Truth (2006) is a documentary film narrated by former Vice President of the United States, Al Gore. The documentary was a success at the box office and also won two Academy Awards for Best Documentary Feature and Best Original Song. A 47-country Internet survey conducted by The Nielsen Company and Oxford University in 2007 found that 66% of those respondents who had seen *An Inconvenient Truth* claimed that it had changed their mind about global warming, 89% said it had made them more aware of the problem, and 74% said they had changed some of their habits because of seeing the film.

*“Before the film’s release, only about a third of people surveyed believed global warming was real. Afterwards, 85 percent believed the earth was indeed undergoing climate change in part as a result of human actions. This shift in public opinion opened the doors for politicians to introduce more than 15 new climate-related initiatives, and many countries began incorporating the film into their schools’ coursework”*⁵

The Day After Tomorrow (2014) is a film that focused global attention on the potential for intense and abrupt climate change caused by melting fresh water ice in Antarctica altering the North Atlantic Current, rapidly bringing about a new ice age.

*“If not a full-scale shift, many in the environmental community hoped that a major motion picture addressing climate change would at least push the debate on climate change forward. Greenpeace and the Natural Resources Defense Council (NRDC) organized actions to coincide with Day After’s release. The activist MoveOn.org used the film to highlight what it considered then-President George W. Bush’s poor record on environmental issues, hoping thereby to weaken his chances for winning a second term. Bush’s decisive win that November indicates that Day After fell short of MoveOn’s ambitions, but the film has nonetheless had a significant impact, not just within the film industry.”*⁶

The film also had a strong impact in the public sphere and academic circles. It influenced least eight other films, TV films, and TV series around the world on similar topics.

Social Marketing in dramatic TV serials (1970s and continuing). Social marketing in dramatic serials (known as *telenovelas* in Latin America) played an important role in changing public opinion in various countries other than Russia on topics such as illiteracy, substance abuse, birth control and teenage pregnancy. These *telenovelas*

⁵ Benjamin-Phariss, Bonnie. (2013). “Films Can Help Change the World”. *Huffington Post*, April 27. Available at https://www.huffpost.com/entry/films-can-help-change-the-world_b_2760342.

⁶ Svoboda, M. (2014a). “Ice-Fi: The Motion Picture-Ice-sque Legacy of *The Day After Tomorrow*”, October 29. Available at <https://www.yaleclimateconnections.org/2014/10/ice-fi-the-motion-picture-ice-sque-legacy-of-the-day-after-tomorrow/>

had measurable impacts, especially when reinforcing government programs were available.

For example, Mexico's fertility rate fell from 6.7 live births per woman in 1975 to 2.3 in 2018 influenced in part by family planning messages presented in *telenovelas*. Between 1975 and 1982, *Televisa*, the most-watched Mexican television network, broadcast a series of *telenovelas* with social value messages. These *telenovelas* dramatized social problems, such as illiteracy, child abuse, alcoholism, and coping with too many children. The methodology used was pioneered by Miguel Sabido in the 1970s when he was Vice President for Research at *Televisa*.

The second Sabido telenovella was Acompáñame, which aired for nine months from August 1977 until April 1978 and showed family harmony when choosing to plan one's family. The results of Acompáñame, as reported by the Mexican government's national population council (CONAPO), were:

- *Phone calls to the CONAPO requesting family planning information increased from zero to an average of 500 a month. Many people calling mentioned that they were encouraged to do so by the Acompáñame.*
- *More than 2,000 women registered as voluntary workers in the national program of family planning. This was an idea suggested in Acompáñame.*
- *Contraceptive sales increased 23 percent in one year, compared to a seven percent increase the preceding year.*
- *More than 560,000 women enrolled in family planning clinics, an increase of 33 percent (compared to a 1 percent decrease the previous year).*

Sabido developed additional social content telenovelas, which were all broadcast on Televisa:

- *Ven Conmigo ("Come With Me") motivated viewers to register for literacy classes using a study program offered by the Secretary of Education in 1975.*
- *Vamos Juntos ("Let's Go Together") role modeled responsible parenthood and active development of children in family and in society in 1979-80.*
- *El Combate ("The Struggle") promoted adult education programs in several communities outside of Mexico City and dispelled the myth that adults cannot go back to school in 1980.*
- *Caminemos ("Going Forward Together") addressed sex education for adolescents role modeling responsible sexual behavior in teens in 1980-81.*
- *Nosotros las Mujeres ("We the Women") role modeled women's important role in family and society and addressed machismo traditions in 1981.*
- *Los Hijos de Nadie ("Nobody's Children") raised the issue of homeless children and used role models to change opinion and encourage ending the "silent conspiracy" surrounding the problem in 1997-98.*

During the decade 1977 to 1986, when six of these Mexican soap operas were on the air, the country experienced a 34 percent decline in its population growth rate. As a result, in May 1986, the United Nations Population Prize was presented to Mexico as the foremost population success story in the world.⁷

⁷ Population Media Center (n.d.) "History of Sabido Serial Dramas". Available at <https://www.populationmedia.org/product/sabido-history/>.

The Mexican government's strong family planning program made the delivery of family planning messages more effective. The *telenovelas* motivated the public to seek contraceptives, and the government's program allowed Mexicans to obtain what they desired. The programs were later exported to several other Latin American countries and used as models to develop new series.

In Brazil over 97 percent of homes had a TV set as of 2016. Social marketing has been widely used in *telenovelas* and mini-series of *Rede Globo*, by far the country's most important TV network, reaching almost all of Brazil's 5,570 municipalities. From Monday through Saturday *telenovelas* are concentrated in the prime-time period that captures the largest audience. Since 1990 and in partnership with a specialized company, Comunicarte, *Rede Globo*'s communication unit has worked closely with *telenovela* authors and actors, identifying opportunities for social marketing in the initial scripts; developing appropriate scenes, situations, and dialogs; monitoring their delivery; and measuring their impact.

An example is *Páginas da Vida* (Pages of Life) broadcast in 2006/2007. It included socially educational content on HIV/AIDS, sexual and reproductive rights, and the problems faced by children with Down Syndrome. Surveys and, in the case of Down Syndrome, focus groups were conducted to assess the impact of content on viewers' attitudes and behaviors. Among the results found by Comunicarte:

- The influence of scenes on undesired pregnancy on the attitudes and practices of the women interviewed was particularly noteworthy among women aged 18-24 years 71% said that the soap opera influenced them to pay more attention to avoiding pregnancy.
- Of those interviewed, 53.3% were motivated by the program to seek health service, and the most sought services were: consultation for preventative exam of ovarian cancer (76%), consultation to obtain information and orientation on the use of contraceptive methods (42%), and consultation to obtain contraceptives (32%).
- Regarding Down Syndrome, 64% of those who declared that the program increased their knowledge also reported a change in behavior, in a positive direction.

Rede Globo's *telenovelas* have also extensively supported the UN's Millennial and Sustainable Development Objectives. For example, Comunicarte found 5,010 socio-educational scenes in 101 *telenovelas* over the period 2000-2104 dealing with the Millennial Development Objectives and 701 scenes in the *telenovela* "*Velho Chico*" treating 15 of the 17 Sustainable Development Objectives.

Main Kuch Bhi Kar Sakti Hoon (MKBKSH, 2014-2019) or "I, A Woman, Can Achieve Anything" is an Indian trans-media (TV, radio, Internet and mobile phone) edutainment initiative launched by the Population Foundation of India (PFI). MKBKSH challenges the prevailing social and cultural norms around family planning, early marriage, early and repeated pregnancies, contraceptive use, domestic violence and sex selection. The show launched in March, 2014 and began airing its third season in 2019.

Main Kuch Bhi Kar Sakti Hoon revolves around the journey of Sneha Mathur, a young doctor, who leaves behind her lucrative career in Mumbai and decides to work in her village.

The show focuses on Sneha's crusade to ensure the finest quality healthcare for all. Under her leadership, village women find their voices through collective action.

Population Foundation of India is supported by the Rural Electrification Corporation and Bill & Melinda Gates Foundation to produce the third season of the show.⁸

In March, 2019, MKBKSH was being broadcast across more than 50 countries around the globe, dubbed in 12 languages, aired on 216 radio stations in the All India Network, and has received more than 1.7 million calls through its Interactive Voice Response Service (IVRS), which provided a discussion forum for viewers as also a platform to share feedback. PFI sought the feedback to develop better family planning method and the show's writers incorporated real-life case studies into the scripts. In addition, 426 Sneha Clubs (support groups that meet every week to discuss issues like domestic violence, sanitation and education) have been established by PFI and partner NGOs in the states of Bihar and Madhya Pradesh.⁹

An estimated 400 million viewers were reached during the first two seasons (52 episodes in season one, and 79 in season 2 that began in April 2015). The PFI leader said the IVRS feedback enhanced positive interpersonal communication, promoted healthy and positive social norms, and discouraged negative norms such as child marriage, son preference, domestic violence, gender inequality and lack of contraceptive use.

PROPOSAL FOR A MASS MEDIA MOONSHOT

As argued earlier in this article, there is an urgent need for public policies to meet the sufficiency and sustainability challenge – and to encourage applications of exponential technologies for this purpose. I propose a specialized institution be created to promote a quantum increase in films, dramatic and documentary television series, and other TV formats such as news segments, talk shows, and competitions. Their purpose: raise public awareness, set agendas, focus public interest, inform debate, and help shape needed public policies at the local, regional, national, and global levels.

To do this, substantial funding will have to be mobilized. Potential sources include foundations, corporate sponsors, civic society organizations, and sales of film or TV content. The institution could be a stand-alone entity, or a unit within an existing institution with a compatible mission, for example a foundation, university, or corporation. A public benefit corporation (PBC) is probably the ideal legal structure for mobilizing this kind of funding. A PBC is a legal incorporating structure conferred

⁸ India Today (2018). "World's most watched show Main Kuch Bhi Kar Sakti Hoon gets third season", November 29. Available at <https://www.indiatoday.in/television/soaps/story/world-s-most-watched-show-main-kuch-bhi-kar-sakti-hoon-gets-third-season-1398556-2018-11-29>.

⁹ See <https://mkbksh.com/>.

by State law similar to a C-Corp, partnership, or LLC. Unlike those other entities, however, a PBC must consider the impact of its business decisions on the general public – not just shareholders – while creating a material positive impact on society and the environment.

Singularity University (SU), founded in 2008 in Silicon Valley, is a PBC – in this case a California B Corporation. SU’s mission is to empower individuals and organizations to build breakthrough solutions that leverage exponential technologies like artificial intelligence, robotics, and digital biology. Headquartered in Mountain View, California, SU is a global community of some 37,000 members of various types: entrepreneurs, corporations, development organizations, governments, investors, and academic institutions. It has 142 chapters in 66 countries around the world where activities are conducted.¹⁰

SU’s mission is compatible with the objectives set forth in this article: SU seeks to address 12 “grand global challenges” that include resource needs (energy, environment, food, space, shelter, water) and societal needs (disaster resilience, governance, health, learning, prosperity, security). For example, the environment challenge is summarized as “sustainable and equitable stewardship of Earth’s ecosystems for optimal functioning both globally and locally” and the prosperity challenge as “equitable access to economic and other opportunities for self-fulfillment where all people are free from poverty and able to thrive”.¹¹

SU encourages a “moonshot” approach: seek a ten-fold improvement over current state-of-the art technology to deliver goods and/or services. SU makes extensive use of print and electronic media in recruitment to courses and seminars, promoting its ideas, and disseminating its achievements. SU does not produce content for the traditional visual mass media: television and cinema. But being a PBC, it could finance and disseminate films and TV programs for a profit.

The proposal summarized below is consistent with SU’s “moonshot” approach:

- Achieve a tenfold increase – in content hours – of fiction and documentary films and TV series (and other TV formats such as news segments, spot announcements, interviews, and “magazine” type shows);
- Encourage production of films and TV programs in all countries with a population of 100 million or more;
- Reach at least a billion viewers around the globe;
- Produce measurable increases in public awareness and policies that leverage exponential technologies to meet the sufficiency and sustainability challenge using proven evaluation methodologies.

English language films and TV programs would either be dubbed into other major languages including Arabic, Chinese, French, Spanish, Portuguese, and Russian or have subtitles in the primary language of the country where they are shown. Audience statistics are relatively easy to obtain, but the media department would commission

¹⁰ See <https://su.org/press-room/press-releases/singularity-university-announces-sixteen-new-and-eleven-renewal-singularityu-chapters/>.

¹¹ See <https://su.org/about/global-grand-challenges/>.

studies to evaluate impact (attitudes toward the films/programs themselves, attitude change as regards the moonshot objectives, changes in government policies and programs, etc.). Many specialized survey companies around the world are able to conduct such studies.

Securing finance, producers, and distributors can be facilitated by collaborating with existing networks of individuals and institutions pursuing similar goals – for example, the SU community, the United Nations’ Sustainable Development Solutions Network, the International Society for Ecological Economics, the Basic Income Earth Network (BIEN), and the Institute for New Economic Thinking. No doubt there are many other organizations that can help attract funding needed to execute the media moonshot.

Why raise money for an entity that would support many films or TV programs rather let individually-proposed media projects search for financial support on their own? Economies of scale can be reaped by an organization staffed by a few dedicated specialists knowledgeable about both the mass media moonshot objectives and the global film and TV business. The new entity would be able to mobilize additional finance, advice, and talent – and also provide seed money for promising projects. It could leverage SU’s extensive network of individuals and chapters as well as those of other more specialized networks mentioned above. Recruiting staff and mobilizing finance on a piecemeal basis for each proposed media product would be far costlier. The one-off approach would also lack the synergistic character of a dedicated entity that could also commission impact evaluations for the films and TV programs. An extensive guide for how to organize and conduct such evaluations is available.¹²

Using the existing SU legal structure would likely be the cheapest and most effective way to realizing these economies of scale, but a stand-alone PBC, a university, or a foundation could also be considered.

POTENTIAL FILM AND TV PROJECTS

The following are six examples of media projects that might be undertaken.

1. *A film or dramatic TV series based on the highly-rated award-winning Nexus trilogy of science fiction novels set in 2040-2041 written by Ramez Naam.*¹³ Naam is Co-Chair Energy and Environment at SU and a renowned author. He has also written two non-fiction books that provide the intellectual content for the Nexus trilogy. The Nexus trilogy explores the political, ethical, and ecological issues associated with bio-enhancement and artificial intelligence and takes place around the projected date of the singularity – that is when machine intelligence equals and then rapidly exceeds human intelligence. The pros and cons of these technologies are explored as the

¹² Chatto, Caty Borum & Das, Angelica. (2014). “Assessing the Social Impact of Issues-Focused Documentaries: Research Methods and Future Considerations”, Center for Media and Social Impact, School of Communication, American University, Washington DC, October. Available at http://archive.cmsimpact.org/sites/default/files/documents/assessing_impact_social_issue_documentaries_cmsi.pdf.

¹³ Naam, Ramez. (2012, 2013, 2015). *The Nexus Trilogy (Nexus: Install, Crux: Upgrade, and Apex: Connect)*. Nottingham, UK: Angry Robot Books.

novels unfold around the planet – including in the United States, China, India, Thailand, and Vietnam. Naam (and the novels’ heroes) favor the pro side. Here is a brief synopsis: “In a future not so far from ours, the ingestible and illegal drug/technology called Nexus can link human minds electronically, wirelessly, nearly telepathically. There are some who want to improve it, some who want to eradicate it, and others who just want to exploit it. From San Francisco to Bangkok, from Beijing to Delhi, Nexus is a thrill-ride through a world on the brink of explosion”.¹⁴ The rights to the *Nexus* trilogy are currently held by a potential producer of such a film or TV series.

2. *A film or dramatic TV series highlighting economic, social, and political issues related to the advance of robotics and artificial intelligence.* Subjects could include worsening income distribution, job destruction, retraining technologically displaced workers, and policies to re-define the relationship between work and income, e.g. UBI.
3. *A film based on a biography of Elon Musk by Ashlee Vance.*¹⁵ This combination of biography and journalism could become a great documentary film. As one reviewer of the book put it, “I loved the insight into Musk and how he operates, and you get a very broad and complete picture of Musk as a driven visionary that is absolutely set on delivering some of the most aspirational goals of any human in history.... You get unique insight into his personal relationships, how he coped with things that went wrong (not always a pretty story), and how he manages through both failure and success.... Finally, you get a lot of detail around 'green' industry, space exploration, etc. which really fills out this ecosystem and delivers an inspiring and educational view of one of the most intriguing people of our lifetimes.”¹⁶ The film could update Musk’s biography and achievements since the book’s publication in 2015.
4. *A television series based on Doughnut Economics: Seven Ways to Think Like a 21st Century Economist* by Kate Raworth.¹⁷ Here’s a blurb on the book: “Named after the now-iconic “doughnut” image that Raworth first drew to depict a sweet spot of human prosperity (an image that appealed to the Occupy Movement, the United Nations, eco-activists, and business leaders alike), *Doughnut Economics* offers a radically new compass for guiding global development, government policy, and corporate strategy, and sets new standards for what economic success looks like. Raworth handpicks the best emergent ideas – from ecological, behavioral, feminist, and institutional economics to complexity thinking and Earth-systems science – to address this question: How can we turn economies that need to grow, whether or not they make us thrive, into economies that make us thrive, whether or not they grow?”¹⁸ The television series would feature interviews with Raworth and

¹⁴ <http://rameznaam.com/Nexus/>

¹⁵ Vance, Ashlee (2015). *Elon Musk: Tesla, Space X, and the Quest for a Fantastic Future*. New York, NY: Harper Collins

¹⁶ See https://www.amazon.com/product-reviews/B00KVI76ZS/ref=cm_cr_arp_d_viewpnt_lft?ie=UTF8&filterByStar=positive&showViewpoints=0&pageNumber=1.

¹⁷ Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st Century Economist*. White River Junction, VT: Chelsea Green Publishing.

¹⁸ <https://www.chelseagreen.com/doughnut-economics>.

other well-known economists. It could include one or more debates between Raworth and her critics. The programs could make use of “B roll” footage to illustrate points the speaker is making.

5. *A TV interview series modeled on the BBC’s “Hard Talk” with founders and top specialists of SU*, including Ray Kurzweil, Peter Diamandis, Rob Nail, Salim Ismail, Elon Musk, and Ramez Naam. The interviews would highlight the work and achievements of each interviewee and more broadly of SU and include tough questioning of the interviewees.
6. *A series of one-minute spot TV announcements/promotions on topics related to innovation, sufficiency, and sustainability*. These would be produced like political ads or public service announcements, with high production values and dramatic B roll to illustrate the narrator’s audio.

SUMMARY AND CONCLUSIONS

Technological change – accelerated by exponential technologies – now moves faster than economic, social, and political institutions can adapt. The Mass Media Moonshot would promote thought, communication, and action across three overlapping but not always associated areas: innovation, sufficiency, and sustainability. Each of these areas has its own networks and associations, but often they do not interact.

Exponential technologies can help assure that the basic needs of all are met without breaching planetary boundaries that could have catastrophic consequences for humanity, but such technologies also pose some threats that need to be explored and mitigated.

Films and television programs have proven to be powerful tools to promote discussion, shape public opinion, and build support for public policies on economic, social, political, and ecological topics. They can also enhance the impact of print media. The Mass Media Moonshot proposed here seeks a tenfold increase in film and TV production. It would leverage new electronic media enabled by the internet as well as movie theaters and TV broadcasts to distribute the video content produced, reaching a global audience of at least one billion people.