

IST 530: Foundations of Social Informatics

Technological Determinism and Functionalism

Yellow Team



Contents

1. Marx and
Modernity



2. Technoscience



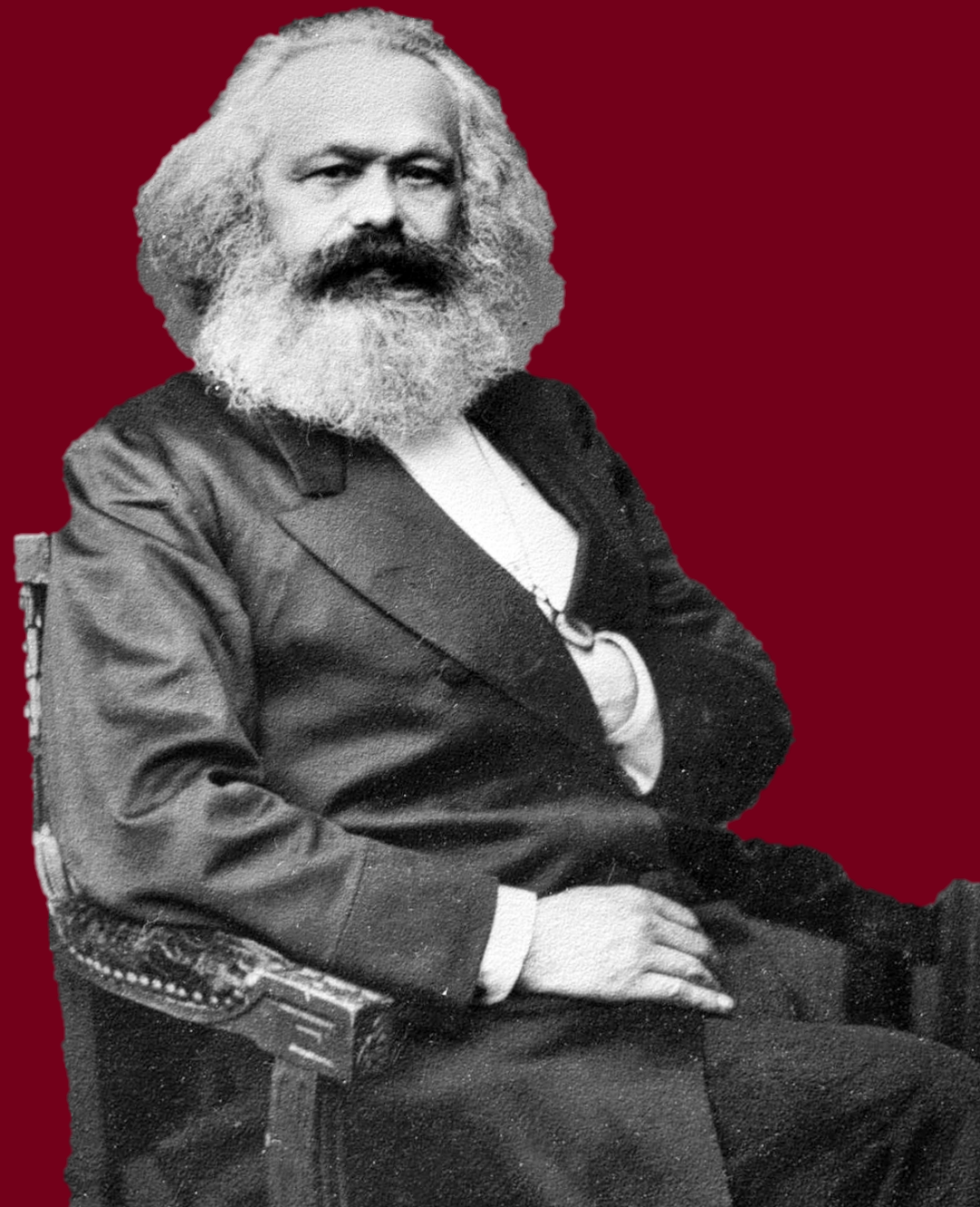
3. Mertonian
Norm



4. Technology
= Driver?



01 Karl Marx



THE MATERIAL TURN

ruling class + material production → social & political order → a capitalist market

→ the intellectual & the material force

CLASSICAL POLITICAL ECONOMISTS

- **Quantitative** changes in capital, wages
→ economic development
- **No change** in social structure

Marx

- changes in material production
→ **social conflict** between the classes
- **Qualitative** shift in socio-political structure

What determine different economic ages?

What is produced

How production
is organized
& What technologies
are utilized

Machine-Made Machines: Modern Industry

Capitalism

- Rewards cost-cutting techs
- machines controlling workers
 - unemployment,
job elimination
 - class war
 - fear of the machine

Problem

Marx

Technology for
the collective social good
→ Social Reconstruction

Solution



Discussion Questions

Marx gave a solution to capitalism,
by suggesting communism. Do you agree or disagree?

Machine-Made People: Modern Subjectivity



Marx's Theoretical Concepts



Marx = Technological Determinist?

Technological Determinist

Marx

Approach to Explain Society

materialist approach

Social Driver

technology

men

Source of the problem

machines

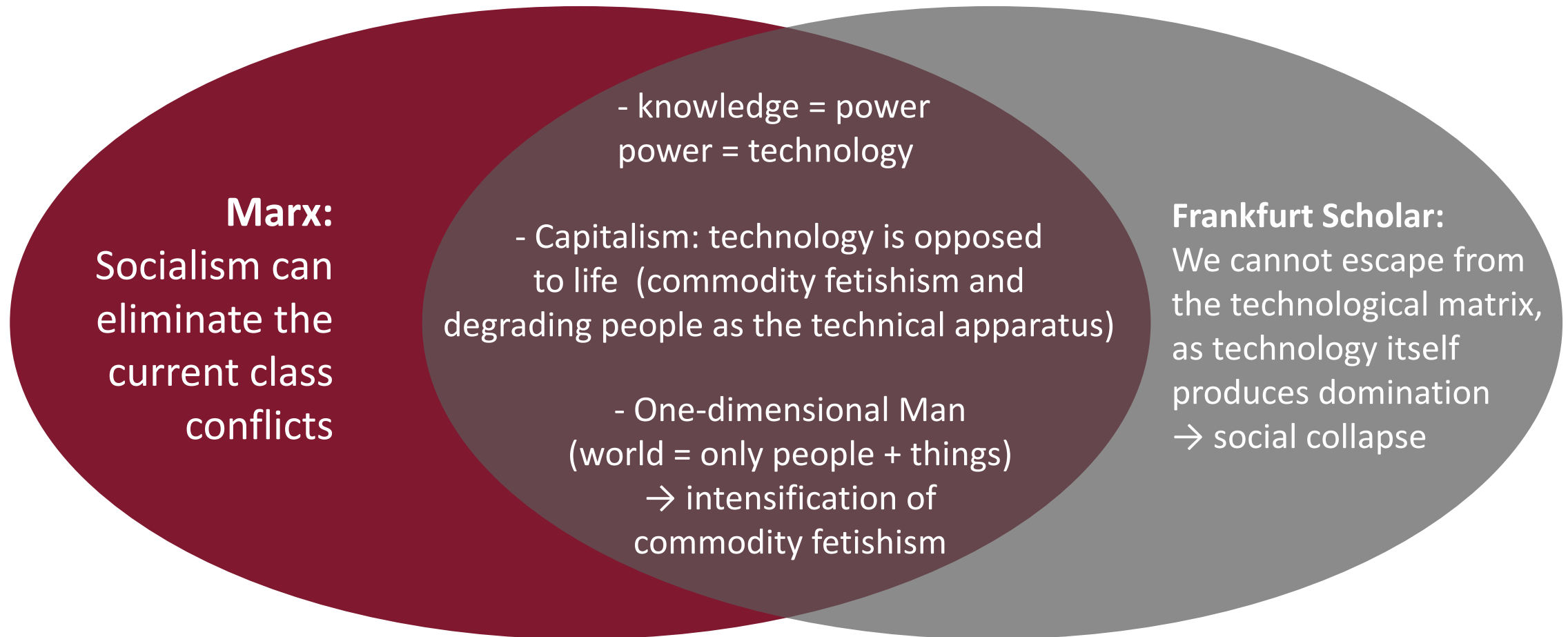
the capitalist class & the ways
in which the tech is used

the Application of Technology

determined by its function

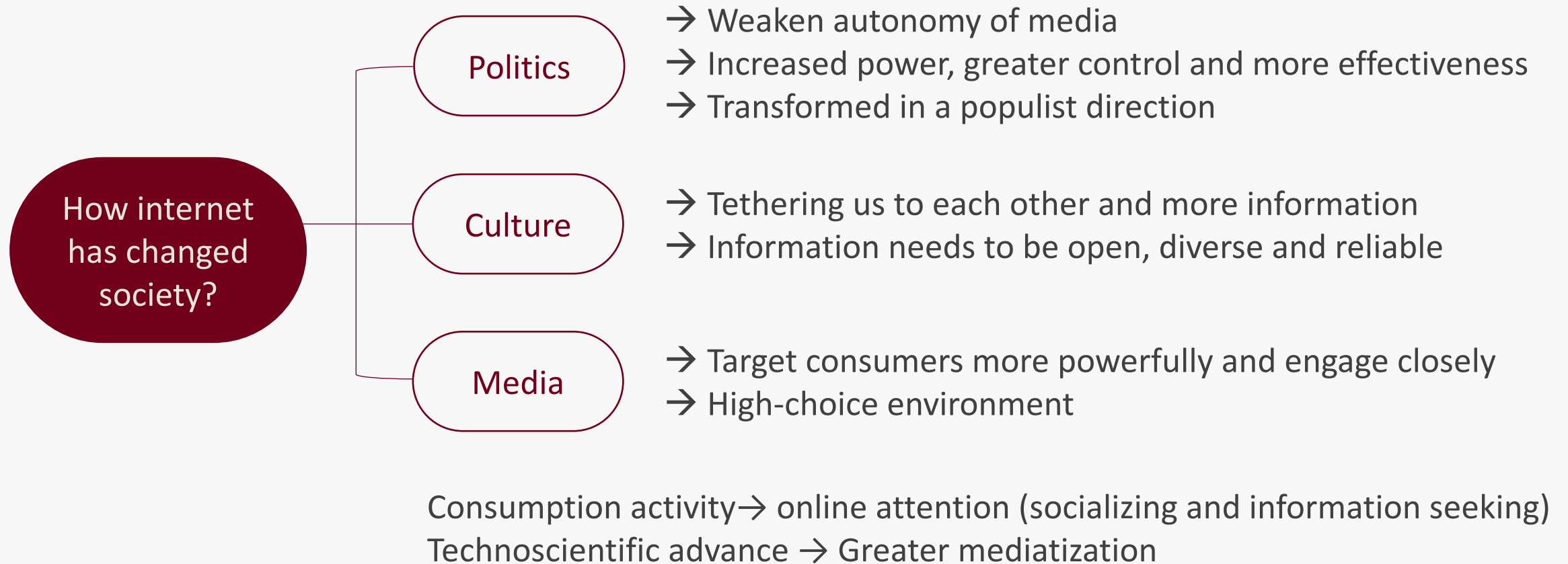
determined by technology's
relations of economic system

Extensions of Marx: The Frankfurt School and the Culture Industry



02 Technoscience

Who's Afraid of Technological Determinism?



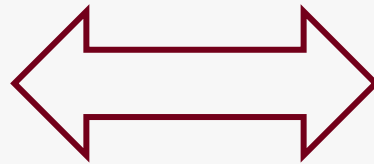
03 Martonian Norm

Mertonian Norm

Organized skepticism is the tendency for the community to disbelieve new ideas until they have been well established

Communism states that scientific knowledge – the central product of science – is commonly owned

Disinterestedness form of integrity demands that scientists disengage their interests from their actions and judgments



Critiques

Scientists violated Mertonian norms in the name of a higher one: claims should be consistent with **cognitive norms**

scientists have obvious reasons to be **secretive** to receive full credit for own work (science is competitive)

A disinterested attitude toward one's own data, for example, may go out the window when recognition is importantly at stake, and this may create pressure to **fudge results**

Function of Norms

Mertonian Norm = “organizational myth”

BUT

1

Norms used to eliminate conflicting views, increasing importance to some arguments compared to others
ex) Einstein

2

Norms used to define what is science and what is not science
(boundary work)

3

Norms lead scientists to do their works with moral responsibility



Discussion Question

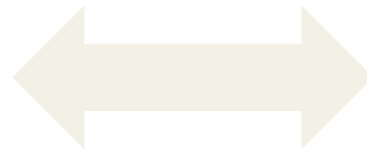
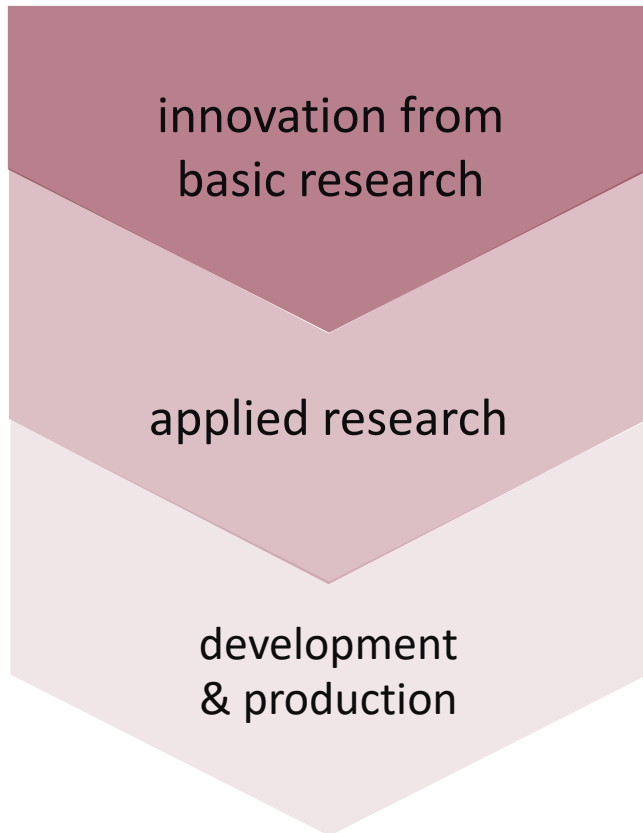
Do you think scientists do research following the Martonian norms:

Organized skepticism, Communism, and Disinterestedness ?

04 Technology = Driver?

Is Technology Applied Science?

LINEAR MODEL



REALITY

1

Scientific knowledge plays little direct role in the development of state of the art technologies

1

Science is applied technology more than technology is applied science

Determinist

Technological Determinism

- the view that material forces determine social events
- “real world constraints” & “technical logics”
- technologies behave differently and enter different social contexts than their inventors predict and desire

Non-Determinist

Interpretive Flexibility

the role of users when defining the success of technologies; how users use them and which product they select to use may cause unexpected changes

Users/Technology Relation

- Adapting
- Giving feedback

Sociotechnological Ensembles

if they do nothing outside of the social and material contexts in which they are developed and used.

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Thank you

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