

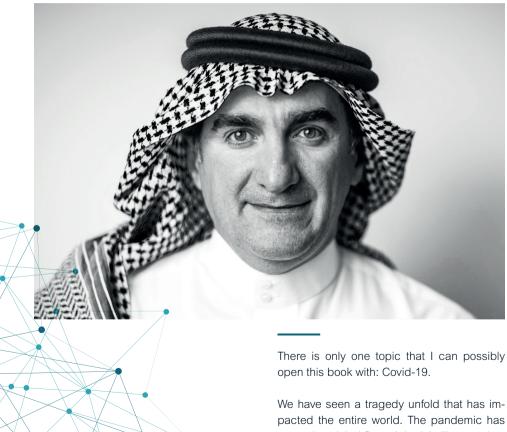


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FII 2021

## THE NEO-RENAISSANCE

## **BY FILINSTITUTE CHAIRMAN** H.E. YASIR AL-RUMAYYAN



FOREWORD

pacted the entire world. The pandemic has caused a global financial crisis like no other, seeing the world's economies locked down to save lives. Many economies are still facing

stark choices as I write this, public health emergencies against a backdrop of ever mounting borrowing and public debt.

Yet even before the pandemic, the world was changing at an unprecedented speed - digitization and tech advancements were revolutionizing every sector, industry and business. So the global economic recovery from Covid-19 cannot simply be a question of waiting for the vaccines to take hold and then returning to the status guo. Too much has changed.

Now a fundamental rethink about the ways in which we live our lives and how our economies and societies function is needed. A period, I hope, where every aspect of life across our planet is optimized, industries are reimagined and the world enters into a period of rebirth.

The global investment community has an opportunity to leverage the downturn to think of strategies that look to reinvent the world economy, building on the acceleration seen in many sectors and industries, including in sustainable investments.

As businesses rethink their role in the post-pandemic era, there has never been a better opportunity for strategic investing in technologies that increase the speed of communication, the efficiency of manufacturing and the movement of goods and services around the world.

Creating employment opportunities and access to education and training must be priorities moving forward. We can no longer rely on models that have unintentionally created economic inequities and ecological damage. Smart investing can help us reset our future in the right direction.

As we come together for this 4th edition of FII, the first to be powered by the FII Institute that I was honoured to launch at our 2019 FII conference, we must acknowledge that we are not living in normal times.

The FIL Institute was formed in the character of the Kingdom to be action orientated, and it is working year-round to support and deliver the ideas that can build this new world and impact humanity positively and sustainably.

### FOREWORD BY FII INSTITUTE CEO RICHARD ATTIAS

#### Covid-19 has affected everyone.

In 2020, the technology that already extended our social lives and satisfied our entertainment needs, became the technology turning kitchens into schools and offices. The shock of lockdown confinement and technological transformation mirrored the shock from news reports. Yet, within the shock, there was awe too.

Awe at the levels of community spirit demonstrated, the clear blue skies above previously smog-ridden cities, the bravery of frontline medical staff, the diligence of essential workers and the scientists leading vaccination research.

People in every corner of our planet have witnessed how we can respond together to a common challenge and believe that rebuilding a post-pandemic world that is better than the one we knew, is not just possible, but a moral obligation.

This is the very essence of what I am calling the Neo-Renaissance, a new chapter for humanity.

Technological advances and the next generation of leaders are poised to fuel this momentum. But bold ideas and fresh thinking are required to disrupt legacy systems and catalyze new models of business, investment and social progress.

Because, while we have seen the immensely positive impacts of innovations across industries, we have also seen inequality rise starkly. The disadvantaged in society have been disproportionately affected, both in terms of their vulnerability to the virus and to the economic fallout. So, the world is ready for something new, but of paramount importance is ensuring that the strategic decisions we make now leave nobody behind.

The FII Institute was born before the pandemic, but our agenda - to foster collaboration, promote science and technology, and encourage global and inclusive thinking - has only been reinforced by events of the last year. Through our convening power, ecosystem development and networks, we will play our part in building a brighter future - and we invite you to join us on our journey.

This book, published ahead of the Fourth Edition of the Future Investment Initiative, brings, a comprehensive picture of our achievements so far, our vision for the future, and our focus areas and strategy. It also includes a series of interviews of thought leaders, futurists, technologists and policy innovators, and profiles of a new generation of young entrepreneurs.

I hope you enjoy reading it as much as we at the FII Institute enjoyed curating it.



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## THE WORLD IN REVIEW

#### **TOP 3 REGIONS FOR CLIMATE TECH INVESTMENTS**

Since the Future Investment Initiative was launched in 2017, the world has faced a range of grave challenges, from a rise in extreme weather and wildfires to social unrest and the global COVID-19 pandemic. But look closely and there is much cause for optimism. Innovations in technology, science, culture and governance have all advanced human wellbeing despite the headwinds we face. And as the world heads into recovery in 2021, we are at the cusp of major breakthroughs across a range of domains inclu-

\$**60**B VC INVESTED IN CLIMATE TECH between 2013-19 \$16в 1200+

OF VC WAS **INVESTED IN 590** CLIMATE TECH DEALS (representing 6c of every VC dollar in 2019)

12

8/%

COMPOUND ANNUAL **GROWTH RATE** 

CLIMATE

TECH STARTUPS

IDENTIFIED

fuel a decade of renewal. The dawn of the 2020s could not have been

ding artificial intelligence, regenerative medi-

cine, education, and clean tech, which could

darker, but the tragedies of the last year must not overshadow the incredible progress that has been achieved across a range of domains, from medical breakthroughs to climate-tech. The upheavals of the last year have also brought forward much-needed innovations in everything from virtual healthcare to educational technology, perhaps by decades.

Momentum towards a zero-carbon world has never been stronger as governments and corporations make firm commitments, backed by investments and quantitative targets. The U.N. Paris agreement of 2015 was a landmark moment in binding participating countries to hard targets, and since then, citizen activism and public concern has only intensified. The European Union's commitment to the green transition through its CO-VID recovery fund, and an incoming U.S. president who has pledged to re-align the



country to the Paris accord, bode well for global momentum going forward. The number of countries, cities, businesses and investors committing to transition to net zero emissions before 2050 will now create a snowball effect - and send a signal to investors and innovators to meet the technological challenge.

Consumers are driving the change - they care about air quality and health and see the dangers of inaction all around them, from the wildfires of Australia and California to floods and extreme weather events across Asia. But business is now also a part of the solution. Alternative proteins are a booming startup segment attracting venture investment and

entering public markets, from Beyond Meat's successful 2019 IPO to Ynsect, the French insect protein startup that has raised \$372 million in the middle of the pandemic.

Energy innovations, from next-generation nuclear reactors to green hydrogen, are emerging from startups, academic spinouts, research institutes and Big Energy companies as they transition to the new era. The climate-tech sector, which covers everything from mobility to food and land use, as well as cross-cutting innovations like carbon capture, attracted \$60 billion in venture funding between 2013 and 2019.

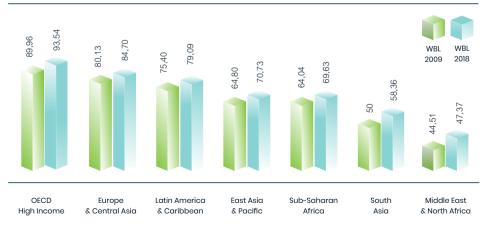


## INCLUSIVE WORLD

Inequality is the social issue of our time; unfair access to opportunity lies behind many of the social upheavals and extremist politics of the last decade. The elements of a safe, long and fulfilling life, from access to healthy food and clean water to education and employment, have not been widely available to all people; at the same time, too much power has been concentrated in the hands of too few people. While there are many miles to go, there are signs of clear progress since the inaugural FII conference.

In the U.S., the most recent Congress, its 116th, was the most diverse in U.S. history. In 2019 Chicago elected its first African-American and female mayor. The next vice president, Kamala Harris, will be the first woman to hold the post, as well as the first person of mixed-race heritage. The European Commission is led by its first female President, Ursula von der Leyen, and female leaders have been credited for their handling of the CO-VID crisis, notably Angela Merkel and New Zealand's Prime Minister Jacinda Ardern and Finland's Sanna Marin. In the business world, the focus on equal pay and achieving diversity at all levels of management has grown sharper. The number of female CEOs continues to rise; women now head many of the world's largest and most dynamic companies, from historic brands like Heineken and GM to new economy platforms like Bumble and YouTube and over the last two decades, every world region has made gains in ensuring the legal treatment of women (see chart). Startups and tech are guickening progress towards greater diversity, from job-hiring software platforms that use AI to weed out bias, to human resource analytics tools that allow deeper participation from all staff, regardless of seniority, into business decisions.

#### ON AVERAGE, LEGAL TREATMENT OF WOMEN BECAME MORE EQUAL IN EVERY REGION



Source: Women, Business and the Law database.

## AI AND ROBOTICS BREAK NEW GROUND



Artificial intelligence and robotics, two focal pillars of the FII Institute's portfolio, have continued to advance rapidly in terms of performance, range and capabilities. DeepMind, Alphabet's Al unit, has now built a model that can perform protein folding, a problem that eluded biologists for half a century and which has far-reaching implications for drug design. Another big breakthrough of 2019 was GPT-3, a third-generation language model, which can produce the most human-like writing and speech of any Al attempt thus far. Thanks to neural network technology, GPT-3 is showing signs of 'general intelligence' such as an ability to switch between problems and tasks, a

milestone which many have predicted to be decades away. Al is finding a growing range of use cases in the business world; between 2018 and 2019, the number of organizations deploying it grew from just 4% to 14%, according to Gartner. Global collaboration is quickening, pooling the expertise and resources of more institutions and experts, especially across North America, Europe and China, the three leading blocs (see chart). Robotics are also achieving new levels of dexterity and flexibility, widening their realm of applications across everything from retail to care homes to ocean exploration.

## HEALTHCARE UNLEASHED

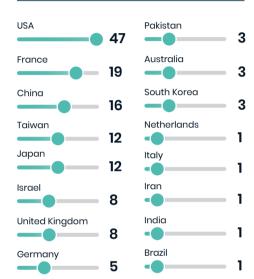
The biggest story of 2020 was, of course, the staggering speed at which the first wave of COVID-19 vaccines were developed. One previous pandemic flu vaccine took eight years to develop. A hepatitis B vaccine took almost 18 years. Moderna, one of the COVID front-runners, went from gene sequencing to human trials in just 63 days. This speed is the result of a novel approach to vaccine development, known as messenger ribonucleic acid (mRNA), which instructs cells to make coronavirus spike proteins, which prompt the immune system into response, rather than the conventional approach of inserting small doses of the disease which takes far longer to develop safely. This could have implications for many infectious diseases and viral outbreaks.

COVID has also accelerated healthcare delivery by years. Telemedicine and virtual consultations, which have been technically possible for years, have finally seen wide adoption as governments provided the legal, financial and technical enablers to allow health systems to function during physical distancing. Hospitals have upgraded their data and IT systems at lightning speed, to cope with the surge of the virus in the short term, but in the long-term, these changes stand to improve all aspects of healthcare delivery. Robotics are now playing a greater role in hospitals, surgery settings and medical supply chains.

COVID is not the only healthcare breakthrough of the current era, though, even in infectious diseases. In what epidemiologists described as a 'staggering' breakthrough, one research team cut cases by 77% of dengue fever, which infects an estimated 400 million people a year, by releasing mosquitoes modified with bacterium that stops them transmitting the virus. This was just the latest in a growing portfolio of innovations to manipulate the biology of disease-carrying pests.

In non-communicable diseases, too, scientists are steadily gaining ground. Cures for cancer, one of the largest global killers which is increasing in prevalence as the world population ages, are coming nearer thanks to continued progress in immunotherapy and genetically targeted anti-cancer drugs. A wider swathe of diseases could be tackled by regenerative medicine, which grows, repairs or replaces damaged and diseased cells, organs and tissues. By 2019 there were nearly 1,000 regenerative medicine companies sponsoring 1,052 clinical trials and stem cell research, one of the most promising fields, now has clinical trials and studies across the continents.

#### GEOGRAPHIC DISTRIBUTION OF STUDIES INVOLVING HUMAN PLURIPOTENT STEM CELLS



As we look ahead to a COVID recovery in 2021, the impressive gains of recent years, combined with the end of the pandemic and the return of resources and time to focus on global challenges, could create a brighter decade ahead.

## ABOUT THE FII INSTITUTE



Our world is facing grave challenges, from the climate crisis and the COVID-19 pandemic to ageing populations. Millions of people still lack access to high quality education, healthcare and jobs. After more than 20 years of steady decline of global extreme poverty, the World Bank fears that the pandemic could push an additional 88 million to 115 million people into that dire situation this year.

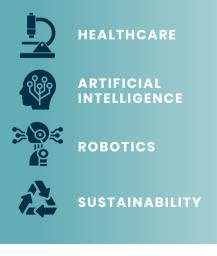
Yet there is no shortage of bright innovators and entrepreneurs. The challenge comes with connecting ideas to opportunity, taking visions for change and making them reality. Too often, transformational ideas do not materialize because the environment does not enable them, whether it be a lack of funding, government support or the presence of networks and peer groups.

There is a vibrant ecosystem of not-for-profit organizations working with corporations, civil society groups and governments to improve life changes and wellbeing for those left behind by our status quo model. But while local-level, grassroots work is essential for change, we also need global partnerships and networks to tackle borderless problems. The FII Institute was born before the COVID pandemic, an international crisis which has only underscored our rationale as a globally minded network. The Future Investment Initiative (FII) Institute is a not-for-profit foundation that is curating and enabling ideas that can truly impact humanity. Based in Rivadh, the FII Institute is global in scope, vision and engagement, working with leaders in science, technoloav. business and government. To remove the barriers to positive change, the institute is focusing on network-building, ecosystem development and leveraging our convening power to connect talent, ideas, institutions and capital. Our vision is to create new standards for doing, not just thinking, and to build platforms of support for all of those individuals, companies and governments that want to tackle the issues facing humanity.

As a foundation born in the Arab world, the FII Institute is also widening the global conversation about how to make the 21st century a time of positive reform. Western nations dominated the ideas and institutional architecture of the 20th century. Now, economic and political gravity is moving eastward, and to the global South, bringing more voices into the discourse. This is reflected in the diverse perspectives that increasingly lead both our established international institutions and forums as well as in the emergence of groups, networks and initiatives. The FII can be a bridge between east and west, two blocs that have contributed so much to the scientific, cultural and economic dimensions of the modern world but which have remained too separate from each other.

#### **OUR VISION**

The FII Institute's vision is to foster progress for all of humanity by focusing on four impact areas: healthcare, artificial intelligence, robotics and sustainability. Innovations in these domains could, collectively, impact many of the social, economic and political challenges of our age. We chose these domains before the pandemic struck and the events of the last year have only underscored their importance. Our belief is that fostering collaboration in these four focus areas will drive progress for people everywhere.



## HEALT HCARE

People are living longer thanks to advances in medicine, sanitation and public safety, but this is creating new health burdens in the form of chronic and non-communicable diseases, from dementia and cancer to age-related disability. Finally, medical science, from biotech start-ups to academic institutions and 'big pharma', are on the cusp of delivering cures and treatments to conditions that have eluded our efforts to date.

Neurotechnology could bring speech, cognition and movement back to those suffering grave injuries and eventually enhance cognitive capabilities for everyone through neural chips and brain-computer interface. Wearable devices could spot the warning signs of strokes and heart attacks before they happen, and AI is helping us decode genomic data to enable personalized medicine.

But more needs to be done to take these innovations to scale. "Why don't we start investing in the healthcare system and in the life around us?" Professor Adah Al Mutairi, Co-Director of the Center for Excellence in Nanomedicine and Engineering, University



PROFESSOR ADAH AL MUTAIRI Co-Director of the Center for Excellence in Nanomedicine & Engineering, University of California

#### WHY DON'T WE START INVESTING IN THE HEALTHCARE SYSTEM AND IN THE LIFE AROUND US?"

of California, San Diego, and Board of Trustees member of the FII Institute, asked the global audience at the first virtual event of the FII Institute Series, "Beyond the Crisis: Technology to the Rescue." "We think defense, defense, defense," she explained. "Why don't we start thinking of the healthcare system as just as important."

Diverse funding streams and mechanisms are needed, from venture-backing to government-sponsored research. Pilots and experiments need to be joined-up to leverage collective efforts. The FII Institute is looking to support next-generation medical interventions including robotic surgery, preventive and remote health monitoring. Health information infrastructure is needed to enable data to flow. We are focusing on supporting these enabling assets on which innovators can build 21st century medicine.

## ARTIFICIAL INTELLIGENCE



Artificial intelligence has been with us for more than half a century but after many 'Al Winters', in which its impact fell short of potential, the field is experiencing its longawaited Spring and booming thanks to improvements in deep learning, more powerful chip technology and hardware, and the deepening of data sets. Autonomous transport, medicine, cyber security and smart retail are some of the real-world applications where Al is already in full flight.

Since 2017, 410 AI policies have been issued by more than 60 countries in both developed and emerging markets to boost the industry. It is being adopted across "virtually across all segments," according to Thomas Siebel, Chairman and CEO of US-based C3.ai, speaking at the Global AI Summit, Hybrid Edition, Rivadh, in October 2020, which was held under the theme "AI for the Good of Humanity." He believes energy is one leader, thanks to tools like predictive analytics which have upstream applications in exploration and production to downstream applications in power generation and grid management. Healthcare is also increasing adoption, accelerated by COVID-19.

"COVID-19 is a disaster for humanity, but it ultimately moves more digital online behavior, which generates more data, which leads to better AI, which moves every country forward in the technical sense," observed Dr. Kai-Fu Lee, Chairman & CEO of Sinovation Ventures in China, at that same Global AI Summit. All industries have not just the opportunity, but the imperative, to adopt AI. "AI is not a luxury anymore. It is a necessity," explained H.E. Dr. Esam AI Wagait, Director of the National Information Center of the Kingdom of Saudi Arabia.

To enable AI to benefit all of humanity, the FII Institute has identified multiple segments where our convening power will be most effectively deployed, including advanced sensors, next-generation data centres, AI forecasting and edge devices. We believe the FII Institute can make a strong contribution to coordinating the fragmented AI forecasting market, improving the hardware needed for computation-heavy AI and pushing the frontiers of neural computing and deep learning.



IT IS A NECESSITY."

H.E. DR. ESAM AL WAGAIT Director of the National Information Center of the Kingdom of Saudi Arabia "AI IS NOT A LUXURY ANYMORE.

## ROBOTICS

Robots can be our allies and improvements in design, computing power, and dexterity means they can help keep us safe, care for our most vulnerable citizens and improve everything from logistics and transport to lab research. The current pandemic has underscored their importance in keeping manufacturing and production systems going despite restrictions on human movement. Commercially, the robotics sector is predicted to reach a market value of \$41 billion in 2021.

The FII Institute anticipates significant technical progress in the near term in all-terrain robotics; domestic bots, such as those which can care for the elderly; drones and industrial, logistics and service robotics. An assessment of the opportunity landscape indicates the FII Institute could have a strong impact in areas including prosthetics, agriculture, safety and security, and companion-bots, adding value in supporting enabling factors like technology standardization, unlocking largescale funding and supporting 3D-printing initiatives to ease the prototyping and product innovation process. Robotics has enormous potential to solve many of the greatest global challenges – even hunger, noted Anand Mahindra, Chairman of Mahindra Group, at FII 2019. "Precision agriculture, whether it's through drones or autonomous tractors, [is] an enormous area of opportunity as the world is going to struggle to feed itself," he explained. But there are also risks that must be attended to. With an estimated 4 million industrial robots expected to be operational by 2022 compared to 2.7 million today, and over 85 million jobs at risk from automation and robotics by 2025, many workers are understandably worried about their livelihoods. "A key part of a [national] AI strategy that drives public trust is to ensure that there are plenty of opportunities for people to retrain midcareer," said H.E. Dr. Janil Puthucheary, Singapore's Senior Minister of State, Ministry of Communications & Information and Ministry of Health, at the Riyadh Hybrid Summit.



ANAND MAHINDRA Chairman of Mahindra Group "PRECISION AGRICULTURE, WHETHER IT'S THROUGH DRONES OR AUTONOMOUS TRACTORS, [IS] AN ENORMOUS AREA OF OPPORTUNITY AS THE WORLD IS GOING TO STRUGGLE TO FEED ITSELF."

## **SUSTAINABILITY**

The Sustainable Development Goals marked a historic commitment to fight global warming and ecological devastation but so far, ambition has vastly outstripped performance. The 121 countries that have committed to be carbon neutral by 2050 account for less than 25% of emissions required to achieve the target.

On our current emissions trajectory, the world is projected to warm by 3°C to 5°C by 2100, with catastrophic effects on the planet. "That's a really big challenge that we have. It's a global problem," explained Dr. Mario Molina, 1995 Nobel Laureate in Chemistry and President of the Mario Molina Center in Mexico, at "Don't Forget Our Planet!", the second virtual event of the FII Institute Series. "It doesn't matter where you make the emissions. It affects the climate of the entire planet." The climate crisis, in turn, compromises many other social and economic goals including eliminating poverty, creating more decent jobs and reducing inequality.

The FII Institute is seeking both proactive and reactive actions to advance the climate action agenda through technological innovation. This includes increasing energy efficiency, increasing alternative energy innovation, and increasing negative emissions. Across these three combat strategies, the FII Institute has identified five focus areas: increasing efficiency in transport, industry and buildings (1-3); increasing alternative energy through energy storage and energy systems<sup>(4)</sup> and increasing negative emissions through carbon capture, storage, and utilization (CCSU) <sup>(5)</sup>

Of the four main climate change adaptation approaches (risk avoidance, impact reduction, risk sharing, and risk acceptance), the FII Institute has chosen to focus on the first two and, on a sectoral basis, will focus on water, agriculture and food security, infrastructure, forestry, and disaster management. The institute will seek to remove a range of innovation inhibitors: technological (by promoting technology transfer, developing international partnerships across research institutes and industry, and promoting joint R&D); market (by helping build commercial cases, supporting low carbon manufacturing methods) and social and regulatory (by supporting the integration of sustainability in value chain analysis, developing tailored decarbonisation strategies and supporting national roadmaps for national decarbonisation).

DR. MARIO MOLINA 1995 Nobel Laureate in Chemistry and President of the Mario Molina Center in Mexico

#### ' "IT DOESN'T MATTER WHERE

YOU MAKE THE EMISSIONS. IT AFFECTS THE CLIMATE OF THE ENTIRE PLANET."

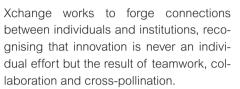
#### **OUR THREE PILLARS**

foundations that mark us as distintive: Think, XChange and ACT. Each is inpowerful idea to real-life application.



#### THINK

Think focuses on spotting societal challenges not currently eliciting sufficient innovation, and curates the strongest ideas to solve them.



**XCHANGE** 





Act focuses on catalysing this innovation through the difficult development life cycle, from concepts and laboratories to reality.

Building on both THINK and XCHANGE, the ACT pillar mobilizes an ecosystem of partners and resources to accelerate implementation and actively manage projects end-to-end. Potential projects are materialized by different levels of FII Institute support:

Revolutionary projects at a conceptual stage can receive funding from the FII Institute that enables them to further develop and attract additional investors

Early-stage projects can benefit from the acceleration support such as consortia building, project management and strategic analysis provided by the FII Institute or through its partner network

More mature projects can be provided with a platform at various FII Institute events or publications to showcase their ideas to a global audience

## THE FII GLOBAL EVENTS

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The Future Investment Initiative (FII) has stemmed from a powerful vision – from dreamers and doers – to create and nurture a global platform dedicated to the future and impact of investment, with a strong aspiration to drive sustainable investment for the good of humanity. FII has gained global notoriety and acknowledgement from the international political and business community, as a platform aptly driving action-oriented initiatives and partnerships with leading international corporations and governments.

Technology being at the heart of FII, the program and the interactions amongst the members and partners of the FII community have been imagined to showcase tech-driven solutions and innovative ways of communication.

Since its inception, FII has driven expert-led debates, discussions, and partnerships among the world's most influential leaders, achieved through an annual threeday program featuring conversations with leaders, roundtables and networking.



#### OCTOBER 2017

#### LAUNCHING THE FII

In October 2017, the inaugural edition of FII emerged as a global platform under the theme "Economy 2.0 Starts Here" convening 3,900 participants from over 90 countries to explore a range of topics including investment trends, cutting-edge technology and the future of the global economy. The FII was the launch-pad for two major initiatives; the Kingdom of Saudi Arabia launched its \$500 billion mega-city project, Neom, and the Saudi Public Investment Fund (PIF) made a historic \$20 billion pledge to the Blackstone Infrastructure Fund.



OCTOBER 2018

#### A BLUEPRINT FOR THE 22<sup>ND</sup> CENTURY

The following year, the FII's second conference drew 4,000 participants from 88 countries under the theme "A Blueprint for the 22nd Century." Over \$66 billion of agreements were signed across critical sectors including energy, housing, health and ICT, with representations from Heads of State and Government, with 2.6 million live viewers around the world. Speakers included: King Abdullah II bin Al-Hussein, th Hashemite Kingdom of Jordan, HRH Prince Salman Bin Hamad Al Khalifa, Crown Prince of Bahrain, H.E. Macky Sall, President of Senegal, H.E. Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the United Arab Emirates, Ruler of Dubai, H. E. Abiy Ahmed, Prime Minister of Ethiopia, H.E. Imran Khan, Prime Minister of Pakistan.







3 900 PARTICIPANTS



MEGA-CITY PROJECT

\$20B BILLION PLEDGE



88 COUNTRIES



4 000 PARTICIPANTS



OF AGREEMENTS



2,6M



#### OCTOBER 2019

#### SAUDI ARABIA STEPS UP TO THE G20



Under the theme "What's Next for Global Business?", FII 2019 convened 6.000 attendees and 275 speakers from all over the world. At the cusp of Saudi Arabia's G20 leadership year in 2020, speakers included King Abdullah II bin Al-Hussein, the Hashemite Kingdom of Jordan, H.E. Jair Bolsonaro, President of Brazil, H.E. Narendra Modi. Prime Minister of India, H.E. Ueli Maurer, former President of the Swiss Confederation, H.E. Uhuru Kenyatta, President of Kenya, as well as a prominent cohort of global C-suite executives, international ministers and political leaders looked ahead to how the governments and the international business community can aptly drive change and redefine the world of business for tomorrow.

Prominent personalities such as former Prime Minister H.E. David Cameron, Sen.

Matteo Renzi and The Rt. Hon Kevin Rudd AC addressed how the Kingdom could shape the future direction of the G20 and apply its vision and ideas for change. The 2019 edition provided an opportunity to introduce a large cohort of technology partners such as Magic Leap, Samsung, Siemens, Virgin Hyperloop, Boston Dynamics amongst others to deepen its technology footprint, and engagement with key sponsors, content curators and innovation showcases. The Saudi Arabian General Investment Authority (SAGIA) announced 23 new foreign investment deals worth \$15 billion. Coordinated under Invest Saudi, the agreements reflect the enormous potential that Saudi Arabia offers to investors from across the Kingdom and around the world.



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#### 2020

With the success of the FII events, the non-profit FII Institute was created by royal decree, led by Richard Attias as CEO. Since the pandemic struck in 2020, the FII Institute has convened two successful virtual events with speakers including Dr. Jane Goodall, DBE, Lord Adair Turner and Dr. Peter Diamandis, exploring how technology has supported the crisis recovery – and the role of sustainability as a central factor in a post-crisis world.



#### **APRIL 2020**

#### **BEYOND THE CRISIS: TECHNOLOGY TO THE RESCUE**

The global crisis we continue to face is unprecedented in terms of scale, timing and speed. It affects every nation and everyone, from individuals to companies and governments. The challenge therefore has not just been a healthcare one. It is one of leadership, of governance, of macro-economics and of technology. Part of the Future Investment Initiative (FII) Institute Series, this inaugural virtual event brought together an exclusive group of influential leaders to look beyond the crisis and explore the long-term implications of our response for the economy, for leaders and for the people. It also examined the role that technologies such artificial intelligence and robotics have to play in enhancing our collective resilience to shocks and the speed at which we can respond to them. More than 2,000 participants took part in this inaugural series, from 94 countries and representing 72 industries.

#### **JUNE 2020**

#### **DON'T FORGET OUR PLANET**

The true socio-economic cost of inaction when faced with predictable outcomes has been made clear in the catastrophic wake of the current COVID-19 crisis. Climate change, and its universally negative impact on all aspects of humanity, will be just as dramatic. Fortunately, there is a way out of our current predicament, and it requires action. A sustainable recovery is not only desirable, but is also the means to creating jobs, upgrading infrastructure and delivering financial returns. Green solutions also create new avenues for growth, innovation and markets. We need to rethink how we value and connect with the planet as individuals, companies and investors. This virtual event brought together an exclusive group of decision makers, financial leaders and innovators to outline the key elements of a global sustainable recovery plan. It also discussed the role of technology and innovation in helping people and capital reconnect with the one thing we must never forget about: the planet. More than 10,000 live viewers tuned in from more than 100 countries and 74 countries.

## THE NEO-RENAISSANCE

## THE NEO-RENAISSAN



H.E. YASIR AL-RUMAYYAN Chairman of the FII Institute and Governor of PIF

"I AM SURE THAT AS WITH ANY BIG PANDEMIN THAT WE HAVE SEEN OVER THE DECADES AND CENTURIES, GOOD RESULTS WILL DEFINITELY BE COMING OUT OF IT."

COVID-19 is a tragedy that devastated the world in 2020, with no country or region unscathed. The virus has exposed many flaws in our societies, from unequal access to healthcare to unsustainable economic growth leading us to encroach upon wildlife and ecosystems that can harm us. While the rapid vaccine breakthroughs are a testament to the power of modern science, the recovery for the global economy will not be as simple as waiting for the vaccines to take hold and then bouncing back to the way things were. Too much has changed to simply return to the status quo. The world must 'bounce forward' to a new normal - a sustainable society that works for everyone. "I am sure that as with any big pandemic that we have seen over the decades and centuries, good results will definitely be coming out of it," said H.E. Yasir Al-Rumayyan, Chairman of the FII Institute and Governor of the Public Investment Fund of Saudi Arabia (PIF), at the inaugural virtual event of the FII Institute Series, "Beyond the Crisis," in April 2020.

The United Nations has declared 2021 as the International Year of Creative Economy for Sustainable Development. The beginning of a new year at a time of profound transformation presents both huge challenges and enormous opportunities for the investment community, along with leaders from business and government, to mobilize resources, partnerships, and collective action towards achieving the goals of the United Nations and building a more inclusive global economy.

The FII Institute believes that 2021 is a chance to build this new world and impact humanity positively and sustainably, as part of an era of reinvention leading to a new chapter for humanity: a Neo-Renaissance – similar to the grandiose period of history stretching through the 14th and 17th centuries.



«After the plague of 1348, Italy created the Renaissance," explained Sen. Matteo Renzi, Senator of the Italian Republic and Former Prime Minister of Italy and also a Board of Trustees Member of the FII Institute, at the FII Institute's first virtual event. "My wish, for Italy and for the rest of the world, is that this coronavirus, this new plague, should be the opportunity to create a new renaissance, a new vision, a new horizon for the future of the world. That's not easy but it's a great and challenging occasion.»

Like the struggles we are confronting, European populations and economies prior to the start of the Renaissance were decimated

by the Bubonic Plague. Vital trade was all but halted amid fears that the movement of goods led to the spread of disease. Businesses stagnated, economies failed, while poverty and unemployment spiked. Out of this upheaval, emerged the Renaissance, which as a symbol of human achievement and progress has had a lasting impact on our world – even today.

Indeed history shows us a pattern that out of tragedy, long-term improvements in wellbeing can emerge, from the development of the welfare system in post-war Europe to the sanitation infrastructures built to eliminate water-borne diseases that took so many liNEW RENAISSANCE, A NEW VISION, A NEW HORIZON FOR THE FUTURE OF THE WORLD. THAT'S NOT EASY BUT IT'S A GREAT AND CHALLENGING OCCASION."

ves in the 19th and 20th century. Periods of crisis can be followed by massive social and economic transformation if there are bold ideas and fresh thinking to disrupt legacy approaches and catalyse new business models. Technological advances and the energy of the next generations are poised to fuel this momentum like never before. Every aspect of life across our planet is about to be optimized. Almost all industries will be reimagined with new business models. The world is entering into a period of rebirth. That is the essence of the Neo-Renaissance. For the 4th edition of the Future Investment Initiative, which will be held on January 27-28, 2021, under the theme of the "Neo-Renaissance," the FII Institute will act as a curator of the global conversation on humanity's most pressing societal and economic issues, sparking concrete actions and mobilizing cross-border thought leadership, collaboration and resources. Dr Jane Goodall revolutionised primatology research in the 1960s when, with little formal training, she travelled in east Africa to observe chimpanzees and uncovered insights that upended many generally held assumptions about our near-cousins - and by implication, ourselves. Notable among them was the intelligence of chimps, as was observable th rough their use of tools like striped a twig of leaves and use it to fish for termites.

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Her impact was all the more remarkable because at the time, the field was dominated by men - and she lacked even a degree. "When I was growing up and dreamed of going to Africa and living with wild animals and writing books, there was no question this could be science. Women didn't do that. It was men who went out there and learned about animal behaviour." Thanks to a fortuitous meeting with Louis Leakey, who saw in her the talent and keen eye to be



## GOODALL

a scientist, she spent many months in the jungle.

Goodall believes the world of science has transformed since those days, with women coming to play a much more prominent and powerful role. "Since I went to Cambridge in 1962 the number of women in science has blossomed. The number of women in politics has blossomed. The number of women in law, the number of women who are taking up prominent positions of all kinds, it has grown exponentially." But other trends have moved in the opposite direction - especially the environment and climate crisis. She is concerned that the pandemic has pushed climate change into the rear view mirror, even though it is a greater threat to our future and the planets. The silver lining, says Dr Goodall, is that the pandemic has forced people to rethink our relationship with the natural world. "We've had this crazy idea that we can have unlimited economic development on a planet with finite natural resources. It's become clear that businessas-usual could lead to extinction".

"WE HAVE IT IN OUR POWER TO CREATE CLEAN AIR, TO BRING WILDLIFE BACK TO OUR CITIES, BUT THERE ARE SO MANY PEOPLE THAT ARE ANXIOUS TO GET BACK TO BUSINESS AS USUAL."

> Goodall says we are now living through the "sixth great extinction of plant and animal life." To tackle it, we have to realise that humans do not live in a bubble but are dependent on healthy ecosystems. "I learned in the rainforest that all life is interconnected. Every time a species disappears, it leaves a tear in this complex tapestry of life and as more become extinct, that tapestry becomes more tattered and in many places it is close to ecosystem collapse."

> Goodall pins some hope on the young, who she supports through her 68-country program Roots and Shoots that engages young people, from preschool to university age, in ecological projects. "Young people are making a difference," says Dr. Goodall. "And my message to them is: understand that it may seem that what you do can't make much difference but when it is you and your friends and you can clean a stream and realise there are other groups cleaning streams around the world, water is getting cleaner." She also acknowledges the rise of major consumer trends like the popularity of veganism and vegetarianism, which has boomed in recent years.

## HRH PRINCESS REEMA AL SAUD

"BROADBAND ACCESS IS GOING TO BECOME AS NECESSARY AS FOOD, WATER AND SHELTER."

HRH Princess Reema bint Bandar bin Sultan bin Abdulaziz Al Saud, the Saudi ambassador to the United States of America. is laying out her vision for the future from Washington, D.C., where she has spent a tumultuous 2020 as COVID-19 upended the word around her. Attached to a laptop and phone, the ambassador has never been busier dealing with fallout from the pandemic, but she is painfully aware of the car mechanic, or the McDonald's employee, who cannot work online. She has drawn two startlingly different conclusions from this experience.

The first is that we must retrain all workers, and extend internet connectivity, so that everyone has the ability to earn a living online when needed. "Half of the world is now in a state of poverty because of lack of access to connectivity and broadband," she says.

The second is that technology has its own drawbacks, and must not supplant human interaction, as much as we had previously anticipated. "Our vision of perfection was the interconnected state," she notes, but with the pandemic, "we've realized that that is not the ideal path." She points to an increased focus on mental health, and human to human connection, and argues these should be placed front and center, even as we ensure digital access for all.

Not, according to Princess Reema, through the consensual global structures we have relied on until now, which she refers to as "institutions from the last century, trying to resolve issues of the coming century." Instead, she is calling for a hacked international system, where decisions can be made quickly, and implemented immediately. She cites G20 responses to the pandemic, in which she was involved, as an example.

Her impatience shines through when she talks about the things that we did not get done in 2020, because of the pandemic: "We've lost a year of education, we've lost a year for development in villages, we've lost a year with refugees. How do we make that back?"

The ambassador is known for her championing of women's rights. She has led initiatives to open employment to women both in Saudi Arabia and at a global level. But she does not think progress can be measured by the number of women in leadership positions alone. The two genders have complementary skills, she says,

and both should be present in an effective team: "If we have the balance of both, that defines good leadership."

She is aware of her own pioneering role as the first female Saudi ambassador to the US, but quickly tires of talk of symbolic breakthroughs. "Women should be celebrated for delivering excellence, not for being the first."

Another passion is breast cancer, and here the ambassador declares herself astonished by the pace of medical progress. But she does not want to see the issue fade from view, exhorting the medical community to maintain it as a priority, and the use of technology and messaging to ensure women across the world know to check themselves for lumps regularly.

She foresees a time soon "where breast cancer will be as insignificant as a cavity in your mouth" – detected just as early and solved just as efficiently.



## PETER DIAMANDIS

A self-described "data-driven optimist," Dr. Peter Diamandis is a testament to the power of thinking big. Founder and executive chairman of the XPRIZE foundation, which funds large-scale moonshot competitions in everything from age-reversal to geoengineering, he believes the technologies at the hands of today's entrepreneurs have limitless potential provided they are directed in the right way.

"The last 20 years have been an extraordinary period of exponential growth," says Dr. Diamandis, who was named as one of the world's 50 greatest leaders by Forbes. The increasing availability of computation and sensor networks, AI, robotics, 3D-printing, augmented and virtual biology, and digital biology, have been doubling in power every 18 to 24 months, and the speed of that is accelerating." Entrepreneurs have more power at their fingertips today than heads of state did just a few decades ago. An iPhone has more processing power than all of the computers used to send the Apollo mission to the moon.

This has led to a world of abundance – and disruption. "It's not different to when an asteroid hit the planet 65 million years ago, and the environment changed so rapidly that only the agile furry mammals adapted and survived and the slow lumbering dinosaurs went extinct." He likens COVID-19 to another asteroid strike, providing a huge opportunity for agile entrepreneurs and potentially leading to the transformation of long-stagnant sectors.

"Some of the industries that have been the most ossified, like education and healthcare and retail, are on the verge of a renaissance," says Dr. Diamandis. He sees healthcare finally moving out of the hospital and into the home through telemedicine, sensors, virtual reality and AI. "We are going to transform from today, where we have 'sick care' that only examines you when you are sick, to true healthcare, where the sensors and networks and AI are monitoring you day-to-day to maintain your optimum state of health." He sees education undergoing a renaissance too. "It hasn't changed in hundreds of years – it is still a 'Sage on the Stage' teaching to a group where half the kids are lost and half are bored." He sees us moving to a world where education in re-invented, going far beyond just using Zoom or tablets but rather a "convergence of digital avatars, AI, sensors, networks, and VR where we can digitize the best teachers on the planet and provide those methodologies to every student, independent of where they live."

More engaging learning experiences through immersive technology could improve learning outcomes. "If someone wants to learn the history of Saudi Arabia, they can put on their AR and beam into a photorealistic experience and see the founding of the nation, and speak to the avatars representing the fathers of the kingdom."

If the right innovation incentives can be created, Dr. Diamandis is optimistic that major challenges can become the foundation for great companies. "The world's biggest problems are the world's biggest business opportunities. If you want to become a billionaire, help a billion people."

#### / "THE LAST 20 YEARS HAVE BEEN AN EXTRAORDINARY PERIOD OF EXPONENTIAL GROWTH."

## PETER SCHWARTZ

In early 2019, Peter Schwartz, an American futurist and author, tried to convince a number of governments to collaborate on an early warning system for future pandemics. "I tried to convince them that for \$300 million we could build a worldwide sensor network based on smartphones to detect early outbreaks." That would have been a small investment compared to the scale of the fallout that followed when, less than a year later, the COVID-19 pandemic struck.

Schwartz believes there are plenty of lessons to learn from the last year that could help inform permanent improvements to governance and collaboration. Countries that were prepared, especially those in east and southeast Asia that had already experienced SARS, performed the best.

"This was not a black swan. This was very heavily anticipated. And the only reason that some countries are doing so badly in dealing with it, is the massive destruction of capacity and or their denial of the problem." Countries with the worse outcomes had a "massive failure of national leadership."

But Schwartz sees reason for hope out of the wreckage. "Many things that might have taken another decade have happened in months as people have adapted of necessity," he says. The world of work has changed irrevocably. "The idea of commuting eight hours a week is gone – I've now gained a whole day a week."

The retail sector has digitized at lightning speed. "I'm now used to buying anything that I can buy as a commodity online, and I'm buying them almost like a subscription. We're seeing the big differentiation and more and more things that once were primarily physical are now becoming primarily digital, with the physical as the afterthought." He believes real-world physical retail will persist, but more for the experiential side than the merely transactional. Digitization will have environmental benefits, by lowering our physical footprint. "We've seen a dramatic drop in pollution as we are not driving and flying and we are not using nearly as much energy; therefore we're not refining as much oil and producing as much pollution."

Schwartz, who supports companies and governments to develop scenario plans that can stress test their business for weaknesses and opportunities, says the pandemic is only one risk factor that organizations now need to grapple with if they want to secure a more prosperous future. While scenario planning has become a common practice for decades, it should start engaging more actively with social movements and civic change. "People have looked at economic, technological and increasingly at environmental change, and it's not controversial to argue that these are forces of change. What has happened in recent years is that social movements have become major new sources of change."

He draws parallels with the 1960s, an era he lived through and participated in, and today. from the global environmental protests hitting city streets to growing disquiet with a form of capitalism that is failing to work for everyone. "Inequality is the next big social movement because many economies that once worked reasonably well for social mobility - where there was sufficient opportunity for a person could rise from poverty by getting an education, and then getting a decent job and support their family and live a reasonable life - are no longer achieving this. The gap between those who made it into the capital class, versus those who are struggling with wages, has grown enormously."

He believes companies can make a meaningful contribution to social change, rather than being bystanders. "Some global brands are taking actions with their whole supply network to begin to do two things once: make it more transparent to the customer and equally to rake resources and invest in improved sustainability of their suppliers." Companies are seeing their social role not simply as charitable giving after the fact but using their business to do good. "That ladder is growing – that wider sense of the companies doing things as opposed to the fruit of that company going into philanthropy."

- "INEQUALITY IS THE NEXT BIG SOCIAL MOVEMENT BECAUSE MANY ECONOMIES THAT ONCE WORKED REASONABLY WELL FOR SOCIAL MOBILITY."

## YOUNG ENTREPRENEURS

The future will be shaped by young innovators today who have the tools at their disposal to change the world for the better – we meet three pioneering entrepreneurs, from Nepal, Lebanon and Rwanda, applying their ideas to solve realworld challenges.

## SONIKA MANANDHAR



"WHAT WE FORGET IS LOCAL, GRASS ROOTS INNOVATORS, LIKE THE WOMEN WHO DROVE THOSE MINIBUSES." Sonika Manandhar knows from personal experience how access to capital can transform lives - and improve the environment.

She is from Kathmandu, Nepal, where back in the 1990s the government encouraged the use of electric minibuses to improve air quality in the city. Sonika saw her parents win a state-backed loan to help build out a small transport business. The money they earned saw her through university, and helped her build a career as a software engineer.

"When we talk about climate change, or the temperature rising, we always talk about these big projects. Let's build a solar farm. Let's build this hydropower infrastructure," Sonika says.

After university Sonika watched in frustration as many of those electric vehicles began to rust in garages. Their drivers don't have credit histories, or proof of income, and so they struggled to get loans to grow their businesses as her family had.

Enter Aeloi, Sonika's fintech startup, which connects environmental micro-entrepre-

neurs, like the minibus drivers, or smallscale farmers, directly to capital. Think of blockchain, for a country without superfast broadband: Aeloi converts loans into digital tokens, which a borrower receives by SMS, and can only spend with specific vendors. That gives lenders - from NGOs and cooperatives to commercial banks - transparency, and a thorough audit trail. This increases their confidence that the borrower's business is legitimate and makes them more willing to extend capital.

Aeloi already has roots across Nepal, bringing capital into remote villages, or what Sonika calls the 'last mile' of entrepreneurs. Now she wants to take the idea global.

"Individuals are already having a huge environmental impact, and that's just with access to the limited finance they have now," she says. "I want to fund millions of micro entrepreneurs around the globe.

## JACQUELINE MUKARUKUNDO

Just 22, she runs her own start up, Wastezon, which she founded two years ago. A mobile app, it allows Rwandans (and eventually, she hopes all Africans) to sell used electronic goods to local companies that turn them into fertilizer and other products.

The company has taken her to Qatar and Geneva, and she has the backing of a German accelerator. Meanwhile she's studying for a degree in business through a Gates Foundation–backed university.

She says her energy and ambition are nothing special among her group of friends. "In Rwanda, young people are using digital technology to solve our own problems. We're completely open minded about learning what works in other countries, and bringing it here."

Africa can be a challenging place for startups, Jacqueline says, as it is tough to access funding, and interest rates on loans are high. Then there's the gender angle: "There's still this mindset for a lot of people that a woman can't be successful without a man behind her." But she says the government has been hugely supportive. African Union and Rwandan schemes have helped her forge networks and travel to those startup programs abroad.

A recent GEM woman entrepreneurship report found Africa has the highest rate of female entrepreneurship in the world, and Jacqueline wants to be an example: "I want to show that being a young woman won't stop me from being a changemaker."

With Wastezon thriving, she's already planning her next step: "I'd like to invest in the ideas of other young women."



"I DREAM OF A WORLD WITHOUT WASTE, AND I BELIEVE IN THE POWER OF TECHNOLOGY TO ACHIEVE IT."

## OMAR ITANI

Many start-up founders have dropped out of college to pursue their dream. Omar Itani went one better.

He started a recycling business while still in high school in Beirut, Lebanon, and wanted to commit to the company full time as a teenager. "I was never much interested in sport or study, I was obsessed by operations," he explains. "I've always wanted to do something for society and create jobs."

His parents talked him into finishing high school and he enrolled for an engineering degree. But the entrepreneurial bug never left him and in 2017 a second brainwave hit. He was on his way to throw away some old clothes when his driver asked to take them instead. After some research, Omar realized tonnes of garments end up in landfill in Lebanon because there is no logistics system in place to distribute them. His social enterprise, FabricAID, has set up collection points and stores across Lebanon to solve this problem. Each piece of clothing comes with a small price tag, to discourage people from taking more than they need, and, crucially says Omar, to give customers a sense that they are paying their own way.

His engineering degree was unfinished, but the company was turning over \$1million a year, won a U.N. award and is now expanding into the United Arab Emirates. With Beirut reeling from a massive explosion, and Covid-19 limiting access to his shops, the odds can seem stacked against him, but Omar is relentless: "Let's say my mother was sick, and the doctors said she's not going to get better. Regardless of the chances, I would do everything I can to help her survive. I think the same way about my business. It's not about the odds, it's about doing what's right."

"I'VE ALWAYS WANTED TO DO SOMETHING FOR SOCIETY AND CREATE JOBS."



#### **#FIINEORENAISSANCE**