The first rule of any technology used in a business is that **automation** applied to an efficient operation will magnify the efficiency.

The second is that automation applied to an inefficient operation will magnify the inefficiency.

Gates, Myhrvold, and Rinearson, 1995
STUDENTS
15-year-old students in over 60 countries in 2012
PISA participants
Countries with good (but unequal) access to ICT resources

Students accessing the Internet at home

Source: Figure 1.2

Access to ICT resources (but unequal)
within-country inequalities are often larger than between countries.

The difference between the top and the bottom quarter of ESCS is not statistically significant.

Source: Figure 5.2
What students do on line
Average time spent on the Internet, every day, outside of school: over 2 h

On weekend days:

- Denmark
- Sweden
- Estonia
- Norway
- OECD...
- Ireland
- Italy
- Korea
- Mexico
- Turkey
Daily online activities for 15-year-olds

OECD average

- Social networks: 73%
- Watching videos: 54%
- Chat on line: 47%
- Download music, films, games: 40%
- Read news: 37%
- Use e-mail: 35%
- Obtain practical information: 22%
- Play collaborative online games: 20%
- Play one-player games: 18%
- Upload own contents for sharing: 0%
The digital divide is shifting from differences in access to differences in use

Source: Figure 5.8
Who are the world’s best online readers?
Strong performance in digital reading

<table>
<thead>
<tr>
<th>Mean score</th>
</tr>
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<tbody>
<tr>
<td>570</td>
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<td>560</td>
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<tr>
<td>400</td>
</tr>
<tr>
<td>390</td>
</tr>
</tbody>
</table>

Light green: statistically significantly above the OECD average
Dark blue: not statistically significantly different from the OECD average
Light blue: statistically significantly below the OECD average

Fig 3.1
Relative performance in digital reading

Score-point difference between actual and expected performance that would be expected based solely on print-reading.

Source: Figure 3.7
Technology is changing the way we read.
QUESTION 2

Find the page for the Seraing Community Cultural Centre. Which film will be shown in the first week of November?

- Stormy Weather
- Crash
- The Cave of the Yellow Dog
- The Promise
Navigation Evaluation Task Management
Navigation behaviour predicts online reading performance beyond print reading skills

Index of task-oriented browsing

OECD average

Relative performance in digital reading after accounting for performance in print reading

$R^2 = 0.50$

Source: Figure 4.10
Talent is universal; opportunity is not. technology = opportunity for all?
Old divides cut into online opportunities

Online opportunity isn’t always actual opportunity.

Technology never made up for a lack of good teachers or good principals.
LEARNING CONNECTIONS
From access...

Brazil
Argentina
Mexico
Greece

Korea
Germany
Italy
Japan

Norway
United Kingdom
New Zealand
Australia
To learning? Trends in maths performance and number of computers in schools

All countries and economies

- Number of computers per student, after accounting for per capita GDP

Source: Figure 6.3
Students who use computers at school only moderately score the highest in online reading.

Relation between students’ skills in reading and computer use at school (average across OECD countries)

- **Digital reading**
  - I browse the Internet at school for schoolwork more than once a week, and sometimes do groupwork/homework on school computers
  - I practice or drill on school computers at once or twice a week

- **OECD average**

Source: Figure 6.5
When do students learn?

- Time and practice
- In response to personal needs
- In collaborative settings

When do organisations learn?

- Time and routines
- Autonomy
- Support and teamwork