From Academia to Industry

Ole Kock
Being a physicist in industry

Should I stay in academia after my studies, PhD, Postdoc,… ?

What is different / the same in industry ?
Academia – stay or leave

Good or Bad? Positives and Negatives

- Exciting ground-breaking experiments
- Limited infrastructure support
- Continuous proposals
- Independence
- Internationality
- Teaching
- Job security?
- Directly influence direction of research
- Only high impact papers
- Teaching
## What’s different in industry

<table>
<thead>
<tr>
<th>Academia</th>
<th>Industry</th>
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</thead>
<tbody>
<tr>
<td>External funded projects</td>
<td>External &amp; internal funded projects</td>
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<tr>
<td>Technical challenges</td>
<td>Technical challenges</td>
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<tr>
<td>Clever solutions</td>
<td>Efficiency &amp; repeatability &amp; optimisation</td>
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<tr>
<td>New ideas / theories</td>
<td>New markets and products</td>
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<tr>
<td>Publishing papers</td>
<td>Selling products</td>
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<tr>
<td>Advancing the boundaries of science</td>
<td>Profit for shareholders</td>
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**Some thoughts from other people**

“What are the most rewarding aspects of your job?”

- Finding a **cost-effective** solution for a complex problem
- **Drive equipment design** for next generation **customer needs**
- Be able to **design and implement** my ideas **from scratch to completion** and **contribute significantly to the company’s success**
- **Challenging projects** which require real scientific detective work to solve and bring about **real world products.**
- I get to **work on** my own projects with little or no supervision. I get to study new fields according to my own curiosity
- **Providing a reliable and sophisticated software product** with a **long lifetime**
- **Problem solving,** **working with professionals from other disciplines** (chemistry, EE, ME, CS)
- **Achieving new performance levels** with newly developed processes
- Seeing **others use the results** of my work.
- **Level of responsibility,** active participation equity participation.
- Common Careers of Physicists in the Private Sector
AIP: Roman Czjuko and Garrett Anderson
Why industry

One of many reasons

See a project through to a functioning product

In my case:
Building quantum sensors
Technologies developed at Te2v

 Gravity
Using gravity to detect objects beneath the ground for the construction sector and defence.

 Space
Gravity sensing from space for future science missions.
Timing from space for navigation and synchronisation.

 Timing
Synchronisation of large networks in telecoms, navigation and synthetic aperture radar for defence.
Markets & Applications

Science
Sale of components - e.g. vacuum

Space
Space clocks and gravity sensors

Defence
Clocks and gravity sensors

Maritime
Navigation and clocks

Industrial (including agriculture)
Industrial sensing / imaging

Construction
Seeing beneath the ground

Oil and Gas
Detection and monitoring of oil

Medical
Magnetic brain scanning
Skills & Experience Gained as a Postdoc

1. What is the pain of the customer?
2. Good enough!
3. For what use?
   - Talent Pool
   - Leading Academics
   - Industry thinking
   - Club captain
   - ...

If any of the placeholders are accidentally moved around during use, just click the reset button to set them back in place.
Thank you