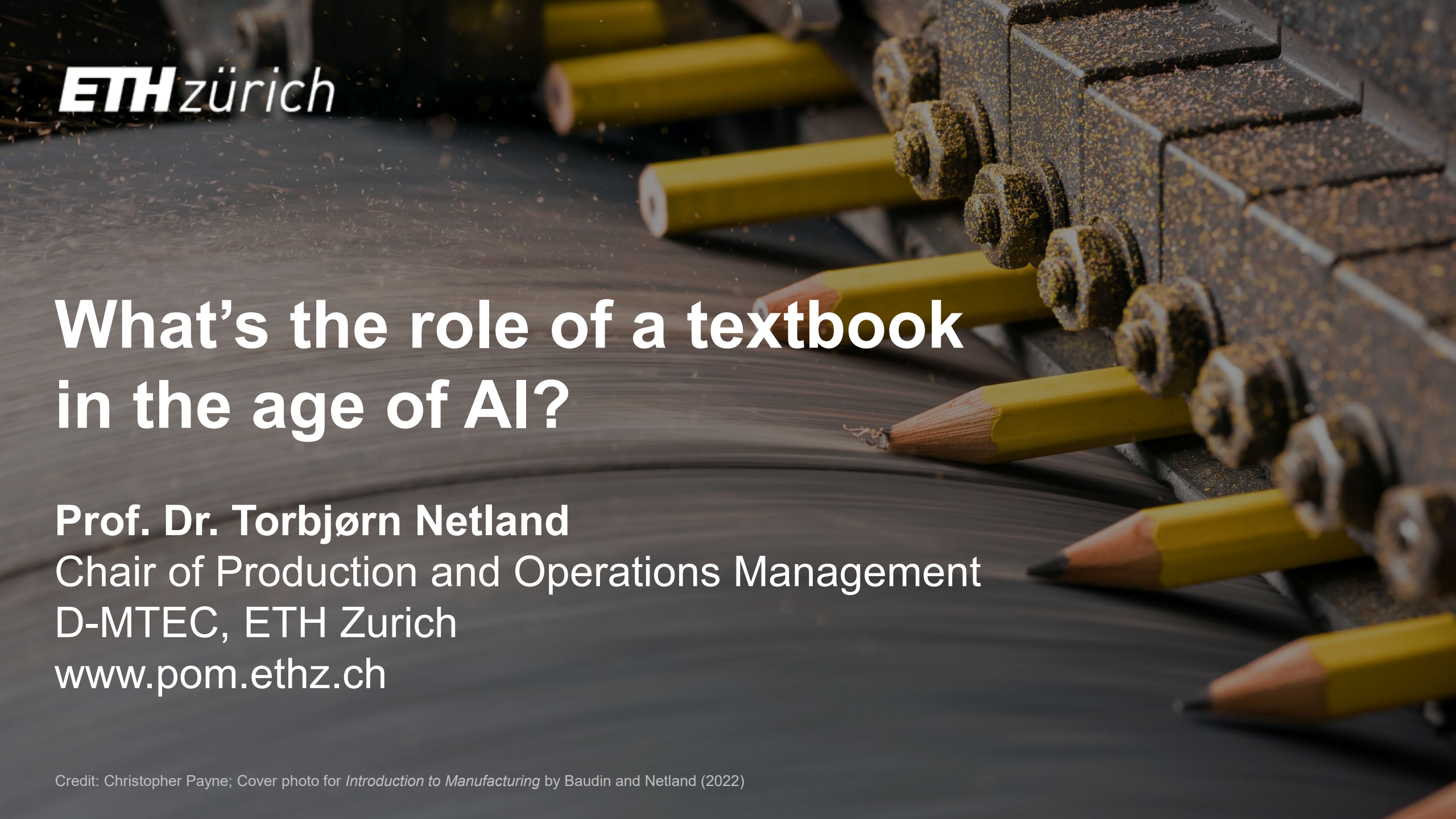
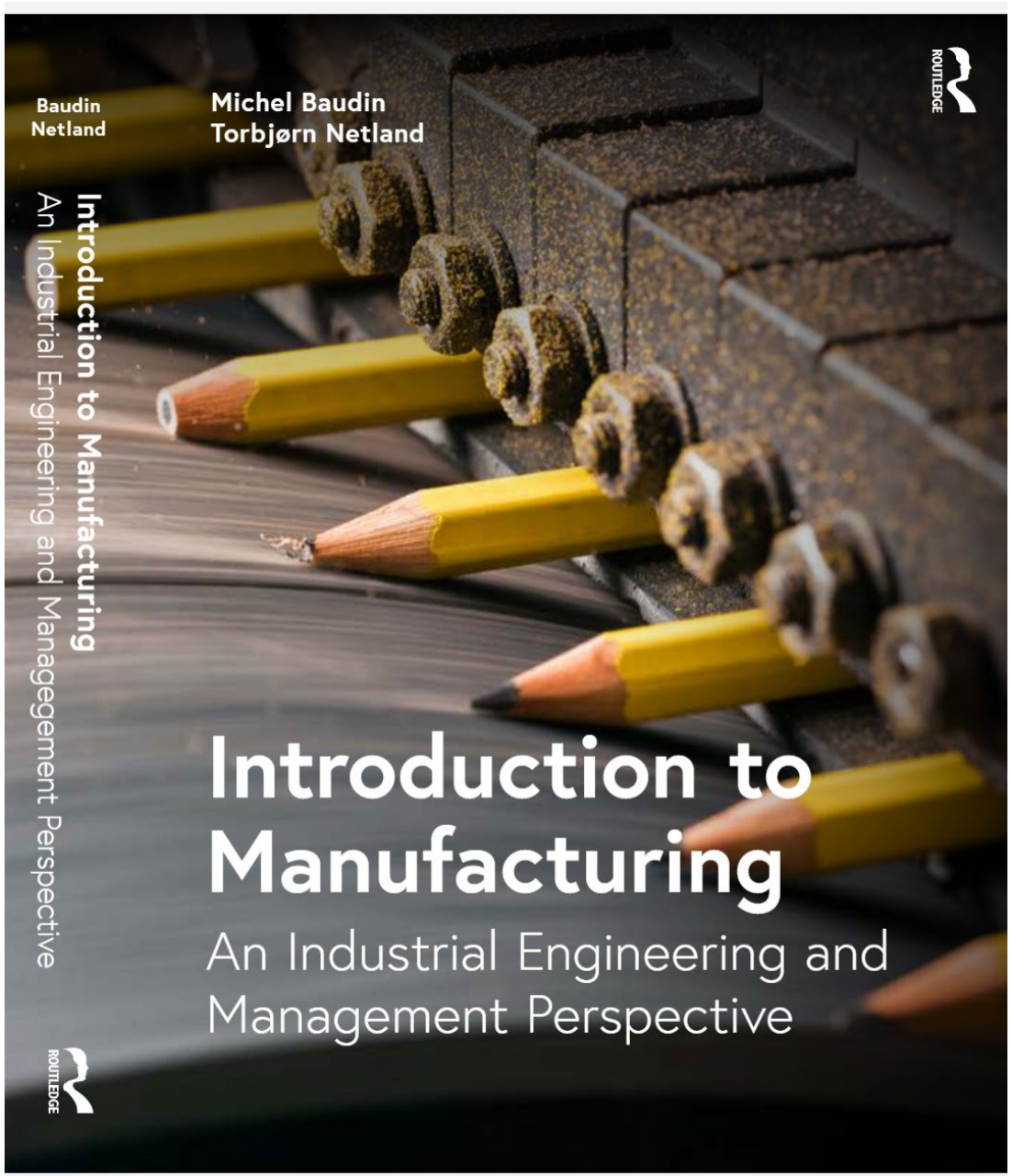


What's the role of a textbook in the age of AI?

Prof. Dr. Torbjørn Netland
Chair of Production and Operations Management
D-MTEC, ETH Zurich
www.pom.ethz.ch

Credit: Christopher Payne; Cover photo for *Introduction to Manufacturing* by Baudin and Netland (2022)



Part	Ch.	Chapter title
Part 1 Getting to know manufacturing	1	About Manufacturing
	2	Manufacturing Strategy
	3	Serving Market Demand
Part 2 Engineering the factory	4	Process Design
	5	Assembly
	6	Automation
	7	Layout
Part 3 Making information flow	8	IT and OT in Manufacturing
	9	Planning and Control
	10	Master Data Management
Part 4 Managing flows of materials	11	Internal Logistics
	12	External Logistics
	13	Warehouse Management
	14	Supply Chain Management
Part 5 Enhancing performance	15	Managing Performance
	16	Improving Performance
	17	Improving Quality
	18	Maintenance

Advantages and disadvantages of a textbook

Advantages

- One-point resource
- Credibility
- Standardized terms
- Facilitates teaching syllabus and delivery
- Can be distributed digitally

Physical textbook:

- Physical presence (always “on”)
- Focused learning, low in distraction
- Reduced eye strain

Disadvantages

- Ages, not continuously updated
- Authors’ perspective mostly
- Not tailored to various teacher’s expertise
- Not tailored to various syllabuses
- Not personalized to learners’ needs
- Many students don’t like to read
- Low immersion: 2D text and illustrations only
- Physical copy must be carried around
- Costly

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The age of the textbook (only) is long gone!

The textbook is one part of a comprehensive syllabus including digital technologies and media: Example ETH Zurich

363-0445-00L Production and Operations Management

Syllabus fall 2023

Course design

To get the most out of this course, please plan on attending the classes. This course is administered via Moodle. The course is designed around five elements:

1. **Reading materials:** Selected chapters from the textbook Baudin and Netland (2022) *Introduction to Manufacturing: An Industrial Engineering and Management Perspective*, 1st Ed. Routledge. You will get access to selected chapters as PDFs on Moodle; we recommend accessing the whole book through the library. Note: we do not "teach the book" in class.
2. **Video lectures.** We have prepared short video lectures that focus on basic POM concepts that will be uploaded to Moodle. If you cannot wait, most of the lectures are already available on our YouTube channel: https://www.youtube.com/c/pomethzurich
3. **Class lectures.** In the classes, we do deep dives with case examples on select topics. To create a safe environment for everyone to engage with the teaching faculty, classroom lectures are neither streamed nor recorded. Attendance is highly recommended.
4. **Group assignment.** We use our own *FactoryVR* teaching innovation that allows students to visit factories virtually. The assignments count for 30 % of the final grade. ***Before the third lecture, please create groups of four students (no exceptions) in Moodle***. The assignment is managed via Moodle. On 8.12.2022, selected groups will present answers to selected questions. The other groups will be discussants.
5. **Quizzes.** A few quizzes during the semester help students check their progress and prepare for the written exam.

End-of-semester exam.

Textbook / articles

Video lectures

Digital learning platform

Class deep-dives

Group assignments / cases / VR factory visits

Quizzes, tests

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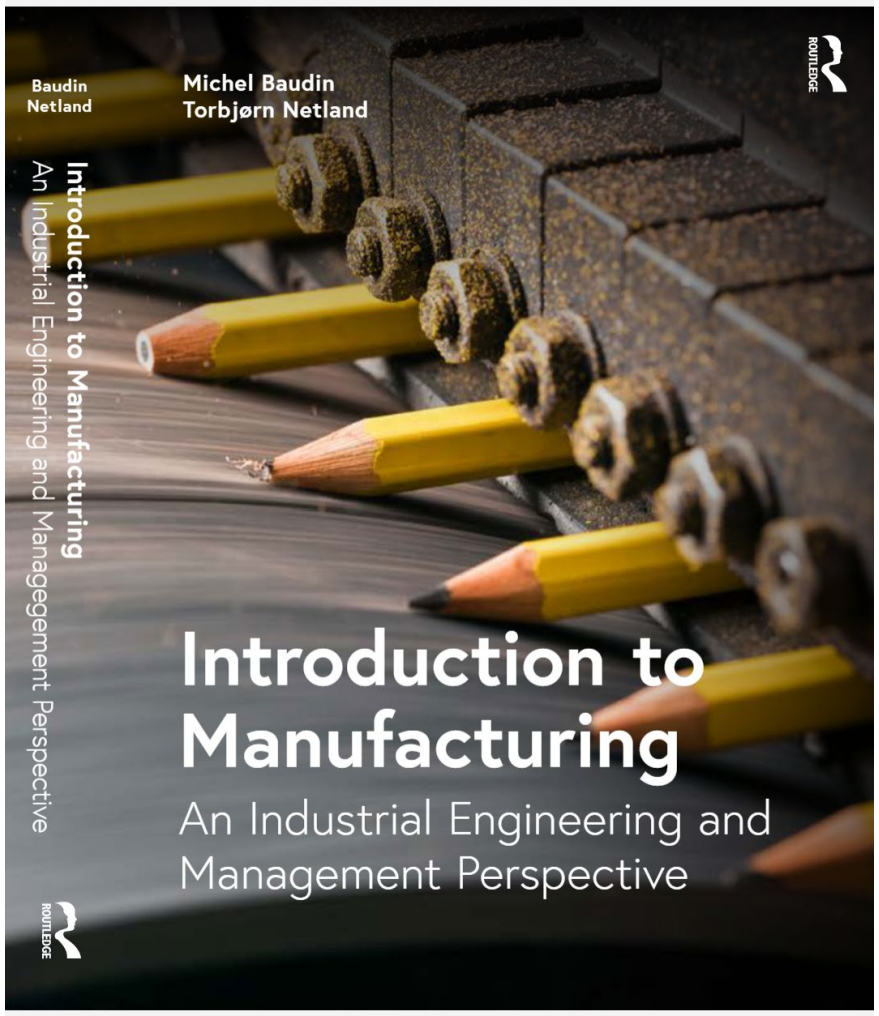
In the age of Generative AI, is multimodal teaching also “old style”?

Slides intentionally omitted for confidentiality

Results

1. **AI is well capable** of generating teaching videos
   - AI videos can be generated in a fraction of the time of human-made videos
2. **On average, students *perceive* human-made videos to be statistically significantly "better"**
   - However, the effect size is small: AI videos are perceived about 4% worse than the average
3. **AI or human-generated video makes no statistical difference in students' exam scores!**
   - Students apparently learn just as much from the AI videos as from the human-generated videos
   - Statistical differences per topic going both ways in favor of AI or human

If you're a teacher, get ready to be disrupted by future AI teachers—in one way or the other.



Torbjørn Netland

Chair of Production and Operations Management

D-MTEC, ETH Zurich

www.pom.ethz.ch

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SCAN ME