Internal Audit Community of Practice (IACOP)
IT AUDIT: From Theory to Practice
WEBINAR

November 23, 2020
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Disruptive processes in the Audit Context

Agenda

- The 4th Industrial revolution
- The most important disruptive technologies
- Is this a topic of interest to auditors?

Navigating the next industrial revolution

<table>
<thead>
<tr>
<th>Revolution</th>
<th>Year</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1784</td>
<td>Steam, water, mechanical production equipment</td>
</tr>
<tr>
<td>2</td>
<td>1870</td>
<td>Division of labour, electricity, mass production</td>
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<tr>
<td>3</td>
<td>1969</td>
<td>Electronics, IT, automated production</td>
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<tr>
<td>4</td>
<td>?</td>
<td>Cyber-physical systems</td>
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The 4th Industrial Revolution

  - Components
    - Big Data, Artificial Intelligence, Block Chain, Robotics, Virtual Reality,
    - Autonomous vehicles, Nanotechnology, Biotechnology,
    - Materials science, Energy storage, Quantum computing, etc....
  - Call upon world-leaders to prepare for what is to come
    - Introduction speech – summarized
  - Video link
    - https://www.youtube.com/watch?v=khjY5LWF3tg

Introduction Statement - Chairman of WEF - January 2016
- “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.”
The 4th Industrial Revolution

- Today’s Internet is expanded with the Internet of Things (IoT)
- People will be connected to Internet of Everything (IoE)
  - By means of wearables and electronical implants
- The IoE will be embedded in our daily lives
  - Without having to actively connect to it, in order to use it
  - It will be there, without thinking about it
    - Like the air we breath – we don’t think about taking a breath, nor about the air itself
- The technology of Internet will disappear in the background, to become part of us all the time
- This process will take approximately three decades only
  - Started in 2010 and expected to be fully integrated in society by 2040
The 16 most important Disruptive Technologies

1. Building Blocks of the 4th Industrial Revolution
   - Internet (IoT - IoE) - Based on 5G
   - Vast energy production & storage
   - Artificial Intelligence Robotica and 'Bots
   - 3D & 3D printing

2. Derived technologies
   - Transport Autonomous vehicles
   - Living Domotica & Smart Cities
   - Services Big Data
   - Payments Block Chain
   - Virtual, Enhanced & Augmented Reality
   - Universal Basic Income
   - Massive Online Offered Courses

3. Human implications

4. Then, the next big things
   - Nano-technology
   - Earth, Moons and planets exploration
   - Material science
   - Quantum Computing
   - Bio-technology

Technology is not suddenly going to come to a stop

- At the contrary, it will increasingly go faster
  - Linear thinking: from 1 to 100 are 100 steps
  - Exponentially is that (less than) 8 steps
    - 1, 2, 4, 8, 16, 32, 64, 128
      - In 6 steps not yet in 1/3rd
      - The next two steps more than reach the goal
  - Moore’s law
    - Computer capacity doubles every 18 months
    - “It comes to an end!”
  - Has been said many times in the past already – but is still going on
    - Sometimes also referred to as the ‘tsunami’ effect
Nobody can predict the detailed future
- Time horizon was set at 25 years mostly realized by 2042
- When exactly which technology will break through, is hard to predict
- Graph is only an example of what could be...
- Also next slide: Gartner Hype Cycles

Is all this really going to happen?
- Yes, it is irreversible; the seeds were already planted

Is society going to survive this?
- Open question
- Must be careful
- Only when it will support us
Gartner Hype Cycles

- Per subject
- Per year

When will it change?
Internal Audit should provide important insights on disruption, considering the impact on the whole organization

- Stakeholders expectations
  - Are the strategic objectives aligned for disruption?
  - Are disruptive technologies accepted in the organization?
  - How are disruptive technologies implemented and utilized?
  - ...

Internal Audit is well-positioned to assess risks arising from disruptive change

- Are disruptive implications for the organization sufficiently examined, including changes to the organization’s culture, work environment, business plans, customer’s expectations...?
- Mind that processes become data driven instead of procedural
- Have these data risks been identified and are they sufficiently addressed?
Disruptive change is coming - this is irreversible and unavoidable
- 5G will boost the IoT/IoE, on top of which AI and robots will materialize
- Disruption is a discontinuity from the past, it is not destructive

Benefits
- Safety, Health, Profits

The future is controversial
- Still a lot of uncertainty, maybe even fear

Taking on our role as auditors
- Give insight to our organizations
- Also play our role in society
  - Embrace the future
  - Help other to prepare
    - Communication, assurance, join in
Any Questions?

Thank you!