

# **Influences of Digital Transformation on Freedom to Operate Processes in the Chemical Industry**

I3PM/CEIPI/BETA IP Management Conference  
Strasbourg, May 4, 2017

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# This will be about patents



# Agenda

1. Digitalization in the Chemical Industry
2. Key Differences between Chemical Inventions and IT Inventions
3. Impact of Digitalization on FTO Processes
4. Risk-based FTO Approach
5. IP Risk Management
6. Outlook

# Chemical Industry: BASF's segments



## Chemicals

Petrochemicals

Monomers

Intermediates



## Performance Products

Dispersions & Pigments

Care Chemicals

Nutrition & Health

Performance Chemicals



## Functional Materials & Solutions

Catalysts

Construction Chemicals

Coatings

Performance Materials



## Agricultural Solutions

Crop Protection



## Oil & Gas

Oil & Gas

# Digitalization in the Chemical Industry



**Chemicals**



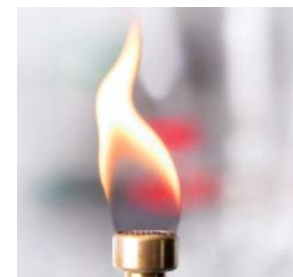
**Performance  
Products**



**Functional  
Materials &  
Solutions**



**Agricultural  
Solutions**



**Oil & Gas**

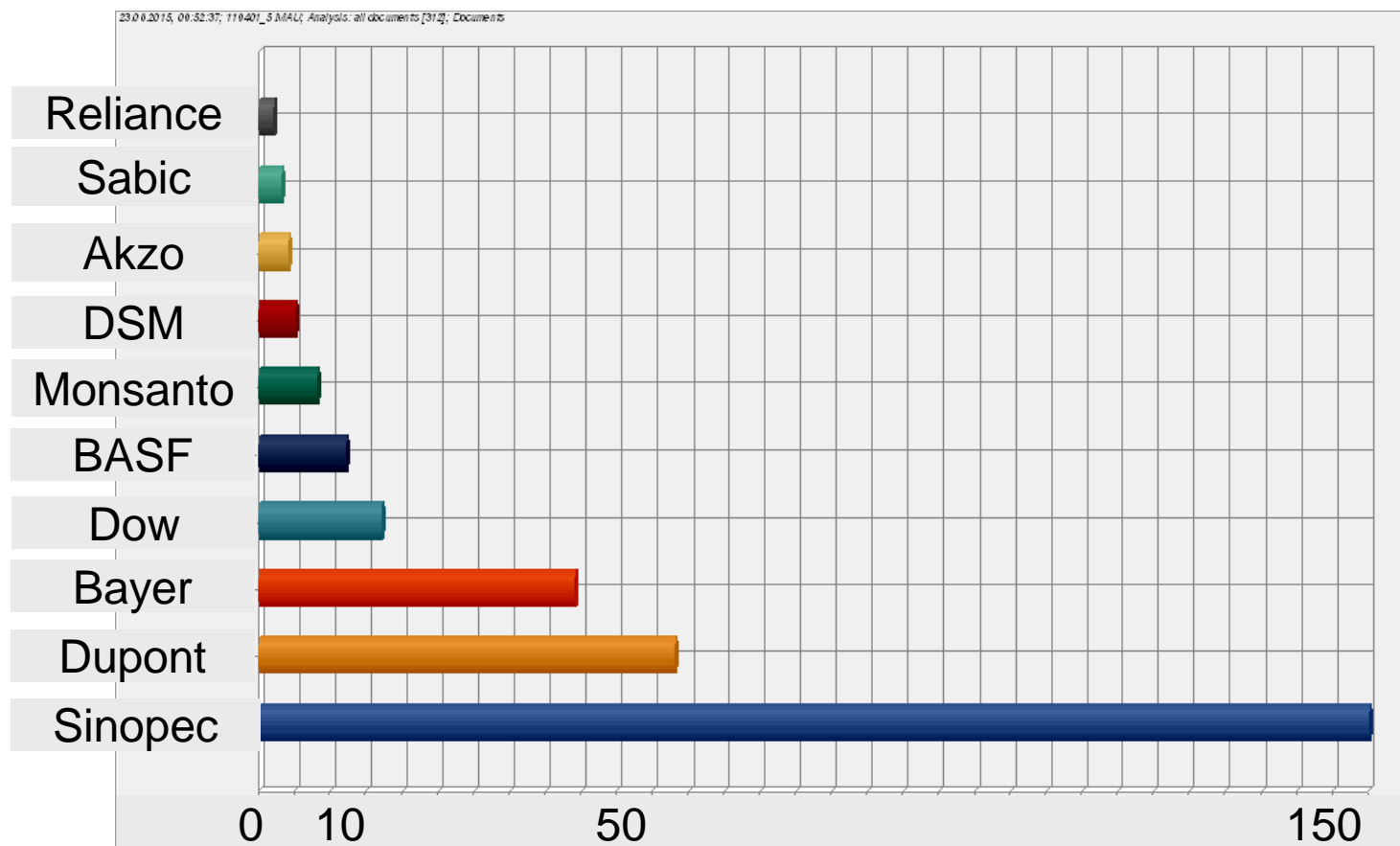
**Digitalization  
along the  
value chain**

**Supply chain management, smart manufacturing**

**Smart innovations**

**Digital Business models**

# „Digital Patent“ Filings by Chemical Companies from 2010 to 2015

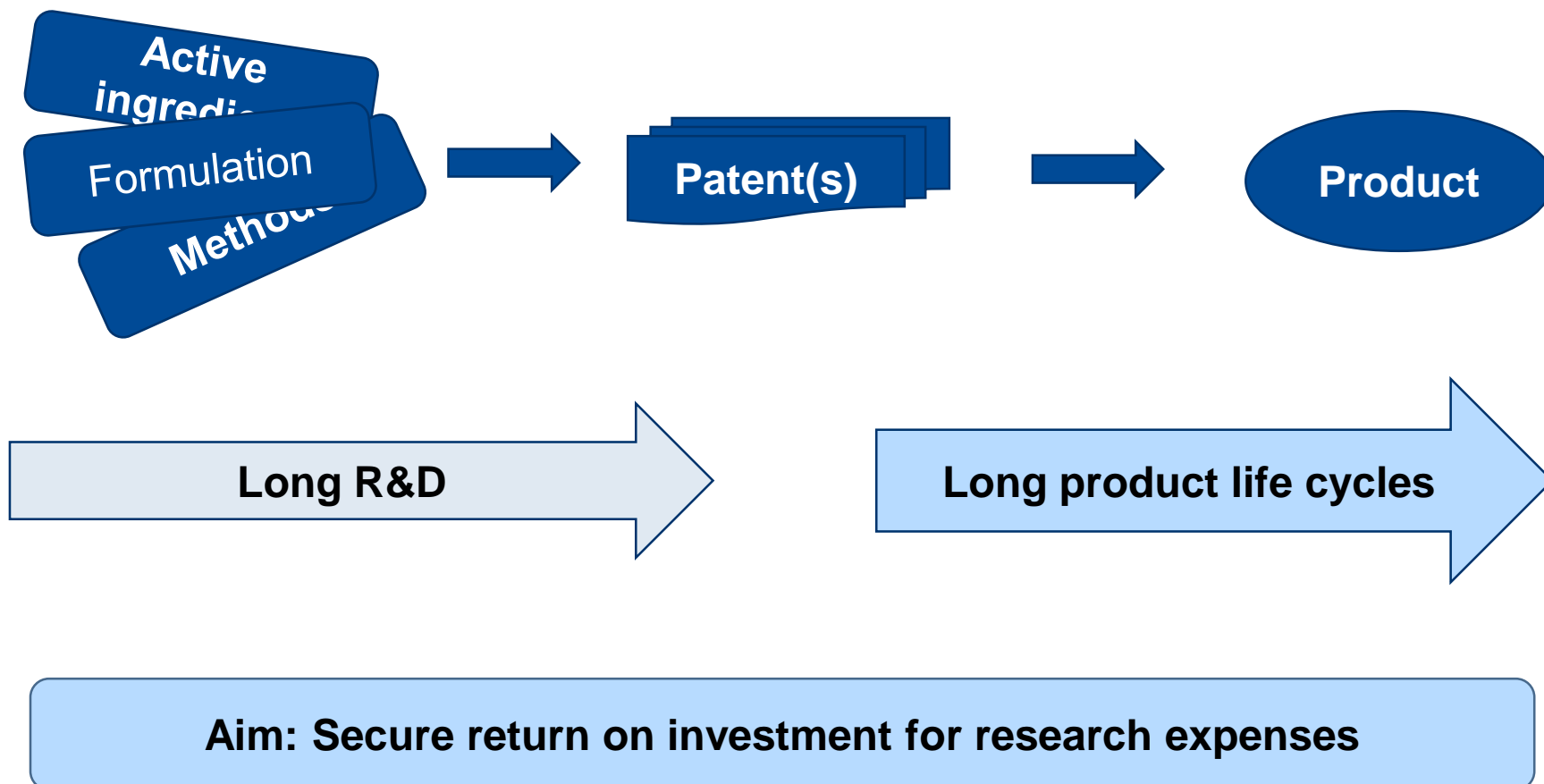




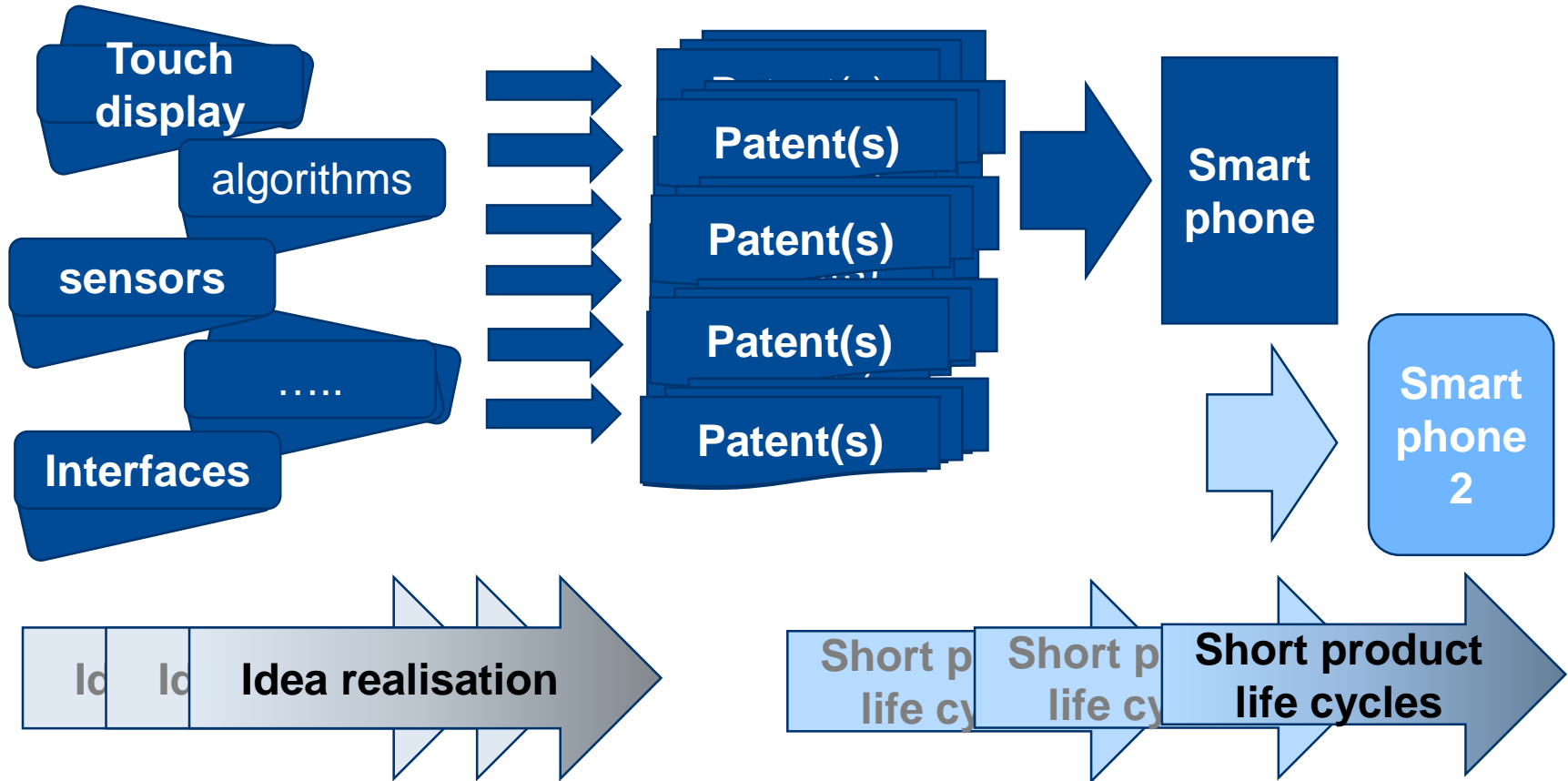




# Patenting Chemical Inventions



# Patenting IT Inventions



Multiple technology stacks build on each other

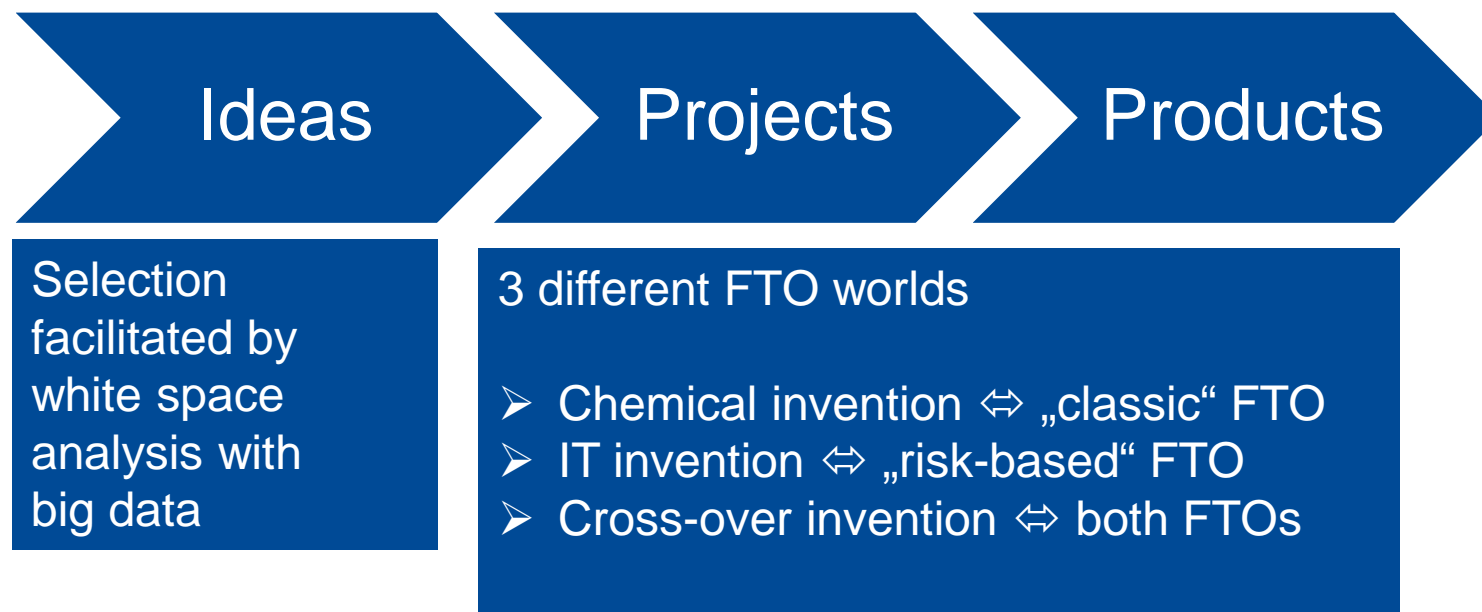
# Key Differences between Chemical Inventions and IT Inventions

	Chemistry	IT
<b>Technology</b>	Discrete	Complex cumulative
No of inventions in product	Low	High
Distribution level	Low	High
<b>Investment per innovation</b>	High	Low
<b>Product life cycle</b>	Long	Short
Technical Terminology	Standardized	Not Standardized
Cross-licensing	Rare	Common (pools, standards)

# Patent Landscape Chemistry vs. IT

Chemistry	IT
1 patent per product	1000 patents per product
Chemical company innovation owner	Innovation often with IT partner
Patents very relevant	Patents slow, Know-how protection essential
Established legal environment in many countries	Little case law; scope of patents difficult to assess; changing laws
FTO key element of IP and business strategy	Multi layer patent landscape; Full FTO nearly impossible

# Impact of Digitalization on FTO Processes „Front-end“ and „back-end“



# Risk-based FTO Approach for IT inventions

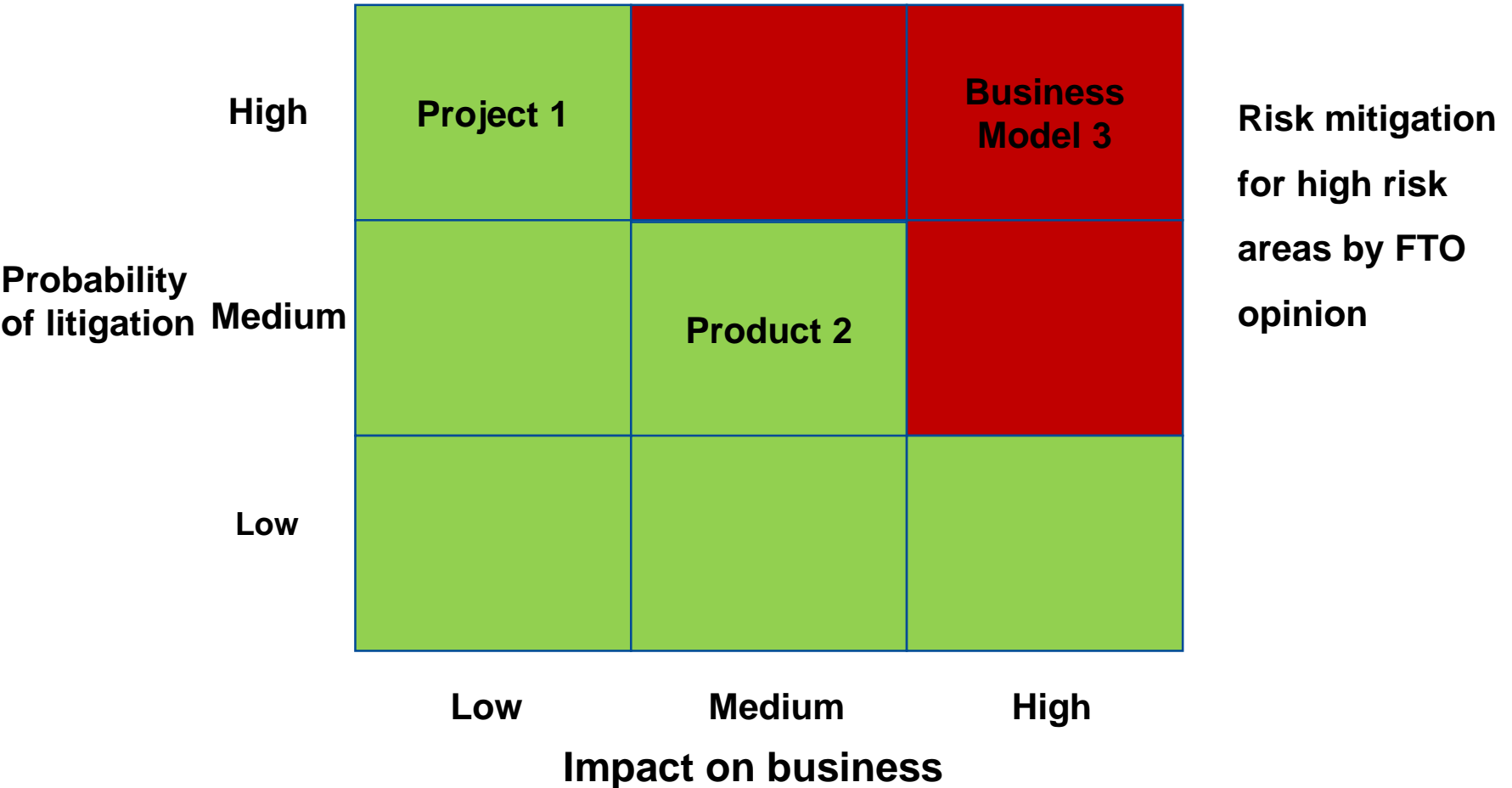
- Step 1: white space analysis during early R&D stage
- Step 2: risk analysis: FTO yes/no
- Step 3: risk-adapted FTO analysis

## Examples

- Identify oldest patents
  - Identify oldest patents of key competitors
  - Identify patents with highest “Patent Asset Index”
- => Check 5 to 10 „quality“ hits for relevance

# Risk Matrix

red => FTO, Green => no FTO



# Risk Matrix

red => FTO, Green => no FTO

## Probability of litigation

- Patentability
- IP owner
- Visibility
- Country

Green	Red	Red
Green	Green	Red
Green	Green	Green

## Impact on business

- High investment
- High cost of change
- Profit loss
- Reputation damage



# IP Risk Management

- Technical circumvention
- Stop of the project
- Managing
  - Prepare for defense to litigation
  - Careful communication
  - Avoid countries of high risk
  - Indemnification caps in contracts with 3rd parties
- Carve out IP risks (invalidation of patent...) in M&A

# Cross-Licensing as Risk Management: LOT (License on Transfer) Network

- Nonprofit organization to combat patent trolls by cross-licensing patents
- Google-led initiative from 2014
- 70 members, from IT-tech, automotive, finance; 0,5 mio patents
- Annual fee USD 1.500 – 20.000
- Royalty-free license to all other LOT companies *on condition* of the sale of a patent by a LOT company to a troll
- LOT companies free to sue each other, sell patents
- Quality of patents is not addressed

# Outlook

## Artificial Intelligence and FTO Processes

### Future A.I. products

- White space analysis with Big Data
- Case law analysis
- Infringement analysis
- Invalidity analysis
- Risk assessment analysis

### Questions

- Legal relevance of computer-generated (mass)-patent filings
- Legislative changes
- A.I.-generated FTO as legal work product

THANK YOU