



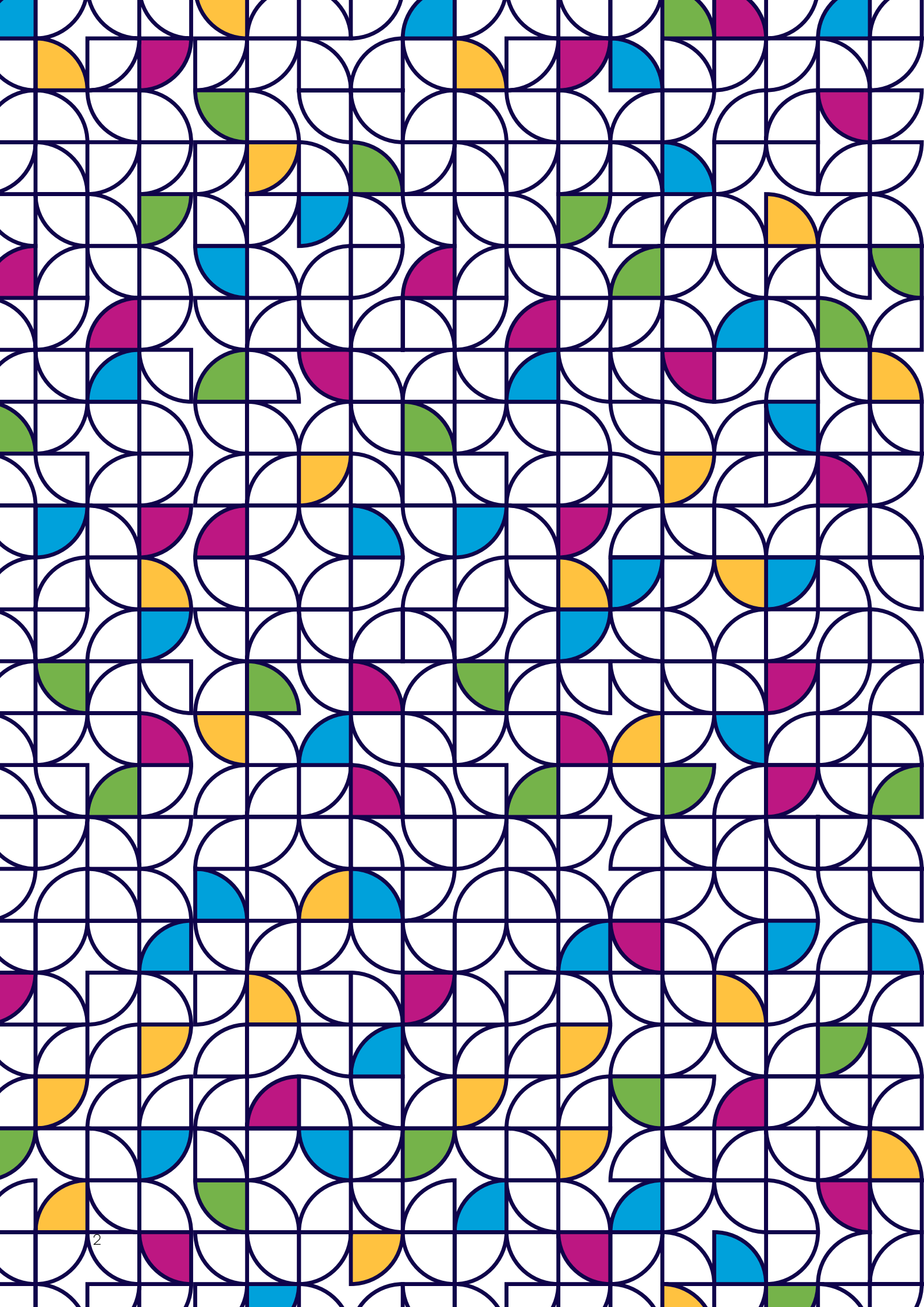
ASPEN  
ABU DHABI  
**IDEAS FORUM**  
2017

4-5 March 2017

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*Knowledge partner*

**McKinsey&Company**



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# I INTRODUCTION

The Aspen Institute has held its annual Ideas Festival in the town of Aspen, Colorado since 2005. Over the years it has convened the most accomplished political and thought leaders, innovators and visionaries, to discuss the critical issues of the day. Whether in politics or economics, health or education, science or technology, the Aspen Ideas Festival is known as a preeminent forum for tackling revolutionary ideas in the most critical industries.

The UAE has increasingly been at the forefront of innovation in the Gulf region, adopting a forward-looking, innovation-led strategy to develop and grow its economy. In Abu Dhabi, the Emirate has shown it has the creative energy, intellectual curiosity, and the ambition to help solve the toughest problems facing our societies and push on the boundaries of progress.

Abu Dhabi and the Aspen Institute: it was a natural partnership. They established the Aspen Abu Dhabi Ideas Forum on the belief that cross-disciplinary discussions are key for societies to advance and prosper.

With the prospect of a high-calibre, future-focused Ideas Forum taking place in Abu Dhabi, McKinsey & Company joined as the event's Knowledge Partner. As the leading global management consulting firm, we regularly engage with top thinkers on the most pressing issues facing our clients and the world, and invest significantly in knowledge development. Becoming a part of the Aspen Abu Dhabi Ideas Forum fit strongly with our vision for providing innovative, knowledge-based solutions to our clients.

As a new event, the Aspen Abu Dhabi Ideas Forum could be tailored for its location and designed from scratch to be 'not your typical conference'. Instead of a two week festival with 400 speakers open to 3,000 people, like the Aspen Ideas Festival, the Ideas Forum would be highly focused, both in content and attendance: 2 days, 30 speakers, 170 attendees.

The structure would also be different. Instead of loosely connected sessions tied together by a common theme, talks would be curated to tackle larger, more complex ideas that could not be addressed by a single panel or speaker. This would deepen understanding, build knowledge, and allow the audience to engage with complexity and walk away with ideas of their own.

These larger, more complex ideas were dubbed 'moonshots' for their ambition, scale, and time horizon of 10+ years, each with their own dedicated moderator to tie the lessons and learning together. Of the great 'moonshot' challenges of our time, the Forum focused on four: sustaining human life beyond Earth; extending the healthy human lifespan; calming the politics of anger; and developing a fairer, more holistic measure of economic progress.

A final, important, element was that moderators and speakers were also members of the audience, listening and contributing from their seats as much as from the stage as the discussions took shape. This intentionally blurred the distinction between speakers and audience, allowing discussion to be more forthright as well as forthcoming.

In the following pages are the four moonshots that made up the Aspen Abu Dhabi Ideas Forum, and the key ideas and takeaways from each of the speakers. The richness and complexity of the discussions can only be hinted at here. For the full picture, you are invited to visit the Aspen Abu Dhabi Ideas Forum website, [www.ideasforum.ae](http://www.ideasforum.ae), where you will find videos of all the sessions freely available.





# MOONSHOT #1 – System Shock: Calming the politics of anger

The past 30 years have brought unprecedented global connectedness and affluence – yet global cooperation and goodwill has rarely felt in such short supply. Reactions to globalisation – feelings of disenfranchisement, loss of identity, economic insecurity and resentment – have begun to shock the established order, with the rise of populism from the Philippines to the Netherlands.

*One of the drivers of globalisation and global growth has been the increased movement of people.*

The McKinsey Global Institute estimated that cross-border immigration has risen at a rate of 2.7% per year for the last 50 years. In 2016 this meant that 247 million people were living outside their country of birth, half of whom moved from developing to developed countries, mostly in the US and Europe.<sup>1</sup>

*Yet despite its benefits, immigration appeared to undergird the populist uprising.*

It was a central part of the debate in both the United Kingdom's referendum to leave the European Union, as well as Donald Trump's campaign for the Presidency of the United States.

*Or is populism a backlash against an out-of-touch elite?*

Polling shows that there is growing mistrust and cynicism about politicians and governments. Two months before the 2016 US Presidential Election, 65% of Americans said they had little to no trust in Congress.<sup>2</sup> Weeks before the UK's EU Referendum, Michael Gove, Secretary of State for Justice, campaigning for the Leave Campaign, said "Britain has had enough of experts".

*Perhaps apathy has transformed into anger as a new generation of working and middle class families find themselves worse off than their parents?*

The UAE has taken steps towards greater inclusivity as a way to help solve our collective problems by promoting cross-cultural dialogue. The UAE-based Muslim Council of Elders has played a key role, developing last year's Marrakech Declaration on the Rights of

<sup>1</sup> McKinsey Global Institute, December 2016, "People on the Move: Global Migration's Impact and Opportunity" <http://www.mckinsey.com/global-themes/employment-and-growth/global-migrations-impact-and-opportunity>  
<sup>2</sup> Gallup, "Trust in Government", <http://www.gallup.com/poll/5392/trust-government.aspx>

*"The UAE is considered a very tolerant country, housing over 200 nationalities, over a 120 churches, as well as Hindu and Sikh temples."*

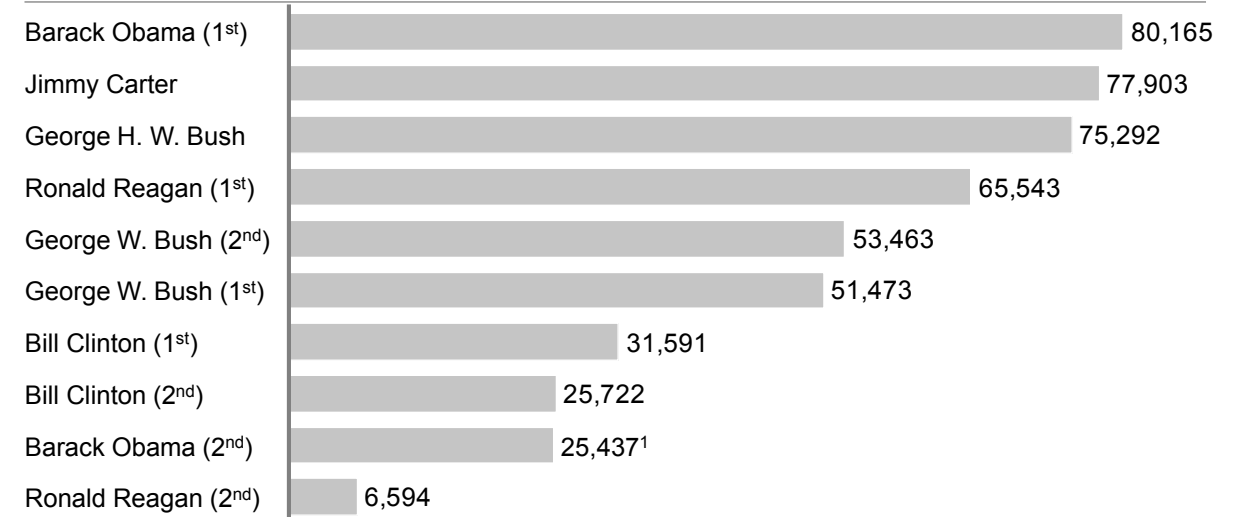
*"70% of engineers at STRATA in Al Ain are women."  
 – HE Sheikha Lubna Al Qasimi*

Religious Minorities in Predominantly Muslim Nations. Meanwhile, the UAE's Minister of State for Youth Affairs regularly leads a discussion-based initiative called 'Youth Circles' that provides young people with a constructive outlet for voicing their opinions.

*Whatever the reasons for the growing global discontent, how can these 'politics of anger' be diffused and levels of global cooperation increased – before anger leads to unbridgeable division or, worse, conflict?*

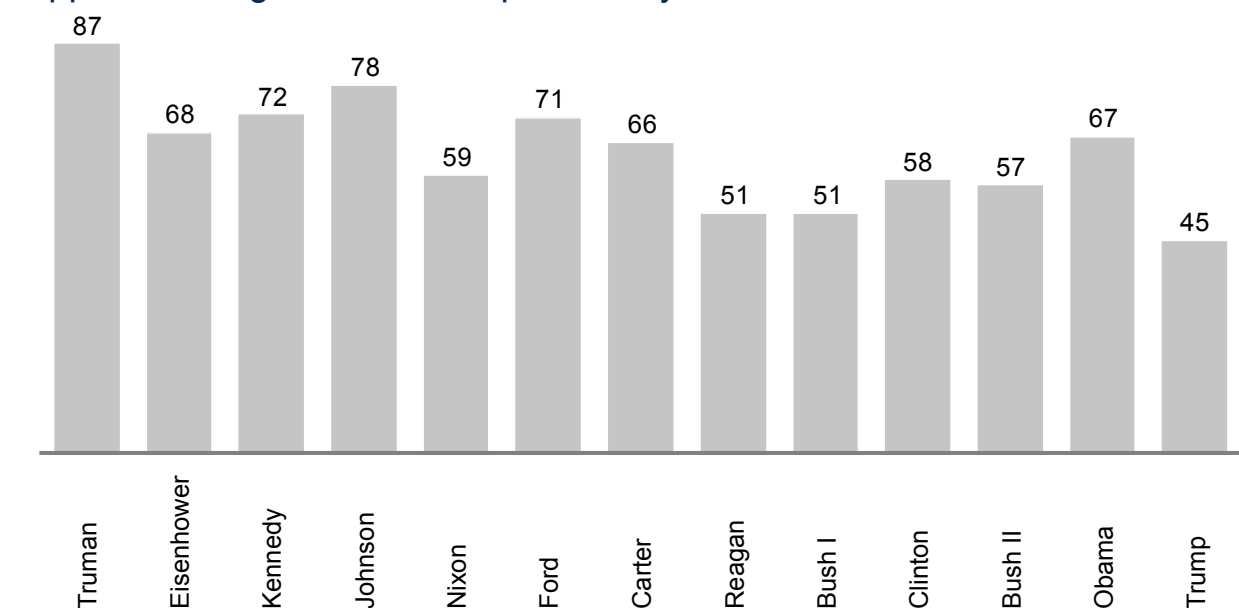
## Increase in regulatory restrictions during US Presidential Terms

### Regulatory restrictions



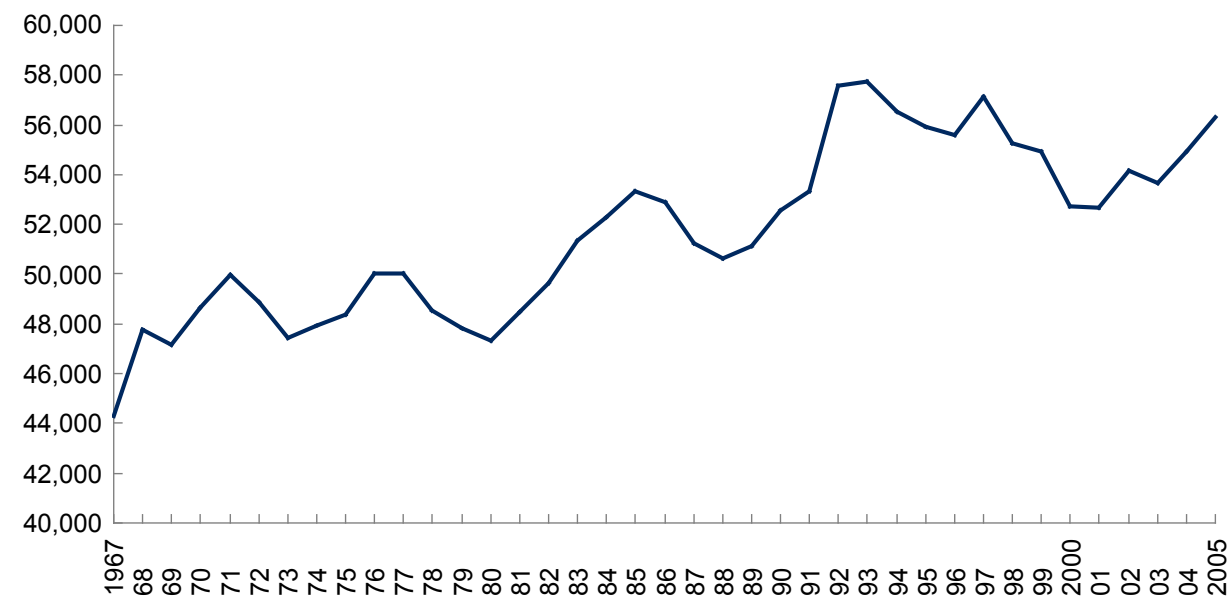
<sup>1</sup> Figures for President Obama's second term include data through 2014. Produced by Patrick A. McLaughlin, Oliver P. Sherouse, and Rizqi Rachmat, August 3, 2015  
 SOURCE: RgData <https://regdata.org>, Meacatus Center

## Approval rating at start of US presidency

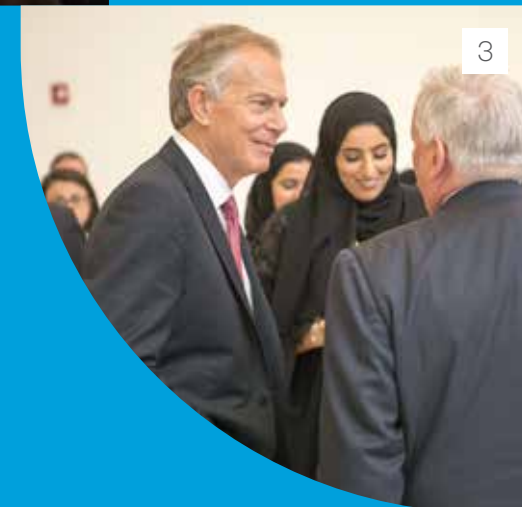
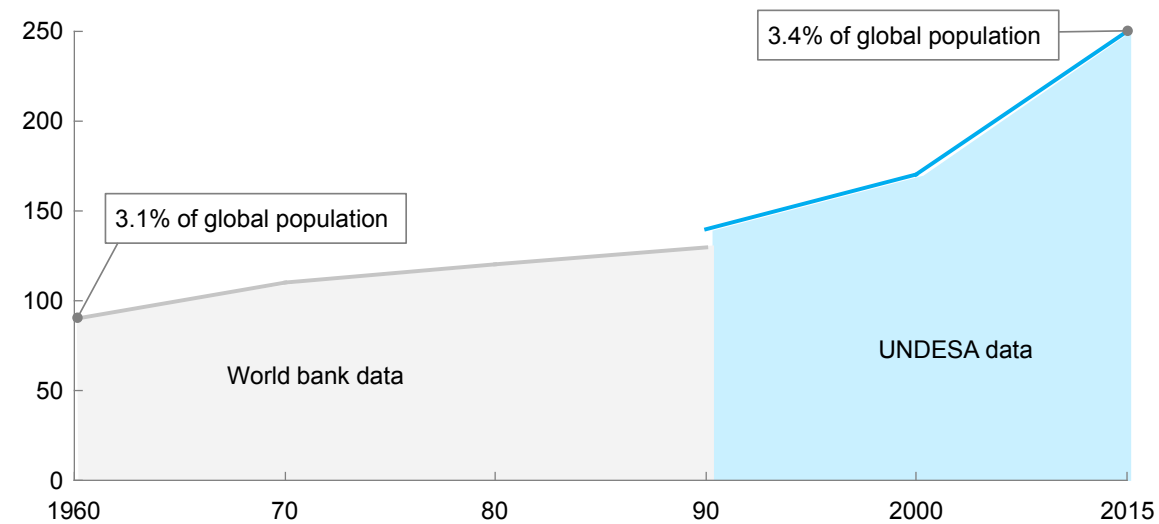


SOURCE : Gallup

US Median household income, 1967-2015



Global international migrants  
Million



- 1 Prof. Niall Ferguson, Senior Fellow, Hoover Institution, Stanford University
- 2 Walter Isaacson, President & CEO, The Aspen Institute and Gideon Rachman, Chief Foreign Affairs Columnist, Financial Times
- 3 Rt. Hon. Tony Blair, former Prime Minister of Great Britain and Northern Ireland, speaking with guests
- 4 HE Sheikha Lubna Al Qasimi, UAE Minister of State for Tolerance, speaking on stage

*"Before we have the heads exploding on Harvard Yard, as they have done since 3am on November 9th, could we just take seriously some of what Donald Trump has said? And can we also take seriously the reasons why so many people in Middle America turned out and voted for him, defying all the confident predictions of the liberal elite who thought he had a 10% chance of being president?"*



*"Populist anger is perfectly intelligible. To me the decisive question back in November was simply this: do you get what people in Middle America are angry about?"*

*– Prof. Niall Ferguson*

*"There has been a powerful backlash against globalization, a sense that this was an elite project that had benefited the rich, the foreigners outside the UK and the US, but that had not helped the common man. This was something both the Brexiteers and Donald Trump pushed very hard."*



*"Because globalization was felt to be an elite project, there was also a powerful anti-elite, and an anti-expert, element to it."*

*– Gideon Rachman*

*"Internally [in the UAE], we look at two parts: cohesive families, and youth. Immunizing youth from radicalisation. We work in collaboration with organisations that look for that."*



*"The idea is to direct the youth to the proper meaning of Islam, and also to be able to understand that if someone is trying to sell the wrong idea to you, that you have a reference; you can go to somebody to ask."*

*– HE Sheikha Lubna Al Qasimi*

*"There are strong reactions against the cultural and economic consequences of rapid globalization. People are feeling like they do not have control, and they are reacting to that in a strong and fiscal way."*



*"I believe that the centre ground has to recover its energy, its muscularity, and its ability to show people that there is the possibility of a hopeful and optimistic answer to those problems of change."*

*– Rt. Hon. Tony Blair*

*"Whenever the Aspen Institute is involved in things, we really focus on the exchange of ideas. The idea to be able to stand at an intersection of creativity and science, of business and technology, to be in a place like Abu Dhabi, which is an idea-centred hub."*



*"The era of globalization is over not because it was wrong, but because we messed it up. We didn't make sure that there was an inclusive feeling of globalization, in which everyone got to benefit."*

*– Walter Isaacson*



# MOONSHOT #2 – Beyond GDP: Targeting ‘all-in’ human welfare

The Gross Domestic Product has long been the primary economic indicator by which countries are judged. It boils the success of a country down to a simple formula: economic growth. Yet, GDP does little to capture the quality of a country's education or health systems, or how well it protects the environment or creates communities that feel connected and safe. In short, happiness and well-being are left out of the equation.

*The perceived failures of neoliberal economics combined with advances in cognitive psychology and behavioral economics suggest it is time for a 21st century solution to measuring national progress:*

a holistic measurement that captures citizen well-being, not just aggregate national income growth. It would understand the complexity of human nature, society, relationships, and group dynamics. It would target the ‘whole human’.

Ideally, any alternative approaches would address the weaknesses of GDP as an indicator: its assumption that people are rational, single-dimensional, economic agents, or its focus only on aggregate growth rather than the broader stock of wealth.

*The UAE has taken deliberate steps in recent years to institutionalize the measure of non-economic welfare as a government priority.*

From the Ministry of Happiness to the Ministry of Tolerance, there is a recognition that that success relies upon more than just GDP, and that governments have a crucial role to play.

*But how far should a reconsideration of GDP go, how could it be measured, and how might it make policy-making more effective?*

*“If we look at how income varies overtime, we see the time series plot steeply rising, but if we look at the average happiness level over time, it is typically flat.”*

– Prof. Robert Frank

*“Advanced economies might not be growing very fast, but if we look at typical emerging markets, it has been growing 5 to 6% in the last few decades.”*

– Dr. Nouriel Roubini

*“Economists have a view of the world which is very valuable, but also limiting. The kind of trope on economists is ‘yes it works in practice, but will it work in theory?’ That is the opposite of how we all think.”*



*“On paper, you can look at every index and metric: longevity, food prospect, etc., and you would look at that and say: what are people complaining about? My answer, in short is that we have not fully applied psychology in economics (behavioural economics).”*

– Stephen Dubner

*“One must believe there is a world beyond GDP; other metrics bind us even more closely. You have to make sure the changes are aligned with people’s desire to belong.”*



*“Material goods are important, but human beings have never accepted that as the be all, end all. There is love, there is hate, there is identity, and there is family. There is a whole lot of other things that make us human beings. As change happens, we have to try to make sure it is consistent with people’s desires to belong, to their identities. If those things are disrupted, at least help people manage that change.”*

– George Osborne

*“If people at the top of the ladder had less to spend, they would not suffer any ill consequences. They have everything they need, so the question is will they get everything they want?”*



*“I think that it’s quite possible that incomes rising over time make us better off in palpable ways, but that is not reflected in standard happiness measures.”*

– Prof. Robert Frank

*"The fact is, the future is going to be one thousand robots, one person manning those robots, and another person sweeping the floor. Actually, the person sweeping the floor will most likely be replaced by a Roomba which can do it faster, cheaper, and doesn't even have bathroom breaks."*



*"It's great we're all going to live till not 80, but also 90 or 100. The issue is, can we afford to live longer?"*

*– Dr. Nouriel Roubini*

*"When you look all over the world today, something is going on where there is an uncertainty, a tension... and it is making us questions our aspirations and the way things used to work."*



*"I was always interested in the idea that happiness is a function of relative deprivation, which made you think that as long as we did not expose people to better opportunities... how the wired world created open doors for bleak places, some of which were relatively happy and content before the Internet came along."*

*– Steve Clemons*

## MOONSHOT #3 – Health: Extending the healthy human lifespan

In the last few decades, our species has gained unprecedented control over our own biology through advances in science and technology.

*Organs such as ears, throats, livers and even hearts are being grown in labs.*

Our understanding of the power of genes to regenerate cells is ever closer within our grasp.

*Breakthroughs across genomics, microbiology, nanotechnology, tissue engineering, and other fields increasingly suggest that the average healthy human lifespan could be extended by a few decades in the coming 10-20 years.*

McKinsey's Pharmaceutical & Medical Practice published a report noting that, "humanity stands at the cusp of a healthcare revolution that will eclipse the achievements of past centuries in its speed and impact." As much due to data analytics and related technologies, "medicine is moving quickly from a focus on reacting to disease and injury to one that emphasizes stronger and healthier bodies."<sup>3</sup>

*Yet as the healthy human lifespan begins to extend, the impact on our societies could be severe: population overload, lower birth rates, lower productivity, breakdowns in social norms, and more.*

Our health services will need to adapt to higher demand and absorb a new cohort of patients, the super-aged, with its own set of medical problems. Japan and the US are already working on providing care for supercentenarians.

The UAE is working with the global scientific community to tackle some of these questions. NYU Abu Dhabi, in partnership with Cleveland Clinic Abu Dhabi, UAE University, and Zayed Military Hospital, among others, spearheads a longitudinal survey of 20,000 individuals in the UAE – the first of its kinds in the country – to uncover the cause of such high rates of obesity, diabetes, and heart disease compared to the rest of the world. Launched in February 2017, this study will help change the future of health in the country.

<sup>3</sup> McKinsey, "Living longer and healthier lives: A McKinsey perspective," September 2016

*"Cleveland Clinic is one of the largest healthcare projects worldwide. A 4 million square foot facility that offers services in 55 different specificities to patients here in Abu Dhabi and the region."*

*– Dr. Tomislav Mihaljevic*

*"In the US, 85% of children that are born today are expected to live to 65 years of age, and at least 42% of them will celebrate an 85th birthday."*

*– Dr. Brad Perkins*



*But how close are we to overcoming 'modern diseases' and extending the healthy human lifespan? How far can and should this technology go? Could living past 100 years be a 'new normal'? What are the implications for our societies?*



- 1 Dr. Nouriel Roubini, Chairman & CEO, Roubini Macro Associates
- 2 HE Dr. Mohammed Al Ahabbi, Director General, UAE Space Agency and Dr. Buzz Aldrin, Astronaut, Buzz Aldrin Enterprises Inc.
- 3 Guests of the Forum arriving

*"The quantitative measurement of wellness, in the context of your genetics, and your individualized physiognomy is the hope for the future."*

*"Aging is either just a natural progression or a genetic program that is part of the aging process."*

*– Prof. Fabio Piano*



*"A (salamander)'s limb was injured, and within two weeks, its whole limb was able to regenerate. The question is, if a salamander can do it, why can't we?"*

*"We decided to design our own printing systems, specifically for tissues and organs. We have these large printers that are totally focused on printing cells that will allow them to become functioning tissues in the long term."*

*– Dr. Anthony Atala*



*"What we really care about are these very early stage ideas. We focused on putting capital into scientist companies that have just started...That's one thing I hope that more venture capitalist firms move more towards, which is helping scientists take their ideas and turn them into functional biotech companies."*

*"For the past millennia, there's never been any scientific hope that we'd be able to impact aging. In the two past decades, we've had this field that for the first time allows us to say, with scientific confidence, that at least in certain types of animals, we can genetically modify these organisms and increase their life span."*

*– Laura Deming*



*"We are going to transform medicine from a clinical science supported by data, to a data science supported by clinicians."*

*"Genomics, and the technology that supports it, are going to be the next accelerant in extending high performance human life span."*  
– Dr. Brad Perkins



*"Leaders have to reject knee jerk reactions to the idea that we might actually be able to solve the number one problem of humanity (aging)."*

*"There is a fundamental misconception in society, and that is, there is some kind of biological distinction between the diseases of old age and aging itself. There isn't anything called 'aging' itself in actual biology. Therefore, there is no moral basis for being against the diseases of old age, and not against aging itself."*  
– Dr. Aubrey de Grey



*"Over a decade, the changes that Abu Dhabi has gone through in healthcare would have taken other countries many decades to change."*

*"We're heading towards living longer without disease, and that I would say is the Holy Grail, the utopian society."*  
– HE Dr. Maha Barakat



*"One of the really important things we have to tackle is a relative immobility and isolation of established healthcare organisations worldwide."*

*"We want to create a lasting impact through opening careers in healthcare to young professionals here in the country and region, in hope that they are going to see healthcare as one of the bright career choices for the future."*  
– Dr. Tomislav Mihaljevic



## Moonshot #4 – Space: Living sustainably beyond Earth

We are on the cusp of a new age of exploration. Instead of setting sail for new lands, we will send people to set foot on other worlds. Whether for profit or self-preservation, serious efforts are underway to make human life sustainable for the long term beyond our planet.

*An important catalyst was opening space travel to the private sector, unleashing innovations that dramatically lower the cost of escaping Earth's gravity.*

Reusable rockets, more efficient systems, and the deployment of the latest technologies mean that the cost of space travel is declining rapidly.

This has opened a whole range of new possibilities, from business ventures to space tourism; from resource recovery from comets, moons, and planets to human settlements, possibly within the next few decades.

*However, national governments still have an important role to play.*

The UAE built on its mission to send a probe to Mars by pledging to establish a settlement on the red planet by 2117. For the UAE the means are as important as the ends: the UAE space program has inspired a generation of young Emiratis into science and engineering, especially women, which make up 30% of the space program today.

*Yet sustaining life beyond our atmosphere for the long term remains fraught with challenges and dangers:*

cosmic radiation, inhospitable conditions, weather constraints, energy, oxygen, water, food, communications, medical supplies, jurisdiction, justice, etc. The journey times are also much more serious. We can reach the Moon in only 3 days, but Mars takes over 8 months, with the window of travel occurring only once every 1.6 years.

*So can humanity live beyond Earth in a sustainable way? When would this be achievable? What are the emerging opportunities that can sustain this endeavor and create – possibly – an interplanetary economy?*

*"500 hundred years from now there will be human civilizations on Mars, and perhaps on the moon."*

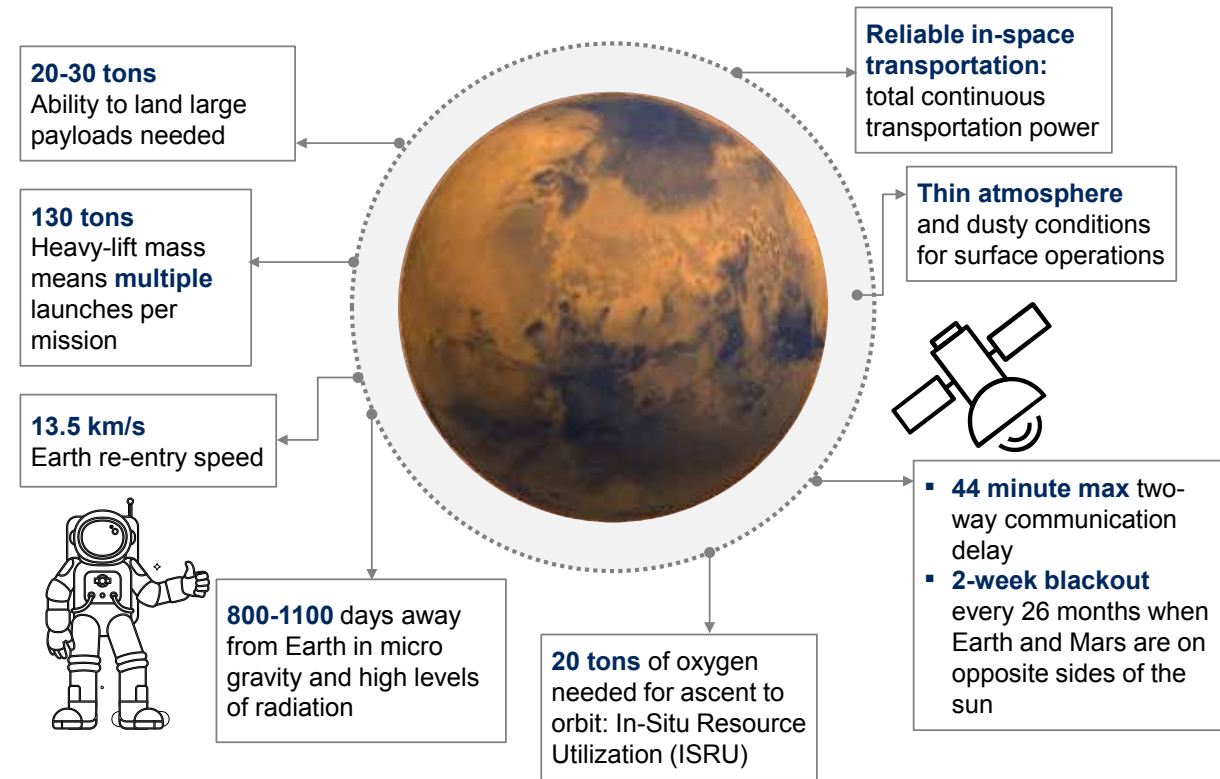
– Dr. Robert Zubrin

*"Today, the UAE has the largest space sector in the region, with a direct investment of more than 20 billion dirhams."*

– HE Mohammad Al Ahbabi



Moving to Mars



SOURCE: NASA



- 1 Dr. Anousheh Ansari, CEO and Co-Founder, Prodea Systems Inc.
- 2 HE Sara Al Amiri, Chairwoman, Emirates Scientists Council,
- 3 Dr. Ellen Stofan, Honorary Professor, University College London; Former Chief Scientist, NASA

*"The UAE government has identified space as a key sector to be developed. We think that the space sector is the bridge to the future."*



*"Our leadership believes that through science and technology, this part of the world might regain its reputation and draw a positive picture as a contributor to the world and to humanity."*  
– HE Dr. Mohammed Al Ahbabi

*"If there ever was a sector where we could unite all of humanity, where the borders would be useless, it's space exploration."*



*"The Emirates Mars Mission is about creating opportunities in science and technology, especially for the scientist of the future."*  
– HE Sara Al Amiri

*"How can we push artificial intelligence to help astronauts be alone when we are in Mars?"*



*"What the Emirates are doing right now in starting their own space program will have its own extraordinary benefits that go far beyond anything that is discovered in space. It will encourage a generation of Emirati youth."*  
– Dr. Robert Zubrin

*"We are not going to Mars unless we all participate."*



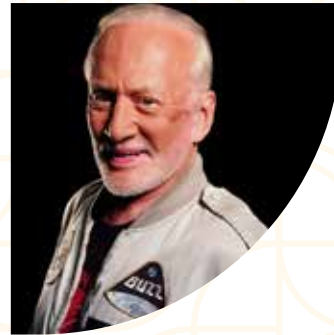
*"There is a person alive today who will see the view of Earth from Mars."*  
– Dr. Ellen Stofan



*"We need a world coalition organisation early in the effort, so we do not compete. We compete at the design level but then cooperate."*

*"When we go to Mars, we don't want to just go visit and come back. We want to occupy."*

– Dr. Buzz Aldrin



*"All of our exploring tell us about our humanity, our choices, where we come from, where we are today, and maybe where we are going in the future."*

*"So there are the enduring questions...are we alone, or are there habitable planets? The evidence is mounting."*

– Dr. Dava Newman



*"It all starts with imagination, and imagination is a beautiful gift we have as human beings that is unique to our species."*

*"It is a beautiful time we live in, because it is a time for change, a time where a lot of things are coming together to be a catalyst for change in the space industry."*

– Dr. Anousheh Ansari



*"We are living in really interesting times. Politically, that might be a curse. For people like us in the space business, it is a blessing. There's such incredible opportunity right now in space."*

– Dr. Andrew Aldrin



*"If I have a boat, and I am above a school of fish, I lower my net, I capture those fish in my net. They are only mine when I put them on my boat. Nowhere in that process is my presumption that I own the ocean. That's all we're asking for in terms of harvesting space resources."*

*"We've heard today that people might one day live for a thousand years. My job (in the space sector) is to giving them something to do."*

– Rick Tumlinson



*"Commercial space cannot exist on its own without a government saying: here's the groundwork."*

*"How do we better the human condition? How do we promote the species? How do we do things that have never been done before so that everyone's lives are better in the long run? That's how I see commercial space."*

– Anthony Previte



*"We can achieve our dreams of becoming a multi-planetary society."*

*"Could we one day bring rocks from the moon, and replace the diamond industry all together?"*

– Naveen Jain





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- 1 Member of the audience
- 2 HE Dr. Mohammed Al Ahbabi, Director General, UAE Space Agency
- 3 HE Sara Al Amiri, Chairwoman, Emirates Scientists Council and Dr. Dava Newman, Apollo Professor of Astronautics, MIT, former Deputy Administrator, NASA
- 4 HE Dr. Mohammed Al Ahbabi, Director General, UAE Space Agency and Dr. Buzz Aldrin, Astronaut, Buzz Aldrin Enterprises Inc.

# VI CONCLUSION

At first glance, we may appear to be entering an era in history that is less accepting of the ideals of a liberal market economy and its commitment to the free flow of ideas, people, and trade. Whether this is born of anger, frustration, or fear, we stand at a crossroads.

But this appearance will hopefully prove deceptive. Working to sustain these ideals and help keep us on an open and tolerant path are Abu Dhabi and the Aspen Institute. They each stand at the intersection of creativity, technology, business, science and public policy, encouraging the exchange of ideas and facilitating conversations without political boundaries.

At the heart of the Aspen Abu Dhabi Ideas Forum is the belief that only through dialogue can we wrestle with the issues that are defining these times and shaping our futures, that to participate in open and honest discussions is to place the best bet for the advancement of our societies.

# VII

## FORUM SCHEDULE

Saturday 4 March 2017	
10:00	Welcome from the Co-Chairs Rima Al Mokarrab, Chairman, Tamkeen Walter Isaacson, President & CEO, The Aspen Institute
10:30	Moonshot #1 – System Shock: Calming the ‘politics of anger’ Walter Isaacson, President & CEO, The Aspen Institute
10:35	Politics, populism, and the end of the West as we know it? Gideon Rachman, Chief Foreign Affairs Columnist, Financial Times
11:05	From the Great Degeneration to the backlash against globalization Prof. Niall Ferguson, Senior Fellow, Hoover Institution, Stanford University
11:35	Break
11:45	Teaching Tolerance: The key to promoting social cohesion? HE Sheikha Lubna Al Qasimi, UAE Minister of State for Tolerance
12:15	In Moderation: Can centrists regain the high ground? Rt. Hon. Tony Blair, former Prime Minister of Great Britain and Northern Ireland Rima Al Mokarrab, Chairman, Tamkeen
12:55	Wrap up Walter Isaacson, President & CEO, Aspen Institute
13:00	Lunch
14:00	Moonshot #2 – Beyond GDP: Targeting ‘all-in’ human welfare Steve Clemons, Editor-at-Large, The Atlantic
14:05	Freakonomics and the power of incentives Stephen Dubner, Founder, Freakonomics
14:35	Hard Data: The highs and lows of happiness economics Prof. Robert Frank, Cornell University
15:05	Break
15:15	Utopia or Dystopia: The future of the global economy Dr. Nouriel Roubini, Chairman & CEO, Roubini Macro Associates
15:45	Turning the tanker: Can economies look beyond GDP? Rt. Hon. George Osborne, Former Chancellor of the Exchequer, United Kingdom
16:25	Wrap up Steve Clemons, Editor-at-Large, The Atlantic

Sunday 5 March 2017	
10:30	Moonshot #3 – Health: Extending the healthy human lifespan Prof. Fabio Piano, Provost, NYU Abu Dhabi
10:35	Rejuvenating Biotechnology: Why age may soon cease to mean aging Dr. Aubrey de Grey, Chief Science Officer, SENS Research Foundation
11:00	Synthetic life to human longevity Dr. Brad Perkins, Chief Medical Officer, Human Longevity Inc.
11:30	Break
11:40	We can rebuild him. We have the technology Dr. Anthony Atala, Director, Wake Forest Institute for Regenerative Medicine
12:05	Killer App: How to turn longevity research into life extending applications Laura Deming, Partner, The Longevity Fund
12:30	21st century solutions to 21st century suffering HE Dr. Maha Barakat, Director General, Health Authority Abu Dhabi Dr. Tomislav Mihaljevic, CEO, Cleveland Clinic Abu Dhabi
13:00	Wrap up Prof. Fabio Piano, Provost, NYU Abu Dhabi
13:05	Lunch
14:00	Moonshot #4 – Space: Living sustainably beyond Earth Dr. Robert Zubrin, President, The Mars Society
14:05	Humanity’s Future on Mars: Why the Red Planet is the next destination for Mankind Dr. Buzz Aldrin, Astronaut, Buzz Aldrin Enterprises Inc. Dr. Andrew Aldrin, Director, Buzz Aldrin Institute
14:30	Race to the Red Planet: Hopes for global human exploration HE Dr. Mohammed Al Ahbabi, Director General, UAE Space Agency Dr. Dava Newman, Apollo Professor of Astronautics, MIT; former Deputy Administrator, NASA HE Sara Al Amiri, Chairwoman, Emirates Scientists Council
15:05	Break



15:15	The business case for space Naveen Jain, Founder and Executive Chairman, Moon Express Anthony Previte, CEO, Terran Orbital Rick Tumlinson, Founder, New Worlds Institute; Chairman, Founder, Deep Space Industries
15:50	X Factor: How to catalyze the space sector Dr. Anousheh Ansari, CEO and Co-Founder, Prodea Systems Inc.
16:10	Sustainable Survival: Moving from satellites to settlements Dr. Ellen Stofan, Honorary Professor, University College London; Former Chief Scientist, NASA
16:30	Wrap up Dr. Robert Zubrin, President, Mars Society
16:35	Closing from the Co-Chairs



# VIII

## BIOGRAPHIES



**Rima Al Mokarrab, Chairman, Tamkeen**

Rima Al Mokarrab is Executive Director of the Strategic Affairs Unit of the Executive Affairs Authority of Abu Dhabi (EAA). Strategic Affairs provides analysis and advice on a variety of portfolios to the Chairman of Abu Dhabi’s Executive Council, His Highness Sheikh Mohammed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces. Ms. Al Mokarrab also sits on the Board of the UAE Space Agency, the Board of the Catalyst Foundation for Universal Education, and chairs the Board of Tamkeen. Prior to joining the EAA, Ms. Al Mokarrab was an attorney in the New York offices of an international law firm. She holds a Bachelor of Arts degree from Harvard University, a Juris Doctor from Columbia University School of Law, and a Master of International Affairs from Columbia University’s School of International and Public Affairs.



**Walter Isaacson, President & CEO, The Aspen Institute**

Walter Isaacson is president and CEO of the Aspen Institute. He has been chairman and CEO of CNN and editor of TIME magazine. Isaacson’s most recent book is The Innovators; he authored Steve Jobs and several other best-selling biographies. He is chair emeritus of Teach for America and former chair of the Broadcasting Board of Governors (2009-2012) and vice-chair of the Louisiana Recovery Authority (2005-2007). A member of the American Academy of Arts and Sciences, Isaacson’s current board service includes United Airlines, Tulane University, the Overseers of Harvard University, New Orleans Tricentennial Commission, Bloomberg Philanthropies, Society of American Historians, Carnegie Institution for Science, and My Brother’s Keeper Alliance.



**Gideon Rachman, Chief Foreign Affairs Columnist, Financial Times**

Gideon Rachman is chief foreign affairs commentator for the Financial Times. He is a winner of the Orwell prize for political journalism (2016) and of the European Press Prize for political commentary. His book “Easternisation – War and Peace in the Asian Century” was published in 2016. A previous book, “Zero-Sum World” was published in 2010. Before joining the FT in 2006, he worked for The Economist for 15 years in a range of jobs, including as a foreign correspondent in Brussels, Bangkok and Washington. Mr Rachman read history at Cambridge University and has been a visiting fellow at Princeton University and the LSE.



**Prof. Niall Ferguson, Senior Fellow, Hoover Institution, Stanford University**

Prof. Niall Ferguson, MA, D.Phil., is Laurence A. Tisch Professor of History at Harvard University. He is also a Senior Fellow at the Hoover Institution, Stanford University, and a Visiting Professor at Tsinghua University, Beijing. He is the author of fourteen books, most recently Kissinger, 1923-1968: The Idealist, which won the Council on Foreign Relations Arthur Ross Prize. He is an award-making filmmaker, too, having won an international Emmy for his PBS series The Ascent of Money. His many other prizes include the Benjamin Franklin Prize for Public Service (2010), the Hayek Prize for Lifetime Achievement (2012) and the Ludwig Erhard Prize for Economic Journalism (2013). In addition to writing a weekly column for the Sunday Times (London) and the Boston Globe, he is the founder and managing director of Greenmantle LLC, a Cambridge-based advisory firm.



**HE Sheikh Lubna Al Qasimi, UAE Minister of State for Tolerance**

Her Excellency Sheikh Lubna Al Qasimi was appointed Minister of State for Tolerance to promote and instill tolerance as a core principle and fundamental value in the UAE. Previously, Sheikh Lubna was Minister of International Cooperation and Development, Minister of Foreign Trade, and Minister of Economy, and the first woman in the UAE to hold a ministerial position in 2004. Sheikh Lubna is President of Zayed University, Chair of the International Institute for Tolerance, and sits on the board of numerous UAE and international organisations. Her Excellency was ranked 42nd in Forbes' "World's Most Powerful 100 Women" in 2015, named among "The Most Important 50 International Women to Watch" by the Wall Street Journal, and the first Emirati to receive the Clinton Global Citizen Award.

She holds a BSc from California State University, Chico, an Executive MBA from the American University of Sharjah, and has been awarded numerous Honorary Doctorates.



**Rt. Hon. Tony Blair, former Prime Minister of Great Britain and Northern Ireland**

Tony Blair served as Prime Minister of the United Kingdom from 1997 to 2007. Since leaving office he has spent most of his time on work in the Middle East, in Africa and on the fight against religiously based extremism. Through the Tony Blair Institute, he is bringing together all his philanthropic activities to focus on making globalisation work for all by helping governments and their people, whether in Africa or emerging countries, alleviate

poverty, raise living standards, foster religious and cultural tolerance and advance peace and reconciliation. Underpinning these aims will be a policy solutions unit which will draw on the best ideas in both public and private policy spheres to drive forward practical solutions to some of today's major global challenges.



**Steve Clemons, Editor-at-Large, The Atlantic**

Steve Clemons is Editor at Large of The Atlantic and Editor-in-Chief of AtlanticLIVE, the premium division of Atlantic 3D journalism. Clemons is also foreign policy and politics contributor to MSNBC. Clemons also founded and serves as Senior Fellow of the American Strategy Program at the New America Foundation, a centrist policy think tank in Washington, DC where he previously served as Executive Vice President. Prior to this, Clemons served as Executive Vice President of the Economic Strategy Institute, was Senior Economic & International Affairs Advisor to Senator Jeff Bingaman, and was the founding Executive Director of the Nixon Center, now re-named the Center for National Interest. Clemons writes and speaks frequently on consequential national security, politics, and economic policy issues.



**Stephen Dubner, Founder, Freakonomics**

Stephen Dubner is an award-winning author, journalist, and radio and TV personality. He is best-known as co-author of the books in the Freakonomics series, including Freakonomics, SuperFreakonomics, Think Like a Freak and When to Rob a Bank, which have sold more than 7 million copies in over 40 countries. Dubner is the host of the Freakonomics Radio podcast, which gets 8 million downloads a month, and maintains the popular Freakonomics blog, which has been called "the most readable economics blog in the universe." He has appeared widely on television, including ABC News and as host of the Emmy-nominated NFL Network program, Football Freakonomics. His journalism has appeared in The New York Times, The New Yorker, Time, and elsewhere. He earned his undergraduate degree from Appalachian State University, and an M.F.A. in writing at Columbia University. He was an editor and writer at New York magazine and The New York Times.





**Prof. Robert Frank, Cornell University**

Robert H. Frank is the H.J. Louis Professor of Economics at Cornell's Johnson School of Management and an economics columnist for The New York Times. He received his B.S. in mathematics from Georgia Tech, then taught math and science as a Peace Corps Volunteer in rural Nepal. He holds an M.A. in statistics and a Ph.D. in economics, both from UC Berkeley. His books, which include *Passions within Reason*, *Principles of Economics* (with Ben Bernanke), *Luxury Fever*, *The Economic Naturalist*, *The Darwin Economy*, and *Success and Luck*, have been translated into 24 languages. *The Winner-Take-All Society* (with Philip Cook) received a Critic's Choice Award, was a Notable Book of the Year by The New York Times, and was included among Business Week's ten best books of 1995. He was awarded the Johnson School's Stephen Russell Distinguished Teaching Award in 2004, 2010, and 2012, and its Apple Teaching Award in 2005.



**Rt. Hon. George Osborne, Former Chancellor of the Exchequer, United Kingdom**

George Osborne is the Conservative MP for Tatton, Cheshire, UK. He was the first elected to the House of Commons in June 2001, served as Shadow Chancellor from 2005, and following the successful election of a Conservative Government in 2010 was made Chancellor of the Exchequer, a position he held until 2016 – one of the longest periods anyone has held this office. As a prominent campaigner for Britain to remain in the EU, George left the government in July 2016 following the outcome of the referendum.

When George left office, the British economy had the strongest growth record in the G7, a greatly reduced deficit, and an all-time high employment rate. He also oversaw major reforms including regeneration of the north of England; forging a new relationship with China; and an overhaul of the UK pension and welfare systems. In August 2016, George was made a Companion of Honour by Her Majesty the Queen.



**Dr. Nouriel Roubini, Chairman & CEO, Roubini Macro Associates**

Nouriel Roubini is Chairman and CEO of Roubini Macro Associates, a global macroeconomic consultancy firm, and professor of economics at New York University's Stern School of Business, and prior to this at Yale University. From 1998 to 2000, he served as the senior economist for international affairs on the White House Council of Economic Advisors and

then the senior advisor to the undersecretary for international affairs at the U.S. Treasury Department. He has also advised the IMF, the World Bank and other public and private institutions. Roubini has published numerous papers on international macroeconomic issues and coauthored the books *"Political Cycles: Theory and Evidence"*, *"Bailouts or Bail-ins? Responding to Financial Crises in Emerging Markets"* and *"Crisis Economics: A Crash Course in the Future of Finance"*. He received an undergraduate degree from Bocconi University, Italy, and a doctorate in economics at Harvard University.



**Prof. Fabio Piano, Provost, NYU Abu Dhabi**

Fabio Piano serves as NYU Abu Dhabi's chief academic officer, setting the University's academic strategy and priorities, and overseeing academic appointments and faculty affairs. Long before his appointment as provost, Piano was instrumental in developing and advancing NYUAD, helping to craft its innovative undergraduate science curriculum, as well as its distinctive research program. Piano is the founding director of NYU's Center for Genomics and Systems Biology in New York. Piano leads an active research program in genomics and systems biology and has taught at the undergraduate and graduate levels. Prior to serving as a faculty member in Biology at NYU, Piano was a Damon Runyon Cancer Research Fellow at Cornell University, where he studied early embryo development and evolutionary biology.

Piano holds a Laurea from the University of Florence and a Ph.D. in Biology from NYU, where he also received his B.A., M.S., and M.Phil.



**Dr. Aubrey de Grey, Chief Science Officer, SENS Research Foundation**

Dr. Aubrey de Grey is a biomedical gerontologist based Mountain View, California, USA, and is the Chief Science Officer of SENS Research Foundation, a California-based 501(c)(3) biomedical research charity that performs and funds laboratory research dedicated to combating the aging process. He is also Editor-in-Chief of *Rejuvenation Research*, the world's highest-impact peer-reviewed journal focused on intervention in aging. He received his BA in computer science and Ph.D. in biology from the University of Cambridge. His research interests encompass the characterisation of all the accumulating and eventually pathogenic molecular and cellular side-effects of metabolism ("damage") that constitute mammalian aging and the design of interventions to repair and/or obviate that damage. Dr. de Grey is a Fellow of both the Gerontological



Society of America and the American Aging Association, and sits on the editorial and scientific advisory boards of numerous journals and organisations.



**Dr. Brad Perkins, Chief Medical Officer, Human Longevity Inc.**

Dr. Perkins is a visionary physician, scientist, and executive who is responsible for leading all clinical and therapeutic operations at the HLI. This includes collecting and utilizing phenotype data, development of the consumer clinics business, and guiding stem cell therapeutics. Dr. Perkins began his career at the Centers for Disease Control and Prevention (CDC) in 1989 after completing his residency training and chief residency in internal medicine at Baylor College of Medicine. At the CDC he led some of the most important and high profile programs and published more than 120 peer-reviewed publications and book chapters. Dr. Perkins is a member of the RAND Health Board, and he is the chairman of the advisory board for Esther Dyson's nonprofit, HICcup, sponsor of the "Way to Wellville" community health competition. He received his BA in Microbiology and his MD from the University of Missouri-Columbia, and an MBA from Emory University. He is Board Certified in Internal Medicine.



**Dr. Anthony Atala, Director, Wake Forest Institute for Regenerative Medicine**

Dr. Atala is the Director of the Institute for Regenerative Medicine at Wake Forest University. He is Editor in Chief of Stem Cells Translational Medicine and BioPrinting. Dr. Atala is a recipient of the US Congress funded Christopher Columbus Award, the World Technology Award in Medicine, and the Edison Science/Medical Award. He was elected to the National Academy of Medicine and to the National Academy of Inventors. His work was listed twice in Time Magazine's top 10 medical breakthroughs of the year. He was named by Scientific American as one of the world's most influential people in biotechnology in 2015. He received the Innovator of the Year Award from R & D Magazine in 2016. Fourteen applications of technologies developed in his laboratory have been used clinically. He is editor of 16 books, has published over 500 articles and has applied for or received over 250 national and international patents.



- 1 Prof. Robert Frank, Cornell University, speaking on stage
- 2 Steve Clemons, Editor-at-Large, The Atlantic and Dr. Nouriel Roubini, Chairman & CEO, Roubini Macro Associates
- 3 HE Dr. Maha Barakat, Director General, Health Authority Abu Dhabi and Dr. Tomislav Mihaljevic, CEO, Cleveland Clinic Abu Dhabi
- 4 HE Dr. Maha Barakat, Director General, Health Authority Abu Dhabi



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- 1 Participants in the forum
- 2 Prof. Fabio Piano, Provost, NYU Abu Dhabi, HE Dr. Maha Barakat, Director General, Health Authority Abu Dhabi, and Dr. Tomislav Mihaljevic, CEO, Cleveland Clinic Abu Dhabi, on stage
- 3 Steve Clemons, Editor-at-Large, The Atlantic
- 4 Laura Deming, Partner, The Longevity Fund, speaking on stage



#### **Laura Deming, Partner, The Longevity Fund**

Currently a partner at The Longevity Fund, Laura has wanted to cure aging since the age of 8. After years working on nematode longevity at the UCSF graduate school, Laura matriculated to MIT at 14 to work on artificial organogenesis and bone aging, and is now based in San Francisco, working to find and fund therapies to extend the human health span. She is a former Thiel Fellow and Forbes 30 under 30 alumnus



#### **HE Dr. Maha Barakat, Director General, Health Authority Abu Dhabi**

Maha Barakat has held the post of Director General of the Health Authority Abu Dhabi since 2013. Previously, she was Co-Founder, Medical & Research Director and Consultant Endocrinologist at the Imperial College London Diabetes Centre (ICLDC) in Abu Dhabi, and Reader at Imperial College London. In 2013, she became a visiting Professor at Imperial College London. She is a member of the Social Development Committee of the Executive Council of the Government of Abu Dhabi, and Board member of several Government of Abu Dhabi-related entities including the Board of Trustees of the Family Development Foundation, the Abu Dhabi Quality and Conformity Council, and the Statistics Centre Abu Dhabi. For her work to the community in the UAE, she was appointed an Officer of the Order of the British Empire (OBE) in 2010, was awarded the Abu Dhabi Prize in 2011, and given the Imperial College Medal in 2013.



#### **Dr. Tomislav Mihaljevic, CEO, Cleveland Clinic Abu Dhabi**

Tomislav Mihaljevic, MD, is CEO of Cleveland Clinic Abu Dhabi (CCAD), a world-class multispecialty hospital designed to address Abu Dhabi's most complex medical requirements. As CEO, Dr. Mihaljevic is responsible for leading 3,000+ caregivers and overseeing CCAD's strategy and operations as the first US multispecialty hospital outside of North America. He received his medical degree from the University of Zagreb and started his education in cardiac surgery at the University of Zurich, Switzerland. In 1995, he joined the Brigham and Women's Hospital at Harvard Medical School, where he completed his residency in general and cardiac surgery, and served as Chief Resident in the Department of Cardiovascular Surgery at Children's Hospital in Boston. Dr. Mihaljevic is certified by the American Board of Thoracic Surgery and the American Board of Surgery. He specializes in minimally invasive and



robotically assisted cardiac surgeries, valve repair and replacement, image-guided surgery, heart failure and cardiac transplantation.



**Dr. Robert Zubrin, President, The Mars Society**

Robert Zubrin is President of Pioneer Astronautics, an aerospace R&D company, and Pioneer Energy, an energy technology company, both located in Lakewood, Colorado. He is also the founder and President of the Mars Society, an international organization dedicated to furthering the exploration and settlement of Mars by both public and private means. Formerly a Staff Engineer at Lockheed Martin Astronautics in Denver, he holds a Masters degree in Aeronautics and Astronautics and a Ph.D. in Nuclear Engineering from the University of Washington. Zubrin is known internationally as one of the most creative engineers working in the aerospace industry today. He is the inventor of several unique concepts for space propulsion and exploration, including fifteen US patents, and the author of over 200 published technical and non-technical papers and eight books, including "The Case for Mars: How We Shall Settle the Red Planet and Why We Must."



**Dr. Buzz Aldrin, Astronaut, Buzz Aldrin Enterprises Inc.**

Dr. Buzz Aldrin received his Doctorate in Astronautics from MIT in 1963. That year he was selected by NASA in the third group of astronauts and was the first astronaut with a doctorate. The docking and rendezvous techniques he devised for spacecraft became critical to the success of the Gemini and Apollo programs and he pioneered underwater training techniques to simulate spacewalking. On July 20, 1969, Buzz and Neil Armstrong secured their place in history with their Apollo 11 moonwalk, becoming the first two humans to set foot on another world. His ShareSpace Foundation is focused on STEAM Education and in 2015 he launched the Buzz Aldrin Space Institute at Florida Tech to develop his vision of a permanent human settlement on Mars. Since retiring from NASA, Dr. Aldrin calls himself a Global Statesman for Space and has remained a tireless advocate for space exploration.



**Dr. Andrew Aldrin, Director, Buzz Aldrin Institute**

Dr. Andrew Aldrin is currently an Associate Professor at Florida Institute of Technology (FIT) and Director of the Buzz Aldrin Space Institute (BASI). BASI is a multidisciplinary institute created to advance space exploration and development toward the goal of establishing and maintaining a permanent human presence on Mars. Prior to FIT, Dr. Aldrin was President of Moon Express. Dr. Aldrin was Director of Business Development and Advanced Programs at United Launch Alliance and served in a similar position at Boeing's NASA Systems, and Launch Services business units. He has also served as a Resident Consultant at the RAND Corporation and Professional Research Staff Member at the Institute for Defense Analyses. Dr. Aldrin holds a Ph.D. in Political Science from UCLA, an MBA from TRIUM, an MA in Science Technology and Public Policy from The George Washington University, and a BA in International Relations from the University of California at Santa Barbara.



**Dr. Dava Newman, Apollo Professor of Astronautics, MIT; former Deputy Administrator, NASA**

Dr. Dava Newman served as NASA Deputy Administrator from May, 2015 through January, 2016. Newman is the Apollo Program Professor of Astronautics at the Massachusetts Institute of Technology (MIT) in Cambridge, MA. Her expertise is in multidisciplinary research that encompasses aerospace biomedical engineering. As a PI, Newman has designed and flown 4 spaceflight experiments to assess and enhance astronaut performance. Her research includes advanced space suit design, dynamics and control of astronaut motion, and socio-technical systems analysis and space policy. Newman is the author of Interactive Aerospace Engineering and Design, an introductory engineering textbook published by McGraw-Hill, Inc. in 2002. She has published more than 250 papers in journals and refereed conferences. She earned her Ph.D. in aerospace biomedical engineering, Master of Science degrees in aerospace engineering and technology and policy all from MIT, and her Bachelor of Science degree in aerospace engineering from the University of Notre Dame.





**HE Dr. Mohammed Al Ahbabi, Director General, UAE Space Agency**

HE Dr. Mohammed Nasser Al Ahbabi is known for his leadership, management and strategic planning skills within the UAE national space industry. He is an expert within communications, information systems and modern defence concepts. Dr Ahbabi was a telecommunications officer for the UAE Armed Forces until he reached the rank of Major. During that period he also worked as a coordinator for Dubai Internet City until 2000 then as a telecommunications officer for Sharyan Al Doea Network and a project manager for Yahsat military division from 2005 to 2012. He has led YAHSAT MilSatCom and other space projects. He has an active role in ITU-R, United Nations space working groups and various ICT professional associations. He obtained an MA and PhD in communications from the University of Southampton UK in 2001 and 2005. He completed a degree in electronic engineering from the University of California in 1998.



**HE Sara Al Amiri, Chairwoman, Emirates Scientists Council**

HE Sara Al Amiri has been appointed in 2016 as the Chairwoman of the newly established Emirates Scientists Council, with the objective to further develop and strengthen the Science and Technology sectors in the UAE. Sarah Amiri is currently the Deputy Project Manager and Science Lead of the Emirates Mars Mission (Hope) at the Mohamed bin Rashid Space Centre (MBRSC). Her current task is to enable the research environment for the first generation of UAE Planetary Scientists. In 2015 Sarah was selected as one of 50 young scientists by the World Economic Forum for her contribution to the development efforts in the fields of Science, Technology and Engineering. Sarah has worked in MBRSC since 2009 on various roles including a software engineer and Head of Research and Development.



**HE Naveen Jain, Founder and Executive Chairman, Moon Express**

Naveen Jain is an entrepreneur and philanthropist driven to solve the world's biggest challenges through innovation. He is the founder of several successful companies including Moon Express, BlueDot, Viome, Intelius, Talent Wise and InfoSpace. Moon Express is the only company to have permission from the US government to leave earth orbit and land on the moon. It is developing technologies to harvest planetary resources on the moon for the benefit of humanity. Naveen Jain has been awarded many honors for his entrepreneurial successes and leadership skills including "Ernst & Young Entrepreneur of the Year", "Albert Einstein Technology Medal" for pioneers

in technology, "Humanitarian Innovation Award" at the United Nations, "Distinguished Global Thinker Award" by IILM, "Most inspiring Entrepreneur" by Andaaz TV, "Most admired Serial Entrepreneur" by Silicon India, "Top 20 Entrepreneurs" and "Lifetime Achievement Award" for the leadership in the technology industry and support of other entrepreneurs by Red Herring.



**Rick Tumlinson, Founder, New Worlds Institute; Chairman, Founder, Deep Space Industries**

Rick Tumlinson has been called one of the world's top space "Visionaries" and is credited with helping create the NewSpace commercial space industry, whose players include Richard Branson, Elon Musk, Paul Allen and Jeff Bezos. A leading writer, speaker and Congressional witness, he led the takeover of the Russian Mir space station, signed the first space tourist, co-founded the Space Frontier Foundation and was a founding board member of the X-Prize. Rick also founded Orbital Outfitters and Deep Space Industries – an asteroid mining company. In 2015 he won the World Technology Award along with Craig Venter of the Human Genome project. Currently, his New Worlds organization is developing the people and technology to settle the frontier. It recently held a major US space policy summit in Washington DC, and will be putting on the New Worlds 2017 Fair and Conference Nov 10-11 in Austin.



**Anthony Previte, CEO, Terran Orbital**

Anthony "Tony" Previte is the co-founder and CEO of Terran Orbital. Terran Orbital is a leading worldwide provider of nanosatellite and microsatellite vehicles, services, and solutions. Tony has over 30 years of executive leadership in high-technology and space-based services ranging from startups to Fortune 500. Terran Orbital is Tony's third successful from the ground up venture. In addition to his successful business ventures, Tony is an active space-based radio astronomy, and astrophysics researcher focused on very low-frequency radio observation. Tony's successful career and studies in aerospace engineering, astronomy, economics, astrobiology, and philosophy provide a unique perspective on humanities roadmap to the stars.



**Dr. Anousheh Ansari, CEO and Co-Founder, Prodea Systems Inc.**

Anousheh Ansari is a Co-Founder, Chairwoman and Chief Executive Officer of Prodea Systems, where she is responsible for setting the corporate strategy, creating a culture of innovation and driving the core vision of the simplified use of and global access to technology for all. Under her leadership, Prodea has built a powerful IoT services platform that makes it technically possible and economically feasible for enterprise and consumer service providers to deliver services using smart devices and sensors in a user friendly and fully integrated, seamless way. A successful serial entrepreneur and an active proponent of exponential technologies and social entrepreneurship, Anousheh previously founded Telecom Technologies, Inc. and served as Chief Executive Officer and Chairman until Sonus Network acquired the company in 2001. Anousheh was the first female private space explorer and is on the Board of Trustees for the Ansari X Prize.



**Dr. Ellen Stofan, Honorary Professor, University College London; Former Chief Scientist, NASA**

Dr. Ellen Stofan is the former Chief Scientist of NASA (2013-2016), serving as principal advisor to the NASA Administrator on the agency's science-related strategic planning and programs. She is an Honorary Professor in the Department of Earth Sciences at University College London and co-chair of the World Economic Forum Space Council. Her research focuses on the geology of Venus, Mars, Saturn's moon Titan, and Earth. Stofan has a PhD from Brown University and a Bachelor of Science degree from the College of William and Mary. She has published extensively, and received many awards and honors including the Presidential Early Career Award for Scientists and Engineers. She is an associate member of the Cassini Mission to Saturn Radar Team, and proposed a mission to NASA to land a boat on a sea on Titan. She is the former Chair of the College of William and Mary Foundation Board.

# IX THE PARTNERS

The Aspen Institute is an educational and policy studies organization that has gained a reputation for gathering together diverse, nonpartisan thought leaders, creatives, scholars and members of the public in order to address some of the world's most complex problems. Based in Washington, DC, the Institute has campuses in Aspen, Colorado, and on the Wye River on Maryland's Eastern Shore, and offices in New York City.

Tamkeen is an Abu Dhabi Government-owned company that delivers projects to meet the Government of Abu Dhabi's vision of knowledge-based development. This is achieved by collaborating with a variety of local and international institutions to enrich the Emirate's social, cultural and educational landscape in line with its Vision 2030.



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