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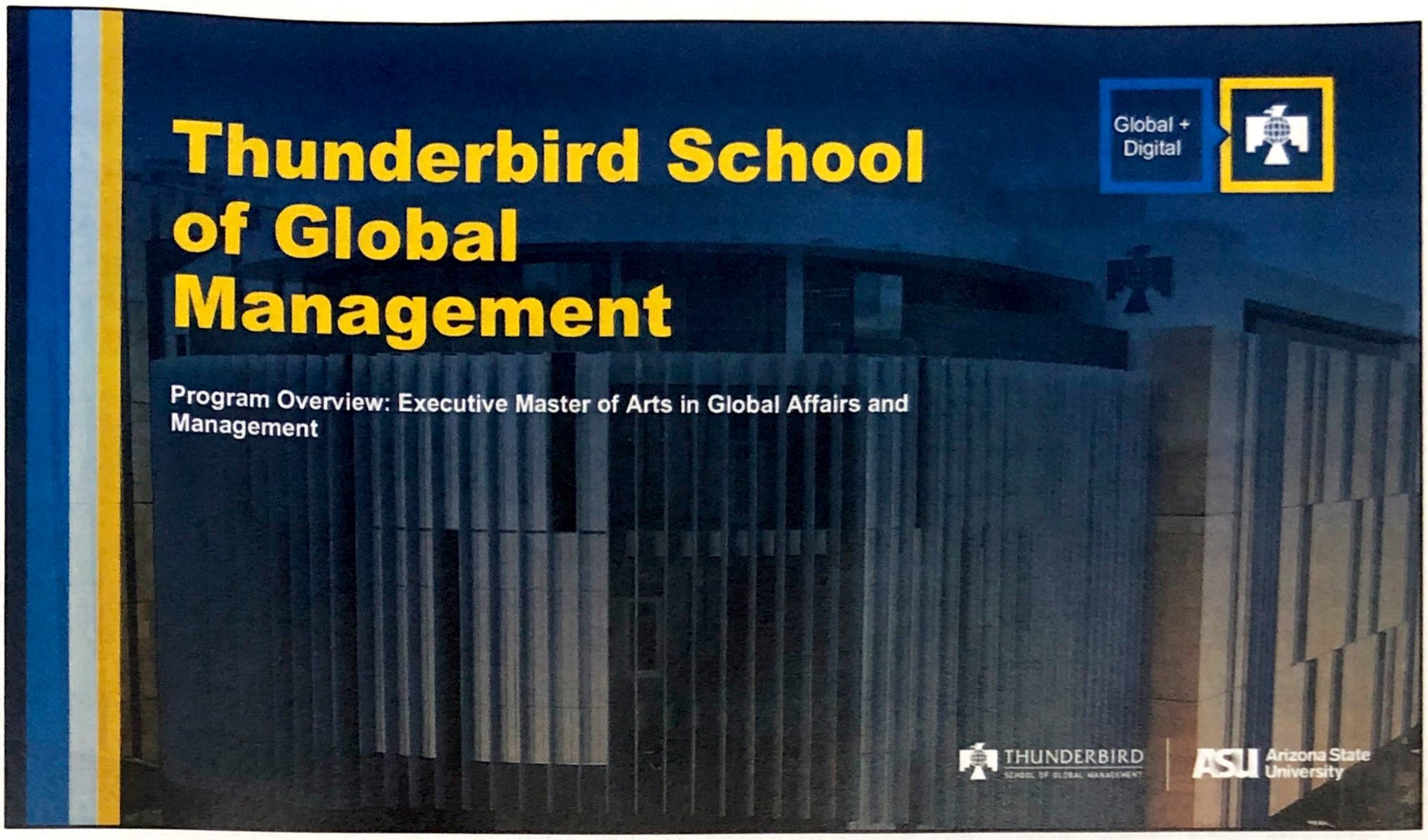

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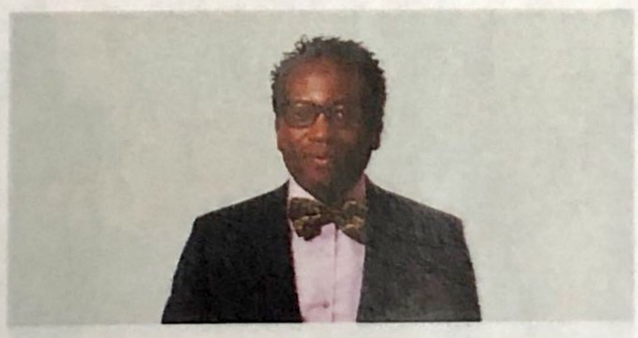
Graduate Degree Programs

Executive Director



Landry Signe, Ph.D

Executive Director and Professor at Thunderbird School of Global Management, Senior Fellow at Brookings Institution & Author of Unlocking Africa's Business Potential

Areas of Expertise: Global political economy, global business, and emerging markets, emerging technologies and the Fourth Industrial Revolution, agile governance and multi-stakeholder collaboration, strategic management and leadership, global governance and sustainable development, fragility, state capacity, and policy implementation, and the political economy of Africa and developing countries.

2

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Graduate Degree Programs

Program Manager

Jennifer Betancur

Program Manager, Operations and Special Events
Washington DC Center of Excellence

Career Background: Master of Public Administration-Nonprofit Management; International Studies & French Language and Culture Studies

Project management, program design and advocacy, client relations, donor relations, student advising, event planning, facilitation, budgeting & planning.

Our Vision

Thunderbird School of Global Management advances inclusive and sustainable prosperity worldwide.

Our Mission

Thunderbird empowers and influences global leaders and managers who maximize the benefits of the Fourth Industrial Revolution for business, government, society, and the environment.

1946-60 ▶ Founding and Marshall plan

1960s ▶ Global Focus

1980-90s ▶ Addition of Executive Education and Online Programs

2021 ▶ Centers of Excellence, 4th Industrial Revolution, Thunderbird #1 Management ASU #1 Innovation

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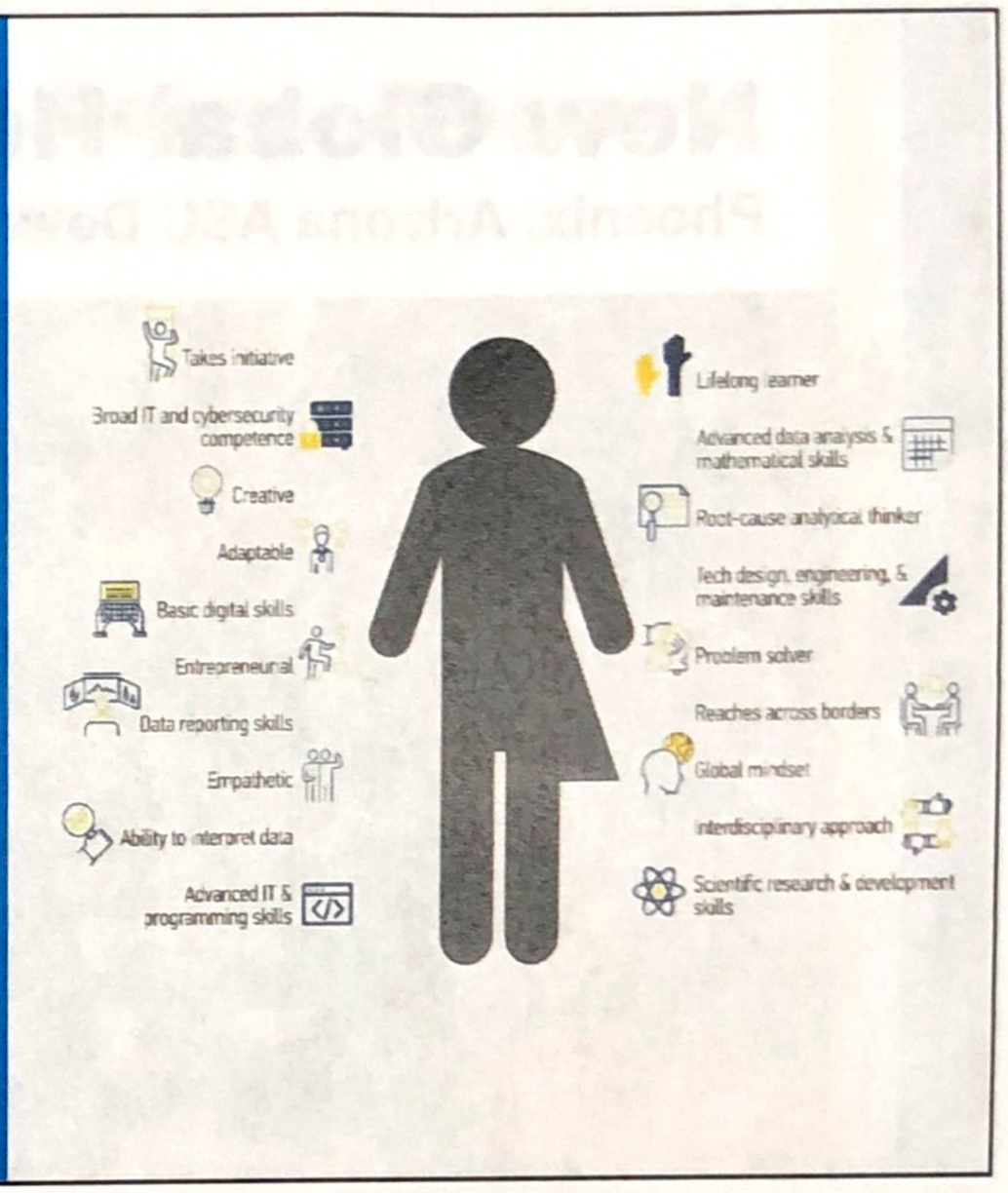
Future Ready Digital Global Mindset

Mitigating the challenges and realizing the opportunities of this 4th Industrial Revolution will require new types of global leaders, managers, and professionals across the private, public, and non-profit sectors worldwide.



Thunderbird Worldwide Network

Existing Centers of Excellence

- Phoenix, AZ (HQ)
- Geneva, Switzerland
- Moscow, Russia
- Dubai, UAE
- Nairobi, Kenya
- Tokyo, Japan
- Seoul, Korea
- Shanghai, China
- Los Angeles, CA
- Washington, DC
- Jakarta, Indonesia
- Amsterdam, Netherlands
- London, UK
- Dakar, Senegal

Launch in 2022

- Bogota, Colombia
- Mexico City, Mexico
- São Paulo, Brazil
- Rome, Italy
- Mumbai, India
- Singapore, Singapore
- Manila, Philippines
- Istanbul, Turkey
- Cape Town, South Africa
- Sydney, Australia
- Frankfurt, Germany
- Riyadh, KSA

Launch in 2023

- Toronto, Canada
- Bangkok, Thailand
- Taipei, Taiwan
- Almaty, Kazakhstan
- Ho Chi Minh, Vietnam
- Algiers, Algeria

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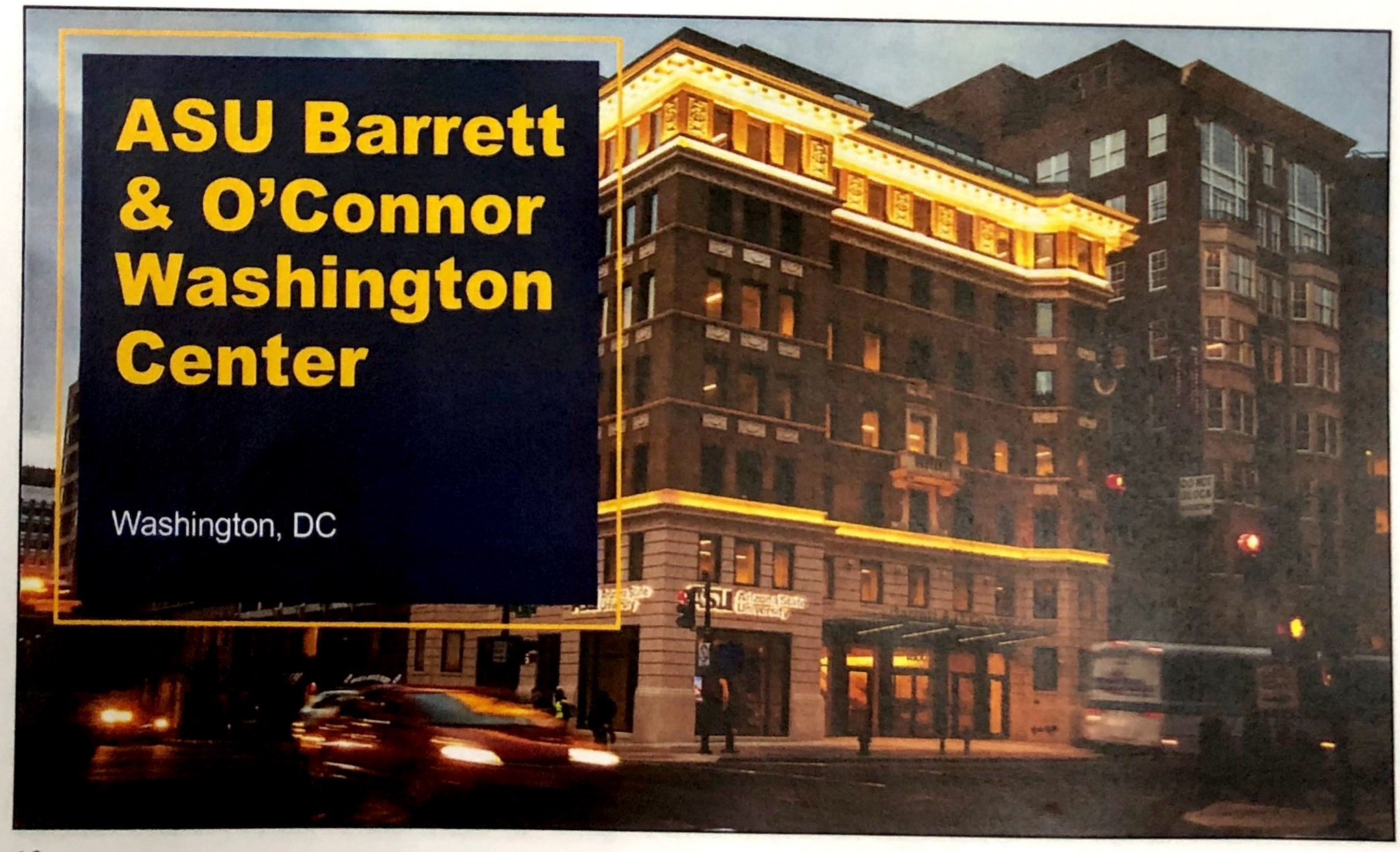
New Global Headquarters

Phoenix, Arizona ASU Downtown Campus

11

ASU Barrett & O'Connor Washington Center

Washington, DC



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Executive Master's Degree Programs

For Experienced Professionals

Executive Master of Global Management

Location: Phoenix, Arizona
Start Dates: Aug
Experience: 8+ years

Executive Master of Global Management: Space Leadership

Location: Online; Phoenix, AZ; Los Angeles, California
Start Dates: Jan
Experience: 5+ years

Executive Master of Arts in Global Affairs and Management

Location: Washington, D.C.
Start Dates: Jan
Experience: 5+ years

Graduate Degree Programs

For Early to Mid-career Professionals

Master of Global Management

Location: Phoenix, Arizona
Start Dates: Aug, Jan
Experience: No experience required

Online Master of Applied Leadership & Management

Location: Online
Start Dates: Mar, May, Jun, Aug, Oct, Jan
Experience: No experience required

Master of Arts in Global Affairs & Management: Creative Industries

Location: Online; Phoenix, Arizona; Los Angeles, California
Start Dates: Aug
Experience: No experience required

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Executive Master in Global Affairs & Management

Intake: January

Every Other Friday and Saturday in Washington, D.C. + Residency Week

12 Months
Developed to Help Globally-Minded Mid-Career Professionals in the Private, Public, & Not-For-Profit Sectors Take Their Careers to the Next Level

5-8 Years of Experience Required
Undergraduate Degree, Proof of English Proficiency, Online Application, and 1 Faculty Interview

Credit Hours: 30

Global Focus Concentrations
Global Public Policy, Global Business and Global Law/Technology

17

Executive Master of Arts in Global Affairs & Management

- States and Markets in a Global Economy: The Fourth Industrial Revolution in a Global Economy
- Global Leadership
- Global Affairs Theory: Complexity and the Art of Problem-Solving
- International Organizations: The Craft of Global Networks in Global Affairs

- Tracks:
  - Global Policy Track
  - Global Business Track
  - Global Law/Technology Track
- Global Entrepreneurship and Sustainable Business
- International Finance and Trade
- Advanced Perspectives on Global Leadership and Strategy: EMAGAM Capstone

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Faculty

Dr. Anne-Marie Slaughter
Distinguished Professor of Practice & former Director of Policy Planning at the U.S. State Dept.
International Organization: The Craft of Global Networks in Global Affairs: Understanding the basic principles of network theory as applied to the design, development, and management of networks involving business, NGOs, and government

Dr. Mark Esposito
Clinical Professor & author of the AI Republic
The Fourth Industrial Revolution: Understanding how the Fourth Industrial Revolution will be the new overarching narrative of how labor, planetary challenges and ethical boundaries will redefine our society indelibly

Dr. Ann Florini
Clinical Professor & Fellow in the Political Reform at New America
Strategic Planning for Public Sector Leaders: AS the demands for collective action escalate around the world and as private actors take on public responsibilities, this course provides skills and tools that the new global public policy requires, exploring the deep questions facing policymakers in the age of complexity.

Roland Kupers
Professor of Practice & Advisor on Complexity, Resilience and Energy
Global Affairs Theory: Complexity and the Art of Problem Solving: An overview of the major trends of the 21st century providing insights into what it means to live in an era of growing complexity, what we know about how such complex systems behave, and how to manage under conditions of great uncertainty.

Dr. Sanjeev Khagram
Director General & Dean of Thunderbird School of Global Management
Global Leadership in a Dynamic World: The cutting-edge principles and best practices that world-class organizations use to develop more focused, resilient, diverse, and agile teams across the business, government and nonprofit sectors

Dr. Lena Booth
Senior Associate Dean of International Academic Partnerships & Professor of Finance
Financial Management for Global Value Creation for: As Equips students with tools necessary to make strategic financing and investment decisions in a competitive global environment. Topics include financial analysis and projections, working capital management, and investment management.

Dr. Mary Sully de Luque
Associate Dean of Graduate Programs and tenured Professor
Global Sustainability and Entrepreneurship:
Presents overview of entrepreneurship and sustainable business. Students become familiar with the definitions applicable to these topics, basic place and role of these two domains in the global economy

Dr. Landry Signe
Executive Director and Full Professor, Senior Fellow at Brookings
Agile Governance during the Fourth Industrial Revolution:
Students will understand how to govern disruptive technologies to govern better

Executive Master of Arts in Global Affairs & Management

Application Details

- Bachelor's Degree
- No GMAT/GRE required
- Official Transcripts from all previously attended undergraduate and graduate institutions
- Competitive TOEFL, IELTS, PTE or Duolingo scores English (if you did not graduate from English-speaking university in a native-English speaking country)
- International experience
- Online application including including resume/CV
- Admissions Interview

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MacEwan UNIVERSITY
SCHOOL OF BUSINESS

909M20

MACEWAN GOES GLOBAL: INTERNATIONALIZATION AT A CANADIAN SCHOOL OF BUSINESS

Ilan Alon, Mike Henry and Kimberley Howard wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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Gazing out of the window one cold December afternoon in 2008, Elsie Elford, LLB, the dean of the School of Business at Grant MacEwan College in Alberta, Canada, thought about the progress the College had made and how it had moved from being a community college to becoming a full-fledged comprehensive college with two-year programming and four-year baccalaureate degrees. The School of Business needed to support the needs of the business community, which were increasingly global. The School's mission and programs had also become increasingly international. What business students needed, she thought, was a global education, particularly one that focused on the emerging markets of Asia with which Canada enjoyed a growth in trade and investment.

Elford had been teaching at MacEwan for 17 years and knew firsthand the strength of the School's offerings and its people. During her tenure at MacEwan School of Business, Elford had focused on providing real world experiences for students, upgrading faculty expertise and experience through professional development, and working with industry leaders and professional associations to develop curricula to meet students' needs.

But how could a school of business already burdened by the growing needs of transitioning to degree-granting also satisfy the need for more globalized education? The secret, she thought, might be to leverage the diverse faculty and student body to provide new experiences for all students, particularly in larger emerging markets such as China, India or Brazil. Globalization for a school of business is not easy because of the many stakeholders involved: government ministries, students, parents, faculty, community and businesses to mention a few.

From a leadership point of view, Elford considered how to measure globalization; how to find the appropriate level of globalization; how to determine what competencies the School of Business should develop that would differentiate it from others in its category; and how to equip students with a global perspective, and an international, intercultural mindset.

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Additionally, should the School of Business target a certain part of the world in developing international competencies in its graduates? If so, which parts and in what ways?

GEOGRAPHICAL CONTEXT: ALBERTA, CANADA

Canada had the world's second-largest proven crude oil reserves (176 billion barrels), after Saudi Arabia, but less than three per cent of its established reserves had been developed. Alberta produced 70 per cent of Canada's crude oil and 80 per cent of its natural gas. Crude petroleum, gas and gas liquids, and petrochemicals made up most of Alberta's export value (about $62 billion of the total $89 billion).[1]

Alberta had approximately 3.5 million inhabitants and its landmass covered an area of about 660,000 square kilometers (an area about 1.75 times larger than the size of Japan). Alberta's population was among the youngest in Canada, with a median age of 35.5. Alberta's population density was comparatively low. In comparison, Taiwan was one-twentieth the size of Alberta, but had seven times the population.

Alberta was international. In 2007, one in seven Albertans was born outside Canada and one in 10 was from a visible minority.[2] Ethnic Canadians (2007) made up only 28 per cent of the population, followed by English, German, Scottish, Irish and French. Ukrainians accounted for almost 10 per cent of the population, followed by Dutch, Aboriginal, Polish and Norwegian. Chinese made up almost four per cent of the population. Most self-identifying Chinese in 2007 had emigrated from Hong Kong and the Guangzhou region of China. There were more Russians than Americans, with Russians accounting for about two per cent of the population. When coupled with the Ukrainian population, the Russian-speaking population exceeded 12 per cent.[3]

China (including Hong Kong) was Alberta's number two trading partner. In 2007, Albertan exports to Hong Kong alone accounted for more than C$1,090 million. In that same year, Japan was Alberta's number three trading partner, receiving about 14 per cent of Alberta's exports. South Korea was Alberta's number four export market, with demand for chemical wood pulp, ethylene glycol and wheat as the top export commodities. Alberta also had strong relations with Taiwan, with more than $160 million in exports and more than 32,000 tourists per year from Taiwan.[4]

In sum, Alberta was a high-growth province and Edmonton, the capital, where Grant MacEwan College was located, was a boom town. Unemployment was low; economic growth was high. The strong economy was a mixed blessing: on the one hand, a strong job market provided opportunities for graduates to plug into the business community and fill a void for talent, but, on the other hand, inflation was creeping in and colleges were competing with businesses for young talent. Put another way, the opportunity cost of going to college was high.

EDUCATION IN EDMONTON, ALBERTA

Alberta was a resource-rich province of Canada. The province was known for its wealth of oil and gas reserves and had a budget surplus and a provincial sovereign wealth fund. Education was one of Alberta's priorities. In its 2008-2009 budget, the government dedicated more than $6 billion to its K-12 education

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[1] *Business Ambassador's Guide to Alberta, Canada, International Office and Trade, 2007.*
[2] *Ibid.*
[3] *Ibid.*
[4] *Ibid.*

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system. Fifteen per cent of total government revenue was allocated for primary and secondary education, making it the second largest government investment.[5]

Education was a provincial responsibility in Canada. Each province and territory funded and operated its own educational system as well as administered the educational framework for the region. A pan-Canadian forum established in 1967 coordinated educational initiatives at the national level through the Council of Ministers of Education Canada (CMEC).[6] The national (federal) government was the largest provider of research funds to the post-secondary system.

Canadian education was strong in comparison to OECD members: Canada was a net host of international students and the Albertan system, in particular, was among the best-performing. According to the 2004 students' achievement indicators program results, Albertan students aged 13 to 16 ranked highest in science. Albertan 15-year-olds ranked highest in 2003 in reading (tied with Finland), second in mathematics (behind Hong Kong) and fourth in science and problem-solving.[7]

The strengths of the Canadian school system stemmed from adequate funding for educational improvement, and choice for parents from a plethora of subsidized schools available to them: religious schools, Francophone schools, charter schools, private schools, virtual schools, alternative programs, distance learning and blended programs. Parents could choose from schools which specialized in music or hockey. Examples of multilingual schools included Chinese, Russian, Ukrainian, Spanish, French and Hebrew.

The Albertan primary education system focused on health, math, science, technology and, of course, resource-seeking industry studies. The development of a career-based workforce was stressed.

The Ministry of Advanced Education and Technology was the governing body responsible for monitoring approved degree programs through a process of peer reviews, accreditation and reaccreditation.[8] It ensured, among other things, that degree programs had proper faculty and staff, academic policies, resource capacity, credential recognition, program delivery, program content, program structure, program evaluation, and regulation and accreditation.

GRANT MACEWAN COLLEGE

Established in 1971, Grant MacEwan College[9] was the largest college in Alberta and the fastest growing college in western Canada emphasizing liberal arts, health and nursing, fine arts and business programs in Edmonton. MacEwan served approximately 40,000 credit and non-credit students per year. Full load equivalent (FLE) students in academic year 2001-2002 totaled 8,740 for the College and 2,204 for the School of Business. The full load equivalent projections were 10,968 for the College and 2,621 for the School of Business for 2009 - 2010. The mission of Grant MacEwan College was to "inspire and enable individuals to succeed in life through career and university studies."

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[5] *Alberta Education Fact Sheet, www.education.alberta.ca/students/internationaleducation.apx, accessed Nov. 1, 2008.*
[6] *See: www.cmec.ca/index.en.html.*
[7] *Alberta Education Fact Sheet, www.education.alberta.ca/students/internationaleducation.apx, Nov. 1, 2008.*
[8] *See: www.caqc.gov.ab.ca.*
[9] ***Namesake:** Dr. J.W. Grant MacEwan, former lieutenant governor of Alberta, MLA for Alberta, mayor of Calgary, author, historian, environmentalist and educator.*

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The College offered:

1. 5 Bachelor Degrees
2. 10 University Transfer Programs
3. 3 Applied Bachelor Degrees
4. More than 60 Diploma and Certificate Programs
5. Preparation for University and College
6. Professional and Personal Development Courses and Workshops
7. Corporate Training
8. Alberta College Conservatory of Music

The College provided more than 70 full-time programs across its four campuses:

1. Centre for the Arts and Communications
2. Faculty of Arts and Science
3. Faculty of Health and Community Studies
4. School of Business

In 2005, Grant MacEwan College became the first college in Alberta to grant baccalaureate degrees. The move toward four-year baccalaureate degrees enabled the College to recruit a more diversified portfolio of PhDs,[10] increase the resources available for scholarly activity and research, and provide more degree completion opportunities for students.

Alberta was geographically large, with its two main urban centers (Edmonton and Calgary) housing more than two-thirds of the population, leaving the remaining third spread over the rest of the province. In response to this reality, MacEwan had cooperated with other colleges on some select courses and programs it had developed for the online market. In 2002, the province of Alberta created a consortium of 15 colleges and technical institutes to develop and offer online learning opportunities for students. This consortium was called ECampus Alberta. If a member of the consortium developed a course, other members agreed to refrain from developing the same course. Course transfer credit between these institutions was well-articulated. ECampus "enables students from across the province to choose from more than 30 provincially accredited online certificate, online diploma and applied degree programs and 400 online courses offered by 15 Alberta colleges and technical institutes."[11]

Online course partners included Bow Valley College, Lakeland College, Medicine Hat College, Northern Alberta Institute of Technology, Northern Lakes College, Portage College and Southern Alberta Institute of Technology. Of the 7,128 students enrolled online, Grant MacEwan had about 1,364 in 2007-2008.

INTERNATIONALIZATION AT GRANT MACEWAN COLLEGE

MacEwan School of Business was committed to internationalization through the development of knowledge, skills and attitudes for a global citizenry living and working effectively in an interconnected world. At the core of the College's internationalization efforts was the curriculum, around which

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[10] Provincial quality assurance required baccalaureate degree programs to have a minimum of 40 per cent of the faculty with Ph.D.s (Howard and Emberg, "MacEwan Welcomes Internationally Recruited PhDs to the School of Business," Leadership, 14:1, 2007, pp. 26-32).

[11] ECampus Alberta web site, www.ecampusalberta.ca, accessed Jan. 21, 2009.

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professional development, international students, study abroad, exchange programs, community linkages, international development education, offshore education and institutional linkages existed. (See Exhibit 1.) Though not all current international programs at the College were equally active, a few partnerships had already taken root by 2007, with arrangements in countries including Australia, China, Ecuador, Germany, Ireland, Japan, Mexico, the Netherlands, Russia, St. Lucia, Switzerland, Britain, Ukraine and the United States. International exchange agreements ranged from traditional exchange agreements to research collaborations, receiving students, delivering programs, and 2+2 joint academic degrees. However, few of these programs were administered by the School of Business; this was a situation that needed to change. (See Exhibit 2 for a list of School of Business international relationships.)

The School of Business had begun negotiations with a Beijing-based school and a Yantai-based school for joint programs. In Ukraine, the School of Business offered 2-year diplomas to students at a business school in Kyiv. Edmonton had a large and active Ukrainian population who wanted to maintain links with the motherland, and the College wanted to capitalize on those ties.

Internationalization at MacEwan was a strategic priority. The 2007-2010 strategic plan highlighted a vision for globalization and a mission to sustain and support international initiatives. Elements of globalization were recognized in educational delivery, basic philosophy, work/study abroad, international student recruitment, local job creation for graduates, contract training, research, partnerships and reputation.

International student recruitment was particularly important for creating an international environment in MacEwan classrooms that mirrored conditions in the "real world." International student recruitment targets were established for segments of the globe that could maximize student yields for MacEwan. Of 830 expected international students in 2008-2009, 409 came from China, 98 from Ukraine and Russia, 98 from Korea, 47 from Hong Kong, 43 from India and 31 from Japan. The remainder of the students came from places that included Vietnam, Taiwan, Mexico, Central America, Ecuador and Africa.

MacEwan also planned to team up with high schools in China, India and Vietnam, lending support to the internationalization strategy and to the commitment for global education in emerging markets.

THE SCHOOL OF BUSINESS

The vision of the MacEwan School of Business was enunciated in its mission statement: "The School of Business is nationally recognized for the quality of its programs, the strength of its industry support, and the employment success of its graduates." (See Exhibit 3 for the School's organizational chart. The vision statement for the new Bachelor of Commerce degree is articulated in Exhibit 4.)

The School of Business offered the following new majors in its approved Bachelor of Commerce (B. Commerce) degree: International Business, Supply Chain Management and Management. (See Exhibit 5 for details on the Management major program of study.)

The B. Commerce majors were disciplinary and applied, integrating seven professional skills: (1) ethical business practice, (2) presentation skills, (3) writing skills, (4) research skills, (5) group-work skills, (6) case study/analytical skills and (7) technological fluency. The model for integrating professional skills was integrative in that instead of taking standalone courses in each skill, students were given learning opportunities and assessed on their progress and development in their professional skills in each course.

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The International Business major, in particular, was designed to provide cultural literacy, introduce language study and provide the opportunity of international experiences. Multilingual education was considered a foundation for intercultural communications and international competence. (See Exhibit 6 for details on the International Business major's program requirements.)

The School of Business also offered a 2-year program with an international orientation in mind: the Asia-Pacific Management Diploma program, which required advanced oral and reading proficiency in Japanese or Chinese. Graduates from this program were eligible to transfer to the B. Commerce, providing all prerequisites were met.

To augment the globalization of the College as a whole, the School of Business's international initiatives included the following goals:

1. Inviting international professors for visiting appointments;
2. Developing study tours in India, China and Japan;
3. Hiring additional international academics;
4. Identifying international partners;
5. Internationalizing the curriculum; and
6. International teaching and learning opportunities for faculty members.

The faculty of MacEwan College and the School of Business was increasingly diverse and global. Of the 16 full-time faculty members in the B. Commerce, many came from outside Canada, including China, India, Iran, Brazil, the countries of the European Union and the United States. Both Francophone and Anglophone speakers were represented on the faculty.

In addition to its various internationalization initiatives, in 2008 the School of Business planned to develop new majors in the B. Commerce degree in Accounting, Marketing and Human Resources, a number of certificate programs, and study tours to China and Japan, and India.

The School of Business continued to provide higher-education opportunities for career retraining, traditional university training, transfer education credits, applied business degrees and workforce training programs. The new focus on globalization would not undermine current efforts.

HOW TO GLOBALIZE THE SCHOOL OF BUSINESS?

MacEwan had gone through the dual transition of (1) becoming a comprehensive college of higher education offering baccalaureate degrees and (2) offering more global education to its students. The School of Business, in parallel with the College, had also gone through this dual transition. Through the hiring of new, Ph.D.-trained international faculty, the development of new international programs, and the establishment of new international relations, it had begun to address the next phase of internationalization.

But what should be the next specific steps? The strategy was in place, but how should the School of Business proceed tactically on its internationalization initiatives? Elford pondered: would the School of Business be able to distinguish itself through the internationally focused Bachelor of Commerce and Asia-Pacific Management diploma programs?

Globalization for a school of business was multi-dimensional and she needed some insights into prioritizing her goals. Elford found an informative article containing a globalization model written by Alon

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and McAllaster in BizEd, the official publication of the AACSB.[12] (See Exhibit 7.) Could this model help in benchmarking internationalization at MacEwan's School of Business? If so, how could it be used?

The authors would like to thank the useful comments by Elsie Elford, Diane Emberg and Makarand Gulawani on earlier versions of the case.

[12] *I. Alon and C. McAllaster, "The Global Footprint," BizEd (AACSB International Journal), May/June 2006, pp. 32-35.*

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Exhibit 1

INTERNATIONALIZATION ENVISIONED AT GRANT MACEWAN COLLEGE

Exhibit 2

LIST OF SCHOOL OF BUSINESS INTERNATIONAL RELATIONSHIPS

Institution	Location	Description
Edith Cowan University	Australia	Accepts BCom grads into MBA programs
Griffith University	Australia	Accepts BCom grads into MBA programs
Zhong Guan Cun (Beijing Haidian Adults' University)	China	Developing 1.5+1.5 program
Education Forum for Asia	China	Memorandum of Understanding signed
Ludong University	China	Developing 2+2 program
Asia Pacific Institute of Management	India	Memorandum of Understanding signed
Athlone Institute of Technology	Ireland	Student exchange
Hogeschool van Arnhem en Nijmegen	Netherlands	Student exchange
Lucerne University of Applied Sciences and Arts	Switzerland	Student exchange
International Institute of Business	Ukraine	Offers MacEwan's Management Studies diploma
The Washington Center	United States	Student internships

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Exhibit 3

THE SCHOOL OF BUSINESS ORGANIZATIONAL CHART

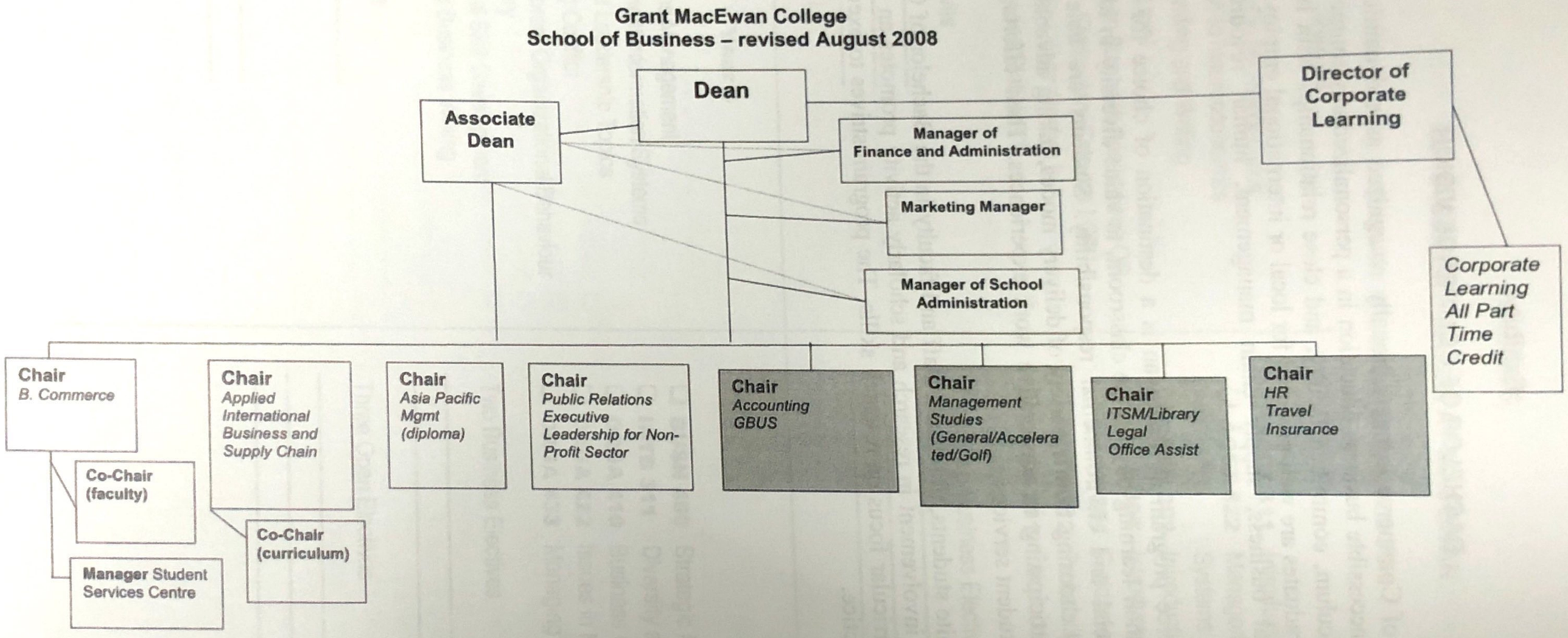

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Exhibit 4

BACHELOR OF COMMERCE VISION

The MacEwan Bachelor of Commerce is internationally recognized as a dynamic, innovative program providing a high quality, accessible business education in a personalized environment. It is known for its carefully articulated curriculum, committed faculty, and close relationships with business and industry. Bachelor of Commerce graduates are well-prepared for local or international employment in areas such as management, international business, supply chain management, human resource management and accounting.

The Bachelor of Commerce program at MacEwan is a destination of choice for business students. It encourages them to take their learning beyond the classroom, to value diversity in ideas and experiences, and to work toward social and environmental responsibility. Students are able to maximize their educational experience by choosing from a variety of delivery modes, taking advantage of multiple entry and exit options, and participating in cooperative work experiences. Their efforts are supported by a comprehensive range of student services.

Collegial relationships unite students, graduates, staff and faculty in the Bachelor of Commerce program. Faculty members' active involvement in research and scholarly activity promotes an ethic of inquiry and complements a strong curricular focus on research skills. The program strives to exemplify the values of teamwork and ethical practice.

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Exhibit 5

MANAGEMENT MAJOR AT MACEWAN

Bachelor of Commerce Program Plan

Year 1

- ❑ **ECON 101** Introduction to Microeconomics
- ❑ **ECON 102** Introduction to Macroeconomics
- ❑ **ENGL 101** Critical Reading and Writing
- ❑ **LEGL 210** Business Law I
- ❑ **MATH 112** Calculus with Business Applications OR
  MATH 113/114 Elementary Calculus I OR
  MATH 120 Basic Linear Algebra I
- ❑ **MGTS 103** Probability and Statistics I

Three Non-Business Electives

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(**CMPT 157** recommended)

Year 2

- ❑ **ACCT 311** Introductory Accounting
- ❑ **ACCT 322** Managerial Information and Control Systems
- ❑ **BUSN 201** Introduction to Canadian Business
- ❑ **FNCE 301** Introductory Finance
- ❑ **MARK 301** Fundamentals of Marketing
- ❑ **MGTS 312** Probability and Statistics II
- ❑ **ORGA 201** Introduction to Management

Three Non-Business Electives

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Year 3

- ❑ **MGTS 352** Operations Management
- ❑ **MSYS 200** Management Information Systems
- ❑ **ORGA 310** Advanced Leadership Topics
- ❑ **ORGA 314** Managing Conflict
- ❑ **ORGA 316** Contemporary Organizational Behaviour and Theory
- ❑ **ORGA 330** Managerial Skill Development
- ❑ **PROW 210** Advanced Business Writing

One Non-Business Elective

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Two Open Electives

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Year 4

- ❑ **BUSN 450** Strategic Management
- ❑ **INTB 311** Diversity and Intercultural Communication
- ❑ **ORGA 410** Business Consulting
- ❑ **ORGA 422** Issues in Management — Senior Seminar
- ❑ **ORGA 433** Managing Change

Two Business Electives

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Three Open Electives

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January 2007

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Exhibit 6

INTERNATIONAL BUSINESS MAJOR AT MACEWAN

Bachelor of Commerce Program Plan Suggested Sequencing of Courses

Year 1

- ❑ **ECON 101** Introduction to Microeconomics
- ❑ **ECON 102** Introduction to Macroeconomics
- ❑ **ENGL 101** Critical Reading and Writing
- ❑ **LEGL 210** Business Law I
- ❑ **MATH 112** Calculus with Business Applications OR
  MATH 113/114 Elementary Calculus I OR
  MATH 120 Basic Linear Algebra I
- ❑ **MGTS 103** Probability and Statistics I

Two Non-Business Electives

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(**CMPT 157** recommended)

One Open Elective

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Year 2

- ❑ **ACCT 311** Introductory Accounting
- ❑ **ACCT 322** Managerial Information and Control Systems
- ❑ **BUSN 201** Introduction to Canadian Business
- ❑ **FNCE 301** Introductory Finance
- ❑ **HIST 281** Asia Since 1500 AD
- ❑ **MARK 301** Fundamentals of Marketing
- ❑ **MGTS 312** Probability and Statistics II
- ❑ **ORGA 201** Introduction to Management

Two Open Electives

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Year 3

- ❑ **INTB 300** Introduction to International Business
- ❑ **INTB 311** Diversity and Intercultural Communication
- ❑ **INTB 312** Conducting Business in Asia
- ❑ **MGTS 352** Operations Management
- ❑ **MSYS 200** Management Information Systems
- ❑ **ORGA 316** Contemporary Organizational Behavior and Theory
- ❑ **PROW 210** Advanced Business Writing
- ❑ **POLS 261** Asia Pacific Political Systems

Junior (1xx) Full-Year Language

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January 2007

Year 4

- ❑ **BUSN 450** Strategic Management
- ❑ **FNCE 404** International Finance
- ❑ **INTB 412** Managing in an International Environment
- ❑ **MARK 403** International Marketing

Intermediate (2xx or above) Full-Year Language

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Two Business Electives

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One International Business Option Course

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One Open Elective

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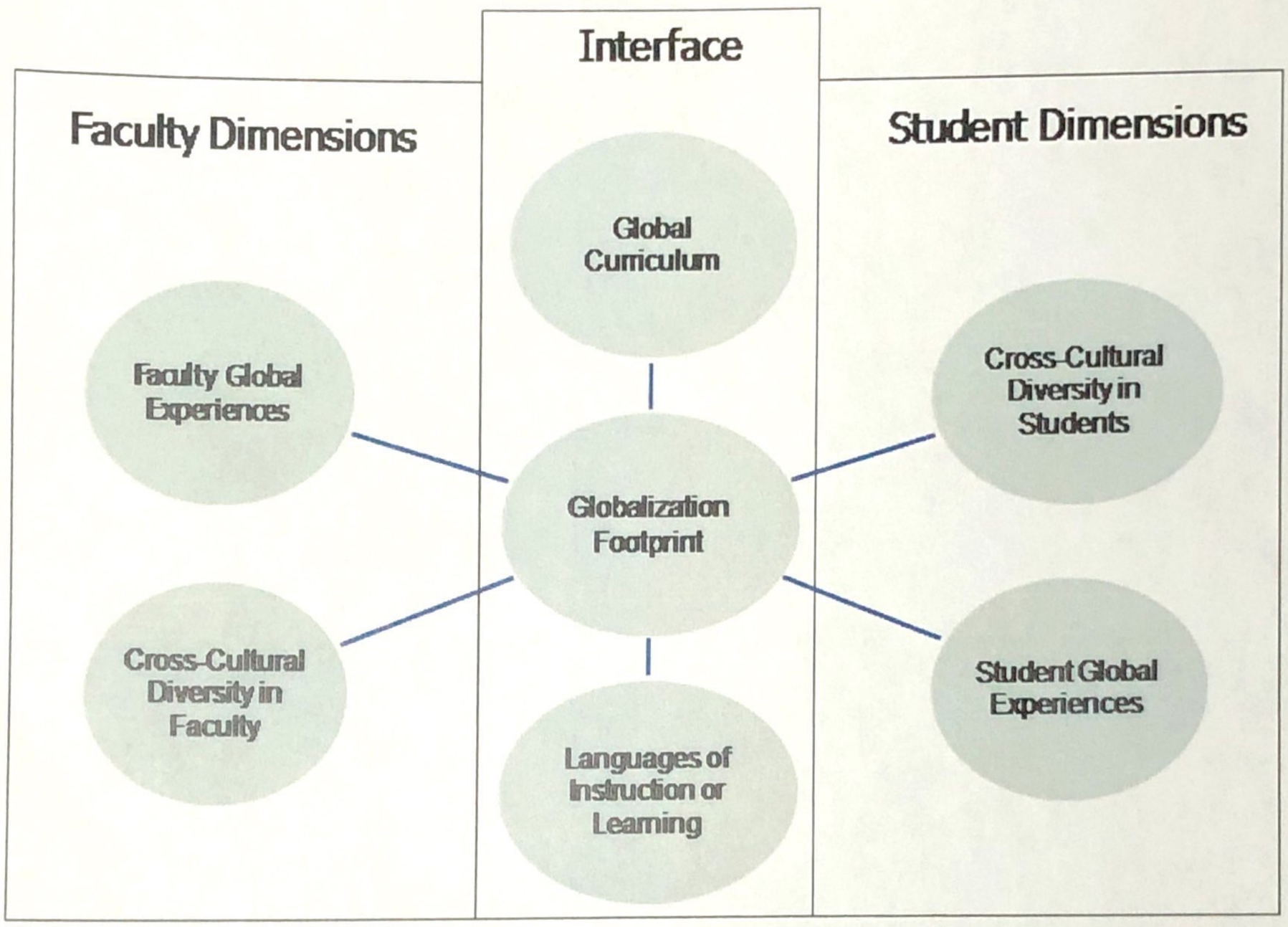
Exhibit 7

A MODEL FOR A COLLEGE'S INTERNATIONALIZATION



Source: I. Alon and C. McAllaster, "The Global Footprint," BizEd (AACSB International Journal), May/June 2006, pp. 32-35.

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Your Business Strategy

Four dimensions define a business strategy: the product-market investment strategy (where to compete), the customer value proposition (offering that is relevant and meaningful to customers and reflected in the positioning), the assets (strong relative to competitors) and competencies (exceptional), and the functional strategies and programs. **(Aaker 2004, 4)**

Contents

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Choosing the Most Effective Entry, Business Development, or Investment Strategy 6

Transforming Opportunities into Results 18

Putting Everything Together: 20

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Identifying and Selecting New Business Opportunities

1. What are the strengths and assets of your business? What is your vision for doing business with Emerging Africa?

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2. Consider Africa's regions. Look at the resources provided in the Regional Guide for each. Which region or specific countries present the best opportunities for your business operations in Africa? Why?

African Region	Specific Country	Opportunities	Match for business
East			
West			
Southern			
Central			
North			

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3. As a business leader, reflect on the different African market segments – what they need and how to reach them – in the two most promising regions/countries. What opportunities in each best match with your company strengths?

Region/Country 1			
Market Sector	**Needs**	**How to reach them**	**Opportunities matching with company strengths**
Elite			
Middle-Class			
Basic-Needs			

Region/Country 2			
Market Sector	**Needs**	**How to reach them**	**Opportunities matching with company strengths**
Elite			
Middle-Class			
Basic-Needs			

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4. Given the company's strengths and considering information on the different market and industry challenges and opportunities in this region, what could your business do to better meet the needs of the different African market segments in one of these regions/countries? How can your company adapt its product/service to fit the needs there?

Name of Region/Country		
Market Sector	**Adaptations of business model, processes, etc.**	**Adaptation of product/service**
Elite		
Middle-Class		
Basic-Needs		

5. Which market segment(s) will you target?

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Choosing the Most Effective Entry, Business Development, or Investment Strategy

1. Complete the following table for all trends relevant to your business prospects in the region/country above. Add more trend categories as necessary. Describe each trend and how it affects your business.

Types of Trends	Description of Trends	Implication for your business *(Managing Relationships with Customers, Competitors, Partners)*
Demographics		
Social/Cultural		
Economy		
Government policies		
Environment		
Technology		
Media (information)		

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2. Using the same African region/country from above, do a market study. What are the needs and challenges of your target customers? How would you research these needs more thoroughly? Research the prospects for your company to invest in this market/region using some or all of the tools below.
    a) Complete a 360-degree analysis.

Your product/service	
Customer Characteristics	
Demographics	
Psychographics	
Location	
Purchase Characteristics	
Purchase occasion	
Benefits sought	
Purchase usage	

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b) Evaluate each market segment you will target based on margin, volume, and persuasion potential. Briefly explain your evaluations.

	Elite Segment	Middle-Class	Basic-Needs
Margin potential			
Volume potential			
Persuasion potential			

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c) Describe the decision process and customer experience for each segment you will target.

	Elite Segment	Middle-Class	Basic-Needs
Awareness			
Beliefs			
Evaluation			
Experience			

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3. Do a SWOT analysis, listing the assets and capabilities your company has in this region/country and the opportunities and threats that this market presents for your company.

Strengths	Weaknesses
Internal and Helpful Illustrations: ➢ Visionary and executable strategy ➢ Strategic resources (superior technology, financial resources, strong brand...) ➢ Strategic capabilities (know-how...) ➢ Strategic competencies ➢ Strategic flexibility (adaptable...) ➢ Distinctive competitive advantage (differentiation from competitors) ➢ Sustainable competitiveness (maintain the competitiveness over the time: patents, copyrights, exclusive partnership, strategic location, technological complexity, business alliance) ➢ Attractive base customers ➢ Product innovation, cost advantage, better quality...	**Internal and Harmful** Illustrations: ➢ Unreliable services or products ➢ Absence of a clear vision ➢ Absence of a strategic horizon ➢ Absence or poor skills and competencies ➢ Lack of management skills ➢ Limited marketing skills ➢ Limited financial resources ➢ Limited access to distribution channels ➢ Limited ability to retain customers ➢ Weak branding ➢ Bad reputation ➢ High price compared to competitors ➢ Low quality compared to competitors ➢ Lack of sustainable competitiveness
Threats	**Opportunities**
External and Harmful Illustrations: ➢ New competitors ➢ Distribution channel of your competitors ➢ Price war ➢ Change in the strategy of current customers ➢ Change in the customers' needs ➢ Restrictive policy/regulation ➢ Economic environment ➢ Technological advance ➢ Demographic change	**External and Helpful** Illustrations: ➢ Organize the market ➢ Use the customer base to launch new products ➢ Expand in a new market segment ➢ Win competitor's customers ➢ New distribution channels ➢ Alliances and joint-ventures ➢ Change in government politics ➢ Acquiring a competitor ➢ Bankruptcy of a competitor

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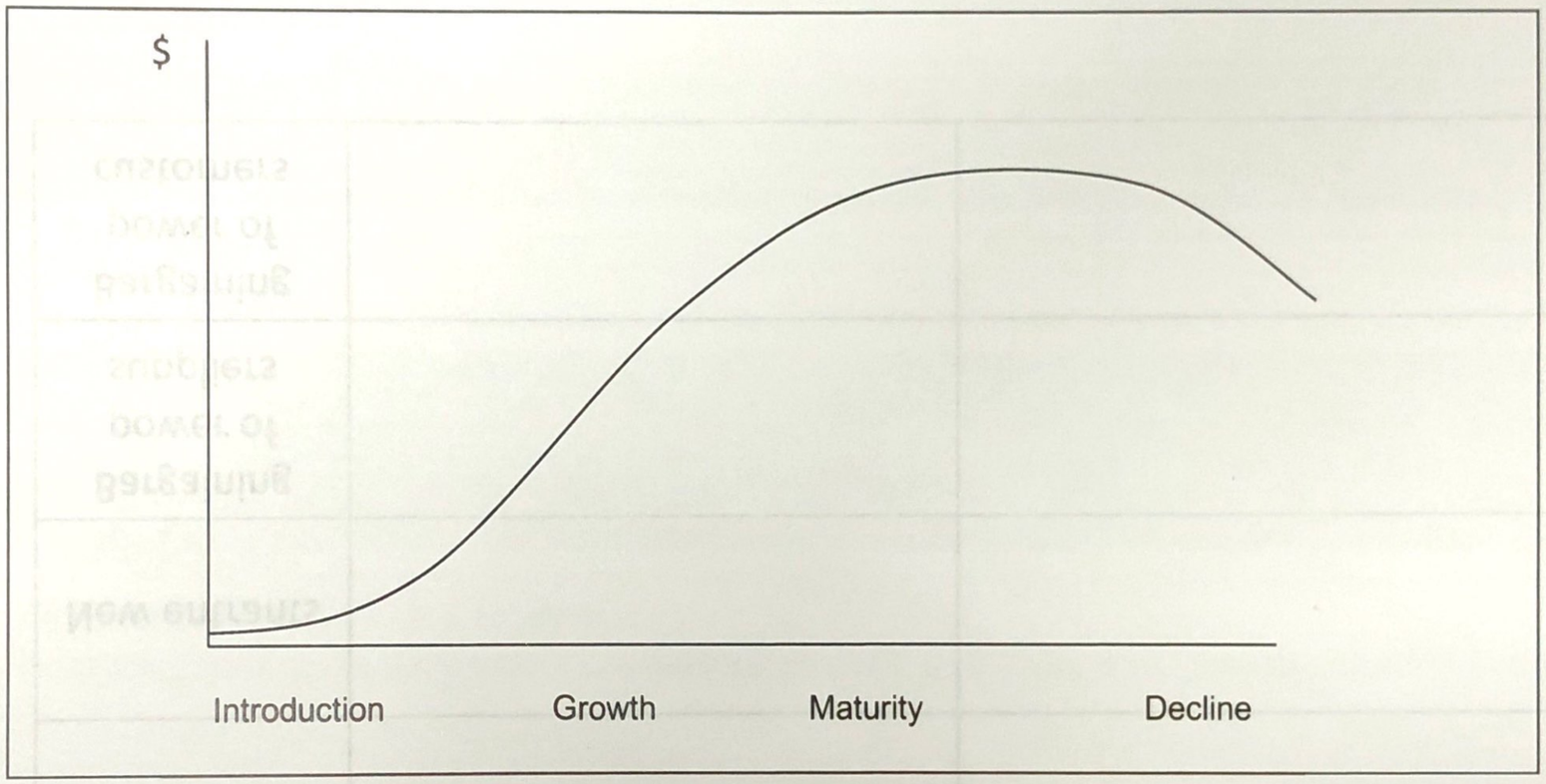
4. Identify a potential business opportunity for your company based on what you listed in the previous questions. Analyze the industry and your competitors. What is your competitive advantage? What potential partners exist to help you increase your competitive advantage? How can you make this competitive advantage sustainable?

   a) Identify the stage of the product life cycle (PLC) for your industry



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b) Evaluate the level of competition for your industry from each of Porter's 5-Forces. Provide a brief rationale.

	Degree of competition: (High/Medium/Low)	Rationale:
In-industry rivals		
Substitutes		
New entrants		
Bargaining power of suppliers		
Bargaining power of customers		

c) Evaluate the overall attractiveness of the industry or category.

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d) Map the industry structure for your company/product (develop a competitive set map).

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e) What is the competitive set for your company/product? Who are your main competitors?

Competition Set: *(Define by resource, substitute, category, sub-category)*	
Primary competitors: *(Name companies/brands)*	

f) Does each competitor have a clear competitive strategy; if so, what is it? Does this strategy provide a clear point-of-difference for consumers; if so, what is it?

Competitors	Competitive Strategy (Product Differentiation, Customer Focus, Low-Cost Leader)	Point-of-difference
Your company/ product		
Competitor 1		
Competitor 2		
Competitor 3		

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g) Does your product/service have a difference that is important to customers? Can it sustain this difference? Explain.

h) If so, how will you communicate this difference? Conduct a Marketing Audit for your company/product and its major competitors (Briefly describe each component of marketing program)

	Your company/ product	Competitor 1	Competitor 2	Competitor 2
Product				
Price				
Placement				
Promotion *(includes all marketing communication)*				

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i) How is your company or product positioned? What beliefs or associations do consumers have about your company/product? Do consumer beliefs focus on product attributes, people, or occasion? (What will you use as the axes for your positioning map?)

	Your company/ product
Product attributes	
People	
Occasion	

j) Develop a product-positioning map of your industry:

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k) Develop a marketing objective statement:

l) Develop a positioning statement:

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Transforming Opportunities into Results

1. Consider your new business venture in an African country or region. What challenges will you have to overcome and how can you minimize failure? Do a risk analysis.

Risk types	Consequences	Occurrence Probability (Low/Medium/High)	Preventive Action	Reactive Action	Employee in Charge
External Risks and Threats					
Internal and Corporate Risks, and Weaknesses					
Others Risks					

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2. Create a marketing strategy plan for your new business venture in an African country or region. Include clear indicators and quantitative data.

Marketing Strategy Plan				
Element\ Distinction	**Typology**	**Basic Needs Segment**	**Emerging and Middle-Class Segment**	**Elite Segment**
Market				
Product				
Price				
Distribution				
Promotion/ Communication				
Sales				
Profit				

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Putting Everything Together:

1. In terms of your new business venture in an African country or region, gather information and reflect on the following questions:

Who is your target audience and what do they need?	
What is the value that your product or service brings to the target audience? How does the product/service meet their needs?	
On which qualitative and quantitative elements will you focus?	
How is your strategy sustainable over time and differentiated from competitors? Why should customers choose your product/service instead of another?	
To whom are you presenting your strategy?	
What do you want from them?	
How would you clearly summarize your request in less than a minute?	

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2. Develop the Financial Strategy, including revenue model and cost structure, for your new business venture in an African country or region.

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3. What would be effective performance indicators/measures for this business venture?

Perspective	Questions to ask	Goals	Measures
Business Value Perspective	• How do we look to management?		
Internal Process Perspective	• What must we excel at? • Are we working efficiently?		
Future-Readiness Perspective	• How can we continue to improve and create value? • What technologies and business opportunities/challenges are emerging? • What can we do to meet the future needs of users?		
User Orientation Perspective	• Are we satisfying user needs? • How do users see us?		

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4. In terms of your new business venture in an African country or region, what are the three main strategic, functional, or operational plans that need to be developed by your team members / organization in order to successfully implement the business strategy? Think about this in regards to the next 6 to 12 months.

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5. Create a strategic roadmap with 3 horizons for your new business venture in an African country or region.

Elements you may include:	Horizon 1	Horizon 2	Horizon 3
Goals/focus			
Strategies			
Target customers/ market segments			
Value propositions/ captures			
Distinctive competitive advantages/ scope of business			
Strategic resources (financial, technological…)			
Key capabilities and competencies			
Key Strategic activities			
Strategic partnerships/ distribution			

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Performance measures & Indicators/ controls and flexibility			

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BROOKINGS

A blueprint for technology governance in the post-pandemic world

Landry Signé and Stephen Almond | Wednesday, February 17, 2021

Summary

Too often, regulation struggles to keep pace with innovation. New ideas, products, and business models are hampered, while citizens are left with outdated protections. As governments seek to build back better following the COVID-19 pandemic, a more agile, innovation-enabling approach to regulation is needed.

This report presents a blueprint for regulatory reform offices, such as the U.S. Office of Information and Regulatory Affairs, to introduce a more innovation-enabling approach to regulation across government and seize the opportunities of technological change. Systematic measures are needed to enhance foresight, focus regulation on outcomes, create space to experiment, harness data to target interventions, leverage the role of the private sector, bring about a seamless regulatory landscape, and tackle barriers to trade and cooperation.

As the Fourth Industrial Revolution takes hold, it will be those governments that succeed in engineering this shift to a more agile regulatory approach that will gain a competitive advantage in the global economy and will help secure their prosperity in the post-pandemic era. But succeeding in this transition won't be easy, since many regulators lack sufficient capacity or capability to respond to technological change.

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Change-makers need to go beyond announcing eye-catching initiatives such as regulatory sandboxes and engineer a cultural shift in regulation across government, learning lessons from innovators themselves on how to foster change. In developing their strategies, governments need to consider how to engage with what the market really needs and adapt their approach dynamically as the world changes.

Challenge

The COVID-19 pandemic has demonstrated the weaknesses of regulatory systems designed with the past in mind. Governments around the world have had to rewrite rules at a breakneck pace both to allow their citizens to benefit from innovations such as telemedicine and drone delivery and to help their economies adapt to the many disruptions the pandemic has caused.

The challenges facing regulatory systems have been apparent for some time. Well before the pandemic, regulators found themselves racing to adapt to the Fourth Industrial Revolution: A wave of parallel technological developments in areas from artificial intelligence to biotechnologies that are rapidly reshaping the sectors they regulate. If governed well, such innovations could help power renewed economic growth and tackle pressing social and environmental challenges.

But two problems have arisen. First, regulation has struggled to keep pace with the speed at which innovations emerge (the “pacing problem”). Technology adoption lags have fallen dramatically over successive industrial revolutions (Figure 1); it can now take weeks to introduce new ideas, products, and business models but years to change the law. The potential of innovation is diminished by regulatory barriers and uncertainty while the law fails to offer protections against emerging harms.

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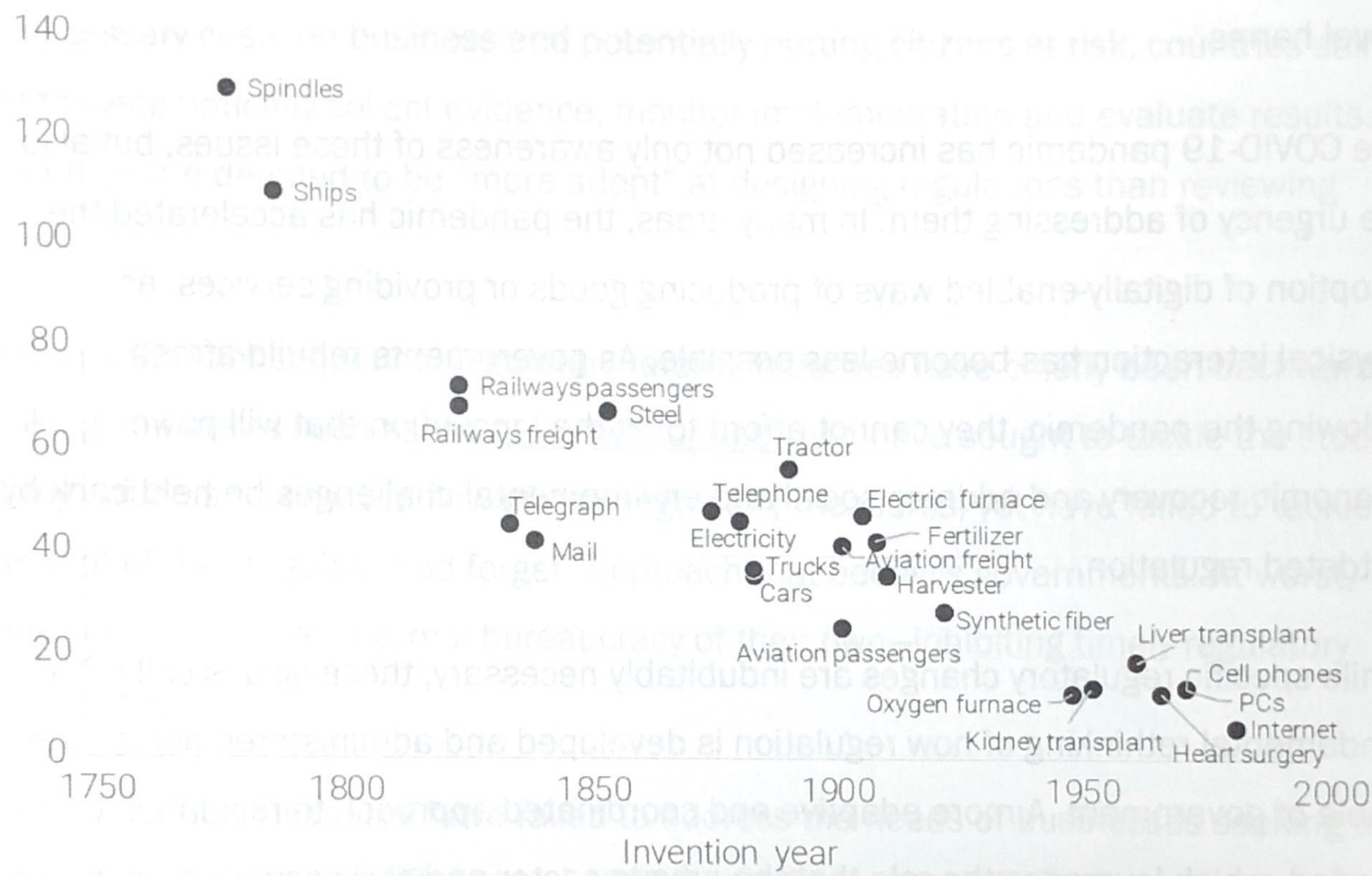
Figure 1. Technology adoption lags have fallen over successive industrial revolutions



Source: Comin, Diego, and Martí Mestieri. 2018. "If Technology Has Arrived Everywhere, Why Has Income Diverged?" American Economic Journal: Macroeconomics, 10 (3): 155. Table 1.

BROOKINGS

The challenge is compounded by the breadth and depth of technological change in this Fourth Industrial Revolution. Regulators have found themselves grappling with innovations whose implications lie partly outside their sectoral or geographical jurisdiction, requiring collective action with others (the "coordination problem"). The need for coordination is especially true for digital technologies, where firms are increasingly able to switch between different jurisdictions at low cost while retaining a global customer base.

Without reform, regulation is in danger of stifling the potential of technological innovation while failing to address its risks. In areas from social media to shared mobility, rigid rules and remits have led to the emergence of gray areas, where regulators struggle to intervene while faltering international cooperation has hindered

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governance of risks that transcend national borders. In some cases, the social contract is imperiled, as regulators are perceived to be unable or unwilling to address novel harms.

The COVID-19 pandemic has increased not only awareness of these issues, but also the urgency of addressing them. In many areas, the pandemic has accelerated the adoption of digitally-enabled ways of producing goods or providing services, as physical interaction has become less possible. As governments rebuild afresh following the pandemic, they cannot afford to let the innovation that will power economic recovery and address social and environmental challenges be held back by outdated regulation.

While specific regulatory changes are indubitably necessary, these issues call for a fundamental rethinking of how regulation is developed and administered across the whole of government. A more adaptive and coordinated approach to regulation is needed, which leverages the role that the private sector and civil society can play.

Limits of historic and existing policies

Historically, effective regulatory practice has centered on the concepts of proportionality, openness, and fairness. It is crucial that the costs of regulation are proportionate to its benefits, that regulation is informed by those who hold an interest in it, and that regulatory decisions are made on an objective, impartial, and consistent basis.

These tenets have led to the development of a linear and at times lengthy regulatory process, in which governments assess the impact of regulatory changes and consult on them before adding them to the statute book—at which point they are rarely changed. A 2017 analysis by Deloitte found that 67 percent of all current sections of the U.S. Code of Federal Regulations had never been edited since they were originally created.

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The issue is systemic. In 2018, the OECD reviewed the practices of its members and found that "although certain laws and regulations might be obsolete, imposing unnecessary costs on business and potentially putting citizens at risk, countries still fail to systematically collect evidence, monitor implementation and evaluate results." Countries are deemed to be "more adept" at designing regulations than reviewing them.

Perhaps as a consequence, regulatory reform initiatives have chiefly been backward-looking. Initiatives such as the U.S. "two for one" rule have sought to tackle the stock of regulation and slow the flow of new regulatory measures, yet have failed to tackle the root of the "regulate and forget" approach that bedevils governments. At worst, they have created an internal bureaucracy of their own—inhibiting timely regulatory intervention.

Moreover, such measures have failed to address the needs of businesses seeking to innovate and do things differently. In 2018, just 29 percent of U.K. businesses believed that the government's approach to regulation enabled them to get new products and services on to the market, despite years of reforms to tackle the burden of regulation. Another survey found that 92 percent of businesses thought that they would lose revenue if regulators did not keep pace with disruptive change in the next two to three years.

The foundational ideas of proportionality, openness and fairness are necessary but not sufficient in the context of the Fourth Industrial Revolution. These ideas must be weighed against the need for agility in responding to the opportunities and challenges of innovation. The answer to the "regulate and forget" approach within government is not simply to make better regulations or institute periodic reviews, but rather to instill an "adapt and learn" mindset that acknowledges that regulation must continuously evolve to keep pace with external change.

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Policy recommendations

This report sets out a blueprint for such an agile approach to regulation, building on recent research with the World Economic Forum. As regulators around the world seek to respond to technological innovation, seven pillars of good practice can be identified. Ranging from foresight to experimentation, they address head on the need for a more adaptive, collaborative style of regulation in the Fourth Industrial Revolution.

1. Anticipate innovation and its implications

Regulators that are able to anticipate innovation and disruption are better positioned to seize the opportunities of technological innovation while minimizing the risks. Governments including Canada, Singapore, Sweden, the United Arab Emirates, and the U.K. are investing in regulatory foresight to help understand what the future looks like and prepare accordingly.

Such initiatives typically examine emerging technologies and trends (e.g., through horizon-scanning) and their potential impacts on people, businesses, and the environment. The aim is to identify significant opportunities or risks and enable timely action to address them. In some cases, the insight gathered is used to develop scenarios for what the future will look like, which can be used to test the resilience of potential regulatory interventions.

The goal is not to rush to regulate and stifle innovation, but rather to allow regulators time to iterate their approach in dialogue with businesses and stakeholders as the technology develops. In this paradigm, regulators may steer the development of innovation through soft law mechanisms such as regulatory guidance or voluntary standards, codifying their approach into law only as the technology reaches full maturity.

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2. Focus regulations on outcomes

Excessively prescriptive regulation can rapidly become obsolete as new ideas, products, and business models emerge. Governments including Denmark, Japan, and the U.K. have introduced a presumption that regulation should focus on the achievement of outcomes rather than prescribe the use of specific inputs or processes.

The idea is to enable businesses to innovate in how they achieve regulatory goals and find the most efficient way to comply. Regulation that focuses on long-term policy goals is more likely to be resilient in the context of rapid, complex technological change. Goal-based approaches can also give regulators greater flexibility in how they mobilize their powers, so that that the process leads to the best possible results for citizens and the environment.

Not all businesses have the capability or capacity to interpret goal-based regulation, and in some cases (e.g. when outcomes are not easily measured or attributed) a more prescriptive regulatory approach may be warranted. Soft law mechanisms, such as regulatory guidance, codes of practice, and voluntary standards, may be used to complement goal-based regulation and reduce regulatory uncertainty for businesses while providing flexibility for those that wish to innovate.

3. Create space to experiment

Regulators that engage with technological development are better able to shape its evolution and learn about how their own regulatory approach needs to adapt.

In the last decade, regulators in over 50 jurisdictions have introduced mechanisms such as “sandboxes” to enable innovators to get advice on the regulatory implications of their ideas and/or trial them under regulatory supervision. Prominent examples are

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found in Canada, Denmark, Germany, Japan, Italy, Singapore [1, 2, 3], South Korea, Taiwan, the UAE, and the U.K. In some cases, governments have introduced experimentation clauses into law to enable alternative approaches to be taken.

The idea is simple. As the Head of Amazon U.K. Doug Gurr described: "It's a rather progressive way of thinking about this—instead of sitting there and saying we're going to write the regulation in isolation without understanding the technology, they're going to be looking over our shoulder every step of the way and they're going to develop the regulation hand-in-hand with the technology. If we do that we get better outcomes."

But the idea of regulatory experimentation has not found favor with all. Responding to the introduction of regulatory sandboxes in other jurisdictions, the superintendent of the New York Department of Financial Services Mario Vullo said, "Toddlers play in sandboxes. Adults play by the rules." Checks and balances are certainly needed to ensure that regulatory experiments do not undermine the goals of regulation or distort markets unfairly. Mechanisms are needed to ensure that learning is gathered from regulatory experiments and timely reforms to regulation are introduced for the benefit of all.

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Box 1. Agility in practice: The UK Financial Conduct Authority

Emerging financial technologies ('fintech') are changing the way we bank, invest, insure and pay for things. Recognizing the opportunity to drive competition and deliver better outcomes, in 2014 the U.K. Financial Conduct Authority established Project Innovate to support and stimulate fintech innovation in the interest of consumers.

Activities include:

– Engagement with innovators to anticipate and shape emerging ideas, products, and business models

– Supporting businesses so they can test innovations with real consumers in the market in a controlled way through regulatory sandboxes

– Techsprints to stimulate the development of technologies with the potential to help overcome regulatory challenges in financial services

– Collaboration with other regulators to support businesses in navigating related rules, e.g. on data protection, including a potential cross-sector sandbox

– Supporting fintech businesses as they scale their ideas internationally through regulatory cooperation agreements and, since 2019, the Global Financial Innovation Network.

Evaluation by the Financial Conduct Authority suggests that Innovate has given "firms the regulatory certainty they need to develop their innovations and deliver them at speed." Using the sandbox has allowed firms to cut the

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time and cost of bringing innovative ideas to market (40 percent reduction in time to receive authorization) and has improved their access to finance (£135m total equity funding raised by firms in the first cohort).

Eighty percent of firms that successfully tested in the sandbox are still in operation, with incumbents responding by competing harder and improving their own offerings. FinTech firm Assure Hedge completed the sandbox program to become a fully regulated company. Barry McCarthy said, the founder and chief executive of Assure Hedge said:

"We have effectively been given the same regulation that large banks have, so it really allows us to compete with the big players."

But it is not only business that has reaped the benefits: Consumers have been able to access new products with better safeguards already in place, and the regulator has been able to draw on the insight it has gained into technological innovation to update its policy positions in areas such as crypto assets.

4. Use data to target interventions

Data-driven technologies are not just transforming business—they can revolutionize regulation too.

Regulators have access to more ways to gather and analyze data than ever before, including through drones, smart sensing, wearables, the Internet of Things (IoT), web-scraping, robotic process automation, big data analytics, and artificial intelligence. Taken together, these developments open up a world in which regulatory interventions may be finely targeted, outcomes may be monitored in real time, and rules may be evaluated and updated at pace.

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Financial services regulators are at the forefront of this trend, using hackathons and tech sprints to develop technologies that enable them to respond in a more agile way to risks. The adoption of data-driven technologies can enable a more outcome-focused, experimental regulatory approach, as regulators are able to grant businesses greater flexibility to innovate, safe in the knowledge that they can more rapidly intervene.

5. Leverage the role of business

If regulators are to match the speed and complexity of the Fourth Industrial Revolution, they need to leverage the role that the private sector can play in the responsible governance of innovation.

Industry-led governance mechanisms, such as voluntary standards, codes of conduct, and industry covenants, can help deliver policy objectives more rapidly than regulatory intervention. Authorities including the European Commission have developed principles to support the greater use of self- and co-regulation approaches.

The information asymmetry between businesses and regulators means that industry is often better placed to manage the risks from technological innovation most efficiently and effectively. As already noted, industry-led governance can complement the use of goal-based regulatory approaches by providing guidance to businesses on how outcomes can be achieved.

Like regulation, industry-led governance introduces benefits and costs for those who participate in it. Where participation becomes a de facto or de jure requirement for businesses to operate (for example through statutory backing, buyer/consumer requirements, reputational incentives), care is needed to ensure that governance is proportionate, open, fair, and agile.

6. Work across institutional boundaries

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The technological innovations that are the hallmark of the Fourth Industrial Revolution straddle sectors and institutions alike. Businesses can easily find themselves navigating a patchwork of regulations that deters them from introducing new ideas, products, and business models. In response, governments including Denmark and Japan have introduced single points of contact or "one-stop-shops" to enable businesses to engage more straightforwardly with different national regulators on their ideas and to ensure that issues are tackled in a coordinated way.

In the same way, coordination is needed to avoid unnecessary divergence in regulatory approaches across localities that would make it harder to trade or achieve shared regulatory goals. This need not mean that regulations should be the same, but rather that where possible they should be interoperable. Authorities in Japan and South Korea have exploited the potential to trial different regulatory approaches in different localities to inform decisions about how to adapt regulation more generally.

7. Collaborate internationally

The Fourth Industrial Revolution is reshaping business the world over, creating common opportunities and risks that regulators in different jurisdictions must respond to. By cooperating across borders, regulators can facilitate trade and investment and address shared challenges more efficiently and effectively.

Regulators in different jurisdictions are finding new ways to cooperate on technological innovation, including through sharing foresight and joint experimentation. Such activities can create the conditions for regulators to develop more interoperable and effective rules. Plurilateral alliances have emerged in areas such as fintech and medicines, while in December 2020 the governments of Canada, Denmark, Italy, Japan, Singapore, the UAE, and the U.K. came together to establish the Agile Nations: a regulatory cooperation partnership that will cover innovations

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ranging from green technologies to mobility. (Another Blueprint paper in this series provides insights on forums where international cooperation on artificial intelligence is already being pursued.)

From foresight centers to regulatory sandboxes, agile regulatory initiatives have now been introduced in over fifty different jurisdictions to respond to innovation in areas such as finance, transport, health, data, and the green economy. Notwithstanding the diversity of these initiatives, four lessons can be identified on how agile regulatory initiatives can be introduced successfully.

A. Engage the market

It sounds obvious, but agile regulatory initiatives such as sandboxes need to tackle the real barriers that innovators face in introducing new ideas, products, and business models if they are to address them. Regulation is not always the limiting factor on innovation, since issues such as capability, capital, and culture may also be at play. Even where regulation is perceived to be the issue, there may be many more opportunities for innovation within the rules than businesses realize. A well-designed scheme to provide advice to businesses on the regulatory implications of their new ideas can often have greater reach and impact than an eye-catching but resource-intensive testing environment targeted toward frontier innovations.

B. Build on good practice

Care is needed to ensure that regulation remains proportionate, open, and fair. For example, industry-led governance must not reduce the voice of civil society in shaping how technological innovation is governed, while data-driven technologies must be employed in a way that does not introduce or replicate bias in regulatory decisions.

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Checks and balances need to be built into the design of agile regulatory initiatives from the beginning. For example, regulators have managed the risks of sandboxes undermining the level playing field for business by ensuring that support is time-limited and awarded on a competitive basis according to clear criteria (e.g. degree of innovation, regulatory barriers faced). Such controls help minimize market distortion and ensure that it is the best ideas that succeed.

C. Think holistically

While the agile regulatory initiatives in this blueprint can be employed separately, the seven pillars are mutually reinforcing and have the greatest impact when employed jointly. The example of the U.K. Financial Conduct Authority shows how these techniques can be introduced as part of a holistic regulatory strategy.

For example, regulatory sandboxes can offer a vital source of intelligence about emerging technologies and innovations. Shared industry-led governance (e.g., international standards) can underpin greater international regulatory cooperation. Data-driven enforcement can complement and enable a more outcome-focused regulatory approach.

Conversely, a lack of action under one pillar may inhibit success in another. A sandbox led by one regulator is unlikely to accelerate innovation if another regulator's actions still lead to critical delays, while the benefits of responsible industry-led governance may be diminished if the overarching regulatory regime is still heavily prescriptive.

D. Evaluate and learn

Agile regulation should be considered a dynamic process that adapts to changes in the external context. As innovations emerge, existing regulatory regimes may be too rigid and greater space for experimentation may be needed. But as technological

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innovation slows, the need for predictable and stable governance may outweigh the need for flexibility.

Monitoring and evaluation is critical to ensuring that initiatives have their intended effect and that the regulatory system keeps pace dynamically with innovation. Many agile regulatory approaches are novel in nature and it is essential that feedback loops are built in to ensure that they are effective.

Conclusion

While growing in popularity, the use of more agile regulatory approaches is not yet mainstream within governments. Many regulators view innovation as outside their remit, preferring to respond to change after it has happened rather than shape events upstream—notwithstanding the resulting damage to their goals and costs to business.

A more agile regulatory approach is—often rightly—perceived to introduce novel risks and costs. Many regulators lack the capacity and capability to engage further upstream, especially where budget constraints mean that the talent needed to govern innovators is hoovered up by businesses themselves. Some regulators elect to stay in the comfort zone of their legislative silo rather than lean into disruptive change.

For those looking to introduce a more agile regulatory approach across government as a whole, the answer does not simply lie in establishing eye-catching sandboxes or foresight initiatives. Rather, they need to reflect on how to incentivize a culture shift within regulators: towards influencing upstream over reacting downstream; prioritizing outcomes over rules; adapting to change over following a plan; leveraging others over exercising sole control; and collaborating across boundaries over working in silos.

In this regard, competitive innovation funds such as those in the U.K. and Germany offer an interesting example of how governments and other organizations (e.g., development banks) can incentivize the introduction of more agile regulatory

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approaches as set out in Parts A and B. Regulatory initiatives that secure funding benefit both from investment in their capability and capacity and, crucially, endorsement of the approach that they are taking—providing a vital signal to other regulators on the importance of a more agile approach.

Further work is needed at a governmental and intergovernmental level to drive this strategic shift in regulation. Testifying to the increasing importance of this shift, later this year the OECD will set out principles for its members on effective and innovation-friendly rule-making in the Fourth Industrial Revolution—and assessment of government performance in these areas will no doubt soon follow.

As the Fourth Industrial Revolution takes hold, those governments that succeed in engineering a shift to a more agile regulatory approach will gain a competitive advantage in the global economy. Governments must act now if they are to unlock the potential of this wave of technological innovation and shape it in the interest of their citizens.

Acknowledgments:

The authors are grateful to Joshua Meltzer, Elaine Kamarck, and anonymous reviewers for their insightful comments, and to David Batcheck and Daniela Gainsburg for their editorial work.

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9-418-007
SEPTEMBER 21, 2017

JULIE BATTILANA
CARIN-ISABEL KNOOP
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NOEMIE ASSENAT

Christine Lagarde

Since becoming managing director of the International Monetary Fund (IMF) in 2011, Christine Lagarde had guided the organization through twin crises of unprecedented proportions: the leadership transition following the sudden departure of her predecessor, Dominique Strauss-Kahn, and the ongoing financial crisis in the world economy, including parts of the Eurozone.

Lagarde and her team led a complex multilateral organization with 189 member countries and dispersed voting rights (see **Exhibits 1** and **2** for an overview of the IMF's board and governance structure). The IMF's mission was to promote international financial stability and monetary cooperation.[1] It also facilitated international trade, promoted employment and sustainable economic growth, and helped to reduce global poverty.[2] To help the IMF reach its goals, Lagarde travelled extensively, visiting member countries, and pulling countless all-nighters even when jetlagged (see **Exhibit 3** for countries visited). Wherever she went, she insisted on meeting not only with government officials but also with local people, especially women and students, to hear firsthand about the challenges they faced in their daily lives.

The Path to the IMF

Raised by "loving, very attentive, and present" parents, she was keenly aware of her leadership potential from a young age. "As a youth, I didn't know where I wanted to end up. The only thing I knew was that I had some attributes of leadership." Lagarde started her career in 1981 as a lawyer at Baker & McKenzie. The global law firm employed approximately 2,500 lawyers across 35 countries by 1999,[3] when she became the firm's first non-American and female chairman. Under her leadership, the firm increased revenues by 50%, reorganized its governance, and became much more prominent internationally.

At the end of her term as chairman in 2005, she transitioned to the public sector, becoming France's Minister for Foreign Trade in President Jacques Chirac's administration. After Nicolas Sarkozy became President in 2007, she was one of the few ministers to stay in government, first briefly as Minister for

Professor Julie Battilana, Executive Director Carin-Isabel Knoop (Case Research & Writing Group), Vanessa Ampelas (MBA 2016), and Noemie Assenat (MBA 2017) prepared this case. It was reviewed and approved before publication by a company designate. Funding for the development of this case was provided by Harvard Business School and not by the company. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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Agriculture and Fisheries and then as Finance Minister—the first woman ever to hold that position in the Eurozone, and a role she held through the financial crisis.

From July to December 2008, France was slated to take over the presidency of the European Union (EU), which rotated every six months. As a result, Lagarde became the EU's *de facto* finance minister when the financial crisis was most acute. In 2009, *Financial Times* voted her the best Finance Minister in the EU, calling her "a star among world financial policy-makers."[4] Her peers also lauded her leadership; Timothy Geithner, former U.S. Secretary of the Treasury, publicly commented on "her lightning-quick wit, genuine warmth, and ability to bridge divides while remaining fiercely loyal to French interests."[5] In 2011, after four years of relentless work as France's finance minister, she was selected to head the IMF in 2011 (see **Exhibit 4** for major milestones).

A New IMF for a New World

Since 2011, Lagarde had worked methodically to build the foundations for the IMF's adaptation to the realities of the twenty-first century. To reflect the growing economic weight of emerging markets, she successfully pushed for the implementation of governance reforms that made each of the BRIC economies (Brazil, Russia, India, and China) a top 10 IMF shareholder for the first time, while the inclusion of China's renminbi in the IMF's SDR (Special Drawing Rights) basket of major currencies further signaled the country's increased economic significance.

To bring the IMF's finances and operations in line with the scale and complexity of the modern world, she lent her support to increasing its lending capacity to almost $1 trillion, to reforming its lending facilities, and to expanding its capacity development work.

Finally, to reform the IMF's reputation as remote and austere—it had earned the nickname "*I*t's *M*ostly *F*iscal"—she emphasized the macroeconomic dimension of contemporary social and environmental concerns such as income and wealth inequality, gender inequality, and climate change.

In February 2016, the IMF's membership reselected the 60-year-old Lagarde for a second five-year term as its head. That year, *Forbes* named her the sixth most powerful woman in the world.[6] Yet Lagarde's globally positive reputation was challenged in December 2016 when a special tribunal in France found her guilty of "negligence," as part of a dispute known colloquially in France as "the Tapie affair."[7] Many commentators viewed the process as highly politicized—the verdict did not suggest malfeasance on her part or impose any penalty. The IMF's Executive Board, representing its entire country membership, expressed immediate and unanimous confidence in Lagarde and her ability to continue to lead the evolving IMF into the future.

It was not Lagarde's first leadership challenge. "Throughout her career," *Forbes* reported as she assumed the IMF's managing director role, "she has faced unusual challenges—intellectual, political and otherwise—in male-dominated worlds."[8] In the private and public sectors, both nationally and globally, she had fought the "goddamn glass ceiling," as a close colleague put it, for herself and others. At each juncture, she had faced detractors skeptical about her abilities, and time and again she seemed to prove many of them wrong. "I'm not sure that I have been successful in everything," remarked Lagarde in 2017, "but the backbone of everything I have done in both the private and public sectors has been international exposure and a drive to contribute to solving some of the world's most pressing problems."

By 2017, shortly after Lagarde began her second term at the IMF, the world indeed faced pressing issues as a result of the rapidly-evolving, hyper-connected global economy—ongoing recovery from

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the global financial crisis, the rise of emerging economies, deeper cross-border integration, technological change, and growing wealth and income inequality within countries. These interrelated dynamics were playing out alongside heightened anxiety within the populations of some major advanced economies about what these changes meant for them. The concerns manifested themselves in an inward focus, rumblings of protectionism, and questions about the worth of international cooperation and the multilateral system itself.

In contrast, however, Lagarde believed that the challenges facing the world economy warranted not less but more global cooperation. In this context, she had to determine how the IMF—as the leading advocate of global economic cooperation since its creation out of the ashes of World War II—could better demonstrate its effectiveness. She knew that it was a critical moment. (**Exhibit 5** offers a brief overview of eras in IMF history.)

In the fall of 2017, Lagarde outlined some of the key aspects of the IMF's response to the shifting global economy. The IMF was working with countries to identify the right policies to bolster growth, promote economic resilience, and harness the benefits of technology and integration for all—including policies to help those who felt "left behind" by globalization. Advocating for more resolute multilateral cooperation was a big part of this. Lagarde was also pushing to bring analysis of the macroeconomic dimensions of social issues—including equity, inequality, women's empowerment, climate change, and anti-corruption concerns—further into the mainstream of IMF work by going beyond research to provide country-specific policy advice on these issues.

To bring the IMF's governance further in line with the changing dynamics of the global economy, its Executive Board aimed to complete its next review of shareholder representation by 2019. In the meantime, Lagarde also increasingly engaged with non-state actors such as civil society organizations and communicated directly with citizens through digital tools such as social media. Moreover, she was challenging her staff to analyze long-term trends and the emerging challenges of automation, artificial intelligence, and the future of work. While leading the IMF at this pivotal juncture, Lagarde recalled her high school motto: "*Inveniam viam aut faciam*" (I will find a way—and if I don't find one, I will make one).

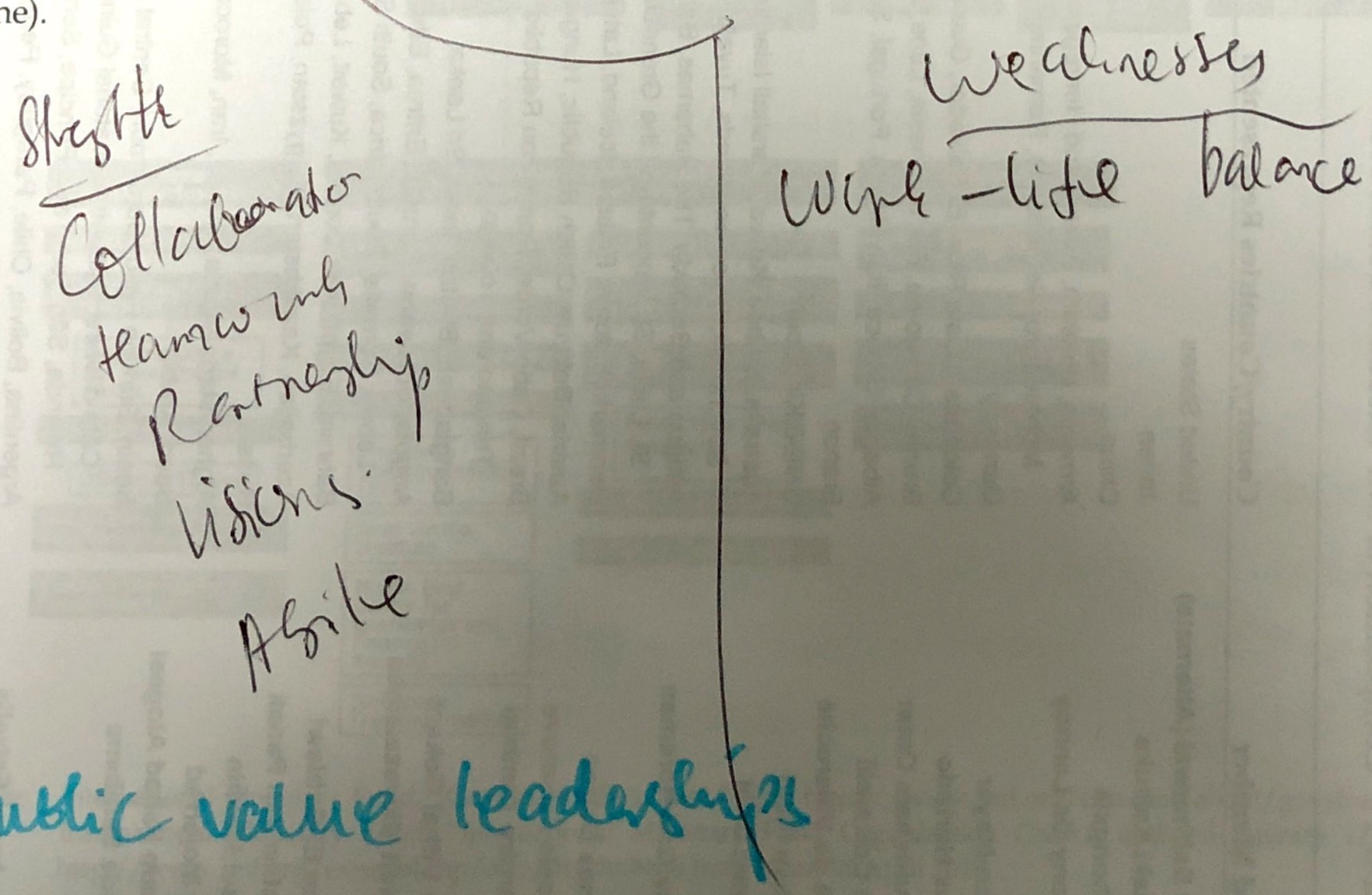

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Exhibit 1 Composition of IMF Executive Board, 2017

Board Member	Country/Countries Represented	Voting Share
Sunil Sabharwal (Alternate)	United States	16.53%
Masaaki Kaizuka	Japan	6.16%
Jin Zhongxia	China	6.09%
Anthony De Lannoy	Armenia, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Georgia, Israel, Luxembourg, Macedonia, Moldova, Montenegro, Netherlands, Romania, Ukraine	5.43%
Steffen Meyer	Germany	5.32%
Carlos Hurtado	Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Spain, Venezuela	5.31%
Marzunisham Omar	Brunei, Cambodia, Fiji, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Singapore, Thailand, Tonga, Vietnam	4.34%
Carlo Cottarelli	Albania, Greece, Italy, Malta, Portugal, San Marino	4.13%
Hervé de Villeroché	France	4.04%
Stephen Field	United Kingdom	4.04%
Heenam Choi	Australia, Kiribati, Korea, Marshall Islands, Micronesia, Mongolia, Nauru, New Zealand, Palau, Papua New Guinea, Samoa, Seychelles, Solomon Islands, Tuvalu, Uzbekistan, Vanuatu	3.90%
Nancy Gail Horsman	Antigua and Barbuda, The Bahamas, Barbados, Belize, Canada, Dominica, Grenada, Ireland, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines	3.38%
Thomas Östros	Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, Sweden	3.29%
Michaela Erbenova	Austria, Belarus, Czech Republic, Hungary, Kosovo, Slovakia, Slovenia, Turkey	3.23%
Alexandre Tombini	Brazil, Cabo Verde, Dominican Republic, Ecuador, Guyana, Haiti, Nicaragua, Panama, Suriname, Timor-Leste, Trinidad and Tobago	3.07%
Subir Vithal Gokarn	Bangladesh, Bhutan, India, Sri Lanka	3.05%
Maxwell Mkwezalamba	Angola, Botswana, Burundi, Eritrea, Ethopia, Gambia, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Nigeria, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Uganda, Zambia, Zimbabwe	2.97%
Hazem El-Beblawi	Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Maldives, Oman, Qatar, Syrian Arab Republic, United Arab Emirates, Yemen	2.96%
Miroslaw Jan Panek	Azerbaijan, Kazakhstan, Kyrgyzstan, Poland, Serbia, Switzerland, Tajikistan, Turkmenistan	2.75%
Aleksei Mozhin	Russia	2.59%
Jafar Mojarrad	Afghanistan, Algeria, Ghana, Iran, Morocco, Pakistan, Tunisia	2.20%
Hesham Fahad Alogeel	Saudi Arabia	2.02%
Daouda Sembene	Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Republic of Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Gabon, Guinea, Guinea-Bissau, Madagascar, Mali, Mauritania, Mauritius, Niger, Rwanda, São Tomé and Príncipe, Senegal, Togo	1.61%
Jorge Angel Estrella	Argentina, Bolivia, Chile, Paraguay, Peru, Uruguay	1.59%

Source: International Monetary Fund, "IMF Executive Directors and Voting Power," May 1, 2017, https://www.imf.org/external/np/sec/memdir/eds.aspx, accessed May 2017.

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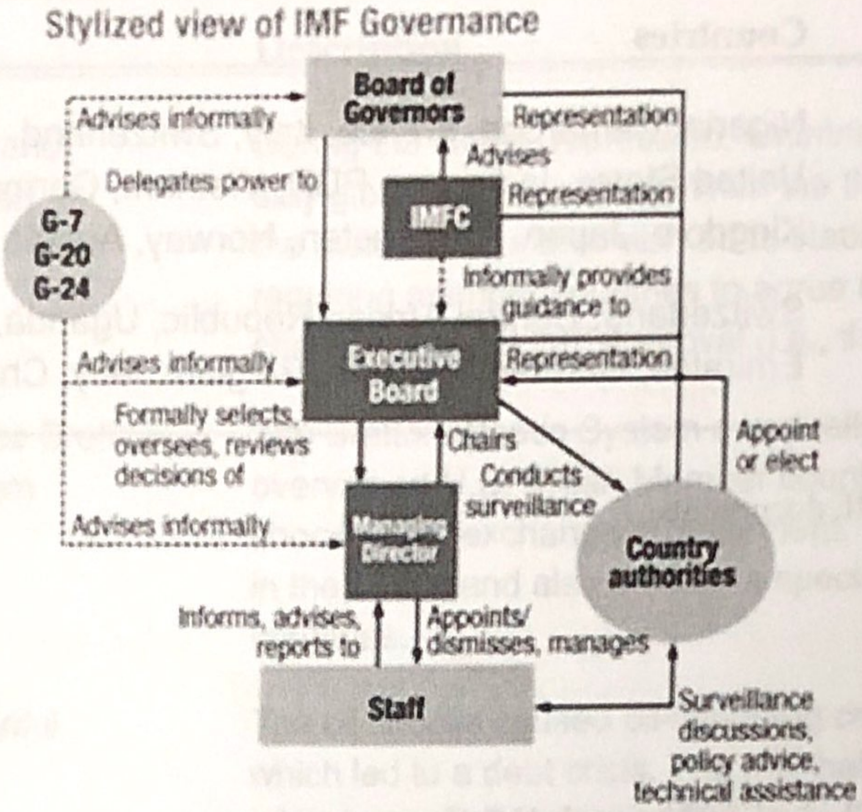
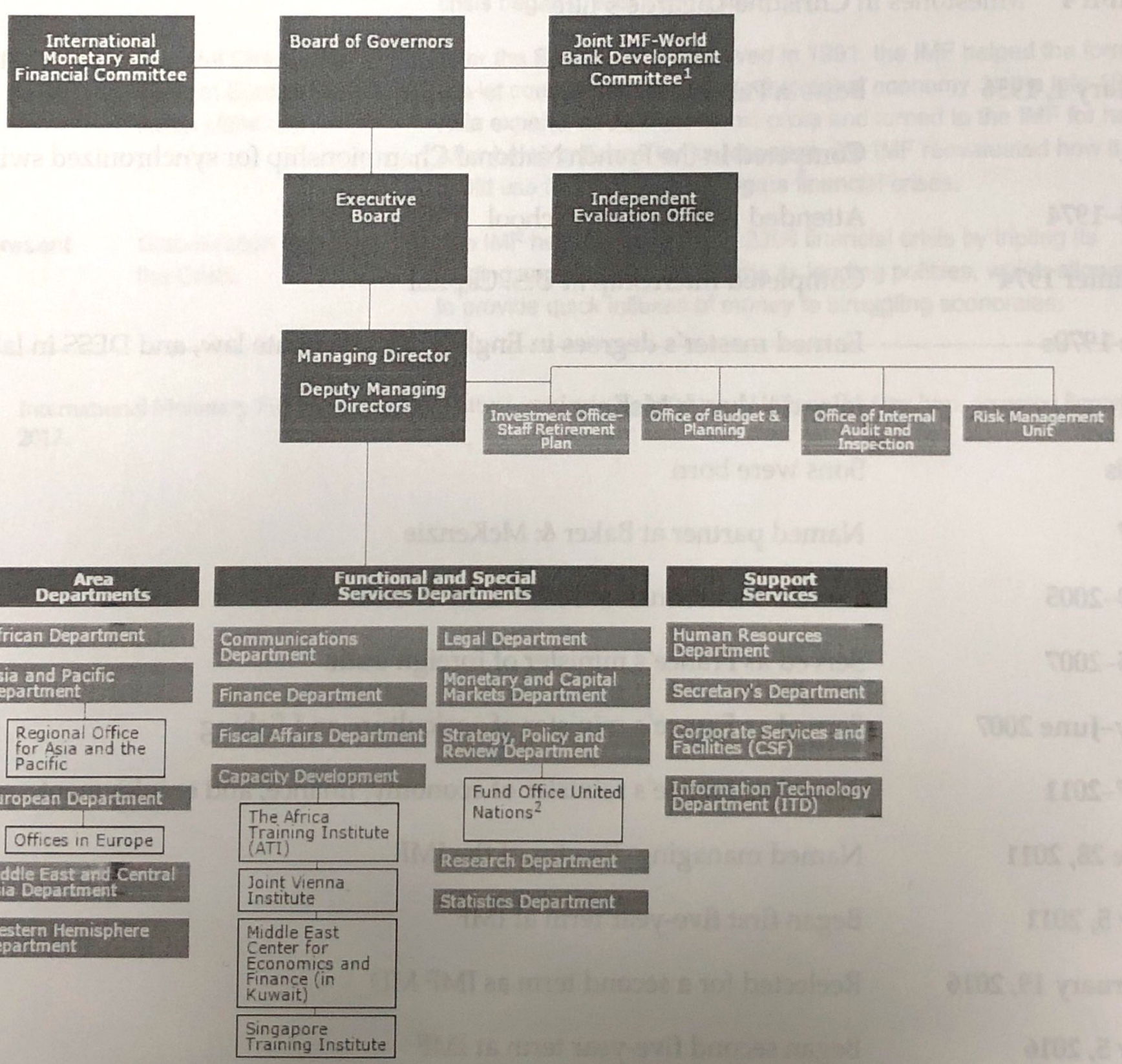
Exhibit 2 Basic Overview of IMF Governance Structure and Organization Chart





Source: International Monetary Fund, "Governance Structure," n.d., https://www.imf.org/external/about/govstruct.htm; International Monetary Fund, "International Monetary Fund Organization Chart," updated January 11, 2017, http://www.imf.org/external/np/obp/orgcht.htm; both accessed April 2017.

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Exhibit 3 Countries Visited by Christine Lagarde as IMF Managing Director, 2016 and 2017

Year	Countries
2016	Nigeria, Cameroon, France, Italy, Switzerland, United Arab Emirates, China, United States, India, Lao PDR, Vietnam, Germany, Netherlands, United Kingdom, Japan, Kazakhstan, Norway, Austria, Canada, and Pakistan
2017 (through July 2017)	Switzerland, Central African Republic, Uganda, Mauritius, United Arab Emirates, Germany, Austria, Belgium, Italy, China, Spain, Croatia

Source: Casewriter, based on IMF documents.

Exhibit 4 Milestones in Christine Lagarde's Life

January 1, 1956	Born in Paris
1971	Competed in the French National Championship for synchronized swimming
1973–1974	Attended Holton-Arms School
Summer 1974	Completed internship at U.S. Capitol
Late 1970s	Earned master's degrees in English and corporate law, and DESS in labor law
1981	Joined Baker & McKenzie
1980s	Sons were born
1987	Named partner at Baker & McKenzie
1999–2005	Served as chairman at Baker & McKenzie
2005–2007	Served as France's minister of foreign trade
May–June 2007	Served as France's minister of agriculture and fishing
2007–2011	Served as France's minister of economy, finance, and employment
June 28, 2011	Named managing director of the IMF
July 5, 2011	Began first five-year term at IMF
February 19, 2016	Reelected for a second term as IMF MD
July 5, 2016	Began second five-year term at IMF

Source: Casewriters.

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Exhibit 5 Eras in IMF History

Years	Era	Description
1944–1971	Cooperation and Reconstruction	During the Great Depression, countries devalued their currencies to stay globally competitive. When the IMF was first founded in 1944, the member countries worked to stabilize exchange rates by requiring member countries to agree to fixed rates that could not be changed without IMF approval (i.e., the Bretton Woods System).
1972–1981	The End of the Bretton Woods System	The Bretton Woods System eventually dissolved due to an overvalued U.S. dollar. Member countries were given the freedom to choose their exchange arrangement. The IMF weathered oil shocks in the 1970s and also created a special financing fund for poor countries.
1982–1989	Debt and Painful Reforms	The oil shocks caused oil-importing countries to borrow from banks, which led to a debt crisis. The IMF helped lead the response after the crisis began in Mexico in 1982.
1990–2004	Societal Change for Eastern Europe and Asian Upheaval	After the Soviet Union dissolved in 1991, the IMF helped the former Soviet countries transition into the global economy. In the late 1990s, Asia experienced an economic crisis and turned to the IMF for help. After being criticized for its response, the IMF reevaluated how it could use fiscal policy to navigate financial crises.
2005–present	Globalization and the Crisis	The IMF helped navigate the 2008 financial crisis by tripling its lending capacity and revamping its lending policies, which allowed it to provide quick influxes of money to struggling economies.

Source: International Monetary Fund, History, n.d., http://www.imf.org/external/about/history.htm, accessed September 2017.

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Day 2 - 21 July 2022

Silvi Herti Afriani

Head of International Service Center

Arizona State University

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UIN RADEN FATAH PALEMBANG

	TIME	WEDNESDAY July 20	TIME	THURSDAY July 21
	7:00	Breakfast Pavilion 8th Floor	7:00	Breakfast Room 211
	7:45	**WELCOME & PROGRAM INTRODUCTION** Pavilion 8th Floor	7:45	**MORNING WELCOME** Room 211
	7:55	**MOU SIGNING** Pavilion 8th Floor *Landry Signé* *Dean Khagram on Zoom*	8:00	**TOUR OF BUILDING** Room 211 *Paolo Rivera*
	8:00	**LEADERSHIP TRAINING** Room 211 **GLOBAL & PUBLIC AFFAIRS IN THE 4IR ERA** *Landry Signé*	8:30	**BEST PRACTICES OF QUALITY ASSURANCE** Room 211 **UIN SHARED EXPERIENCE** *UIN Faculty*
	10:00	Break with Snacks Room 211	10:00	Break with Snacks Room 211
	10:15	**LEADERSHIP TRAINING** Room 211 **GLOBAL & PUBLIC AFFAIRS IN THE 4IR ERA** *Landry Signé*	10:15	**BEST PRACTICES OF QUALITY ASSURANCE** **Room 211** **OVERVIEW OF THUNDERBIRD PROGRAMS** *Landry Signé & Jennifer Betancur*
	12:00	Lunch Pavilion 8th Floor	11:30	Lunch Room 211
	13:00	**LEADERSHIP TRAINING** Room 211 **GLOBAL & PUBLIC AFFAIRS IN THE 4IR ERA** *Landry Signé*	12:40	**WORLD BANK TOUR** Meet in Lobby **TOUR OF WORLD BANK** *Abdoul Salam Bello*
	15:30	Break with Snacks Pavilion 8th Floor	14:00	Check-In for Tour Meet in Lobby
	16:00	**THOUGHT LEADERSHIP SERIES** Pavilion 8th Floor **WEBINAR: CLIMATE CHANGE & UNIVERSITY CONTRIBUTIONS** *Landry Signé & Nyayu Khodijah*	14:30	**CAPITOL TOUR** **TOUR OF U.S. CAPITOL** *Jordan Wilson*
	17:00	Day Concludes	16:00	Program Concludes

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SYLLABUS

LEADERSHIP TRAINING
GLOBAL AND PUBLIC AFFAIRS IN THE FOURTH INDUSTRIAL REVOLUTION

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Executive Director and Professor, Thunderbird School of Global Management
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INTRODUCTION

This seminar is a high-engagement executive training on **global and public affairs in the Fourth Industrial Revolution** era and the type of **agile leadership and governance** needed to address the most complex challenges and develop solutions to succeed in a turbulent and fast-changing world. The international order is under stress due to the constantly changing nature of issues globally. This stress is evident from the climate crisis to the diffusion of governing powers, global poverty and inequality, economic and financial crises, democratic and human rights recessions, gender disparities, social unrests, infectious diseases, conflicts and security challenges, cyberattacks, water, energy, and food crises, global skill mismatches, disruptive technologies, and the crisis of multilateralism.

The world is advancing in a new technologically golden but complex era referred to as the **Fourth Industrial Revolution** (4IR), which has had an **unprecedented impact on humanity** and is characterized by the fusion of technology with an incredible velocity, scope, and systems impact. Emerging technologies such as Artificial Intelligence and Robots, Big Data, Automation, Internet of Things, Cloud Computing, Blockchain, Augmented and Virtual Reality, Autonomous and Near-Autonomous Vehicles, Next-Generation Genomics, Metaverse, and others are increasing the power of business and civil society, and transforming the pace, effectiveness, and ethics of global and public governance. With these disruptive transformations, **global and public organizations have to reinvent their processes.** This involves collaboration with the private sector and civil society organizations to drive the structural transformation to systems of global production, labor, economy, security, governance, and development, among others, to ultimately better deliver for citizens and stakeholders.

This seminar discusses the 4IR, its drivers, enablers, challenges, opportunities, and impact on global and public affairs, including the Sustainable Development Goals (SDGs). It also discusses the broader trends shaping the world, how to navigate the world's fast-growing economies during the 4IR, and the strategies to reap the 4IR benefits and make it work for all. It concludes with the type of agile leadership and governance needed to govern effectively and succeed in an ever-changing world.

This seminar will benefit leaders interested in deepening their ability to appreciate global trends shaping the 21st century and acquire strategies to leverage new insights for effective leadership and agile governance in international and public affairs during the Fourth Industrial Revolution. The seminar will focus on:

1. Expanding insights on how the 4IR is evolving, shaping the 21st century, and framing the future of global affairs, public, and academic institutions.
2. Appreciating the broad trends shaping the global economy/global affairs, including why some countries or institutions outperform others and their implications on the strategies to become a global

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outperformer.

3. Equipping leaders and managers with new methods, tips, techniques, strategies, and best practices to implement agile governance and deliver exceptional outcomes during the 4IR, including for the SDGs.
4. Empowering leaders and managers to exercise effective leadership to successfully address challenges at the forefront of local, national, and global conversations.

DETAILED SESSION OUTLINES - WEDNESDAY, JULY 20, 2022

Session 1 – Introduction to the Fourth Industrial Revolution and its Implications for Global and Public Affairs

- Introduction to the 4IR, its characteristics and implications for global and public affairs: What is the 4IR, and how does it differ from the previous industrial revolutions? What are its drivers, enablers, opportunities, and challenges? What are its implications for the future of the world, SDGs, systems thinking, and complex global systems?

Materials

Reading

- Schwab, Klaus. 2016. *The Fourth Industrial Revolution*: What it means and how to respond: https://bit.ly/3AXXLqb [Short article]

Case

- *Bringing the Peruvian Government Closer to its Constituents* [HKS Case Number: 2171.0] [Read pages 1 to 3 as priority]

Assignment

Reading

- You should read the required material and consider the implications of the Fourth Industrial Revolution for the world (economy, production, politics, society, inequality, academic institutions, etc.).

Case

- You should read the case and be ready to discuss the strengths, weaknesses, opportunities, and constraints related to the Peruvian Government's digitalization.

Optional Materials

Schwab, Klaus. 2016. *Welcome to the Fourth Industrial Revolution* [ROT308-PDF-ENG – Available on Harvard]

United Nations Sustainable Development Goals & Data

- https://sustainabledevelopment.un.org/sdgs
- https://sustainabledevelopment.un.org
- https://unstats.un.org/sdgs/report/2021/
- https://ourworldindata.org

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Session 2 – Navigating the World's Fast-Growing Economies in the Fourth Industrial Revolution

- From a comparative perspective, the drivers of outperforming countries in the global economy include technology, innovation, competitiveness, and education. How is the 4IR contributing to the performance of the world's fast-growing economies? How can agility help in addressing global challenges?

Materials

Reading

- Landry Signé, Addisu Lashitew, and Sanjeev Khagram. 2020. *The Great Reset Needs "Agile Governance"* - https://t-birdconnect.com/news/16097 [Short article]

Case

- "World-Class" Universities: Rankings and Reputation in Global Higher Education [Harvard Business School Background Note 316-065] [Read pages 6 to 8 as priority]

Assignment

Broader reflection

Please think about the following questions:

1. What are the world's outperforming emerging and developing economies, and how can they be classified?
2. Why are some emerging and developing markets outperforming others, and what are the drivers of outperformance?
3. What is the role of the Fourth Industrial Revolution, and entrepreneurship, in achieving outperformance?

Case questions

You should read the case and be ready to discuss the following questions:

1. What is the meaning of "world-class" university?
2. Which indicators are used for major university ranking systems, and are they relevant to UIN? (QS Ranking, Times Higher Education (THE), Shanghai Jiaotong Ranking (ARWU), U.S. News & World Report Best Global Universities Ranking (USNWR), etc.)
3. How can universities better leverage faculty, students, administrators, and the internationalization strategy in building world-class academic institutions?

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Session 3 – Agile Leadership and Governance in Global and Public Organizations for the Fourth Industrial Revolution

- The Fourth Industrial Revolution is bringing disruptive transformations that are changing the nature of policy-making processes and the governance of public policy, business, and global affairs. Therefore, *Agile Leadership and Governance* are critical to quickly responding to the changing nature of the policy, business, and global challenges that exist. Especially given the reign of uncertainty, the diffusing governing power, the complexity of technology governance, and the emergence of new technologies that are fusing the physical, digital, and biological worlds. What are the definitions, benefits, approaches, tools, methods, applications, and pillars of agile leadership/governance? What are the varieties of global and public leadership, and how to lead effectively during times of change, crisis, and technological disruptions?

Materials

Reading

- Landry Signé and Stephen Almond. 2021. "A blueprint for technology governance in the post-pandemic world." https://brook.gs/3IQnIcU [Read the summary as priority]

Case

- *Christine Lagarde* [418007-PDF-ENG] [Read pages 1 to 3 as priority]

Assignment

Reading

- You should read the required material and think about how to implement the pillars of agile/technology governance in your institution.

Case

- You should read the case and be ready to discuss the strengths, weaknesses, opportunities, and constraints related to the leadership style of Christine Lagarde.

Optional Materials

- World Economic Forum. 2020. Agile Governance. *Reimagining Policy-making in the Fourth Industrial Revolution*. https://bit.ly/3zg7Zko
- Nicholas Davis, Landry Signé and Mark Esposito. 2022. "Interoperable, agile, and balanced: Rethinking technology policy and governance for the 21st century." https://brook.gs/3aMnUxx
- Hart, Paul & Lars Tummers. 2019. *Understanding Public Leadership* . New York: Red Globe Press.

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THURSDAY, JULY 21, 2022

UIN SHARED EXPERIENCE

Materials

Case

- MacEwan Goes Global: Internationalization at a Canadian School of Business [909M20-PDF-ENG, 13 pages]

Assignment

For the UIN shared experience, you should read the case and be ready to discuss the questions below:

1. How can Dean Elford define "internationalization" for her college and, more specifically, the School of Business
2. Evaluate the political, economic, social, and technological (PEST) environments and strengths, weaknesses, opportunities, and threats (SWOT) for the School of Business's internationalization.
3. Develop measures of internationalization and a way to benchmark the School of Business's performance and progress in the area
4. What suggestions would you give the College and School of Business's leadership?

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Traveling to the Barrett & O'Connor Washington Center

ASU Barrett & O'Connor Washington Center
1800 I Street, NW
Washington, DC 20006

Metro – The Barrett & O'Connor Washington Center is Metro accessible via Farragut West station – 18th street exit (Blue, Orange and Silver Lines). Upon exiting the station, the facility will be on the corner behind you at 18th Street and I Street. Farragut North station (Red Line) is also in walking distance – approximately three blocks walk.

Uber/Lyft/Taxi – Taxi cabs and rideshare options are readily available throughout Washington, DC and will be easy to access when departing the Barrett & O'Connor Washington Center.

Parking – The Barrett & O'Connor Washington Center does not have on-site parking, and street parking is very limited. If you cannot find a metered spot, the following local parking garages are recommended:

- Colonial Parking – 1775 I Street, NW
  Open Monday thru Thursday, 6:30AM to 8:00PM
  Friday, 6:30AM to 10:00PM
  $12 for the first hour; $21 daily max, $15.95 Early Bird (enter before 8:00AM)
  $8 Evening (enter after 5:00pm)

- Farragut Center Parking – 1725 I Street, NW
  Open Monday thru Friday, 7:00AM to 10:00PM
  $12 for the first hour; $20 daily max, $8 Evening (5:00PM – 10:00PM)

- PMI – 1722 I Street, NW
  Open Monday thru Friday, 7:00AM to 7:00PM
  $12 for the first hour; $20 daily max, $15 Early Bird (enter before 9:00AM, leave by 7:00PM)

- Penn Parking – 1801 Pennsylvania Avenue, NW (access via 18th Street)
  Open Monday thru Thursday, 7:00AM to 9:00PM
  Friday and Saturday, 7:00AM to 11:00PM
  Sunday, 10:00AM to 7:00PM
  $12 for the first hour; $20 daily max
  $15 Early Bird (enter before 8:30AM, leave by 9:00PM), $10 weekends

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Connecting to the ASU "Guest" Wireless Network

The updates to the ASU wireless network include a new authentication process.

Use the following information to connect to the **asu guest** Wireless network.

NOTE: If you are an ASU student, faculty or staff member then use the encrypted '**asu**" Wireless SSID (Service Set Identifier) instead.

Visitors can make use of a simple process to first register and then login. First register, then a username and password is emailed to the provided email address or

texted to the provided mobile phone number from the registration process. During the time period that these temporary credentials are still active (not expired) the user

will not have to go thru the login process again.

Note that the **asu guest** Wireless is limited to 10Mbs speeds.

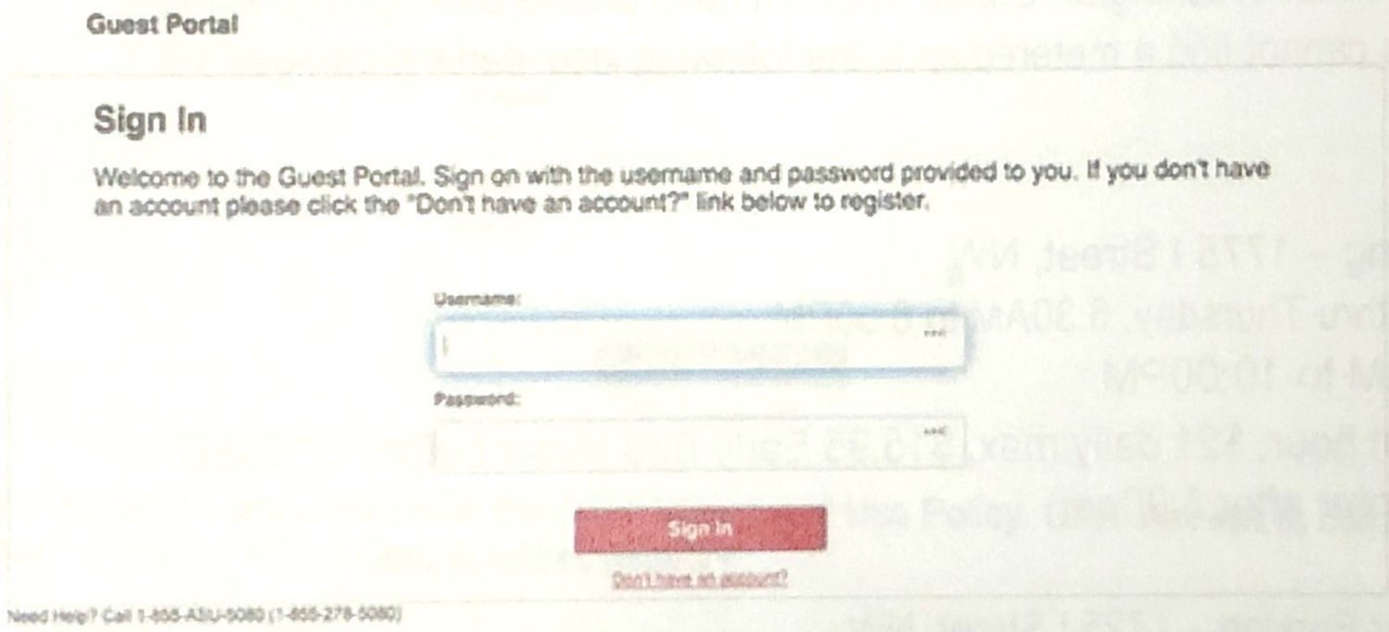
Connection Instructions:

1. On the device, make sure you have Wi-FI turned on.

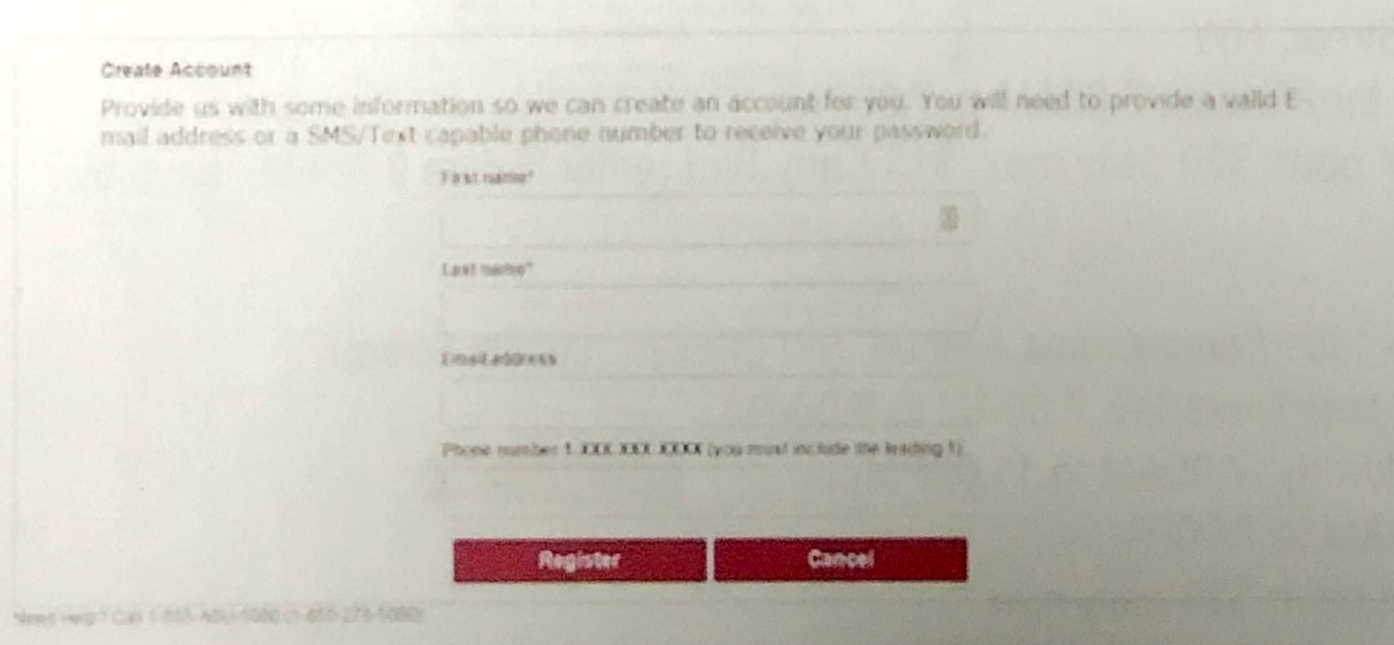
2. From the list of available wireless connections, connect to the SSID named **asu guest.**

3. Open a Web Browser and try and connect to the internet. If you have not recently connected to **asu guest** then the following screen will be displayed to begin the

ASU wireless network registration process.



4. From this screen, click "Don't have an account?".



*Proper format for the phone number is 1-XXX-XXX-XXXX (You must include the leading 1 and hyphens).

5. Fill in the registration information and click **Register.** You can enter in a valid email address **OR** mobile phone number. In the example below a mobile phone number was provided.

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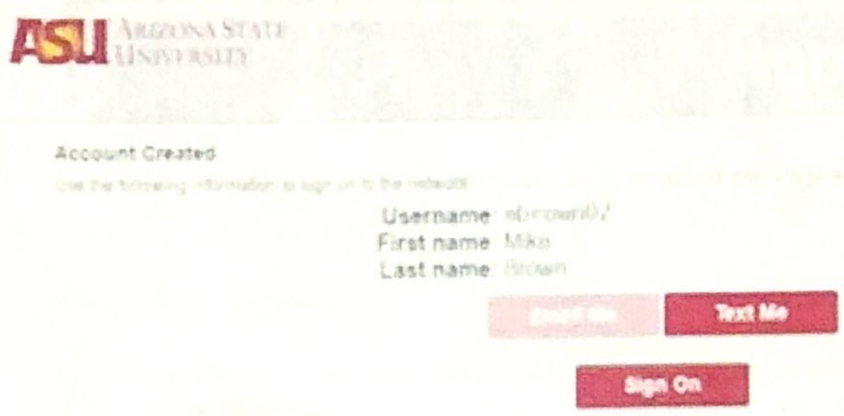
Once the **Register** button is clicked then you will be shown a screen like the following example. Depending on which option you filled in to receive the registration information, the

specific button for that option (**Text Me** in the example below) can be clicked to receive the registration information.

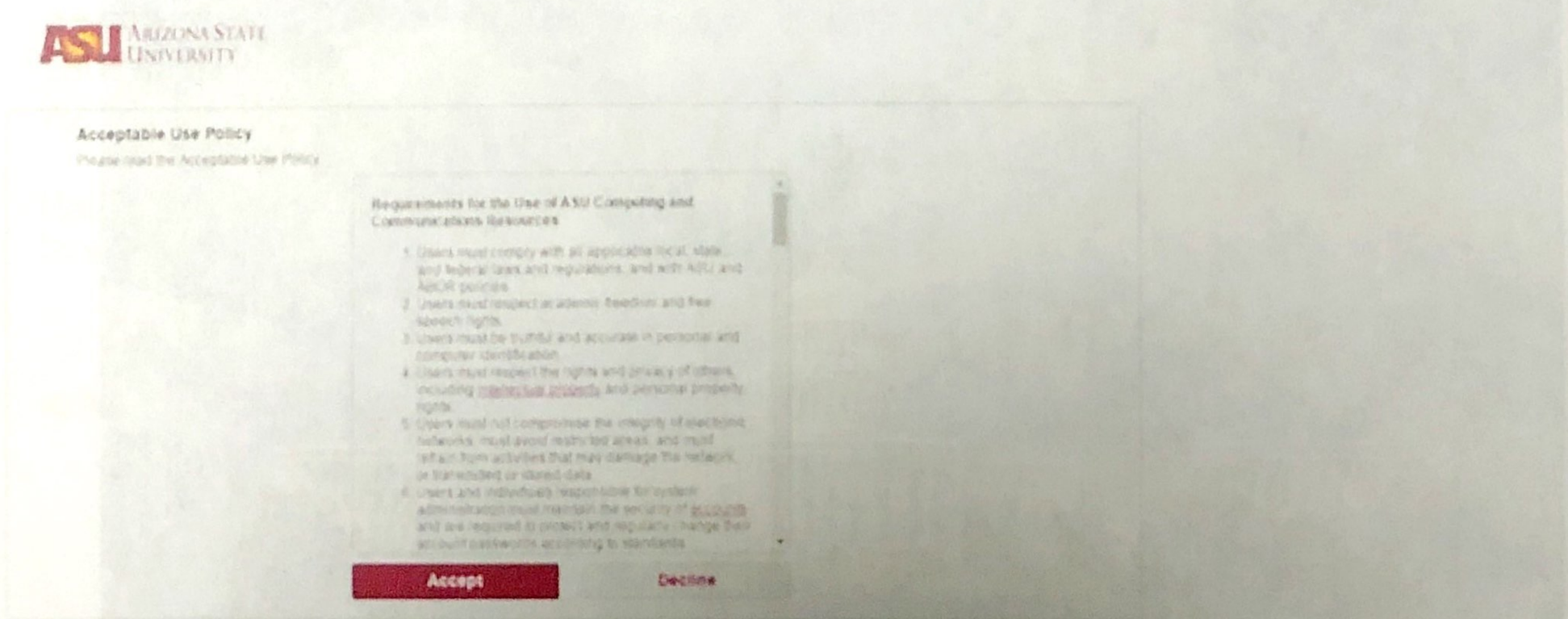
NOTE: The option that was not used will be unavailable to click (**Email Me** button in the example below).



6. After receiving the username and password information, click **Sign On.**

7. On the **Guest Portal** sign in screen, fill in the **username** and **password** that you received via either text or email and click **Sign In.**

8. You will be presented with the ASU Acceptable Use Policy. Click **Accept** to complete the registration process to connect to the ASU Guest Wireless network.



This username and password will be valid for 48 hours. During that time you will not have to go thru this registration process again.

After 48 hours, you will have to repeat the registration process.

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THUNDERBIRD
EXECUTIVE EDUCATION

UIN RADEN FATAH PALEMBANG

US Capitol Tour

Parking and Drop off
The nearest parking is in the Union Station parking lot. There are unloading/loading areas for passengers nearby, below are the locations.

LOADING and UNLOADING of passengers MUST occur at the east curb of:
1st and Maryland Ave., SW (east curb of Garfield Circle)
1st St., SW/NW between Pennsylvania and Maryland Avenues
1st and Pennsylvania Ave., NW (east curb of Peace Circle)

Prohibited Items
Policies are designed to keep visitors and staff safe and secure and to preserve the collections, facilities, and historic building and grounds for generations to come.
Before entering the Capitol Visitor Center, all visitors are screened by a magnetometer and all items that are permitted inside the building are screened by an x-ray device. The following items are strictly prohibited in the Capitol, including the Capitol Visitor Center:
Liquid, including water
Food or beverages of any kind, including fruit and unopened packaged food
Aerosol containers
Non-aerosol spray (Prescriptions for medical needs are permitted.)
Any pointed object, e.g. knitting needles and letter openers (Pens and pencils are permitted.)
Any bag larger than 18" wide x 14" high x 8.5" deep
Electric stun guns, martial arts weapons or devices
Guns, replica guns, ammunition, and fireworks
Knives of any size
Mace and pepper spray
Razors and box cutters
Please note that the U.S. Capitol Police are authorized to make exceptions if a prohibited item is determined to be necessary and required to serve child care, medical or other special needs. If you have questions, please call the Office of Congressional Accessibility Services at 202.224.4048.
The following restrictions apply only when visiting the House and Senate Galleries.
Battery-operated electronic devices (medical devices are permitted)
Cameras
Cans and bottles
Creams, lotions or perfume
Packages, briefcases, backpacks or suitcases
Strollers
Video recorders or any type of recording device
Each Gallery operates a checkstand where visitors may store these items securely while they are visiting that Gallery.
Also, note that smoking is not permitted anywhere in the Capitol, and food and drink are only allowed in the Capitol Cafe.

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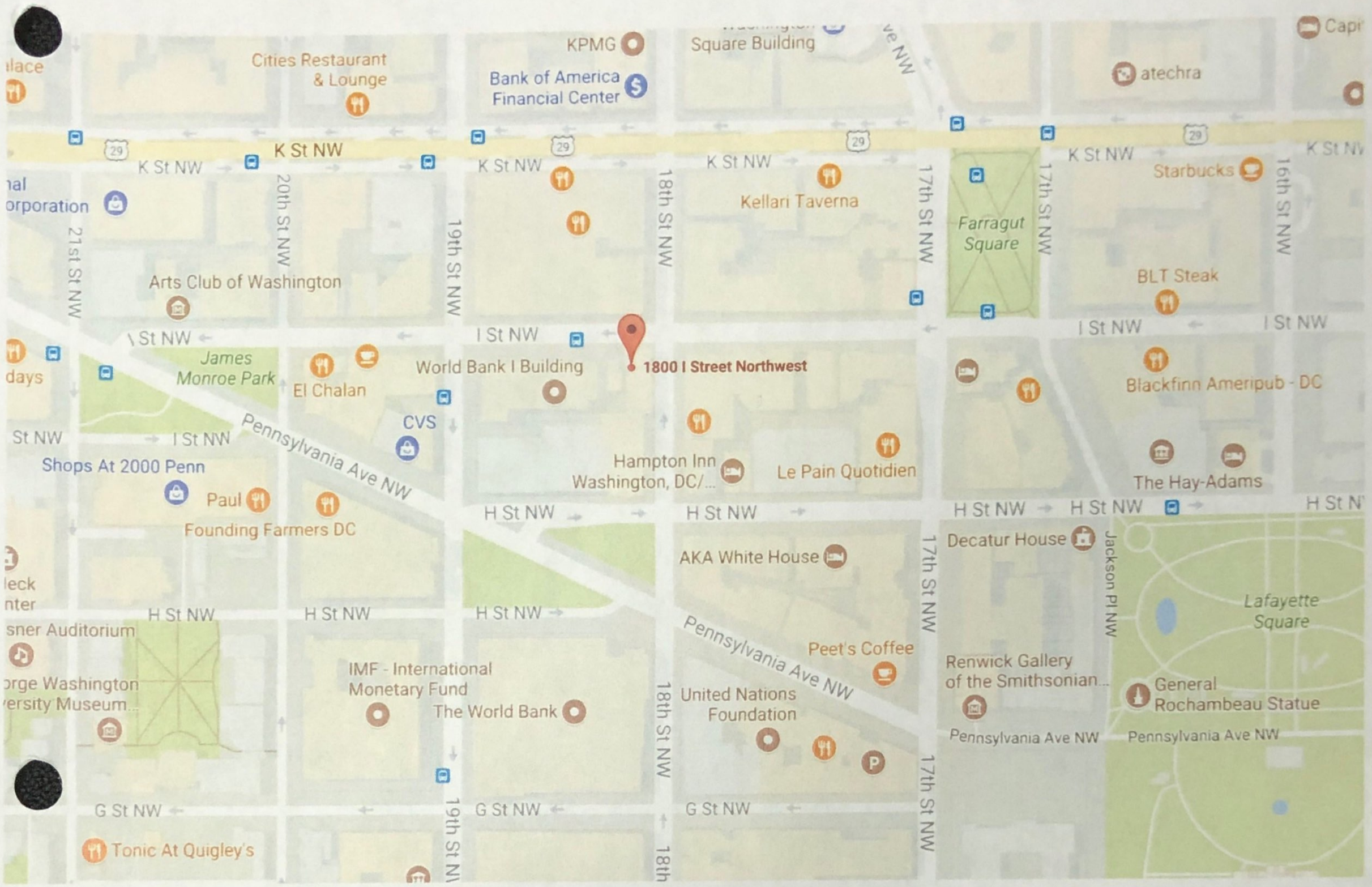

ASU Barrett & O'Connor Washington Center
1800 I Street, NW
Washington, DC20006

Main: (202) 446-0380
Fax: (202) 446-0390

washingtondc.asu.edu

Arizona State University

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Susi Herti Afriani, PhD

THUNDERBIRD
EXECUTIVE EDUCATION

Universitas Islam Negeri Raden Fatah (UIN) Raden Fatah: Global Partnership Program

July 20-21, 2022 | Washington, D.C., USA

UIN RADEN FATAH PALEMBANG

TIME	WEDNESDAY July 20	TIME	THURSDAY July 21
7:00	Breakfast Pavilion 8th Floor	7:00	Breakfast Room 211
7:45	WELCOME & PROGRAM INTRODUCTION Pavilion 8th Floor	7:45	MORNING WELCOME Room 211
7:55	MOU SIGNING Pavilion 8th Floor *Landry Signé* *Dean Khagram on Zoom*	8:00	TOUR OF BUILDING Room 211 *Paolo Rivera*
8:00	LEADERSHIP TRAINING Room 211 **GLOBAL & PUBLIC AFFAIRS IN THE 4IR ERA** *Landry Signé*	8:30	BEST PRACTICES OF QUALITY ASSURANCE Room 211 **UIN SHARED EXPERIENCE** *UIN Faculty*
10:00	Break with Snacks Room 211	10:00	Break with Snacks Room 211
10:15	LEADERSHIP TRAINING Room 211 **GLOBAL & PUBLIC AFFAIRS IN THE 4IR ERA** *Landry Signé*	10:15	BEST PRACTICES OF QUALITY ASSURANCE **Room 211** **OVERVIEW OF THUNDERBIRD PROGRAMS** *Landry Signé & Jennifer Betancur*
12:00	Lunch Room 211	11:30	Lunch Room 211
13:00	LEADERSHIP TRAINING Room 211 **GLOBAL & PUBLIC AFFAIRS IN THE 4IR ERA** *Landry Signé*	12:40	WORLD BANK TOUR Meet in Lobby **TOUR OF WORLD BANK** *Abdoul Salam Bello*
15:30	Break with Snacks Pavilion 8th Floor	14:00	Check-In for Tour Meet in Lobby
16:00	THOUGHT LEADERSHIP SERIES Pavilion 8th Floor **WEBINAR: CLIMATE CHANGE & UNIVERSITY CONTRIBUTIONS** *Landry Signé & Nyayu Khodijah*	14:30	CAPITOL TOUR **TOUR OF U.S. CAPITOL** *Jordan Wilson*
17:00	Day Concludes	16:00	Program Concludes

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THUNDERBIRD
SCHOOL OF GLOBAL MANAGEMENT
A unit of the Arizona State University Knowledge Enterprise

SYLLABUS

LEADERSHIP TRAINING
GLOBAL AND PUBLIC AFFAIRS IN THE FOURTH INDUSTRIAL REVOLUTION

Professor Landry Signé, PhD
Executive Director and Professor, Thunderbird School of Global Management
Chair, Agile Governance Masterclasses, World Economic Forum
Senior Fellow, Brookings Institution, Global Economy and Development
Email: Landry.Signe@Thunderbird.asu.edu - C: + 1 650-223-1470

INTRODUCTION

This seminar is a high-engagement executive training on **global and public affairs in the Fourth Industrial Revolution** era and the type of **agile leadership and governance** needed to address the most complex challenges and develop solutions to succeed in a turbulent and fast-changing world. The international order is under stress due to the constantly changing nature of issues globally. This stress is evident from the climate crisis to the diffusion of governing powers, global poverty and inequality, economic and financial crises, democratic and human rights recessions, gender disparities, social unrests, infectious diseases, conflicts and security challenges, cyberattacks, water, energy, and food crises, global skill mismatches, disruptive technologies, and the crisis of multilateralism.

The world is advancing in a new technologically golden but complex era referred to as the **Fourth Industrial Revolution** (4IR), which has had an **unprecedented impact on humanity** and is characterized by the fusion of technology with an incredible velocity, scope, and systems impact. Emerging technologies such as Artificial Intelligence and Robots, Big Data, Automation, Internet of Things, Cloud Computing, Blockchain, Augmented and Virtual Reality, Autonomous and Near-Autonomous Vehicles, Next-Generation Genomics, Metaverse, and others are increasing the power of business and civil society, and transforming the pace, effectiveness, and ethics of global and public governance. With these disruptive transformations, **global and public organizations have to reinvent their processes.** This involves collaboration with the private sector and civil society organizations to drive the structural transformation to systems of global production, labor, economy, security, governance, and development, among others, to ultimately better deliver for citizens and stakeholders.

This seminar discusses the 4IR, its drivers, enablers, challenges, opportunities, and impact on global and public affairs, including the Sustainable Development Goals (SDGs). It also discusses the broader trends shaping the world, how to navigate the world's fast-growing economies during the 4IR, and the strategies to reap the 4IR benefits and make it work for all. It concludes with the type of agile leadership and governance needed to govern effectively and succeed in an ever-changing world.

This seminar will benefit leaders interested in deepening their ability to appreciate global trends shaping the 21st century and acquire strategies to leverage new insights for effective leadership and agile governance in international and public affairs during the Fourth Industrial Revolution. The seminar will focus on:

1. Expanding insights on how the 4IR is evolving, shaping the 21st century, and framing the future of global affairs, public, and academic institutions.
2. Appreciating the broad trends shaping the global economy/global affairs, including why some countries or institutions outperform others and their implications on the strategies to become a global

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outperformer.

3. Equipping leaders and managers with new methods, tips, techniques, strategies, and best practices to implement agile governance and deliver exceptional outcomes during the 4IR, including for the SDGs.
4. Empowering leaders and managers to exercise effective leadership to successfully address challenges at the forefront of local, national, and global conversations.

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- Introduction to the 4IR, its characteristics and implications for global and public affairs: What is the 4IR, and how does it differ from the previous industrial revolutions? What are its drivers, enablers, opportunities, and challenges? What are its implications for the future of the world, SDGs, systems thinking, and complex global systems?

Materials

Reading

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Case

- *Bringing the Peruvian Government Closer to its Constituents* [HKS Case Number: 2171.0] [Read pages 1 to 3 as priority]

Assignment

Reading

- You should read the required material and consider the implications of the Fourth Industrial Revolution for the world (economy, production, politics, society, inequality, academic institutions, etc.).

Case

- You should read the case and be ready to discuss the strengths, weaknesses, opportunities, and constraints related to the Peruvian Government's digitalization.

Optional Materials

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United Nations Sustainable Development Goals & Data

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Session 2 – Navigating the World's Fast-Growing Economies in the Fourth Industrial Revolution

- From a comparative perspective, the drivers of outperforming countries in the global economy include technology, innovation, competitiveness, and education. How is the 4IR contributing to the performance of the world's fast-growing economies? How can agility help in addressing global challenges?

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- Landry Signé, Addisu Lashitew, and Sanjeev Khagram. 2020. *The Great Reset Needs "Agile Governance"* - https://t-birdconnect.com/news/16097 [Short article]

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Broader reflection

Please think about the following questions:

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3. How can universities better leverage faculty, students, administrators, and the internationalization strategy in building world-class academic institutions?

↳ Collaboration (role model)
↳ Create a strategy
↳ high-commitment
↳ "world-class" universities

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Session 3 – Agile Leadership and Governance in Global and Public Organizations for the Fourth Industrial Revolution

- The Fourth Industrial Revolution is bringing disruptive transformations that are changing the nature of policy-making processes and the governance of public policy, business, and global affairs. Therefore, *Agile Leadership and Governance* are critical to quickly responding to the changing nature of the policy, business, and global challenges that exist. Especially given the reign of uncertainty, the diffusing governing power, the complexity of technology governance, and the emergence of new technologies that are fusing the physical, digital, and biological worlds. What are the definitions, benefits, approaches, tools, methods, applications, and pillars of agile leadership/governance? What are the varieties of global and public leadership, and how to lead effectively during times of change, crisis, and technological disruptions?

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- Hart, Paul & Lars Tummers. 2019. *Understanding Public Leadership* . New York: Red Globe Press.

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THURSDAY, JULY 21, 2022

UIN SHARED EXPERIENCE

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Assignment

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4. What suggestions would you give the College and School of Business's leadership?

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FOURTH INDUSTRIAL REVOLUTION

The Fourth Industrial Revolution: what it means, how to respond

Jan 14, 2016

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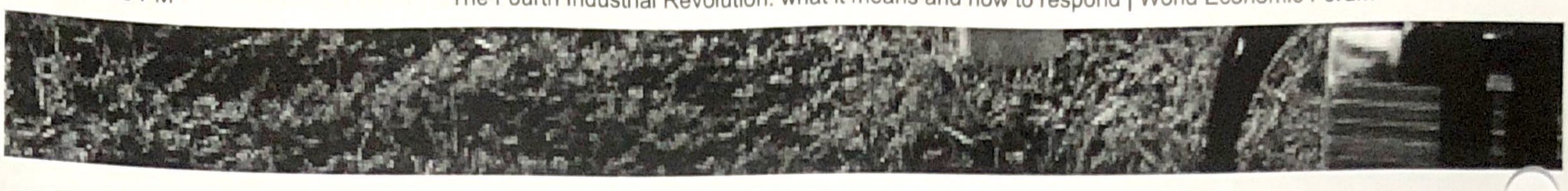

Klaus Schwab

Founder and Executive Chairman, World Economic Forum

We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society.

The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.

There are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact. The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace. Moreover, it is disrupting almost every industry in every country. And the breadth and depth of these changes herald the transformation of entire systems of production, management, and governance.

Read more: The surprising link between science fiction and economic history

The possibilities of billions of people connected by mobile devices, with

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unprecedented processing power, storage capacity, and access to knowledge, are unlimited. And these possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.

Already, artificial intelligence is all around us, from self-driving cars and drones to virtual assistants and software that translate or invest. Impressive progress has been made in AI in recent years, driven by exponential increases in computing power and by the availability of vast amounts of data, from software used to discover new drugs to algorithms used to predict our cultural interests. Digital fabrication technologies, meanwhile, are interacting with the biological world on a daily basis. Engineers, designers, and architects are combining computational design, additive manufacturing, materials engineering, and synthetic biology to pioneer a symbiosis between microorganisms, our bodies, the products we consume, and even the buildings we inhabit.

Challenges and opportunities

Like the revolutions that preceded it, the Fourth Industrial Revolution has the

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potential to raise global income levels and improve the quality of life for populations around the world. To date, those who have gained the most from it have been consumers able to afford and access the digital world; technology has made possible new products and services that increase the efficiency and pleasure of our personal lives. Ordering a cab, booking a flight, buying a product, making a payment, listening to music, watching a film, or playing a game—any of these can now be done remotely.

In the future, technological innovation will also lead to a supply-side miracle, with long-term gains in efficiency and productivity. Transportation and communication costs will drop, logistics and global supply chains will become more effective, and the cost of trade will diminish, all of which will open new markets and drive economic growth.

At the same time, as the economists Erik Brynjolfsson and Andrew McAfee have pointed out, the revolution could yield greater inequality, particularly in its potential to disrupt labor markets. As automation substitutes for labor across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labor. On the other hand, it is also possible that the displacement of workers by technology will, in aggregate, result in a net increase in safe and rewarding jobs.

We cannot foresee at this point which scenario is likely to emerge, and history suggests that the outcome is likely to be some combination of the two. However, I am convinced of one thing—that in the future, talent, more than capital, will represent the critical factor of production. This will give rise to a job market increasingly segregated into "low-skill/low-pay" and "high-skill/high-pay" segments, which in turn will lead to an increase in social tensions.

In addition to being a key economic concern, inequality represents the greatest societal concern associated with the Fourth Industrial Revolution. The largest beneficiaries of innovation tend to be the providers of intellectual and physical capital—the innovators, shareholders, and investors—which explains the rising gap in wealth between those dependent on capital versus labor. Technology is therefore

one of the main reasons why incomes have stagnated, or even decreased, for a

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majority of the population in high-income countries: the demand for highly skilled workers has increased while the demand for workers with less education and lower skills has decreased. The result is a job market with a strong demand at the high and low ends, but a hollowing out of the middle.

This helps explain why so many workers are disillusioned and fearful that their own real incomes and those of their children will continue to stagnate. It also helps explain why middle classes around the world are increasingly experiencing a pervasive sense of dissatisfaction and unfairness. A winner-takes-all economy that offers only limited access to the middle class is a recipe for democratic malaise and dereliction.

Discontent can also be fueled by the pervasiveness of digital technologies and the dynamics of information sharing typified by social media. More than 30 percent of the global population now uses social media platforms to connect, learn, and share information. In an ideal world, these interactions would provide an opportunity for cross-cultural understanding and cohesion. However, they can also create and propagate unrealistic expectations as to what constitutes success for an individual or a group, as well as offer opportunities for extreme ideas and ideologies to spread.

The impact on business

An underlying theme in my conversations with global CEOs and senior business executives is that the acceleration of innovation and the velocity of disruption are hard to comprehend or anticipate and that these drivers constitute a source of constant surprise, even for the best connected and most well informed. Indeed, across all industries, there is clear evidence that the technologies that underpin the Fourth Industrial Revolution are having a major impact on businesses.

On the supply side, many industries are seeing the introduction of new technologies that create entirely new ways of serving existing needs and significantly disrupt existing industry value chains. Disruption is also flowing from agile, innovative competitors who, thanks to access to global digital platforms for research,

development, marketing, sales, and distribution, can oust well-established

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incumbents faster than ever by improving the quality, speed, or price at which value is delivered.

Major shifts on the demand side are also occurring, as growing transparency, consumer engagement, and new patterns of consumer behavior (increasingly built upon access to mobile networks and data) force companies to adapt the way they design, market, and deliver products and services.

A key trend is the development of technology-enabled platforms that combine both demand and supply to disrupt existing industry structures, such as those we see within the "sharing" or "on demand" economy. These technology platforms, rendered easy to use by the smartphone, convene people, assets, and data—thus creating entirely new ways of consuming goods and services in the process. In addition, they lower the barriers for businesses and individuals to create wealth, altering the personal and professional environments of workers. These new platform businesses are rapidly multiplying into many new services, ranging from laundry to shopping, from chores to parking, from massages to travel.

On the whole, there are four main effects that the Fourth Industrial Revolution has on business—on customer expectations, on product enhancement, on collaborative innovation, and on organizational forms. Whether consumers or businesses, customers are increasingly at the epicenter of the economy, which is all about improving how customers are served. Physical products and services, moreover, can now be enhanced with digital capabilities that increase their value. New technologies make assets more durable and resilient, while data and analytics are transforming how they are maintained. A world of customer experiences, data-based services, and asset performance through analytics, meanwhile, requires new forms of collaboration, particularly given the speed at which innovation and disruption are taking place. And the emergence of global platforms and other new business models, finally, means that talent, culture, and organizational forms will have to be rethought.

Overall, the inexorable shift from simple digitization (the Third Industrial Revolution) to innovation based on combinations of technologies (the Fourth Industrial

Revolution) is forcing companies to reexamine the way they do business. The bottom

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line, however, is the same: business leaders and senior executives need to understand their changing environment, challenge the assumptions of their operating teams, and relentlessly and continuously innovate.

The impact on government

As the physical, digital, and biological worlds continue to converge, new technologies and platforms will increasingly enable citizens to engage with governments, voice their opinions, coordinate their efforts, and even circumvent the supervision of public authorities. Simultaneously, governments will gain new technological powers to increase their control over populations, based on pervasive surveillance systems and the ability to control digital infrastructure. On the whole, however, governments will increasingly face pressure to change their current approach to public engagement and policymaking, as their central role of conducting policy diminishes owing to new sources of competition and the redistribution and decentralization of power that new technologies make possible.

Ultimately, the ability of government systems and public authorities to adapt will determine their survival. If they prove capable of embracing a world of disruptive change, subjecting their structures to the levels of transparency and efficiency that will enable them to maintain their competitive edge, they will endure. If they cannot evolve, they will face increasing trouble.

This will be particularly true in the realm of regulation. Current systems of public policy and decision-making evolved alongside the Second Industrial Revolution, when decision-makers had time to study a specific issue and develop the necessary response or appropriate regulatory framework. The whole process was designed to be linear and mechanistic, following a strict "top down" approach.

But such an approach is no longer feasible. Given the Fourth Industrial Revolution's rapid pace of change and broad impacts, legislators and regulators are being challenged to an unprecedented degree and for the most part are proving unable to cope.

How, then, can they preserve the interest of the consumers and the public at large

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while continuing to support innovation and technological development? By embracing "agile" governance, just as the private sector has increasingly adopted agile responses to software development and business operations more generally. This means regulators must continuously adapt to a new, fast-changing environment, reinventing themselves so they can truly understand what it is they are regulating. To do so, governments and regulatory agencies will need to collaborate closely with business and civil society.

The Fourth Industrial Revolution will also profoundly impact the nature of national and international security, affecting both the probability and the nature of conflict. The history of warfare and international security is the history of technological innovation, and today is no exception. Modern conflicts involving states are increasingly "hybrid" in nature, combining traditional battlefield techniques with elements previously associated with nonstate actors. The distinction between war and peace, combatant and noncombatant, and even violence and nonviolence (think cyberwarfare) is becoming uncomfortably blurry.

As this process takes place and new technologies such as autonomous or biological weapons become easier to use, individuals and small groups will increasingly join states in being capable of causing mass harm. This new vulnerability will lead to new fears. But at the same time, advances in technology will create the potential to reduce the scale or impact of violence, through the development of new modes of protection, for example, or greater precision in targeting.

The impact on people

The Fourth Industrial Revolution, finally, will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships. It is already changing our health and leading to a "quantified" self, and sooner than we think it may lead to human augmentation. The list is endless because it is bound only by our imagination.

I am a great enthusiast and early adopter of technology, but sometimes I wonder

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whether the inexorable integration of technology in our lives could diminish some of our quintessential human capacities, such as compassion and cooperation. Our relationship with our smartphones is a case in point. Constant connection may deprive us of one of life's most important assets: the time to pause, reflect, and engage in meaningful conversation.

One of the greatest individual challenges posed by new information technologies is privacy. We instinctively understand why it is so essential, yet the tracking and sharing of information about us is a crucial part of the new connectivity. Debates about fundamental issues such as the impact on our inner lives of the loss of control over our data will only intensify in the years ahead. Similarly, the revolutions occurring in biotechnology and AI, which are redefining what it means to be human by pushing back the current thresholds of life span, health, cognition, and capabilities, will compel us to redefine our moral and ethical boundaries.

Shaping the future

Neither technology nor the disruption that comes with it is an exogenous force over which humans have no control. All of us are responsible for guiding its evolution, in the decisions we make on a daily basis as citizens, consumers, and investors. We should thus grasp the opportunity and power we have to shape the Fourth Industrial Revolution and direct it toward a future that reflects our common objectives and values.

To do this, however, we must develop a comprehensive and globally shared view of how technology is affecting our lives and reshaping our economic, social, cultural, and human environments. There has never been a time of greater promise, or one of greater potential peril. Today's decision-makers, however, are too often trapped in traditional, linear thinking, or too absorbed by the multiple crises demanding their attention, to think strategically about the forces of disruption and innovation shaping our future.

In the end, it all comes down to people and values. We need to shape a future that

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works for all of us by putting people first and empowering them. In its most pessimistic, dehumanized form, the Fourth Industrial Revolution may indeed have the potential to "robotize" humanity and thus to deprive us of our heart and soul. But as a complement to the best parts of human nature—creativity, empathy, stewardship—it can also lift humanity into a new collective and moral consciousness based on a shared sense of destiny. It is incumbent on us all to make sure the latter prevails.

This article was first published in Foreign Affairs

Author: Klaus Schwab is Founder and Executive Chairman of the World Economic Forum

Image: An Aeronavics drone sits in a paddock near the town of Raglan, New Zealand, July 6, 2015. REUTERS/Naomi Tajitsu

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KS1301

January 8, 2020

Bringing the Peruvian Government Closer to Its Constituents

The Peruvian government saw the opportunity to leverage digital technologies to increase transparency, rebuild trust, competence and credibility, and get closer to its constituents. In October of 2016, with the mandate to "bring the Government closer to its citizens through innovation," the government launched the Innovation Unit. In Peru, there was an increasing disconnect between society, markets, and public institutions. Lower than expected economic growth, a growing number of middle class citizens with unmet aspirations, and corruption, had widened the gap between governments and its constituents. In 2015, almost 94% of Peruvians perceived their central governments as corrupt (vs OECD average of 65%).[1] The Peruvian government saw an opportunity to use digital technologies as one tool to tackle the challenge.

The Innovation Unit set the product vision for increasing transparency and rebuilding trust with government. They built the Single Domain unified site GOB.PE to bring the Government closer to its constituents by solving their most pressing needs. The Innovation Unit aimed for the unified site to allow easy and simple access to all government-related information and transactional services. The team expected the Single Domain to start a true digital transformation of the Peruvian government, that puts the citizen at the center and prioritizes its needs of the citizen over those of public entities. This case explores the product discovery and product management aspects of bringing the Peruvian government closer to its constituents.

Discovery Sprint

Since its inception, the Innovation Unit adopted a user-centered approach to achieve its mission. Its first step was to understand how citizens perceived the government and how they related to it. The team turned to conduct field research to inform their assessment. The Innovation Unit interviewed Peruvian youth from different socio-demographic backgrounds. They first targeted people specifically between 15 and 35 years of age because citizens of this age range constituted the bulk of the population (Exhibit 1: Demographics), were starting to have their first interactions with the government (perception was unbiased and could be positively shaped), and were more likely to be digitally literate.

Interviews revealed that this group of 15 - 35 year-old citizens perceived the government as distant and fragmented. Research found that there were three key elements that influenced youth perception of the government:

This case was written by Santiago Melo and Kathy Pham, Adjunct Lecturer in Public Policy at the Harvard Kennedy School (HKS). *HKS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management. KS1301*

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- Knowledge about the government: Young constituents felt that communication with the government was non-existent. On the one hand, interviewees thought that there were no channels for them to communicate with the public institutions. On the other hand, they thought the government did not use the appropriate media to communicate with them. Communication channels used by the government were not compatible with the way youth consumed information. For example, the government did not have a digital presence, when youth were increasingly going online for information, entertainment, and social media (see exhibit for demographics and internet access).
- Government Interests: Youth interviewed believed that the government acted on behalf of elites, and not on behalf of all constituents. Youth also did not believe they benefited from government.
- Trust: the youth had general mistrust about government that resulted from bad experiences when trying to perform transactional services or interact with public institutions.

The Innovation Unit discovered that individuals who felt positive about those listed dimensions were more prone to engage with public institutions, and have a positive perception about the government. The team realized that the element that presented the most opportunity for improvement was knowledge about the government. While some of the interviewees said that the government helped them in some way and others said that they trusted the government, none of the interviewees asserted that they understood the government.

As a result, the Innovation Unit posed itself the following question: How can we empower citizens to meet their objectives, through timely, understandable, and reliable information about the government's services? Their goal was to create a solution for the citizens to have an official and effective channel to provide information about the government and its related agencies, and for the citizens to be able to understand the information provided.

The Innovation Unit evaluated and tested several digital and non-digital options. In considering the youth's preferred media channels, such as increasing internet coverage throughout the country and the widespread adoption of smartphones (Exhibit 2: Internet Access), the team decided to leverage technology to create a centralized government information repository where citizens throughout the country could learn about the government, its institutions, services and procedures. Information was to be updated, reliable and easy to access, and organized around different citizen needs or life goals, instead of organized around each institution.

With a Single Domain in mind, the team embarked on the mission to develop GOB.PE, a site to provide citizens a unique point of access to the government's information and services. Although, the platform was to be designed as "mobile first" concept, the site was to be responsive and accessible from any digital device.

The Innovation Unit, spearheaded by Daniella Raffo, hired Public Digital, a consulting firm led by former leaders of UK's digital transformation, to help the organization in the launch of GOB.PE and collaborate with the recruiting of the Innovation Unit's team expansion. Together, they focused on building a multi-disciplinary team that brought together skills that most governments are not used to recruiting for: designers, user researchers, product owners, content strategists, and developers. The Innovation Unit made the conscious decision to have an in-house centralized team in charge of the development of digital products for all government agencies. This was mainly to ensure faster product

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delivery, long-term sustainability, user-centricity, and to reduce costs. If outsourcing was necessary, the centralized team established guidelines and gave advice on procurement. Heidi Uchiyama, user experience strategy and product owner, and Zoila Palza, scrum master and software developer, were some of the key members to join the team. (See Exhibit 4 for team composition and role description.)

User Experience Research

To guide the Single Domain development, the Innovation Unit interviewed more than 50 citizens living both in cities and rural areas. The most critical part was to approach citizens with radically different realities and understand how to develop a digital experience that could fulfill the needs of an entire country.

The Innovation Unit concluded the following:

- Citizens' points of contact with the government included informing themselves about services and performing government-related transactions.
- Government was used to communicating with its constituents based on its organizational structure rather than on the citizen's needs. For instance, to incorporate a company, citizens had to go to more than five different entities instead of having a unified interface where they could execute all the relevant processes.
- Information was scattered throughout different official sites, was often not updated, and was written in technical jargon that citizens did not understand.
- Government processes and procedures were often done in person or through phone calls. These tended to be time-consuming and burdensome.
- Citizens' journeys when executing a transaction with a public entity did not start when they filed their documents. Rather, they started when the citizens informed themselves about the service, and didn't end until they fulfilled their need.
- For citizens, "process simplification" meant achieving their goals faster, not reducing paperwork or requirements.
- Lack of information about government entities and services puts citizens in a position of vulnerability and opens space for corruption.
- It is not enough to provide information, citizens need to be guided through the process.

To provide a great user experience, the Innovation Unit needed to overcome several hurdles. First, it needed to change the traditional government mindset when providing services to citizens. It was critical to have public institutions and public servants adopt a citizen-centric approach. Second, it was necessary to articulate and group public entities in order to make it easier for citizens to find them, learn about them, and access the services they provide. Lastly, the Unit needed to re-write and update the content to offer users clear and timely information on the procedures and services offered by the State.

The Unit set to leverage Design Thinking and Agile methodologies to ensure rapid delivery of digital products that fulfilled the citizens' needs. To discover the user pain points, the team started by defining the challenge and problem at hand: how to better inform and serve citizens. Based on this, they conducted ethnographic research to understand the needs of users and collected and analyzed the information to identify areas where they could better serve the Peruvian population. After this, the Innovation Unit brainstormed ideas of how to tackle these opportunities and developed digital

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prototypes. These prototypes were tested with users and based on their feedback, wireframes used to guide the technological development of the product were designed.

Agile in Action

The Innovation Unit built GOB.PE based on user needs and iterative feedback. They used prototypes to try a variety of different designs for each of the hundreds of user needs, such as paying taxes or applying for a driver's license. Trials often began as hand-drawn sketches of what a web page may look like based on interviews with users. The Innovation Unit initially created low-fidelity prototypes to illustrate the user journey through GOB.PE. With these at hand, they went back to potential users to test for usability, gather feedback, and incorporate learnings in future prototypes. The team made sure testers appropriately represented the entirety of the Peruvian population (urban/rural, age range, gender, socioeconomic status) and created user personas and user stories to illustrate the point (Exhibit 1: Demographics). Testing was conducted either remotely or in person. The team had over 4,000 volunteer user experience testers.

Agile methodology allowed for a continuous cycle of production, launch and identification of improvements, and helped the team to develop high-quality software at low cost and low risk. The development stage was carried out by identifying key functionalities, then prioritizing them and organizing the work in weekly or bi-weekly sprints. Through a Scrum-assembled team, the Innovation Unit moved quickly from user-need to product development, turning big tasks into smaller ones that could be successfully completed in a sprint. This allowed the team to constantly make progress and to have, every two weeks, new features that could be used and tested with users.

Product Roadmap and Feature Prioritization

The Innovation Unit decided to roll out the GOB.PE site in three phases. The first phase was to focus on providing citizens with information about government's processes and services. The second phase aimed to provide information about different public institutions and the third phase aimed to streamline and digitize transactional services.[a] This last phase meant not only that services would migrate to be performed online (and therefore would be accessible whenever and wherever is most convenient for users), but also that users would not need to know which department (or departments) were responsible for any particular service in order to find it online. All three phases served as learning opportunites to improve the experience with the service both online and offline.

The Innovation Unit went through analysis and conceptualization of the interface to start prioritizing the platform components. The primary goal was to have simple and clear content about procedures and services and thus including high-priority content was critical. In order to do this, the Innovation Unit had to prioritize which of the 4,000 transactional services would be to digitized first. This forced the user experience and research teams to understand the biggest needs of Peruvians before designing the product and the content.

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[a] Transactional services cover a huge range of tasks, from paying car tax to applying for a passport, and they form a significant part of the government's work. These services involve an exchange of money, goods, services, permissions, licences or information between the government and a service user, resulting in a change to a government system. (Digital Efficiency Report)

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Their criteria for prioritization was mainly based on:

- Importance of the service in the life of the citizens.
- Citizen Demand (services in process and delivered) and Internet-related searches.
- Complexity of the service. What services present the most pressing pain points?
- Feedback from ministries and other institutions that delivered those services.

The most important needs resulting from this framework were: "I want to drive a car," "I need to have a National ID," "I want to start a company," and "I want to take care of my health." The Innovation Unit, then translated these citizen's needs to government's transactional services: Driving License, National ID, Company Incorporation, and Health Insurance, correspondingly (Exhibit 10: Prioritization Matrix).

User Experience - Designing for an Entire Country

When testing for usability and accessibility, the team made sure to "design for everyone" and thus strived to develop an intuitive, simple and informative site. To do this, The team used a Universal Design concept which aims to design for the "lowest common denominator," or the user with least digital proficiency. The idea is that, if these users were able to use the platform, all other users will be able to do so too. The Innovation Unit defined their lowest common denominator as older adults with certain levels of visual disability, a user persona that could be similar to populations with lower levels of digital literacy.

Content strategy was critical to designing a universally accessible product. One of the key challenges was to have comprehensive and clear content on the website. The Innovation Unit wanted to make sure the content was written in simple language that anyone could understand. They also strived to provide guidance throughout the website to fit every citizen's needs.

Performance Metrics

Once the product was launched, the team kept close track of performance metrics. This served as a selling point for launching future products and as a tool to further improve user experience. Key metrics identified were:

- Traffic and visits per day
- Amount of procedures and services delivered
- Search engine results
- Rebound rates
- Average duration of a session
- Average duration of a service delivered

(See Exhibit 8 for a typical metric dashboard of an individual page.)

Users could also evaluate and provide feedback on the site. User reviews could be as simple as "Thumbs Up" or "Thumbs Down" to evaluate the usefulness/relevance of any given page. Users could additionally provide more information regarding their "negative" evaluation. Options included: a) missing information; b) incorrect information; and, c) not easy to understand. This allowed the team to get quick and actionable feedback to further improve user experience. Each team member was

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assigned a day to review and resolve content problems reported by users. This strategy not only helped improve the site but also included the citizen in the creation of the content as the most important collaborator of the team.

Intervention in Public Agencies

Once the team digitized the most important information and services for the citizens, it started targeting specific interventions in each of the public agencies and ministries. The first approach was made by Raffo who partnered with the executives at each agency. Once the leadership team was onboard, the Innovation Unit started its intervention.

The Innovation Unit sent in teams composed of content strategists, designers, software developers, and a product manager. The teams requested the agencies to name a Digital Leader and a Communications Lead within the organization. It was critical to engage employees of the agency as they held much of the information about the process and user experience.

All the development was performed by the Innovation Unit and didn't impose additional costs on the agency. The agency only had to contribute the time of its staff. One of the challenges was to have the agency migrate to the Single Domain as employees perceived an independent digital presence to be a critical part of their identity. Once the migration to the Single Domain was executed and the agency services were revamped and digitized, the Innovation Unit worked with the agency employees to transfer innovation methodologies and instill in them a customer-centric mindset.

Influencing Stakeholders and Political Capital

Developing a unified government site required unprecedented articulation between previously siloed public entities and engagement of different government agencies, different levels of government, and other players. Mobilizing stakeholders was critical to provide an optimum customer experience.

Because the Innovation Unit was launched as a prime minister's initiative, it had the political capital and budget to get the ball rolling. It also had the credibility brought by the consulting firm Public Digital, whose founders launched one of the first government digitization efforts (GOV.UK). Peru's team was further strengthened by legal backing. In 2018, the government issued a decree mandating that "all public entities have to find a 'digital leader' to coordinate everything related to digital government projects." This decree incorporated the necessary conditions for the scaling of GOB.PE, which were emerging as key success factors as the beta progressed, including:

- Mandatory participation of all public administration entities in GOB.PE.
- Enforced all entities to: (1) adopt GOB.PE as their only communication channel, (2) digitize their procedures and services through GOB.PE according to the platform standards, (3) facilitate the infrastructure and human resources to share information through the Interoperability Platform managed by the Digital Government Office, (4) make use of digital identification mechanisms that facilitate citizens' access to public services.

One of the key elements of the decree was the allocation of the functions of GOB.PE to the Digital Government Office. At the same time that the decree was launched, the Prime Minister's Office

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decided to give the functions of leading GOB.PE to the Digital Government Office. This was important because it signified that GOB.PE was not a pilot project anymore. It was part of the operation of the Prime Minister's Office and could receive official budget and administrative support.

The Innovation Unit achieved quick wins and building relationships that enabled larger and more impactful projects. With the initial version of GOB.PE, the team had a strong foundation for future projects. The team aimed to convince the rest of the government agencies about the benefits of digitization and a citizen-centered approach. They made many presentations within the different public institutions with the early version of the Single Domain website that was launched in June 2017. The success of that early version built the team/s credibility and trust in government. Soon after, the Innovation Unit was no longer pitching their projects to agencies, but it was agencies who were looking for them. After 7 months of beta phase, more than 1.5 million users, 30% of recurring users, 91% of satisfaction reported by users of the platform, and more than 3,000 reviews received, it was fair that this would be the case. The key was then to maintain or build political capital to prepare for the next phases of development.

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Appendix

Biographies

Digital Transformation Leaders in Peru who contributed to this case:

Daniella Raffo

Raffo is currently Managing Director at Aporta Desarrollo Sostenible, the social impact lab of the Peruvian corporate conglomerate Breca group. Prior to that, she led the Innovation Unit at the Peruvian Government (Chief of Cabinet of Ministers Office), where she oversaw the launch of Gob.pe. Raffo founded the EnsenaPeru (simile to Teach for America) and was Director of Education and Planning at Innova Schools, an innovative school network that aims to provide high-quality k-12 education to all children in Peru. Prior to transitioning to the impact sector, Raffo worked at McKinsey & Company and Procter and Gamble. She holds an MBA from Stanford University, a Bachelor's in business from Universidad del Pacifico, and Bachelor of Science in Economics from Universita di Bologna.

Heidi Uchiyama

Uchiyama is currently the Head of User Experience at Interbank, one of Peru's largest financial institutions. Prior to that, she was Service Design Lead at the Peruvian Government (Chief of Cabinet of Ministers Office). She also served as Managing Director at UXlab Peru and as a partner at Amable (managing consulting firm). Previously, she was UX professor at Universidad del Pacifico and UX consultant Switch Interactive Media. She holds a Master's degree in Design for Digital Platforms, a Bachelor's of Arts in Advertising and a Bachelor's of Arts in Social Relations Policy.

Zoila Palza

Palza is a Scrum Master in Belatrix Software, where she currently leads a software development team and guides clients' digital transformation in the financial industry. Previously, she was the Scum Master in Gob.pe, the single domain project of the Peruvian government, conceived at the Innovation Unit of the Prime Minister Office of Peru. Prior to that, Palza worked leading projects of software development in the Ministries of Health, Justice and Energy. She also worked at Infosys and BDO. She holds a Software Engineering degree from Pontifical Catholic University of Peru and also coursed project management and public administration specializations from ESAN University.

Additionally, thank you to Sergio Pancorbo, 2019 Digital Services Leader at Prime Minister's Office of Peru, for reviewing this case.

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Exhibit 1 – Peru Demographics

	Total Population, #	31,826,018
Gender, %	Men	50.1%
	Women	49.9%
Age Groups, %	0-15	27.1%
	15-35	26.5%
	35-50	21.6%
	50+	24.8%
Geographic Concentration, %	Urban Population, %	79.3%
	Rural Population, %	20.7%
	Capital City Population, %	31.7%

Source: Peru National Department of Statistics – INEI

Exhibit 2 – Peru Internet Access

Internet Access	2012	2013	2014	2015	2016	2017
Population with Internet Access, % of total popultation	**38.2**	**39.2**	**40.2**	**40.9**	**45.5**	**48.7**
Population with Internet Access in Urban Areas, %	47.3	48.3	49.1	49.6	54.6	58.2
Population with Internet Access in Rural Areas, %	10.4	10.9	11.5	12.0	14.2	15.4
Demographics of People with Internet Access						
Educational Attainment, % of population with Internet Access						
Primary or Less	16.6	17.5	17.7	17.8	19.8	20.5
Secondary	49.6	49.2	50.6	50.7	49.3	49.9
Post Secondary	33.8	33.3	31.6	31.5	31.0	29.6
Age, % of total population in age range						
Younger than 16 years	44.0	45.1	45.0	44.7	47.7	48.5
Between 16 and 25 years	64.4	66.2	68.2	68.6	74.9	77.7
Older than 25 years	28.2	29.1	30.4	31.8	36.8	41.4
Place of Access, % of population with Internet Access						
Public Access	43.2	38.0	32.3	26.3	18.0	11.4
Work	11.2	9.6	7.6	6.0	4.1	2.1
Home	27.6	29.0	26.1	22.6	15.3	11.5
Mobile	-	-	-	-	21.5	32.0
School	3.7	3.3	3.2	3.1	2.3	1.7
Others	13.2	19.0	29.5	41.5	38.1	40.6
Use of Internet, % of population with Internet Access						
Information, Communication, Entertainment	41.7	43.8	44.8	44.6	44.8	
Information and Communication only	17.2	18.3	19.9	14.6	13.1	
Information only	8.7	8.7	7.1	5.6	4.7	
Information and Entertainment only	8.4	7.5	6.4	6.2	5.5	
Communication and Entertainment only	2.7	2.8	2.9	6.3	6.9	
Other	21.3	18.9	18.9	22.7	25.0	
Frequency of Internet Use, % of population with Internet Access						
Once a day or more	39.5	46.4	49.5	51.8	60.1	68.5
Once a Week	51.7	46.4	43.9	42.7	35.2	28.1
Once a month	8.4	6.7	6.3	5.2	4.5	3.2
Less than once a month	0.5	0.5	0.3	0.3	0.2	0.2

Source: Peru National Department of Statistics – INEI

Exhibit 3 – Mobile Penetration in Peru

- Smartphone user penetration rate in Peru grew from 8.5% in 2012 to 47.6% in 2016.
- In 2016, more than 66% of Peruvian households owned a smartphone, up from 13.8% in 2012. Lima, Peru's capital, has a household penetration of 81.2%.
- In Peru, there were approximately 116.2 mobile phone subscriptions per every 100 inhabitants in 2016.

Source: Statista, https://www.statista.com/statistics/802251/peru-smartphone-user-penetration/.

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Exhibit 4 – Peruvian Innovation Unit Team Roles

The Innovation Unit team was composed of the following roles:

- Researchers: responsible for investigating and understanding the needs of citizens, finding opportunities for improvement and proposing solutions to improve a service. Researchers are empathic people, have the ability to relate to others, and are curious to understand people's problems, their motivations, and their concerns.
- Designers of user experience (UX) and user interaction (UI): they are the people who can translate the solution ideas into a tangible prototype that represents a new experience for the user or citizen. They have the ability to define a workflow according to the objective of the solution, taking care to ensure the best navigation, ease of use and possible interaction for the citizen. They are able to do tests with users, learn from these tests and constantly improve the prototypes, until they reach a final design that is the one that leads to development.
- Content Designer: these are the people in the team responsible for generating the necessary content for the Gob.pe platform and for the services designed. They are people with experience in communications and content writing. They have the ability to identify an issue or problem, and investigate it in depth considering all the angles that may be important for citizens. Once they become familiar with the subject, they write the necessary content for the citizen in a way that is easy to understand. In addition, they are able to write content so that it is optimized for search engines.
- Developers: within the team, the Innovation Unit has a team of web developers. This includes: back-end developers, front-end and full-stack. They are people with experience in solutions architecture, programming and continuous deployments, and know about programming languages, libraries, databases, web technologies and operating systems. They have the ability to work agilely and respond to changing needs or requirements. They are proactive and able to find and propose solutions to development challenges, continuously test their solutions and are able to communicate and interact with people in other roles.
- Scrum Master: is the person who manages the process of agile development, guiding the development team during the different sprints. He/she facilitates team meetings, helps the team prioritize functionalities and helps unlock obstacles for the team. He/she is an organized person, with a great capacity for communication and management of priorities, as well as creating a collaborative work environment. Although a master scrum does not necessarily have to know how to program, in any case, he/she must have a deep understanding of the digital environment.

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Exhibit 5 – Innovation Unit Filed Research and Testing

Full Interviews: 26 Lima // 14 Iquitos

Contextual Interviews: 9 Lima // 8 Iquitos

Focus Groups: 4 Lima // 2 Iquitos

Agencies and Processes: 11 Lima // 7 Iquitos

Exhibit 6 – Gob.pe Initial Prototyping

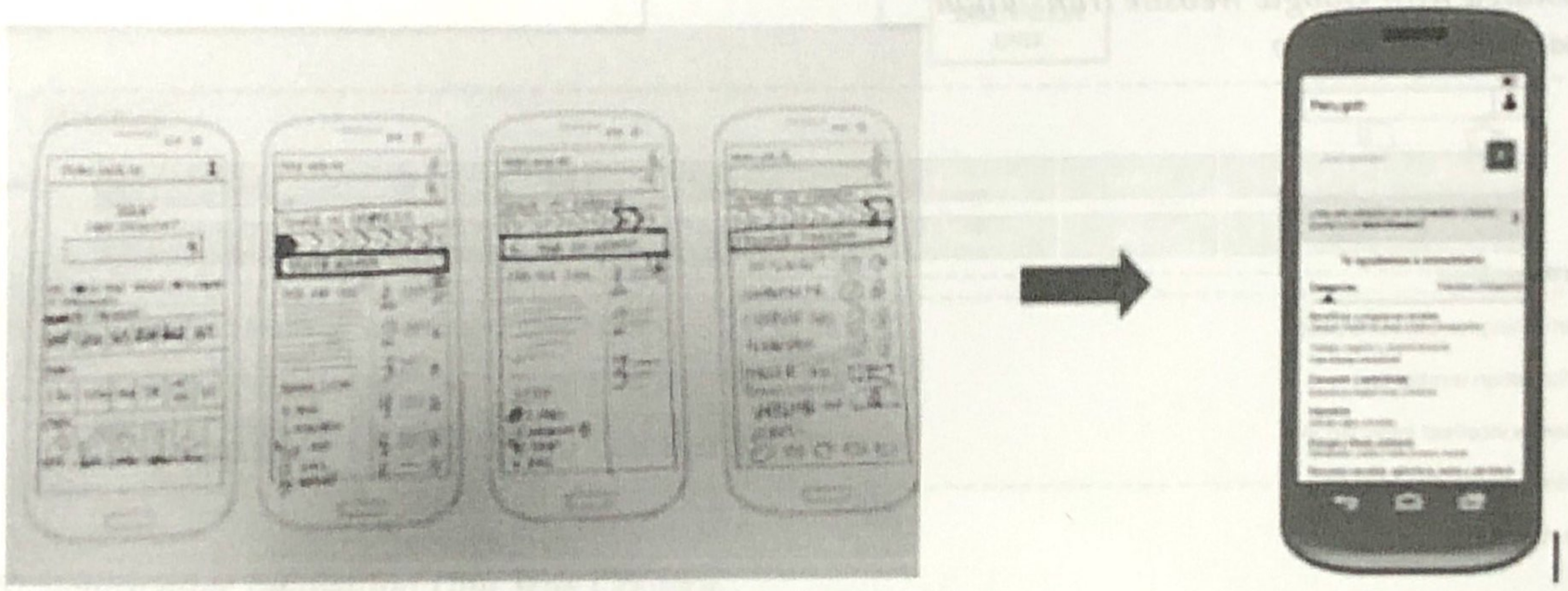

Exhibit 7 – Gob.pe Website Screenshot from April 2019

Translated with Google website translation

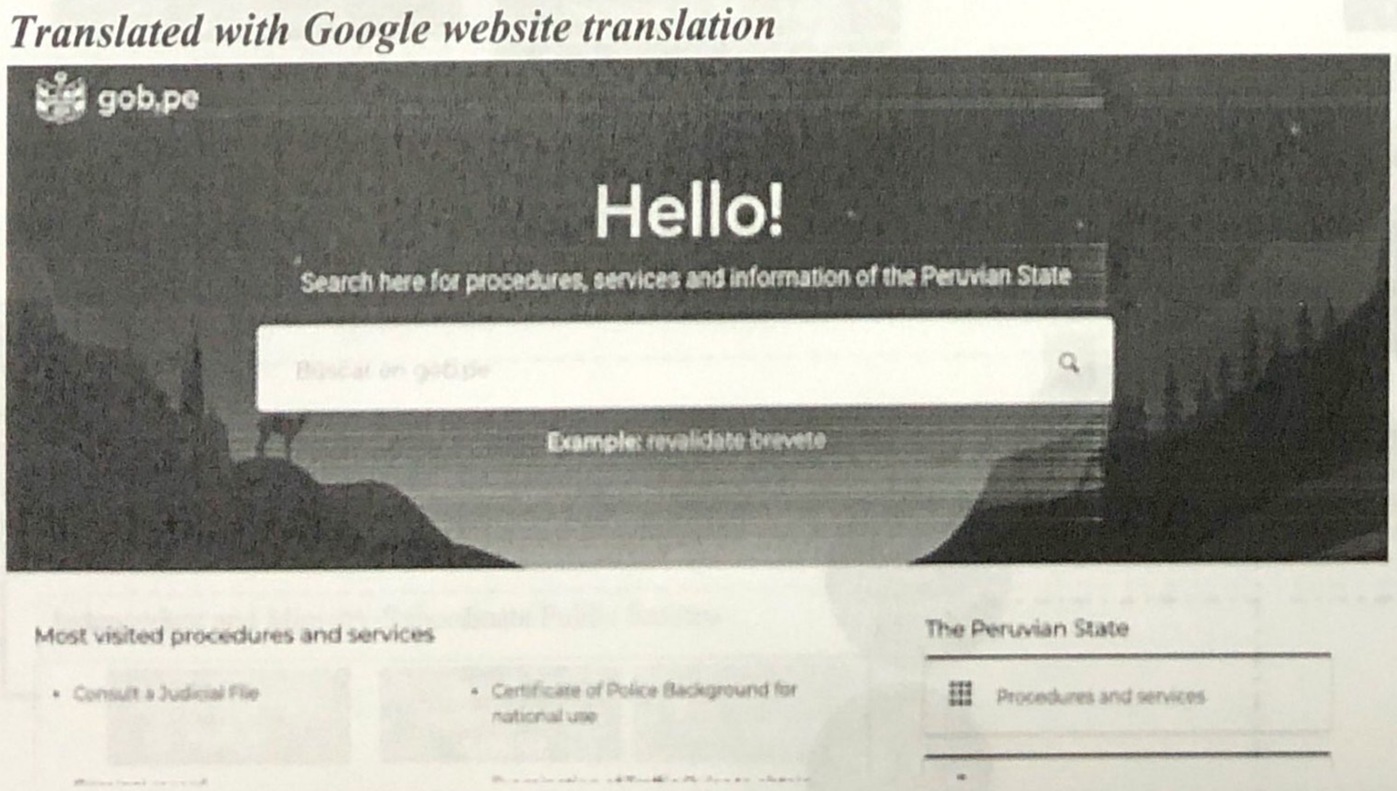

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Exhibit 8 – Gob.pe Metric Dashboard for Tax Return Filing Site

Translated with Google website translation

gob.pe

Info - Tax Refund for 4th and 5th category income

Average visits of pages (per day)

790.71

Average page bounce rate (per day)

51.23%

Internal visitor counter (last week)

847

Negative feedback received (last week)

3

Positive feedback received (last week)

Four. Five

Average duration of the session

00:09:15

Exhibit 9 – Gob.pe Feedback Section

Translated with Google website translation

Did the content serve you?

6213 158

Tell us the problem:

Something here does not work

Information is missing

There is incorrect information

It is not easy to understand

Another reason

Submit

Exhibit 10 – Gob.pe Product and Feature Prioritization

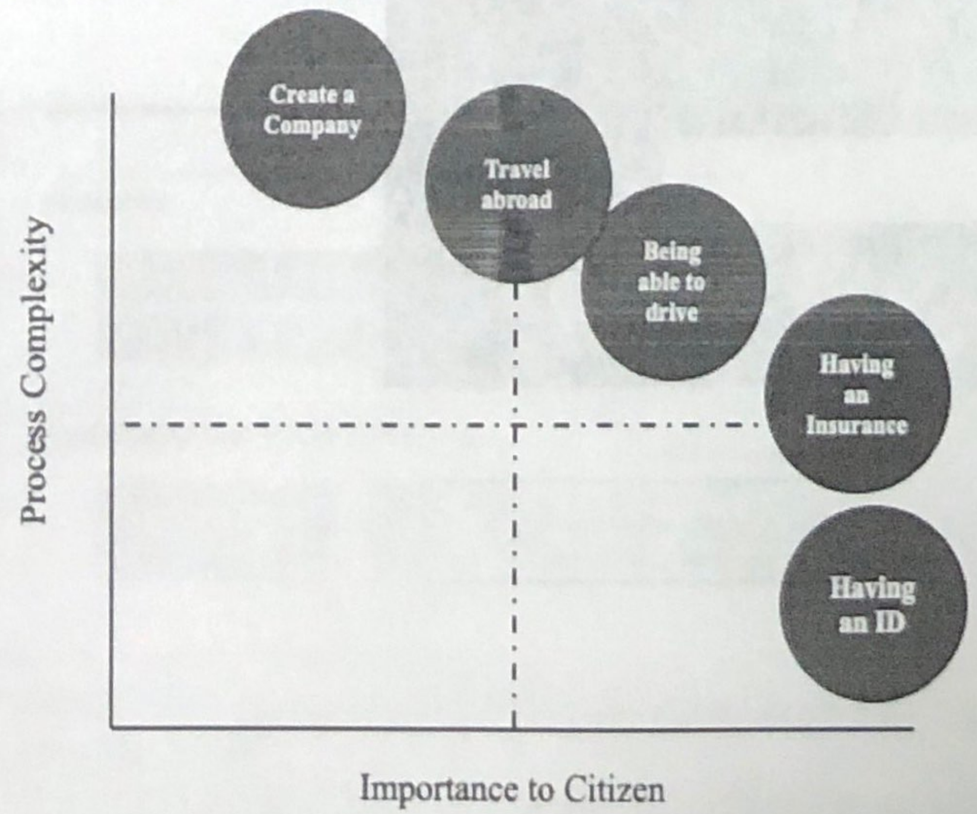

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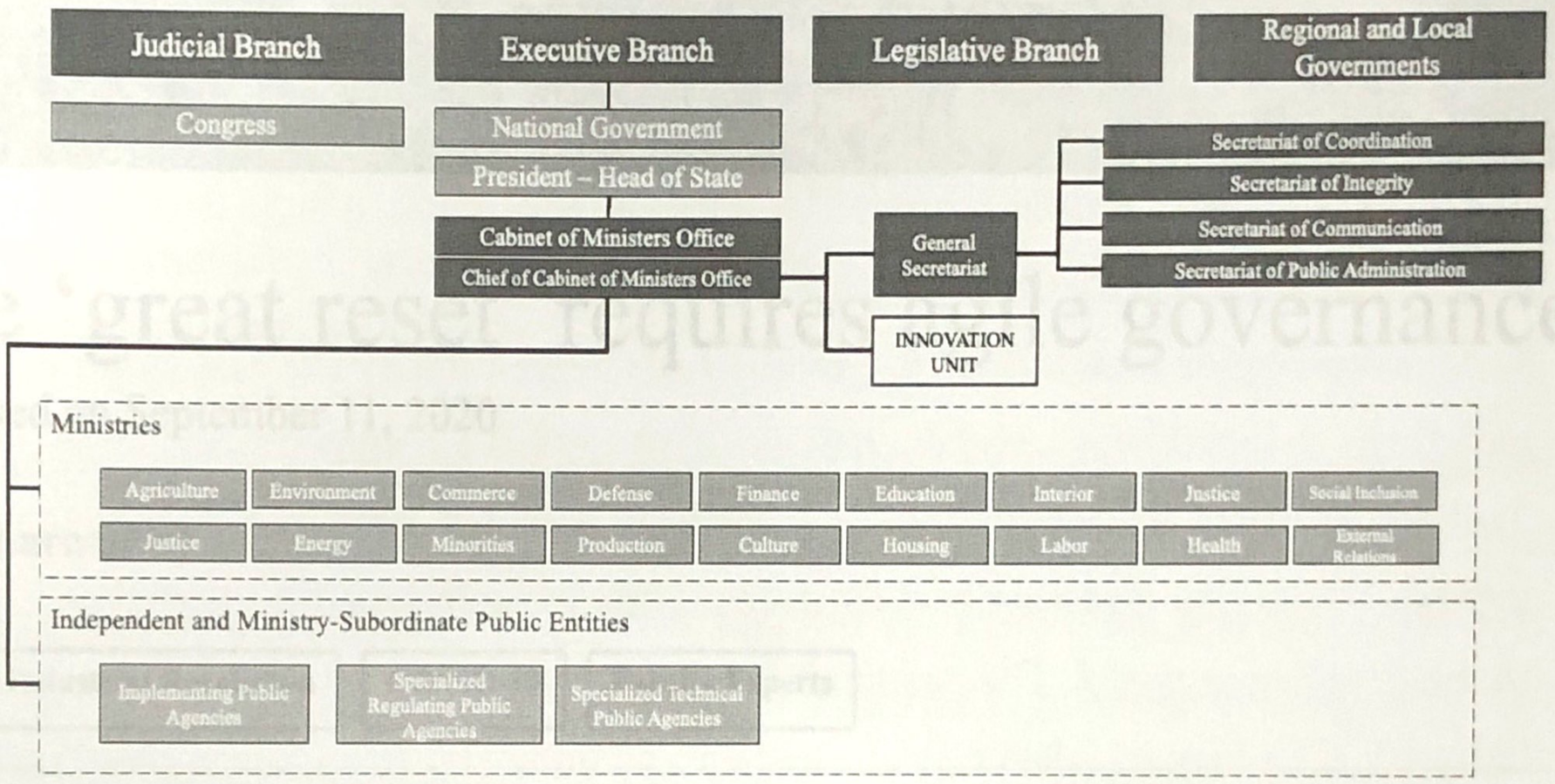
Exhibit 11 – Organization Structure

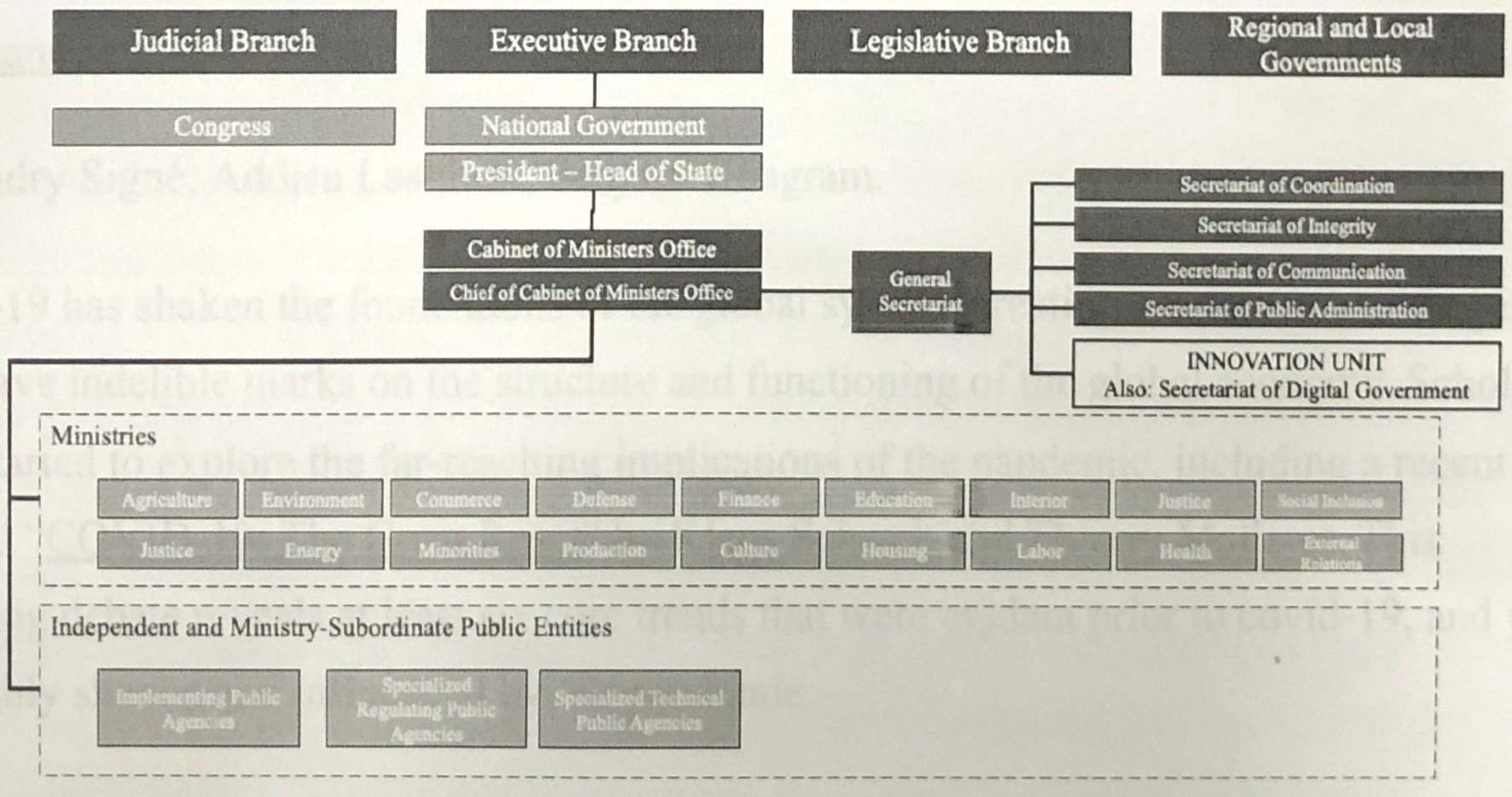
The Innovation Unit was launched at the Office of Government Compliance and Sectoral Innovation within the Cabinet of Ministers Office. It later became a Secretariat still within the Office. The Cabinet of Ministers coordinates multisectoral national policies and leads the modernization of the Public Administration. Its mission is to maintain relations with the other powers of the State in order to build a modern, articulated and decentralized country within the framework of the Government's General Policy.[2]

Organization Structure of the Peruvian State and the Cabinet of Ministers Office[3]

Initial Structure - A



Structure after Innovation Unit Was Created



[1] Diario Gestion: https://gestion.pe/peru/politica/pulso-peru-crecen-60-82-peruanos-creen-corrupcion-aumento-ultimos-cinco-anos-245988.

[2] https://www.gob.pe/716-presidencia-del-consejo-de-ministros-que-hacemos.

[3] Modified from https://www.peru.gob.pe/docs/estado.pdf and http://www.pcm.gob.pe/organigrama-sectorial/.

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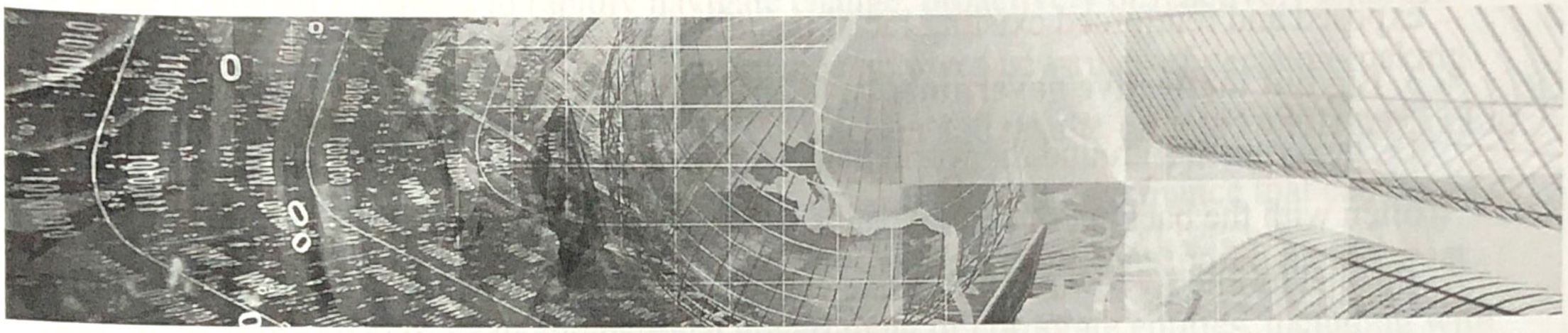

The 'great reset' requires agile governance

Published on September 11, 2020

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MIT Sloan Tech Review: https://insights.techreview.com/the-great-reset-requires-agile-governance/

by Landry Signé, Addisu Lashitew, Sanjeev Khagram.

Covid-19 has shaken the foundations of the global system, creating monumental changes that will leave indelible marks on the structure and functioning of the global economy. Scholars have started to explore the far-reaching implications of the pandemic, including a recent book entitled "COVID-19: The Great Reset" by Klaus Schwab and Thierry Malleret. This emerging debate reveals at least six core trends that were evident prior to covid-19, and yet are highly shaped and influenced by the pandemic.

1. **A battered economy.** Covid-19 is likely to induce a persistent "80% economy" that will potentially depress wages, raise unemployment, and exacerbate inequalities. The pandemic has hit millions of businesses hard, many of which are likely to face

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bankruptcy once the life support provided by government subsidies is removed.

2. **Inequalities and a weakening social contract.** Covid-19 will reinforce the trend of stagnant low-skill wages and rising inequalities by fostering automation and digitization. The potential widespread application of emerging technologies such as telemedicine, AI, and telerobotics is likely to jeopardize millions of jobs. The pandemic has also hit societies at their fault lines, weakening already fractured societal trust. The Black Lives Matter movement in the US has arguably been fueled by covid-19, which exposed and reinforced existing racial inequities.

3. **Big but ineffective governments.** In an effort to contain the economic cost of covid-19, governments around the world have launched multi-trillion-dollar interventions, often with the backing of central banks. However, the ability of big government to channel its energy toward productive ends such as a Green New Deal or new social protection programs will be inhibited by a legitimacy deficit, a huge debt burden, and sociopolitical instabilities and polarization.

4. **An even bigger tech industry.** Covid-19 has helped fortify the vast empires of big tech firms as lockdowns created a massive shift toward e-commerce and teleworking. Technology firms are entering new value-adding activities such as digital payment systems while also investing heavily in cost-effective solutions for internet connectivity in the developing world. The pandemic has also revealed the potential tradeoffs between efficiency and data privacy, a major dilemma that will require novel and trustworthy governance systems.

5. **Geopolitical tensions.** The ongoing economic decoupling of the US and China could take the world into yet another Cold War, which is likely to reinforce global anarchy and potentially undermine neoliberal values globally. The ensuing multipolar world will complicate global collective action as it will undermine multilateral institutions that coordinate global governance.

6. **Stakeholder capitalism.** On the positive side, covid-19 is likely to speed up the traction of sustainable corporate models that address the interests of all stakeholders through stakeholder capitalism. However, universal adoption of stakeholder capitalism will require institutional reforms that internalize societal costs (for example, pricing CO_2 emissions) and reward long-term corporate performance.

These shifts are complex, interrelated, and unpredictable, making it hard to articulate and design appropriate social, economic, and political policy responses. But the Great Reset also contains valuable seeds of change that can be mobilized to overcome some of the challenges it brings. Today, citizens are highly interconnected and informed, governments are armed

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with big data, and corporations are teeming with ever-powerful technologies that are getting better at simulating human intelligence. They contain the right ingredients for local and global leaders and institutional entrepreneurs to craft radically agile forms of governance that can match the complex challenges of the day.

Agile governance is "adaptive, human-centered, inclusive, and sustainable policymaking, which acknowledges that policy development is … an increasingly multi-stakeholder effort. It is the continual readiness to rapidly navigate change, proactively or reactively embrace change, and learn from change." Agile governance involves new rules of decision-making that are flexible, responsive, human-centric, data-driven and results-oriented while remaining fair, transparent, and accountable. It thus entails a novel form of governance that can radically beef up the capacity of societal institutions to meet challenges posed by the great reset, be it at the level of local and national government or corporate entities, including with tools such as co-creation, crowdsourcing, regulatory sandboxes, design thinking, public-private dialogues, and partnerships.

For example, the UK CareQuality Commission has used regulatory sandboxes to test digital triage (instead of traditional clinical triage) in health-care services to assess its impact prior to a potential widespread rollout. A regulatory sandbox allows to test a new innovation, technology, or service which is not yet generally authorized (given the velocity of technological innovation), by working with a broad variety of stakeholders to test and explore its potential impact before a broader authorization. Such regulatory sandboxes allow big tech industries to continue to innovate at a faster speed without the preoccupation of going too fast compared to policymaking and government regulation.

An agile governance approach to the problem of big but inefficient governments could involve using real-time data to provide adaptive and human-centered policy support for mitigating poverty, reducing inequality, and advancing inclusive growth. Leaders can also better use social media to coordinate global engagement (for example, direct giving and crowdfunding), strengthen inclusive governance, and rehabilitate societal capital, while tackling the dissemination of misleading information. Crowdsourcing and AI can also be used for early detection of public health emergencies like covid-19 or social crises, wars, and violent conflict, allowing timely reactions from proactive governments. Blockchain technologies are set to power new central bank digital currencies that will create a more efficient, flexible, and inclusive monetary policy and payment systems.

Local, national, and global institutions of today need to be reinvented in order to navigate the

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great reset and build more prosperous and inclusive societies. It is about time to start experimenting with novel and agile forms of governance to underpin resilient social, political, and economic systems that are suited to a changing world.

Landry Signé (@LandrySigne) is a professor and senior director at the Thunderbird School of Global Management. He is a senior fellow at the Brookings Institution, a distinguished fellow at Stanford University, a World Economic Forum young global leader, and the author of Unlocking Africa's Business Potential.

Addisu Lashitew (@AddisuLashitew) is a Rubenstein fellow at the Global Economy and Development Program at the Brookings Institution.

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September 14, 2020

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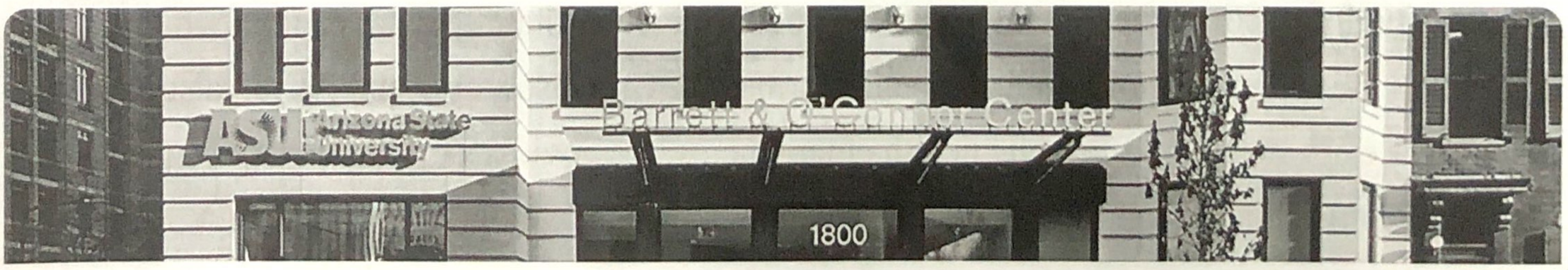

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WILLIAM C. KIRBY

JOYCELYN W. EBY

"World-Class" Universities: Rankings and Reputation in Global Higher Education

Government leaders, academic administrators, parents, and students have been concerned with understanding and identifying "world-class" universities. As nations raced to develop innovation-driven economies, they found themselves in a global competition to nurture, attract, and retain top talent. Universities were seen as a key mechanism for accomplishing this goal.[1] Nowhere was this more apparent than in China, where the Central Government had poured funding[a] into its most elite institutions with the explicit goal of achieving "world-class" status. University administrations took the goal very seriously as well. For example, the 2011-2015 development plan of Tsinghua University included the phrase "world-class university" 27 times.[2]

But what did "world-class" mean? Philip Altbach, an American expert on international higher education, recognized, "Everyone wants a world-class university. No country feels it can do without one. The problem is that no one knows what a world-class university is, and no one has figured out how to get one."[3] For years, scholars and the media have tried to classify and quantify what makes a university great, and while no clear agreement has emerged, some common threads ran across varying conceptions of "world-class." Assessments of the quality of universities have taken various forms, but one type in particular stood out for its longevity and popularity: ranking tables. Widely disseminated and quick to read, national and international ranking tables became one of the most popular ways to quantify "world-class" achievement.

A Brief History of Rankings

Rankings in the United States

One of the earliest examples of college rankings in the United States grew out of a more general project on the backgrounds of outstanding thinkers, led by psychologist James McKeen Cattell.[4] As part of a larger project on outstanding scientists, Cattell compiled a list of the thousand most

---

[a] China's efforts began with the announcement of Project 211 in 1993, which ultimately provided increased funding for 100 universities. The even more elite Project 985 was launched in 1998 and funneled billions of RMB to 37 institutions, including 1.8 billion each to Peking University and Tsinghua University.

Professor William C. Kirby and Research Associate Joycelyn W. Eby prepared this note as the basis for class discussion.

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distinguished "American Men of Science,"[b] fully ranked and then grouped by deciles. He then aggregated information on where these men had attended school and worked, and developed lists of institutions according to total number of distinguished faculty, total number of distinguished alumni, and ratio of distinguished faculty to the entire faculty body. Most important, one of his closing analyses listed the universities according to number of currently employed "Men of Science," weighted by each man's individual ranking among his peers. (See **Exhibit 1** for selected tables from Cattell's 1910 report.)

Cattell's work laid out many of the fundamental choices and tradeoffs that continued to confound ranking systems, discussed in more detail below. Cattell was able to avoid many of these issues by producing mainly single result charts and not developing a comprehensive ranking that combined multiple institutional results, such as institutional resources and numbers of distinguished faculty and alumni, into a single metric. Such a ranking would not appear for many more decades. Still, Cattell's work is an early example of one of the methodological pillars of rankings today: outcome-based analysis. Outcome-based analyses would judge universities on the basis of the various outputs and outcomes of their operations, such as famous alumni produced, prize-winning professors employed, or research papers published. The other major ranking methodology would be based on institutional reputation, usually determined by surveys of university administrators and faculty.

As Cattell was creating his early ancestor of university rankings, various other groupings and stratifications of the growing U.S. higher education sector began to appear. In 1901, fourteen doctoral-granting institutions organized themselves as the Association of American Universities (AAU). In 1911, at the behest of deans of graduate schools in the AAU, Kendric Babcock, a specialist in higher education with the U.S. Bureau of Education, published the "Classification of Universities and Colleges with Reference to Bachelor's Degrees." It was distributed "semiconfidentially" as a tool for AAU member institutions to better evaluate the growing numbers of applicants for graduate study.[5] Based on six months of interviews with high level administrators and reviews of the transcripts of students at the majority of the graduate schools in the United States, Babcock divided U.S. undergraduate degree-granting institutions into four tiers, labeled Classes I-IV, dependent upon how their alumni fared in their graduate studies.

Despite Babcock's intention that the report serve as an internal document, it was leaked to the press and received significant negative feedback from AAU members. This discouraged government entities from making such classifications in the future. While the bad press may have delayed the development of comprehensive classifications, many other specialized forms of classification evolved during the first half of the 20th Century. As early as 1906, the *Journal of the American Medical Association* published classifications of medical schools based on each school's graduates' passing rate on medical licensing board examinations.[6] Other professional associations shortly followed with similar classification systems based on professional standards, including the Council on Dental Education (1918), the American Bar Association (1923—although classification was abandoned in favor of simply listing approved schools in 1927), the American Optometric Association (1925), the American Association of Teachers Colleges (1928), and the Society of American Foresters (1935).[7] The growing popularity of intercollegiate sports competitions led to the formation of geographical (and sometimes hierarchical) groupings as well, from the "Big Ten" in 1905 to the "Ivy League" in 1954.

---

[b] Cattell's broader project defined "Men of Science" as those working in the "natural and exact sciences," who had "contributed to the advancement of pure science" or were members of various professional scientific organizations. This definition yielded a 4,000-strong list, which Cattell divided by field (chemistry, physics, zoology, botany, geology, mathematics, pathology, astronomy, psychology, physiology, anatomy, and anthropology), and asked ten leaders in each field to rank those listed in their field by merit. Cattell then used statistical analysis to combine the rankings of each group of ten leaders, and compiled them into an overall list of the top 1,000 scientists, with each field represented in proportion to the total number of scientists in that field.

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Moving one step closer to outcome-based rankings from broad classifications, Beverly Kunkel and Donald Prentice periodically ranked universities according to lists of distinguished alumni garnered from other sources, such as *Who's Who in America* from 1930 to 1951.[c,8] While their original 1930 study listed the institutions in order of how many of the alumni appeared on the list, by 1951 they listed the institutions alphabetically instead, downplaying the comparative aspect of their study.

In 1924 chemist Raymond Hughes piloted a study that introduced the other pillar of modern ranking methodology: reputation-based analysis.[9] At the behest of the North Central Association of Schools and Colleges, he surveyed faculty members at Miami University, asking them to rate 20 disciplines at 36 universities on a scale of one to five, and then aggregated these ratings into a comprehensive list. In the following iteration of his survey in 1934, Hughes surveyed respondents from a broader spread of universities, but only made aggregated results available in alphabetical order, indicating that his intention was not to determine a ranking. His work laid the foundation for a proliferation of reputation-based graduate program ranking systems in the 1950s and 1960s.

Throughout this period, there were several attempts to develop rankings of undergraduate programs, but none were made with a transparent ranking system until the reputation ranking of 150 departments in seven fields compiled by Lewis Solmon and Alexander Astin in 1981. Solmon and Astin asked respondents to judge departments based on six criteria, and ultimately found a strong correlation between a rater's perception of overall undergraduate quality and "scholarly excellence of faculty" and "commitment to undergraduate teaching."[10] Later ranking systems and conceptions of "world-class" reflected a similarly high emphasis on faculty research accomplishment, if not on teaching.

It was not until 1983, with the first "America's Best Colleges" report by *U.S. News and World Report* (USNWR) that the general public gained access to and took interest in university rankings. Launched by a failing newsweekly in search of another mission, "America's Best Colleges" began as a purely reputational survey, and produced a ranking solely based on the opinions of university presidents. In response to criticism of its methodology, USNWR shifted its approach in 1988 to develop a ranking that was 25% reputational and 75% based on absolute data, including admissions and graduation rates, faculty performance, and more. From then on, the USNWR ranking dominated the sphere of U.S. university rankings at both the undergraduate and then graduate and professional levels, all now published annually.[11] By the early 2000s, however, domestic U.S. rankings were no longer the only ones that mattered.

International Rankings

As faculty, students, jobs, and information became more globally mobile, universities found themselves in an increasingly internationalized marketplace. Globalization and the universal aspiration to "world-class" status led to a proliferation of ranking systems that compared institutions across national borders. The first of these held in high international regard was the Shanghai Jiaotong Academic Ranking of World Universities (ARWU), established in 2003.[12] The Times Higher Education Supplement-Quacquarelli Symonds[d] Rankings, based in the United Kingdom, began to be published in 2005 until a dramatic split over methodological differences led to the publishing of two separate rankings—the Times Higher Education (THE) and the Quacquarelli Symonds (QS), respectively—from

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[c] Originally published in 1899, "Who's Who in America" attempted to be a comprehensive biographical dictionary of outstanding people in any field. While the 1899 publication included 8,602 listings, the 2015 edition contained the biographies of over 90,000 people, ranging from Macklemore and Ryan Lewis to Chris Christie.

[d] Quacquarelli Symonds was a firm that provided information and guidance to higher education students around the world. It was founded in 1990 by Nunzio Quacquarelli, while he worked toward an MBA at University of Pennsylvania's Wharton School.

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2010 on. The QS rankings continued to use the original methodology, which was heavily reliant on reputational ratings, while THE used criteria that combined a lower ratio of reputational data with outcome data, including such information as number of publications, citations in academic journals, and industry income.[13] In recognition of the growing importance of international ranking systems, USNWR, long dominant in U.S. domestic university rankings, published its first international university ranking in October 2014. (See **Exhibit 2** for a comparison of the criteria used by each ranking system and **Exhibit 3** for the top 25 universities in each ranking system in 2014.)

Trade-offs in Rankings

Just as democracy, according to Winston Churchill, is the worst form of government except for all the others, so quality rankings are the worst device for comparing the quality of American colleges and universities, except for all the others.

— David S. Webster, *Academic Quality Rankings of American Colleges and Universities*[14]

Inputs and Outputs versus Reputation As noted above, ranking systems were based largely on two types of information. Production-based rankings looked at various elements of a university's production function, which included both inputs (such as funding or staff-to-student ratio) and outputs (such as number of research publications by faculty or number of Nobel laureates). Reputation-based rankings looked at an institution's reputation amongst various experts in the field. Early ranking models tended to use one approach exclusively; Cattell ranked schools based on their output of scholars and their input of excellent faculty, while Hughes ranked them according to expert opinion. Of the four major international ranking systems used today, only ARWU was solely outcome-based, taking into account only quantitative data. The other three rankings all used some reputational data in addition to information about inputs and outputs.

Absolute versus Relative Numbers The importance of balancing the use of absolute and relative statistics was apparent from Cattell's very first ranking. Cattell's data ranked the following institutions as the top ten based on total number of scientific faculty found on his list of the top thousand "American Men of Science":

Table 1 Top Ten Institutions by Faculty (Absolute)

Rank	Institution	Number of Men of Science Faculty
1	Harvard	79.5
2	Columbia	48
3	Chicago	47.5
4	Yale	38
5	Cornell	35
6	Johns Hopkins	33.5
7	Wisconsin	30
8	Dept. of Agriculture	28
9	Geological Survey	25.5
10	MIT	25

Note: 0.5 faculty indicates an emeritus or part-time faculty member.

Source: James McKeen Cattell, *American Men of Science: A biographical directory*, 2nd ed. (New York: Bowker, 1910), p. 589.

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While Cattell did not include the rank column shown above, he did choose to order his many-columned chart based on the results of the "Number of Men of Science Faculty" column. On the other hand, another column in his chart ranked institutions by the ratio of total number of faculty to number of "Men of Science". Had Cattell ordered his chart according to this column, the final product would have implied a very different ranking, in which Clark University was, pound-for-pound, more distinguished than Harvard:

Table 2 Top Ten Institutions by Faculty (Relative)

Rank	Institution	Ratio of Total Faculty: Men of Science Faculty
1	Clark	2
2	Johns Hopkins	5.6
3	Chicago	6
4	Stanford	6.9
5	Harvard	7.8
6	Bryn Mawr	7.8
7	Wesleyan	8.5
8	Case	8.8
9	Princeton	9.8
10	MIT	10.1

Source: James McKeen Cattell, *American Men of Science: A biographical directory*, 2nd ed. (New York: Bowker, 1910), p. 589.

By 2015, the major international rankings used a combination of both absolute and relative numbers. ARWU and THE both scaled some of the calculations against the total size of the faculty at each institution. USNWR also included some relative numbers. For example, it used both the total number of doctorates awarded per year as well as the total number of doctorates awarded per year per faculty member. The QS ranking judged research output on a citation per faculty member basis.

Diverse Disciplines One difficulty was how to produce fair, university-wide rankings of schools with different mixes of disciplines and specialties—a particular challenge as species and sub-species of academic specialization proliferated in the late 20th and early 21st centuries. For decades, experts avoided this issue by producing only rankings of individual departments, rather than entire universities. Even after university-wide rankings became common practice, rankings of specific schools still remained popular, especially for professional schools like business and law schools. These rankings were often formulated and published by relevant professional publications. For example, many premier business periodicals, such as *Bloomberg*, the *Financial Times*, and the *Economist*, all produced their own, divergent rankings of MBA programs.

Among university-wide rankings, methods for balancing the disciplines remained controversial. One of the reasons for the split between THE and QS was THE's belief that the ranking methodology as it stood placed too much emphasis on the sciences over humanities.[15] 30% of the criteria of the ARWU was based on recipients of Nobel Prizes or Fields Medals,[e] giving a higher weighting to mathematical and scientific achievement than to university-housed achievement in the humanities. As

[e] Considered by some to be the "Nobel Prize of Mathematics," the Fields Medal was awarded every four years at the International Congress of the International Mathematics Union to two to four mathematicians under the age of 40 who had made significant contributions to the field.

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universities began relentlessly to pursue higher rankings, there was the potential for resources to be dedicated only to those fields likely to make the largest contributions to rankings.

World-Class beyond the Rankings

The ranking systems all tended to place primary importance on the research produced at each university, perhaps the most easily quantifiable output of the university, with less attention given to aspects of universities like teaching quality and academic environment. Outside the ranking systems, scholars and administrators established more nuanced definitions of greatness that incorporated abstract concepts such as academic freedom and institutional autonomy as well as measureable outputs like faculty work citations and prizes won by alumni. The common ground among the many definitions of "world-class" laid in the consistent emphasis on excellence in three areas: faculty, students, and administration. More recently, and in China in particular, the definition of "world-class" often also included international and cultural exchange.[16]

Faculty

A faculty of the highest quality that produced plentiful research was key in almost every conception of "world-class." As Henry Rosovsky, former dean of the Faculty of Arts and Sciences at Harvard, argued, the best schools "correctly assume that the quality of the faculty is the most important factor in maintaining their reputation and position. The best faculty attracts the finest students, produces the highest-quality research, gains the most outside support."[17] But what policies attracted high-quality faculty members? How did universities ensure that an exemplary scholar continued to produce research?

The most basic requirement for plentiful, quality research output from faculty was academic autonomy. The concepts of "freedom to teach" (*Lehrfreiheit*) and "freedom to learn" (*Lernfreiheit*) were central to what was seen as the world's first research university, the University of Berlin founded in 1810 by Wilhelm von Humboldt. As the model of the research university spread and evolved in Europe and the United States, the value of academic freedom allowed professors, as experts in the field, to pursue research in areas as they saw fit. This expanded freedom of research (never perfect to be sure) allowed universities to become centers of innovation and discovery. The protection of academic freedom was linked to an implicit social contract between the professoriate and society at large—those afforded the time and space to carry out research had a duty to share their findings with society and work toward the greater good.[18]

Less well defined than research contribution was the faculty's contribution as teachers. High quality teaching linked cutting-edge faculty research with the nurturing of talented students. However, as teaching quality seemed so much harder to quantify, particularly from outside the institution, it was often only vaguely represented in rankings by measures such as faculty-to-student ratios. Quality of teaching remained a relatively poorly understood aspect of world-class universities.

The centrality of faculty to the creation of world-class universities was a financial and organizational challenge for university administrations. In order to attract outstanding faculty who would be distinguished in research (and ideally also in teaching), a university needed to provide competitive compensation, time and resources for research, and opportunities for professional advancement. Tenure systems, begun in part as a means to ensure academic autonomy, in time became interlinked with competition among universities: to recruit or retain the very best in an internationally competitive environment, universities had to offer life-long tenure.

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Students

Most scholars agreed that the ability to attract top students and nurture exceptional and productive graduates (however one may define these) was another key facet of a world-class university. A world-class university needed admissions mechanisms that would allow it to recruit and admit students with the highest potential. Once admitted, students would be exposed to new ideas and inspiring research. While quality of faculty certainly affected the development of students, equally important was the quality of fellow students and, not the least, the nature of the curriculum.

Many scholars have argued in favor of a liberal arts curriculum (often in the form of general education requirements) as the best means to nurture students' future potential. James Freedman, the late president of Dartmouth, argued that a liberal arts education was key to inspiring students' curiosity, developing their humanity and capacity for empathy, and in preparing them as citizens and leaders. Not all world-class universities had liberal arts curricula, but Rosovsky found that the centrality of liberal arts education for undergraduates was common across top U.S. universities. In the early 21st century, European and Chinese universities began to emulate the practices of American liberal arts colleges, often in the form of elite honors colleges within research universities. Aspiring world-class universities sought ways of balancing the holistic development of their students with the depth of their specialist knowledge.

Administration

Universities commonly deemed "world-class" had another distinguishing trait: they enjoyed flexible and effective governance systems, largely insulated from political interference, with sufficient resources to implement their visions. In the United States, most universities developed a governance system led by a president, at the top of the administrative hierarchy, and a board of trustees. Because of this management structure, even publicly funded universities were able to distance themselves from political influence and base decisions on the best interests of the institution without being swept up in the political tides. Jonathan Cole, former provost of Columbia, identified government intrusion as one of the key threats to great universities.[19] On the other hand, Jamil Salmi, former tertiary education coordinator of the World Bank, argued that in the current globalized world, "it is unlikely that a world-class university can be rapidly created without a favorable policy environment and direct public initiative and support..."[20] World-class universities would be able to foster cooperative, mutually-beneficial relationships with supportive, but not stifling, governments.

Regardless of political influences from outside the university, world-class universities also needed effective systems of governance within their walls. For example, in top American universities, key budgeting or potentially contentious decisions were made by appointed deans, provosts, or other administrators, rather than by faculty committees. This allowed for the making of difficult choices that might not be approved if debated through a process in which all faculty members had a vote.[21] University administration ideally had space to plan for the longer-term. At the same time, faculty involvement in curricular and appointment matters was deemed essential to ensure quality.

World-class universities also needed access to funding to pursue their development. Financial resources supported the university's ability to recruit top faculty, admit students regardless of need, and invest in long-term research projects. Many world-class universities amassed significant endowments, which allowed them to pursue long-term, large-scale projects.

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Internationalization

While found in only three out of the four main rankings, international engagement was mentioned increasingly often in the quest for world-class universities, especially in China. International engagement appeared in many different ways on university campuses, including everything from more basic means like recruiting non-local faculty and students to developing academic exchange programs such as stand-alone or joint-venture international branch campuses. Internationalization of universities both responded to and led economic globalization, as world-class universities began to prepare their students to be global leaders. Would-be world-class universities needed to nurture adaptable, cosmopolitan students in an international environment while still maintaining their own culture and ties to their local communities.

The Rule of Rankings

As discussions of "world-class" universities became an academic cottage industry in the 21st century, definitions of the term grew complex and at times contradictory. Chinese officials tended to emphasize contribution to the public good as an important mark of a world-class university.[22] Others stressed the role of a university in innovation, while a few argued instead for the centrality of tradition.[23] It was unclear whether definitions would converge on a few key ideas or become more diverse over time.

The debate over the meaning of "world-class" was perhaps was a healthy reaction to the culture of rankings, which had the potential to drive universities to focus only on that which was ranked, rather than on a broad mission of academic exploration and discovery. Might not rankings—all of which measured past activity—in fact impede creativity in the building of new or renewed institutions? Yet the presidents, provosts and deans around the world who ritually denounced the tyranny of rankings to their governing boards, still did their best every day to rise in them.

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Exhibit 1 Selected Charts from Cattell's 1906 and 1910 Reports

TABLE XI. THE SCIENTIFIC STRENGTH OF THE LEADING INSTITUTIONS

	Weighted Number.	Gain or Loss.
Harvard	146.0	+16.3
Chicago	94.6	+18.0
Columbia	79.3	−13.3
Hopkins	63.4	+ 4.2
Yale	61.7	+12.2
Cornell	57.6	+ 4.6
Wisconsin	49.0	+22.3
Geol. Survey	43.8	−12.2
Dept. Agric.	40.9	− 4.9
Mass. Inst.	37.7	+ 9.5
Michigan	37.1	− 3.5
California	32.4	− 5.0
Carnegie Inst.	30.9	+19.4
Stanford	30.0	+ 4.8
Princeton	28.6	+ 7.5
Smithsonian Inst.	26.0	− 7.3
Illinois	25.0	+16.7
Pennsylvania	24.4	− 4.5
Bur. of Standards	18.9	+ 0.1
Clark	16.0	+ 2.0

Note: Gain or loss refers to gain or loss in weighted number of men between 1906 and 1910. This chart appeared in Cattell's 1910 report.

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TABLE IV. ATTENDANCE OF THE THOUSAND MEN OF SCIENCE AT DIFFERENT INSTITUTIONS

	Bachelor's Degree.			Graduate Study.			Ph.D.			Grand Total.
	I.-V.	VI.-X.	Total.	I.-V.	V.-IX.	Total.	I.-V.	VI.-X.	Total.	
Harvard	55	51	*106*	38	36	*74*	30	27	*57*	237
Johns Hopkins	12	15	*27*	27	15	*42*	50	52	*102*	171
Yale	35	17	*52*	9	4	*13*	14	14	*28*	93
Columbia	12	16	*28*	9	3	*12*	11	27	*38*	78
Cornell	19	12	*31*	4	13	*17*	10	16	*26*	74
Michigan	23	12	*35*	4	4	*8*	8	2	*10*	53
Princeton	11	12	*23*	5	7	*12*	4	4	*8*	43
Chicago	0	2	*2*	3	11	*14*	12	11	*23*	39
Mass. Inst. Tech	13	13	*26*	3	6	*9*	0	0	*0*	35
Amherst	12	11	*23*	2	3	*5*	0	1	*1*	29
Clark	0	0	*0*	5	11	*16*	4	8	*12*	28
Pennsylvania	5	10	*15*	2	2	*4*	3	6	*9*	28
Wisconsin	4	10	*14*	1	4	*5*	2	2	*4*	23
California	5	7	*12*	3	3	*6*	3	1	*4*	22
Wesleyan	9	7	*16*	2	3	*5*	0	0	*0*	21
Indiana	4	4	*8*	2	4	*6*	4	0	*4*	18
Nebraska	5	5	*10*	4	2	*6*	1	1	*2*	18
Williams	6	8	*14*	0	2	*2*	0	1	*1*	17
Dartmouth	5	5	*10*	2	1	*3*	0	1	*1*	14
Oberlin	6	4	*10*	2	2	*4*	0	0	*0*	14
College City N. Y.	7	4	*11*	1	1	*2*	0	0	*0*	13
Geo. Washington	3	2	*5*	2	0	*2*	3	3	*6*	13
Brown	4	4	*8*	1	2	*3*	0	0	*0*	11
Iowa	2	4	*6*	1	2	*3*	1	0	*1*	10
Toronto	5	13	*18*	3	3	*6*	0	0	*0*	24
Edinburgh	2	1	*3*	0	3	*3*	2	3	*5*	11
Cambridge	2	0	*2*	3	5	*8*	0	0	*0*	10
Berlin				53	42	*95*	11	11	*22*	117
Leipsig				30	15	*45*	27	12	*39*	84
Göttingen				18	18	*36*	19	14	*33*	69
Heidelberg				27	14	*41*	7	8	*15*	56
Munich				13	5	*18*	6	7	*13*	31
Strasburg				13	4	*17*	3	3	*6*	23
Freiburg				10	5	*15*	3	1	*4*	19
Bonn				10	4	*14*	2	2	*4*	18
Zurich				5	6	*11*	1	2	*3*	14
Vienna				9	3	*12*	0	0	*0*	12
Würsburg				4	3	*7*	3	2	*5*	12
Paris				21	7	*28*	0	1	*1*	29
Total	266	249	515	351	278	629	244	243	487	1631

37

Note: This chart uses data from Cattell's 1906 list of influential scientists.

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TABLE X. THE NUMBER OF SCIENTIFIC MEN CONNECTED WITH INSTITUTIONS WHEN THERE ARE THREE OR MORE

	No.	Gain or Loss.	Ratio to Instr.	To Students	To Buildings and Grounds.	To Income.
Harvard	79.5	+13.0	7.8	49.2	138,364	24,729
Chicago	47.5	+ 8.5	6.0	114.9	187,741	35,986
Columbia	48.0	−12.0	13.3	96.7	259,954	45,989
Yale	38.0	+11.5	10.6	90.3	——	34,142
Cornell	35.0	+ 1.5	16.5	113.9	122,966	41,106
Johns Hopkins	33.5	+ 3.0	5.6	21.8	186,095	10,121
Wisconsin	30.0	+12.0	13.2	150.7	126,104	50,499
Dept. Agric.	28 0	− 4.0	—	—	——	——
Geol. Surv.	25.5	− 6.5	—	—	——	——
Mass. Inst.	25.0	+ 5.5	10.1	58.5	53,480	20,859
Michigan	23.5	+ 3.5	12.3	200.8	87,649	57,539
Stanford	21.0	+ 5.0	6.9	80.3	333,810	39,571
Carnegie Inst.	19 0	+12.0	—	—	——	——
California	18.5	− 8.5	21.3	191.9	281,761	81,387
Pennsylvania	18.0	+ 1.0	25.2	229.0	——	56,368
Illinois	17.0	+11.0	29.2	251.9	111,971	99,647
Princeton	16.5	+ 2.0	9.8	79.7	——	24,964
Smithsonian	16.0	− 6.0	—	—	——	——
Bur. of Stan.	12.0	+ 4.0	—	—	——	——
Missouri	11.0	+ 2.0	14.7	259.4	157,591	54,870
Minnesota	10.0	0	20.1	264.9	387,008	133,348
Ohio State	9.0	− 1.0	22.1	281.7	323,889	85,784
New York	8.5	− 1.0	28.1	446.5	435,294	49,062
Amer. Museum.	7.5	− 0.5	—	—	——	——
Clark	8.0	+ 1.0	2.0	17.7	66,562	17,585
West. Reserve	8.0	+ 4.0	24.5	126.3	187,996	30,496
Bryn Mawr	8.0	+ 2.0	7.2	52.5	243,649	37,185
N. Y. Bot. Gar.	8.0	+ 2.0	—	—	——	——
Brown	7.0	+ 2.0	12.9	141.9	257,142	65,813
Indiana	7.0	+ 1.0	43.0	353.0	85,842	50,349
Virginia	7.0	0	10.4	112.0	306,714	36,194
Northwestern	7.0	− 2.0	44.6	319.3	——	134,191
Rockefeller Inst.	6.0	+ 3.0	—	—	——	——
North Carolina	6.0	+ 1.0	15.7	131.0	103,833	27,191
Nebraska	6.0	− 3.0	36.1	544.3	210,225	101,509
Dartmouth	5.5	− 0.5	15.4	224.1	345,454	55,338
Washington (St. Louis)	5.0	+ 1.0	27.4	211.6	——	113,408
Kansas	5.0	0	36.2	442.0	220,000	91,775
Iowa State	5.0	− 1.0	30.6	494.4	328,938	109,620
Syracuse	5.0	− 2.0	46.8	627.2	550.051	148,350
Case	4.0	+ 1.0	8.8	111.3	207,500	12,204
Field Museum	4.0	+ 1.0	—	—	——	——
Tufts	4.0	+ 1.0	54.2	279.5	——	54,501
Vassar	4.0	+ 1.0	25.3	254.5	616,421	145,015
Smith	4.0	− 1.0	29.2	393.0	329,875	90,212
Cincinnati	4.0	− 2.0	42.3	348.5	367,030	68,624
Wesleyan	4.0	− 2.0	8.5	80.5	220,616	25,613
Wistar Inst.	3.0	+ 3.0	—	—	——	——
Tulane	3.0	+ 2.0	52.0	365.6	601,297	54,967
Wellesley	3.0	+ 1.5	35.3	427.3	423,841	127,937
Conn. Sta.	3.0	+ 1.0	—	—	——	——
Pittsburgh	3.0	+ 1.0	61.0	414.3	309,844	122,529
Colorado Coll.	3.0	0	19.0	225.3	362,667	29,166
Gen. Elect. Co.	3.0	0	—	—	——	——
G. Washington	3.0	0	61.6	502.6	111,500	58,437
Worcester	3.0	0	16.7	162.6	——	——
Texas	3.0	− 2.0	28.6	611.0	340,234	110,691
U. S. Navy	3.0	− 4.0	—	—	——	——

Source: James McKeen Cattell, *American Men of Science: A biographical directory*, 2nd ed. (New York: Bowker, 1910), p. 561, 589, 591.

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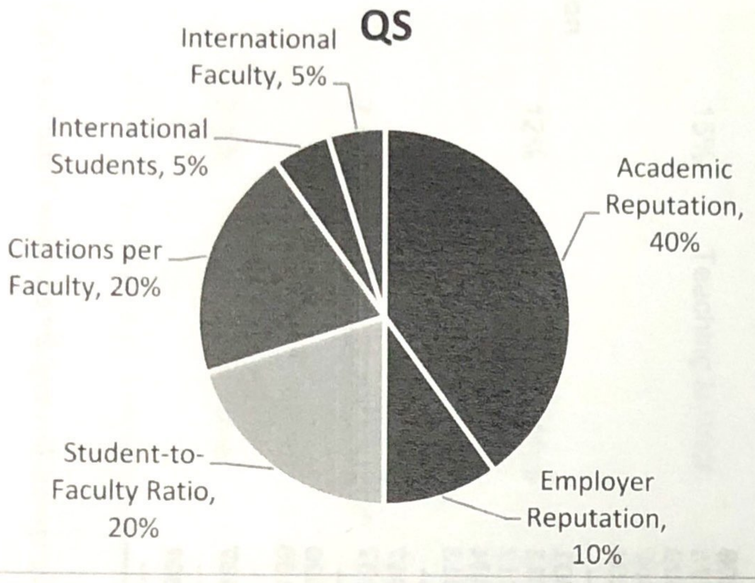
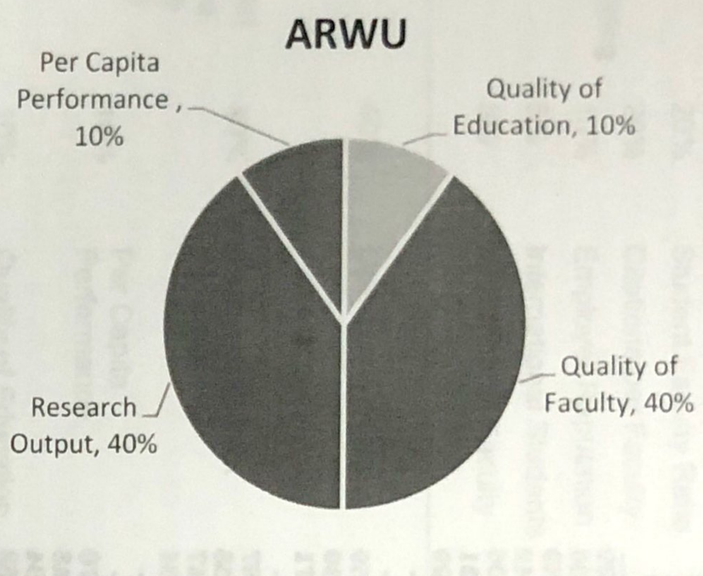
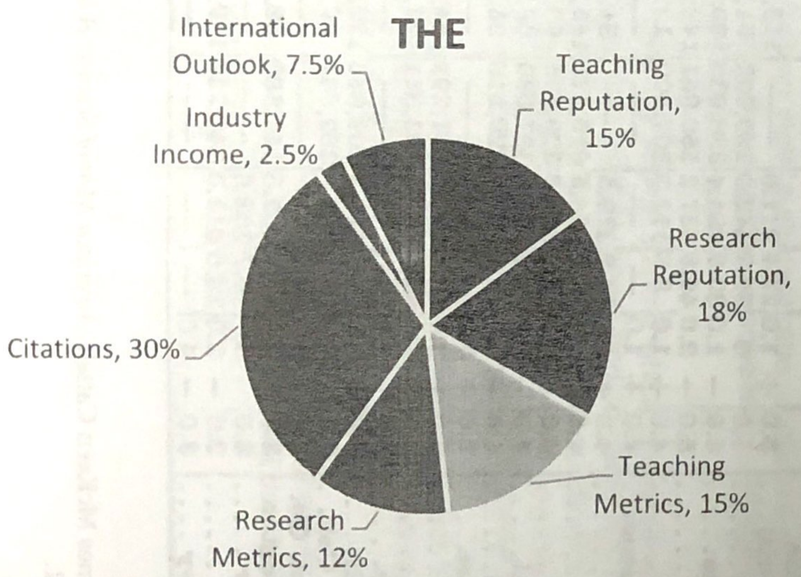
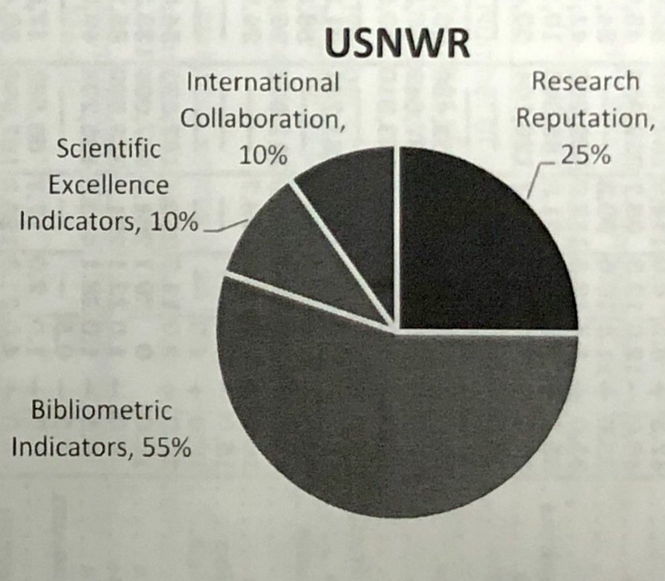
Exhibit 2 Methodologies for Major University Ranking Systems









■ Teaching ■ Research ■ Reputation ■ Internationalization

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System	Weight	Category	Calculation Method
QS Ranking	40%	Academic Reputation	Calculated from a global survey
	20%	Student:Faculty Ratio	University Data
	20%	Citations per Faculty	Number of citations from Scopus; University Data
	10%	Employer Reputation	Calculated from a global survey
	5%	International Students	Proportion of international to domestic
	5%	International Faculty	Proportion of international to domestic
Shanghai Jiaotong Ranking (ARWU)	40%	Quality of Faculty	Number of staff winning Nobel Prizes and Fields Medals; Number of highly-cited researchers as selected by Thomson Reuters in 21 subject categories
	40%	Research Output	Number of papers published in Science and Nature; Number of papers indexed in Science Citation Index-expanded and Social Science Citation Index
	10%	Per Capita Performance	Weighted scores of all five indicators divided by the number of full-time-equivalent academic staff
	10%	Quality of Education	Number of alumni winning Nobel Prizes and Fields Medals
Times Higher Education	30%	Citations	Bibliometric data from Elsevier to examine number of times a university's published work is cited by scholars globally
	18%	Research Reputation	Based on THE's annual Academic Reputation Survey
	15%	Teaching Reputation	Based on THE's annual Academic Reputation Survey
	15%	Teaching Metrics	Include staff-to-student ratio, doctorate-to-bachelor ratio, doctorates-awarded-to-academic-staff-ratio, and institutional income
	12%	Research Metrics	Include research income which is scaled against academic staff numbers and adjusted for purchasing power parity and research productivity which is calculated by counting the number of papers published in the academic journals indexed by Elsevier's database
	7.5%	International Outlook	Include international-to-domestic-student ratio, international-to-domestic-staff ratio, and international collaboration
	2.5%	Industry Income	Account for how much research income an institution earns from industry scaled against the number of academic staff it employs

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	55%	Bibliometric Indicators	Include the number of publications (based on the total number of scholarly papers that contain affiliations to the university and are published in high-quality, impactful journals), books (to better represent universities that have a focus on socials sciences and humanities), conferences, normalized citation impact (total number of citations per paper normalized to overcome differences in research area, the publication year of the paper and publication type), total citations (calculated by multiplying publications ranking factor by the normalized citation impact factor), number of publications that are among the 10% most cited by field, percentage of total publications that are among the 10% most cited by field
U.S. News & World Report Best Global Universities Rankings	25%	Research Reputation	Global (calculated by a global survey); regional (calculated by U.N.-defined regional survey)
	10%	Scientific Excellence Indicators	Include the number of highly cited papers that are among the top 1% most cited in their respective field, and percentage of total publications that are among the top 1% most highly cited papers
	10%	International Collaboration	Proportion of the institution's total papers that contain international co-authors divided by the proportion of internationally co-authored papers for the country that the university is in

Source: Compiled from http://www.topuniversities.com/qs-world-university-rankings/methodology; http://www.usnews.com/education/best-global-universities/articles/methodology; https://www.timeshighereducation.com/world-university-rankings/methodology-world-university-rankings-2016-2017; http://www.usnews.com/education/best-global-universities/articles/methodology; accessed November 2016.

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Exhibit 3 Top 25 Global Universities by 4 Major Rankings Systems

Rank	Times Higher Education 2016-2017	Shanghai Ranking (ARWU) 2016	Quacquarelli Symonds (QS) 2016-2017	US News and World Report 2017
1	University of Oxford	Harvard University	MIT	Harvard University
2	Caltech	Stanford University	Stanford University	MIT
3	Stanford University	UC Berkeley	Harvard University	Stanford University
4	University of Cambridge	University of Cambridge	University of Cambridge	UC Berkeley
5	MIT	MIT	Caltech	Caltech
6	Harvard University	Princeton University	University of Oxford	University of Oxford
7	Princeton University	University of Oxford	University College London	University of Cambridge
8	Imperial College London	Caltech	ETH Zurich	Princeton University
9	ETH Zurich	University of Oxford	Imperial College London	Columbia University
10	UC Berkeley University of Chicago	University of Chicago	University of Chicago	UC Los Angeles
11	-	Yale University	Princeton University	Johns Hopkins
12	Yale University	UC Los Angeles	National University of Singapore	University of Washington
13	University of Pennsylvania	Cornell University	Nanyang Technological University	University of Chicago
14	UC Los Angeles	UC San Diego	Ecole Polytechnique Federale de Lansanne	Yale University
15	University College London	University of Washington	Yale University	UC San Diego
16	Columbia University	Johns Hopkins	Cornell University	UC San Francisco
17	Johns Hopkins University	University College London	Johns Hopkins University	University of Michigan, Ann Arbor University of Pennsylvania
18	Duke University	University of Pennsylvania	University of Pennsylvania	-
19	Cornell University	ETH Zurich	University of Edinburgh	Duke University Imperial College London
20	Northwestern University	University of Tokyo	Columbia University	-
21	University of Michigan, Ann Arbor	UC San Francisco	King's College London	University of Toronto
22	University of Toronto	Imperial College London	Australian National University	Cornell University
23	Carnegie Mellon University	University of Michigan, Ann Arbor	University of Michigan, Ann Arbor	University College London
24	National University of Singapore	Washington University in St. Louis	Tsinghua University Duke University	UC Santa Barbara
25	London School of Economics and Political Science	Duke University	-	Northwestern University

Source: Compiled from http://www.iu.qs.com/university-rankings/; http://www.shanghairanking.com/; http://www.timeshighereducation.co.uk/world-university-rankings/; and http://www.usnews.com/education/best-global-universities/, accessed November 2016.

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[20] Jamil Salmi, *The Challenge of Establishing World-Class Universities* (Washington D.C.: World Bank, 2009), p. 7.

[21] Rosovsky, p. 34.

[22] See for example Qinghua University Educational Research Institute's "Creating First-Class Universities: Combining National Determination with the University Spirit: Round-Up of an Academic Seminar on the Theory and Practice of Establishing First-Class Universities" in *Chinese Education and Society* Vol. 37(6), Nov/Dec 2004.

[23] See for example the discussion by Jamil Salmi in his *The Challenge of Establishing World-Class Universities* (Washington D.C.: World Bank, 2009), p. 6-7.

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