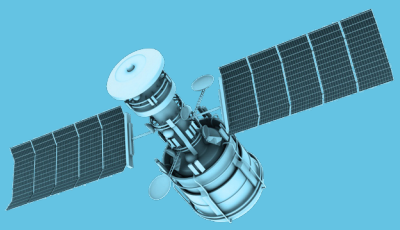

NEW TECH IN NEW PLACES

CASE STUDIES OF PUBLIC INVESTMENTS IN ADVANCED TECHNOLOGY

A CALIFORNIA 100 POLICY BRIEF

ISSUE 1
APRIL 2022

ALLISON BERKE
Director of Advanced Technology
California 100 and
Stanford Institute for Economic Policy Research

CALIFORNIA 100

VISION & STRATEGY FOR
THE NEXT CENTURY

EXECUTIVE SUMMARY

Though the long-term trajectory of technological innovation and development is difficult to predict, several state and national governments have successfully implemented decades-long policies to develop and strengthen technology industries. Estonian leaders transformed a struggling former Soviet republic into a forward-thinking digital governance visionary; Taiwan leveraged international training partnerships and governmental startup financing into a world-leading semiconductor industry; South Korea used monetary and trade policies to bootstrap an automobile industry out of third-party assembly plants and guide it through economic shocks; and Boston used tax incentives and transit and housing development to create linked innovation districts across the state that attracted the country's best biotech firms. By learning from these examples, California has the opportunity to extend its lead in the computer science and consumer technology industries, or to initiate a thriving new industry, like environmental technology. California could adopt a Taiwanese or South Korean approach of carefully growing a domestic industry by leveraging trade policy and government investment, an Estonian approach of rapidly modernizing and centralizing governmental data and services, or a Massachusetts model of identifying and developing innovation hubs across the state that can draw talent and companies from centrally generative pools (e.g., Harvard, BU, Tufts, and MIT in Massachusetts; UCSF, UC Berkeley, and Stanford in California) and provide infrastructure and incentives for in-state growth and development.

INTRODUCTION

How can a government plan for technological development it cannot anticipate? How long can a wave of successful innovation be sustained before stagnating? California's economy, the fifth largest in the world, benefits from and invests heavily in technological development, with admirable results: Silicon Valley is widely viewed as a global leader in tech innovation; California received $21B in federal funding for R&D (as of 2018), more than any other state; California's businesses lead the nation in receiving venture capital investment, and garner more than half of total Venture Capital (VC) investment in the US; and Californian inventors receive the most patents of any state. Despite these promising indicators, California cannot grow complacent. The state faces barriers to remaining competitive that range from the high cost of housing in the state, to regulatory bureaucracy that discourages companies from starting or expanding, to educational disparities and funding uncertainty that threaten the production and availability of new talent to sustain and grow technological development.

California has more tech jobs than any other state (1.88M), more tech businesses, one-quarter of the nation's technology productivity, top-ranked private university programs in computer science and engineering, and the largest and most diverse public university system in the country. However, many of California's students are under-prepared and under-performing throughout the K-16 pipeline, California invests significantly less per student (adjusted for inflation) at its public universities than it did 30 years ago, the state has bungled recent software upgrades for its EDD (Employment Development Department) and DMV (Department of Motor Vehicles) systems, is in the middle of an ever-lengthening process to link budgetary and financial data (Fi$Cal), and both individuals and companies are taking note – HPE (Hewlett Packard Enterprise), Oracle, and Tesla all moved their corporate headquarters to Texas last year, and the state had a net population outflow and lost a House seat for the first time ever.

The California 100 Initiative aims to produce and aggregate ideas for the development of a policy roadmap that will transform and improve the state over the next 100 years. Such an ambitious project is not without precedent, but the success of previous attempts to guide technological development through long-term public policy varies. In this paper, four case studies present guiding principles for California to examine: Estonia's rapid modernization of public-sector services, Taiwan's approach to investment and state control of R&D in high-tech manufacturing, South Korea's trade

strategy in automotive technology, and Boston's urban planning and infrastructural development of a biotechnology and innovation hub.

Through the examples provided by these case studies, California may consider guiding its future innovation economy by adopting a Taiwanese or South Korean approach of carefully growing a domestic industry by leveraging trade policy and government investment, an Estonian approach of rapidly modernizing and centralizing governmental data and services, or a Massachusetts model of identifying and developing innovation hubs across the state that can draw talent and companies from centrally generative pools (e.g., Harvard, BU, Tufts, and MIT in Massachusetts; UCSF, UC Berkeley, and Stanford in California) and provide infrastructure and incentives for in-state growth and development.

LEAPFROGGING ON THE SHOULDERS OF GIANTS

Estonia's Rapid Development of Public-Sector Information Technology

When Estonia gained independence from the USSR in 1991, its telephone exchange was 50 years old; 10% of its 1.4 million citizens were unemployed; and its GDP lagged that of its Nordic neighbors 30-fold. Today, Estonia offers its citizens free wireless Internet; online voting, medical prescriptions, and tax filing enabled by digital identity cards; and an innovation-friendly ecosystem that fosters the third-highest number of startups per capita in Europe. These benefits are also available to e-residents; anyone with a government-issued ID, 120 euros, and a credit card can apply for e-residency, which allows the opening and operation of a business in Estonia, even if no one working for the business is physically located in Estonia.

With no preexisting technological capabilities, Estonia may serve as a better model for regions of California that have thus far been left out of the technology boom, like the far northern or gold country regions. Its rapid digitization was driven by consensus and focus in government leadership, enacting a strategy that began with Internet access and digital literacy in schools in the early 90s, followed by the digitization of tax filing (in 2000) and identity cards in (2002) to build a cohort of young digital natives who would drive progress as they aged, and to involve as large a segment of the population as possible (today 89% of Estonian adults are online, compared to 28% in 2000); and sustained momentum to bring government services and data online and ensure they were interconnected and inter-operable.

Rather than attempt to reach everyone all at once, starting with schools and retirees (via digital literacy education offered to 10% of the population at the beginning of Estonia's reforms, at the cost of 2.5M Euros or 40M Kroon at the time) meant creating a self-perpetuating swell of internet users who would bring others along on the technology adoption curve. This baseline of 10% adoption required for an idea to spread in a population is borne out by research on mathematical models of social movements. Digital education was supported and funded by private sector institutions, banks and telecommunications companies, who would benefit from the widespread adoption of digital ID cards and digital signatures. Digital ID cards were introduced in 1998 but failed to gain widespread adoption until the industry-funded education program, demonstrating the benefit of industry support.

Impetus: Estonia's digital transformation began as a policy paper by a small group of technologists, academics, and politicians. This paper gained traction within government and was developed into information policy principles approved by the Estonian Parliament.

First steps: Estonia's President, Minister of Education, and ambassador to the US coordinated a program with $150M Euros of investment to introduce the Internet in schools, train students in its use, and then promote the use of the Internet in businesses across Estonia. Simultaneously, the government established a system to connect all of its departments to the Internet, and then partnered with university researchers to improve that system.

Sustained progress: Between 2000 and 2002, Estonia launched compulsory digital ID cards, free wireless Internet across the country, and free adult digital literacy courses. The ID cards gave citizens entrée to online systems to vote, file taxes, and manage their health information, which saved time and money (2% of GDP annually). Estonia's Public Information Act (2000) was an important step in mandating a single data repository across the country, the X-Road system; the Act prohibits requesting duplicate information for public services, thereby mandating information sharing across governmental departments and functions.

Estonia's technological development demonstrates that governments do not need to replicate the trajectories others have taken to reach a level of technological sophistication; rather, they can choose to join their prospective peers at the forefront of deployment. Similarly, a whole-society strategy provides synergies that stopping at a single department or service wouldn't. Wherever possible, projects that connect services and will be used by the broadest possible swath of society both build momentum and create network effects that make it easier to connect the fifth department, and the fiftieth. In fact, analysis of the number of data repositories connected to X-Road and the number of queries made suggests that exponential growth in querying takes off around the 50th data repository linked, out of more than 200 repositories currently linked through the system.

LEARNING FROM THE PAST

Foreign Investment and Capital Controls in the Development of Taiwan's Semiconductor Industry

Taiwan is the clear leader of the global semiconductor market, producing more than 50% of total supply, and accounting for over $115B of output. In stark contrast to the serendipitous, individual-oriented origins of technology developed – or "discovered" – in Silicon Valley, Taiwan's dominance in semiconductor manufacturing is the result of a considered decision by the Taiwanese government to establish the industry through technology transfer, direct investment in the absence of foreign interest, and the construction of an industry through the establishment of competitors. To initiate competition in semiconductor manufacturing, the government incorporated a second manufacturer, compelled a private company to join its investment as a majority stakeholder, and repeated this strategy to spin out a third company, after which the production of spin-off companies continued independently.

Taiwan's plan to become dominant in the semiconductor industry was deliberate, and started with an agreement between two men, one who worked at RCA, a US-based company developing semiconductors, and the economic minister of Taiwan. Once they agreed on a ballpark amount of investment required for Taiwan to enter the market, a tech-transfer deal was signed, as part of which RCA allowed Taiwanese engineers to undertake on-the-job training learning the processes behind manufacturing semiconductors. Taiwan's nascent semiconductor companies also negotiated strongly to attract US-trained talent who would lead the companies and develop new methods of manufacturing. As a takeaway for California's tech industry, this model of growing talent through embedding at other companies for training could be used to ameliorate talent shortfalls due to educational disparities or labor market shortages.

Impetus: Recognizing the unsustainability of importing all of the integrated circuit components used by its electronics industry, Taiwan's minister of economic affairs established the Electronics Research and Service Organization of the Industrial Technology Research Institute (ERSO-ITRI), a public research entity, which produced its first silicon wafer in 1977, after obtaining engineering expertise and training from RCA.

First steps: Between 1979 and 1983, a heavily government-funded company, United Microelectronics Corporation (UMC) was spun out of ERSO-ITRI, and technology transfer from US companies continued alongside domestic innovation at ERSO-ITRI. Taiwan Semiconductor Manufacturing Company (TSMC) was the second partially government-funded company spun off from

ERSO-ITRI in 1987, and TSMC's manufacturing facilities and foundries attracted foreign semiconductor companies to open operations in Taiwan.

Sustained progress: Five-year projects launched in 1990 and 1996 created supply-chain and technology-development alliances among the semiconductor companies operating in Taiwan, leading to additional technological development and the formation of additional companies. These indicators of a thriving semiconductor industry, as well as a shift to a trade surplus and a 46% profit rate, allowed the Taiwanese government to step away from subsidies and directional development plans and toward tax incentives and investment.

Importantly, Taiwan has continued to invest into the fifth decade of the industry and beyond, recently committing $107B over the next five years (approximately 3% of GDP) to expand current capacity, build new factories, develop new manufacturing facilities, and continue to recruit talent. The pandemic has resulted in ongoing chip shortages, and investing in a highly lucrative industry in which there is unmet demand is an easy decision, but the Taiwanese government's long-standing pattern of investment indicates a strong commitment to technological progress as a driver of economic growth and prosperity. Taiwan's continued growth and commitment to an industry in which it has been a dominant player over the past two decades is support for California continuing to invest in industries, such as software development and aerospace technology, in which it plays a leading role but could benefit from public funding that provides strategic direction for those industries' growth.

TURNING LOCAL ADVANTAGE INTO GLOBAL ADVANTAGE

South Korea's Use of Protectionism and Iterative Strategy to Rapidly Lead the Automotive Market

The ubiquity of Korean cars worldwide – South Korea is the fifth-largest global automobile producer – can be traced back to two policies implemented in 1962 that contradicted common wisdom that industrializing countries needed to build national companies that could compete in a global market. The Automobile Industry Promotion Policy and The Automobile Industry Protection Act were protectionist policies that prohibited foreign manufacturers from operating independently in the country and restricting imports. The initial products were assemblages of foreign parts and design, exported to South and Central America where expectations of quality were lower. In 1982, a third reform, the Automobile Industry Rationalization Policy, was adopted to reduce excessive manufacturing capacity among Korea's four automakers, to simplify the supply chain for parts, and to encourage the development of higher-quality vehicles designed and manufactured in-house. Korea taxes automobiles and gasoline heavily, encouraging exports and designs focused on an international market, while attempting to curb pollution and congestion domestically.

The Automobile Industry Rationalization Policy draws an interesting parallel to Taiwan's establishment of a semiconductor industry, and poses the question: when should government suppress versus encourage competition? In Taiwan, UMC and TSMC focused on slightly different aspects of manufacturing technology (e.g., TSMC focusing on VLSI circuits), but competed on technological development rather than price or talent.

Impetus: Two automobile industry policies launched in 1962 barred foreign automakers from operating independently in South Korea, and domestic startups entered the industry, including the companies that are now Kia and Hyundai.

First steps: The Hyundai Pony was the first South Korean car to be exported, first to South and Central America and later to the United States, where its low price led to sales records but its low quality led to a poor reputation. The Pony (known as the Excel in the US) was still produced via an amalgamation of foreign parts, but its success as an export galvanized the development of more in-house design and manufacturing.

Sustained progress: As domestic production increased, investment in research and design also increased, leading Hyundai and Samsung Motors to improve their reputation and brand quality.

At the same time, however, concerns over pollution and fuel supply have meant that domestic sales are limited compared to foreign sales, leading manufacturers to change their designs to appeal more to foreign markets' tastes.

By setting production and export targets in concert with policies designed to coddle a fledgling industry that could be removed as goals were met, South Korea effectively spun a world-class domestic industry out of a program that was little more, initially, than a tinkerer's assembly of other manufacturers' parts and designs. Despite substantial external shocks, including a recession brought on by global instability in the fuel supply chain, South Korea remained committed to its strategy, and was able to respond dynamically by pushing back deadlines for repealing policies and implementing policies to cushion the industry from destabilizing forces. California has been a "first mover" in several policy areas: consumer data privacy, vehicle emissions standards, livestock welfare, and environmental reviews of construction, for example. However, where policies may exacerbate instability, perhaps by making a local industry uncompetitive or by increasing the difficulty of providing a public good, like housing, California should reserve the option to delay policies or implement revised ones, rather than allowing itself to be locked into a policy that was intended to promote growth but is failing to achieve that goal.

IF YOU INTEGRATE IT, THEY WILL COME

Real Estate, Urban Planning, and Diversity through Density in Massachusetts Technology Districts

South Boston's waterfront was a slowly decaying industrial harbor home to warehouses and whale watching tours, until a program driven by the city's mayor launched in 2010. The program dedicated 1,000 acres to the development of an Innovation District that would combine co-working spaces, resources for startups and technology education, networking events, improved transit, traffic management, lighting, and waste management, new housing, and tax incentives. With several universities anchoring technical talent in the area, Boston was eager to keep those workers, and the companies they would start or support, in the area. The Innovation District has brought in 4,000 new jobs and over 400 new companies since 2010, and already established companies like GE and Reebok have decided to move their corporate headquarters to the Boston Innovation District. While welcome economically, this has also led to concerns about housing affordability that would have been unheard-of before the area's redevelopment.

What did Boston recognize about attracting tech companies and startups? It needed to demonstrate the availability of funding (through VCs and banks), R&D (through proximity to major research universities and teaching hospitals), and a fluid labor market (through a density of employers and easy connections to housing, retail, and entertainment by highways or public transportation). The latter consideration when situating a new startup hub allows a young workforce to commute however they choose, without feeling like they've irrevocably committed to one employer by moving next to its suburban campus. To accommodate these young workers moving into the area, the city approved $3.2B in mixed-use housing and retail development between 2014 and 2015, aiming to build apartments that would attract the young workforce and allow them to live within walking distance of their workplaces.

Impetus: The development of innovation districts (along with Cambridge and the seaport area, there have been others in more western parts of the state) in Massachusetts began in 2010 with the formation of the Mayor's Office of New Urban Mechanics, and a call for innovative ideas around city development and urban planning. This office formulated the idea to tie the revitalization of Boston's Seaport District to a network of innovation hubs across the state. The Boston Innovation District was the first to break ground, followed by Kendall Square and the Cambridge Innovation Center, the Roxbury Innovation Center, IQ1400 in Quincy, and the Massachusetts Technology Collaborative.

First steps: While real estate development, transit improvements, and a location convenient to tech-focused universities helped make Massachusetts an attractive destination for startups, the state also created two agencies (MassVentures and MassDevelopment) to provide funding for startups and emerging tech companies. Massachusetts also implemented workforce development, funding, and tax credit incentives to draw companies. With biotech as a particular focus, Massachusetts identified 84 BioReady municipalities across the state that have committed to making buildings available for biotech companies, with appropriate industrial permitting and utilities.

Sustained progress: Massachusetts' investment into two innovation districts was highlighted in 2019 as a guiding example for the EU's Smart Specialization Strategy of "non-neutral" innovation policy favoring specific technologies or industries. Over 10% of Massachusetts labor is now employed in the tech industry, and 1 in every 14 Massachusetts jobs is in tech. To encourage the ongoing development of this industry, Massachusetts continues to provide a workforce training fund, two R&D tax credits of 3-5%, investment tax credits of up to 10% for job creation, and a 10-15% R&D tax credit.

The city has also built a tech startup community. Socially, Boston has partnered with or sponsored organizations, conferences, and events like "Startup Week" that focus on building connections between current and future entrepreneurs and funders. Financially, the city offers a number of rebates and tax incentives to startups who move into or incorporate within one of its innovation districts. A diversity grant rewards companies whose hiring practices meet representation goals, and the state government offers both tax breaks and alternative sources of funding to tech startups.

California can learn from Massachusetts' successes and also its challenges. The creation of a tech startup community in an existing city or town risks displacing vulnerable citizens with incoming tech personnel; as Boston found in the Seaport district, investing in the local community through transportation infrastructure and utilities is just as important as offering attractive condos and fancy co-working cafes. Ideally, investment in startup spaces can also attract local talent, building a jobs pipeline from preexisting communities to newly-arrived tech companies.

FREE-ROAMING TECH

The counterpoint of Texas

In 2020, California saw its first population decrease since 1900, and the Bay Area lost tech workers (although the most popular destinations for individuals moving out of San Francisco were other cities in California). Where are Californians going? Many are heading to Texas, in conjunction with corporate expansions and relocations. Since the pandemic began, Texas has seen 237 corporate relocation and expansion projects, with more than 1 in 10 relocating residents coming from California. Although most news stories of companies leaving for Texas stem from a few high-profile exits (e.g., Elon Musk, Hewlett Packard Enterprise, and Oracle), Texas' business climate has weathered the pandemic better than California's, with little directed effort to attract tech companies aside from financial incentives. Of course, California may not be singularly focused on attracting or retaining tech companies, as it is faced with other severe and pressing issues, from forest fires and drought to housing shortages.

While the previous examples have focused on intensive governmental involvement in growing a particular tech industry, the Texas case suggests it is possible that state tech sectors can flourish in the absence of directed investment and growth strategy, simply by being left alone and charged little. Texas benefits from a large population, a highly-regarded public university system, very low sales tax, and no personal income tax. It also has very lax zoning restrictions in some areas (Houston famously has no zoning laws), supporting corporate campus development. While offering tax rebates and financial incentives to companies that create jobs in-state is a common tactic to attract investment, and even California is expanding its plan to double the CalCompetes tax credit incentive to $360M

and add a $250M grant program, Texas' cost of living is lower than the Bay Area's, which companies may view as a long-term retention strategy as 20-something tech workers age into 30-something tech managers with families.

Texas still substantially lags California in venture capital ($84.2B to $4.8B; Texas is the fourth largest recipient of VC investment in the US, receiving about 10% of the total), overall higher-education research expenditures ($5.98B to $10.51B in 2019), and federal higher-ed research expenditures ($2.35B to $5.35B in 2019), among other indicators of science and technology development. It remains to be seen whether Texas' financial attractiveness will lead to increased research investment or more start-up creation and funding, and whether it will cannibalize funding and talent from California or grow its own. The intangible network effects of Silicon Valley have persisted for decades and continue to draw public-private partnership research investment, such as the Chan-Zuckerberg Initiative and the Arc Institute, which embed privately-funded researchers at California universities.

CONCLUSION

One hundred years ago, in 1921, California's iconic Grizzly bear went extinct through ecological mismanagement and over-hunting. In the next hundred years, California's iconic technology economy is threatened by neglect; the state needs to take steps now to chart a safe path forward. While depending on previous drivers of innovation and growth, such as startup founders and foreign talent, may continue to fuel California's success, case studies of other governments stepping in with a strong strategic direction for building up a particular technological industry demonstrate other options. California, either at a statewide level or at a regional level, could adopt:

- a Taiwanese or South Korean approach of carefully growing a domestic industry by leveraging trade policy and government investment,
- an Estonian approach of rapidly modernizing and centralizing governmental data and services, or
- a Massachusetts model of identifying and developing innovation hubs across the state that can draw talent and companies from centrally generative pools (e.g., Harvard, BU, Tufts, and MIT in Massachusetts; UCSF, UC Berkeley, and Stanford in California) and provide infrastructure and incentives for in-state growth and development.

A statewide science and technology strategy longer than a single budget period or election cycle would be a good place to start; the next century of California's development is too complex and important to figure out one year at a time.

REFERENCES

Boston Planning and Development Agency. "Innovation Boston." Overview http://www.bostonplans.org/business-dev/initiatives/innovationboston/overview. 2021

Breakthrough Energy Coalition. "Impacts of Federal R&D Investment on the US Economy." September 2020

Breznitz, Dan. Innovation and the State: Political Choice and Strategies for Growth in Israel, Taiwan, and Ireland. Yale University Press, 2007.

Buchanan, Leigh. "For Startups, California's Economy Has Plenty of Attractions--and Drawbacks." Inc.com, Inc., https://www.inc.com/leigh-buchanan/california-economy-business-consumer-privacy-act-regulatory-tax-2020.html. Feb 2020

Centre for Public Impact (CPI). "E-Estonia, the Information Society since 1997." Centre https://www.centreforpublicimpact.org/case-study/e-estonia-information-society-since-1997. 2021

Chang, MF., Lin, C., Shen, C.H. et al. The role of government policy in the building of a global semiconduc-

tor industry. Nat Electron 4, 230–233. https://doi-org.stanford.idm.oclc.org/10.1038/s41928-021-00575-z. 2021

Digital Economy and Society Index (DESI). Country Report Estonia. http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=52221 2018

E-Estonia. "Estonia Ranks Third in Europe Regarding the Highest Number of Startups per Capita - e-Estonia." https://e-estonia.com/estonia-is-ranked-the-third-in-europe-regarding-the-highest-number-of-startups-per-capita/. 2018

Green, A. "South Korea's Automobile Industry: Development and Prospects", Asian Survey, Vol. 32, No. 5 pp. 411-428. May 1992

The Guardian. "'It's a Colony': Why Texas Won't Take Silicon Valley's Crown Just Yet." Guardian News and Media, https://www.theguardian.com/technology/2020/dec/20/texas-silicon-valley-austin-tech-workers. Dec 2020

Heath, Nick, et al. "How Estonia Became an e-Government Powerhouse." TechRepublic, https://www.techrepublic.com/article/how-estonia-became-an-e-government-powerhouse/. Feb. 2019

Katz, B. and Wagner, J. "The Rise of Innovation Districts: A New Geography of Innovation in America", Brookings Metropolitan Policy Program, May 2014

MassBio "Massachusetts Biotechnology Council." https://www.massbio.org/ Apr. 2020

National Research Council. "Securing the Future: Regional and National Programs to Support the Semiconductor Industry." Washington, DC: The National Academies Press, 2003. https://doi.org/10.17226/10677. 2003

National Venture Capital Association. "Funding Yearbook 2021." https://nvca.org/wp-content/uploads/2021/03/NVCA-2021-Yearbook.pdf 2021

Overture Global. "E-Estonia: Civil Innovation in the Digital Era." https://www.overtureglobal.io/story/e-estonia-civil-innovation-in-the-digital-era. 2021

Schoolov, Katie. "How Texas Is Luring Big Businesses and Billionaires Away from California." CNBC, https://www.cnbc.com/2021/03/20/how-texas-attracts-big-businesses-billionaires-from-california.html. March 2021

Texas Higher Education. "Research Funding in Texas." http://www.highered.texas.gov/research. 2021

Vassil, Kristjan. Estonian E-Government Ecosystem: Foundations, Applications, Outcomes. World Development Report 2016. https://pubdocs.worldbank.org/en/165711456838073531/WDR16-BP-Estonian-eGov-ecosystem-Vassil.pdf 2016

Walczak, Jared, and Janelle Cammenga. "2021 State Business Tax Climate Index." Tax Foundation, https://taxfoundation.org/2021-state-business-tax-climate-index/ March 2021

World Bank Blogs. "A Development e-Story: Estonia." https://blogs.worldbank.org/developmenttalk/development-e-story-estonia. 2021

Xie J., Sreenivasan S., Korniss G., Zhang W., Lim C., Szymanski B.. Social consensus through the influence of committed minorities. Physical Review E, 2011; 84 (1)

Yoon, Jang Seob. "Topic: Automotive Industry in South Korea." Statista, https://statista.com/topics/5249/automotive-industry-in-south-korea/. 2021

ABOUT CALIFORNIA 100

The California 100 Initiative envisions a future that is innovative, sustainable, and equitable for all. Our mission is to strengthen California's ability to collectively solve problems and shape our long-term future over the next 100 years. California 100 is organized around 15 policy domains and driven by interrelated stages of work: research, policy innovation and engagement with Californians. California 100's work is guided by an expert and intergenerational Commission. Through various projects and activities, California 100 seeks to move California towards an aspirational vision—changing policies and practices, attitudes and mindsets, to inspire a more vibrant future.

The California 100 Initiative is incubated through the University of California and Stanford.

The Initiative is led by an executive team of Allison Berke, Director of Advanced Technology, Henry E. Brady, Director or Research, Amy Lerman, Director of Innovation, Jesse Melgar, Director of Engagement, and Karthick Ramakrishnan, Executive Director.

ABOUT SIEPR

The Stanford Institute for Economic Policy Research (SIEPR) is Stanford University's home for understanding the economic challenges, opportunities, and policies affecting people in the United States and around the world. Its mission is to catalyze and promote evidence-based knowledge about pressing economic issues, leading to better-informed policy solutions for generations to come. The institute is led by Mark Duggan, The Trione Director of SIEPR and the Wayne and Jodi Cooperman Professor of Economics at Stanford University.

READ MORE

To learn more about the future of advanced technology and basic research in California, visit the California 100 website at California100.org, where you will find our detailed reports on the topic, and more information about our research partners.