Insights from
'Shaping Work of the Future' and MIT OpenCourseWare

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Presentation Overview

I. The Growing Space of Online Education
- Example: MOOCs - Benefits & Limitations
- MIT's Activities in the Online Learning space

II. Insights from 'Shaping Work of the Future' (edX)
- MIT's Approach to Studying the 'Future of Work'
- Taskforce on the Work of the Future

III. Reflections on the Future of Education & the Future of Work

I. The (Growing) Space of Online Education

- **Not a new phenomenon**
  - From 'distance learning' to MOOCs and small private online courses (SPOCS)

- **Growing number of actors and providers -> dynamism continues**
  - Differences in quality, costs, business models, content specializations and 'promises'

- **Trends towards stackable micro/nano degrees** and transferable credits
  - e.g. for a Master's program

- '**Blended learning**' / '**the flipped classroom**' as reality in most organization
  - physical presence of both teacher and student + some elements of student control over time, place, path, or pace.

→ **Discourse shaped by praise and skepticism**
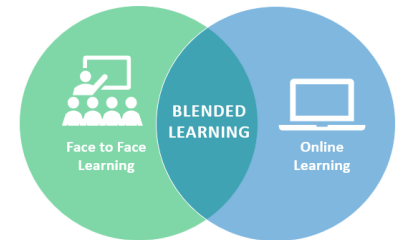
Example: MOOCs - Benefits & Aspirations

- **Based on insights from the science of learning**
  - e.g. deconstructing the traditional hour-long lecture into thematic segments of ~10 – 15 minutes aids concentration
- **Self-pacing**
  - students can repeat online lectures until they have mastered a specific component of the course
- **Instant feedback**
  - e.g. computer-based grading can "turn teaching moments into learning outcomes" quickly
- **Peer to peer learning**
  - discussion forums allow students to provide insights/give feedback/support each other

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MOOCs - Challenges & Room for Improvement

- **Diversity of student body**
  - Many students are still previously educated and from developed countries → lowers **'democratization' potential**

- **Levels of personalization**
  - Many learning platforms have yet to find ways to tailor materials to differences in prior knowledge, ability and skills

- **Interaction among learning community**
  - Instructors can still find it challenging to create an immersive learning environment with real world applications

- **Extent of active and 'adaptive learning'**
  - Students often do not know how to address 'learning breakdowns' through videos only
 - → s. Niema Moshiri's 'Massive Adaptive Interactive Texts' (MAIT) at UCSD

II. MIT's activities in the online learning space

- **MIT OpenCourseWare**

  - **Repository for >2300 courses with *free* materials** (syllabi, readings, quizzes)
  - **Resource** for:
    - **teachers** looking for ideas on how to build/improve courses (see e.g. OCW Educator Portal, Highlights for Highschool, K12Videos)
    - **MIT's residential students** studying at home
    - **independent learners wishing** to mirror MIT curriculum (but not receive degree) or looking for additional learning materials
  - **Success:** 96% of visitors would recommend the site

Overview of MIT's activities (contd.)

MIT OpenCourseWare receives millions of visits each year. These visits come from all over the world, with over half coming from outside of North America:
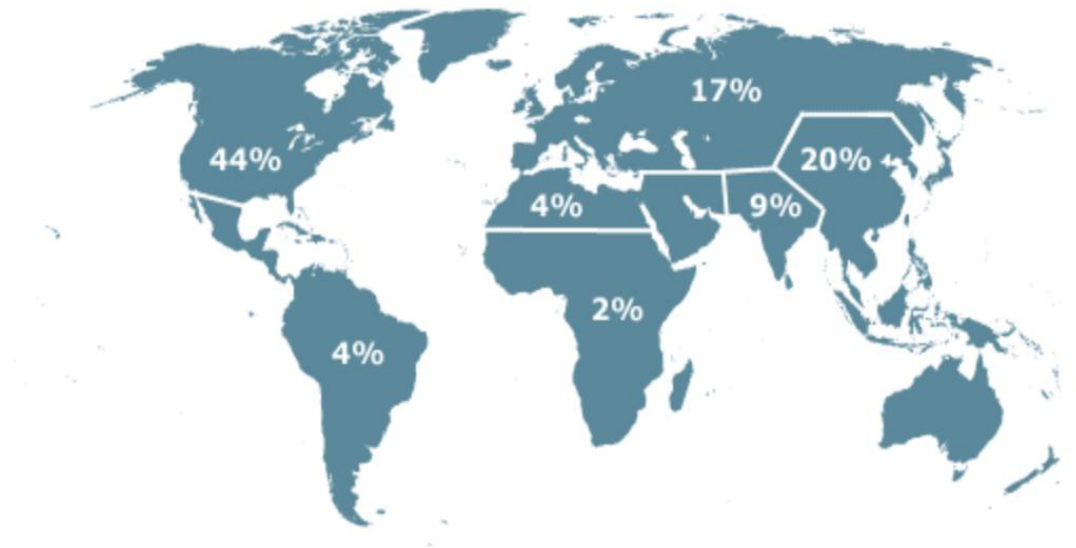
Our audience is divided among students, educators, and self-learners:

- Educators
- Students
- Self Learners
- Other
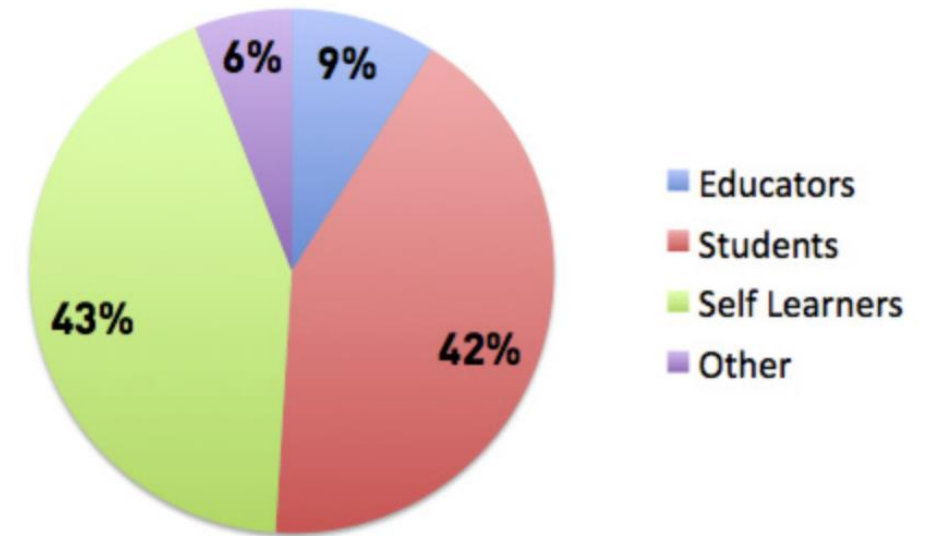
Overview of MIT's activities (contd.)

- **MITx (*2011):** *"Share the best of MIT's teaching and learning with the world"*
  - Produces MIT's MOOCs
  - Performance in 2018: 111 MOOCs launched
  - Cooperation with faculty from **29 MIT departments across all 5 schools of MIT**
  - Accessible via edX (see https://www.edx.org/school/mitx)

- **Edx (*2012):**
  - **Open source platform** which offers MOOCs and large variety of other learning tools and formats (incl. MITx courses, MicroMasters, Professional Certificates etc.)
  - Independent, self-sustaining **non-profit company**
  - Performance to date: >2,400 courses across large variety of subjects, >20 million learners worldwide, >70 million enrollments
  - Large number of partners (incl. academic institutions, national governments, NGOs, and multinational corporations)
  - Supported by numerous philanthropic organizations

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III. Insights from 'Shaping Work of the Future'

- Enrollment time: March-May 2019
- Materials: still accessible via edX
- Next iteration: coming up! ☺

'Shaping Work of the Future': Team & Approach

Meet the instructors

Thomas Kochan
George M. Bunker Professor, Co-Director of the MIT Institute for Work and Employment Research
Massachusetts Institute of Technology

Barbara Dyer
Senior Lecturer in Work and Organization Studies and Executive Director of the Good Companies, Good Jobs Initiative at MIT Sloan
Massachusetts Institute of Technology

Lee Dyer
Professor Emeritus of Human Resource Studies
Cornell University

Elisabeth Reynolds
Director, MIT Taskforce on Work of the Future
Massachusetts Institute of Technology

Inez von Weitershauen
Postdoctoral Associate, MIT Industrial Performance Center
Massachusetts Institute of

Meghan Perdue
Digital Learning Fellow
Massachusetts Institute of Technology

1) Participants learn from a wide range of experts about technological change and how it impacts work and society
2) Participants discuss the material with each other, drawing on their personal experiences
3) Participants cooperate in building a new 'social contract'

PRINCIPES
DU DROIT
POLITIQUE.

Par J. J. ROUSSEAU, Citoyen de Geneve.

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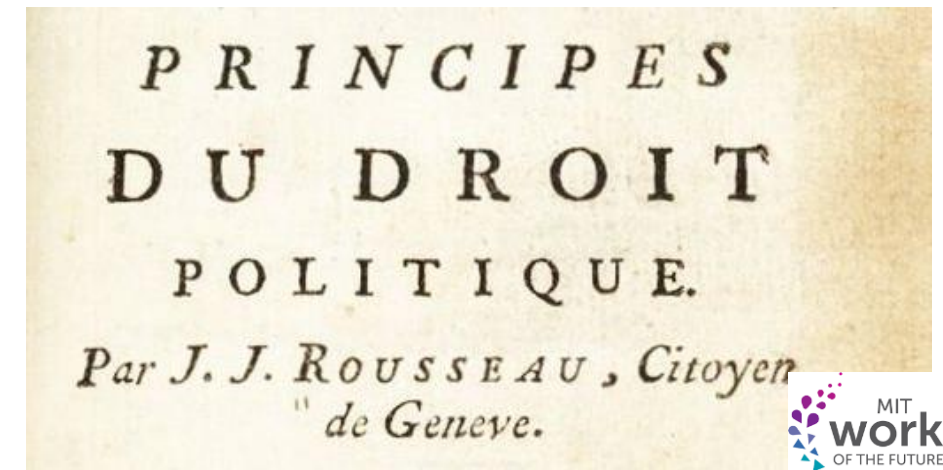
Driving Forces

MIT's Taskforce on the Work of the Future
(Executive director Dr. Elizabeth Reynolds) and
Prof. Thomas Kochan

Thomas Kochan
George Maverick Bunker Professor of Management
Co-Director, Institute for Work and
Employment Research (IWER)

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WORK OF THE FUTURE

The remarkable progression of innovations that imbue machines with human and superhuman capabilities is generating significant uncertainty and deep anxiety about the future of work. Whether and how our current period of technological disruption differs from prior industrial epochs is a source of vigorous debate. But there is no question that we face an urgent sense of collective concern about how to harness these technological innovations for social benefit. To meet this challenge, the Institute launched the MIT Task Force on the Work of the Future in spring 2018.

The Task Force's mandate is to address three questions:

"There's no iron law of technology and no iron law of globalization. We can influence how these things play out and manage them better."

(T. Kochan)

1.
How are emerging technologies transforming the nature of human work and the set of skills that enable humans to thrive in the digital economy?

2.
How can we shape and catalyze technological innovation to complement and augment human potential?

3.
How can our civic institutions ensure that the gains from these emerging innovations contribute to equality of opportunity, social inclusion, and shared prosperity?

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III. Insights from 'Shaping Work of the Future'

- 8 weeks, instructor-paced

- costs: free or $49/EUR 43 (certificate option)

- Total users: ~5300; 420 verified learners; 202 certificate earners

- Median learner age: 38

- Education:
  - 34% with a bachelors degree
  - 45% with a masters degree
  - 8% with a doctorate
  - 8% with a high school diploma or less

- Participants' profile: diverse, but many working professionals

- Total discussion posts: 7335

- Total discussion posts read: 511,714

- Collaborators:

Expert insights featured in the course (examples)

Contributor (Name, Title & Affiliation)	Video Topic
Dr. Martin Krzywdzinski, Head of Research Group Globalization, Work and Production, Weizenbaum Institute for the Networked Society	Industry 4.0: Germany's Strategy for Technology Change
Al Fuller, CEO Integrated Packaging Corporation	View from the Inside: Manufacturing Companies Navigating Technological Change
William Bonvillian, Lecturer MIT	Developing an Advanced Manufacturing Ecosystem in the United States
Lee Dyer, Professor of Management, Cornell University	Careers and Competencies
Dr. Tony Wagner, Senior Research Fellow, Learning Institute	Workplace Survival Skills
Professor John Gabrieli, Director of the McGovern Institute for Brain Research, MIT	Science of Learning
Professor Sanjay Sarma, President of Open Learning, MIT	Digital Learning: Bringing Learning Science into Education
Dr. Inez von Weitershausen, Research Associate, MIT	Smart Models for Education Systems
Paul Osterman, Professor of Management, MIT	Community Colleges: More Important than Ever
Professor Joseph Aoun, President of Northeastern University	Rethinking Higher Education in an Age of Technological Change
Liz Shuler, Secretary-Treasurer of the AFL-CIO	Organized Labor in America
Duanyi Yang, PhD Candidate, MIT Sloan School of Management	Rebuilding Worker Voice: What do Workers Want Today?
Jenny Weissboud and Megan Lar- com, PhD Candidates, MIT Sloan School of Management	Emerging Models of Worker Advocacy
Brian Lang, President of Unite Here Local 26	Growth in Worker Advocacy
David Rolf, President of Local 775	Success Stories from the Front Lines in Seattle

More than 40 contributions (interviews, videos, panel discussions) from experts within and outside MIT, incl.
ILO, Worldbank, WZB, AFL-CIO, companies and universities
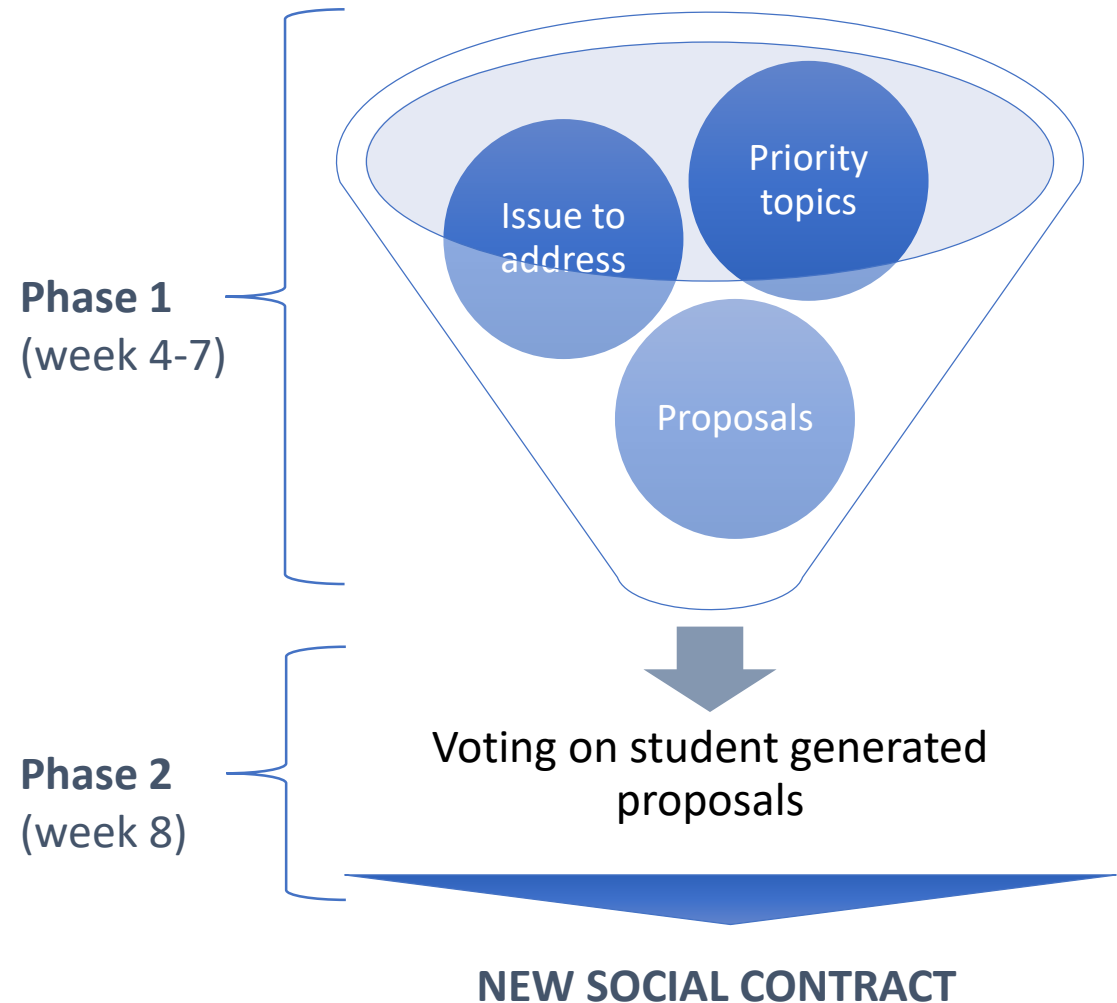
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Special features

- Regular inputs by instructors to discussion forum and weekly findings
- Case studies by Oliver Wyman / Mercer and Deloitte
- Live event (>80 participants)
- Social Contract Exercise
- Final (live) session

→ **High degree of community-building and interaction among course participants and instruction team**

# The Social Contract Exercise:
2 phases – 3 steps – 5 key insights

1.) Participants **identified priority issues** and **offered proposals** for solving those issues

2.) All **proposals were synthesized** into summaries that captured the essence of participants' input

3.) The consolidated proposals were presented to students who got to **vote on them online**

Phase 1
(week 4-7)

Phase 2
(week 8)

Issue to address

Priority topics

Proposals

Voting on student generated proposals

NEW SOCIAL CONTRACT

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5 key findings from MIT's Social Contract Exercise for the 'Work of the Future'

- **Make "High Road" businesses the norm**, not the exception.

- **Rebuild worker voice** and bargaining power in new/varied ways.

- **Improve the education system** by making it more affordable, accessible, and able to convey key workplace competencies and skills.

- **Integrate technology, work systems, and adjustment strategies.**

- **Encourage cooperation** among business, labor, government, and education leaders to build an economy that works for all.

"It was indeed hard to select 5 answers, as there were so many good suggestions. But I wonder how many of them are implementable."

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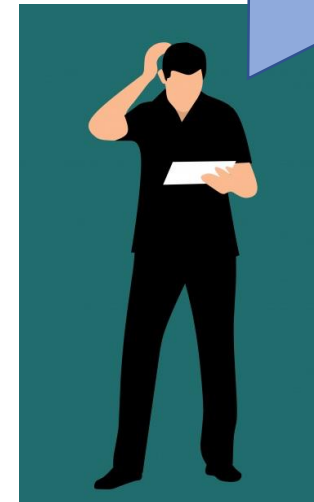
Feedback for 'Shaping Work of the Future'

How will this course or its materials impact you in the future?

Opened my eyes to the current challenges of the workforce, particularly technology, and potential solutions.

Personally, it has been an eye-opener to the changing landscape of the future of work. Professionally, it will enable me to make informed hiring decisions and help me plan strategically for my consulting & training business.

Provide additional context for books I'm authoring on AI.

provided solid background information of the history of work force and thoughts to the future.

reframe my visioning & implementation of any new business I wish to start in the future

Support me in crafting pragmatic, but bold strategies

The course and its materials is very important in shaping how our organization designs our AseanReady bootcamps in Southeast Asia. It is very impactful because we can diffuse this knowledge and way of thinking to more people in our region.

The course contributes a valuable perspective to a broader engagement that I have regarding work and governance.

The course gave me a broader perspective of my role as a business owner. My goal should go beyond my self but the to bigger society of which I am a member. While Government is necessary to maintain law and order, education empowers us to face the technological challenges of the future.

The course had opened to myself a transformation that are in course, which I was not seeing that it is running.

Source: Course Feedback MIT 15.662x

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Reflections on the Future of Education & the Future of Work

- Internet-based education can be **a useful way to engage society** in thinking about the Future of Work and the implications of technological change

- It has huge potential for **peer-to-peer learning and community building,** when crafted carefully

- A number of **key questions** remain to be addressed, however, incl.
  - How can we widen **participation** and increase **diversity**?
  - How can we ensure sustainable **funding** and organize **ownership** of contents?

  - How can we increase **transparency** about course quality and added value?
  - How can we best use online education for **professional training and development?**
  - How can we provide appropriate **certifications**?

  - How can we effectively form and enhance international **collaborations**?
  - How can we involve (which) **corporate partners and organizations**?

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Thank you for your attention, questions and comments.

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