



Reducing working hours  
and health & safety at workplace  
Prague  
28 November 2017

**Scenarios for ICT and work**

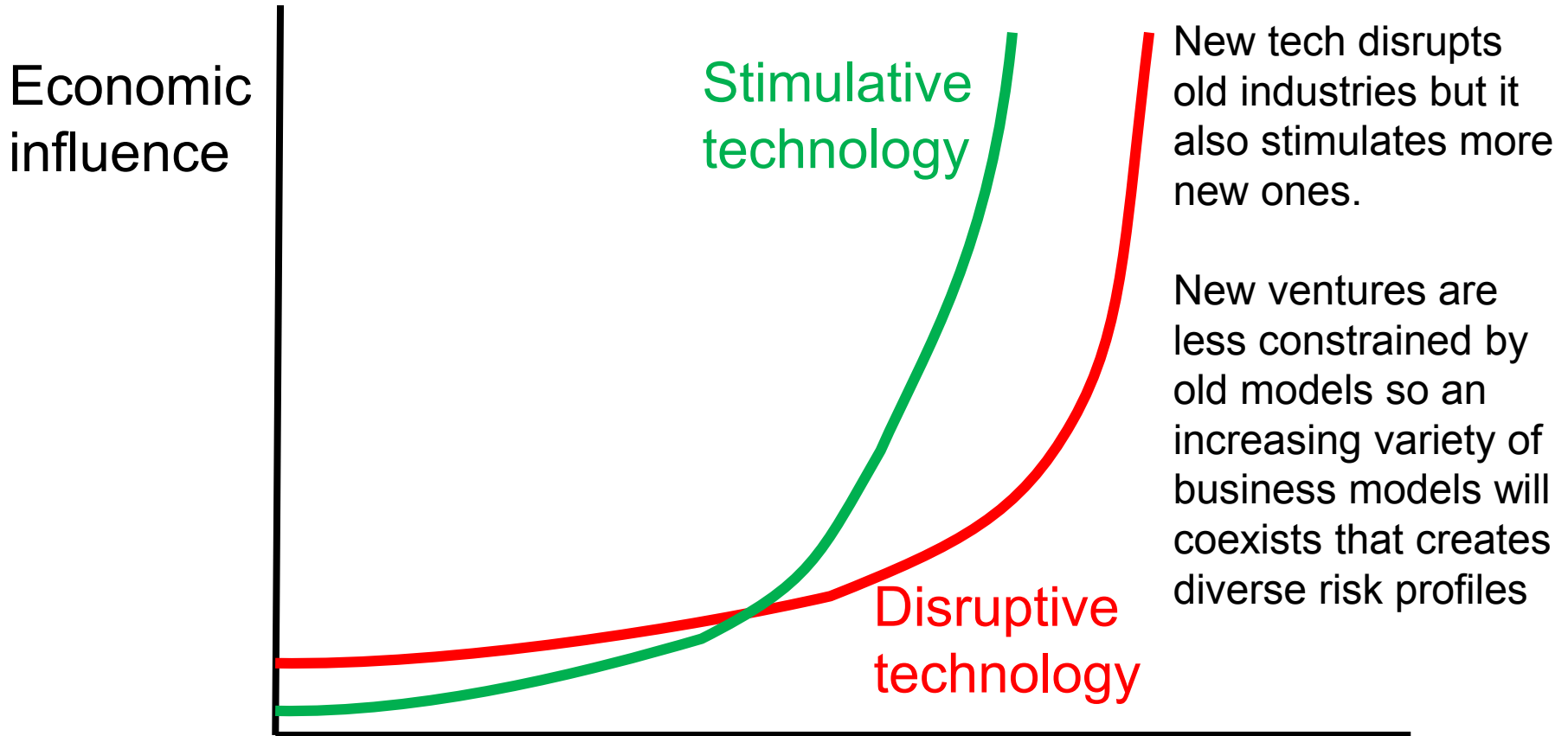
**John Reynolds**

[john.reynolds@samiconsulting.co.uk](mailto:john.reynolds@samiconsulting.co.uk)





# Disruptive v stimulative tech





# Effect of ICT on Jobs

## New Occupations and Industries

- Already ICT has had a transformational effect on work
- Since the PC was invented over 1500 new job titles in occupational classifications  
E.g. Database administrator, Web Designer, Cyber-security
- Also changed many jobs



# Jobs in the Future

- Estimates, 65% of children entering primary school today will ultimately end up working in new jobs that don't yet exist.

(Research from the World Economic Forum)

- 35% of the skills necessary to thrive in a job today will be different five years from now.

(McLeod, Scott and Karl Fisch, "Shift Happens")



# What are scenarios

- Describe how ‘the world’ might look in the future
- Possible ‘paths’ to the future, including radical change
- Based on an analysis of key uncertainties/drivers of change
  - Societal, Technological, Economic, Environmental and Political
- Should be remarkable, convincing and plausible
- Must have internal logic and consistency
- Allow critical uncertainties and predetermined elements to be separated
- **Not predictions or forecasts**



## Axis 1 – Governance and public attitudes

- The environment in which ICT-ET will be exploited
- The levels of acceptance from the public/workers
- The levels of leadership from governments, business and workers' representatives



## RESISTIVE

- Break down in trust
- Limits to data sharing
- Non-compliance
- Protectionism, nationalism and tribalism
- More discrimination, bullying and exploitation
- Entrepreneurs find opportunities to exploit



## GOVERNANCE AND PUBLIC ATTITUDES

- Level of public trust determines the political and regulatory appetite
- Does Government, business leadership and citizens' movements encourage a consensual approach?



## SUPPORTIVE

- Mutually supportive society and Government
- Understanding and management of privacy and ethics
- Less discrimination
- Inter-government support
- Risk of 'Red tape'



## Axis 2 – Growth and technology application

- The level of economic growth and investments in technology and skills
- The application of the developments of ICT-Enabled Technologies (ICT-ET)
- The level of impact on the nature and locations of work; and the associated changes to business structures





## LOW

- Low GDP growth
- Limited investment in infrastructure, research and capital expenditure
- Limited number of jobs lost to new tech
- Loss of (mainly unskilled) jobs
- Patchy adoption of new tech
- Shortage of work for low-skilled



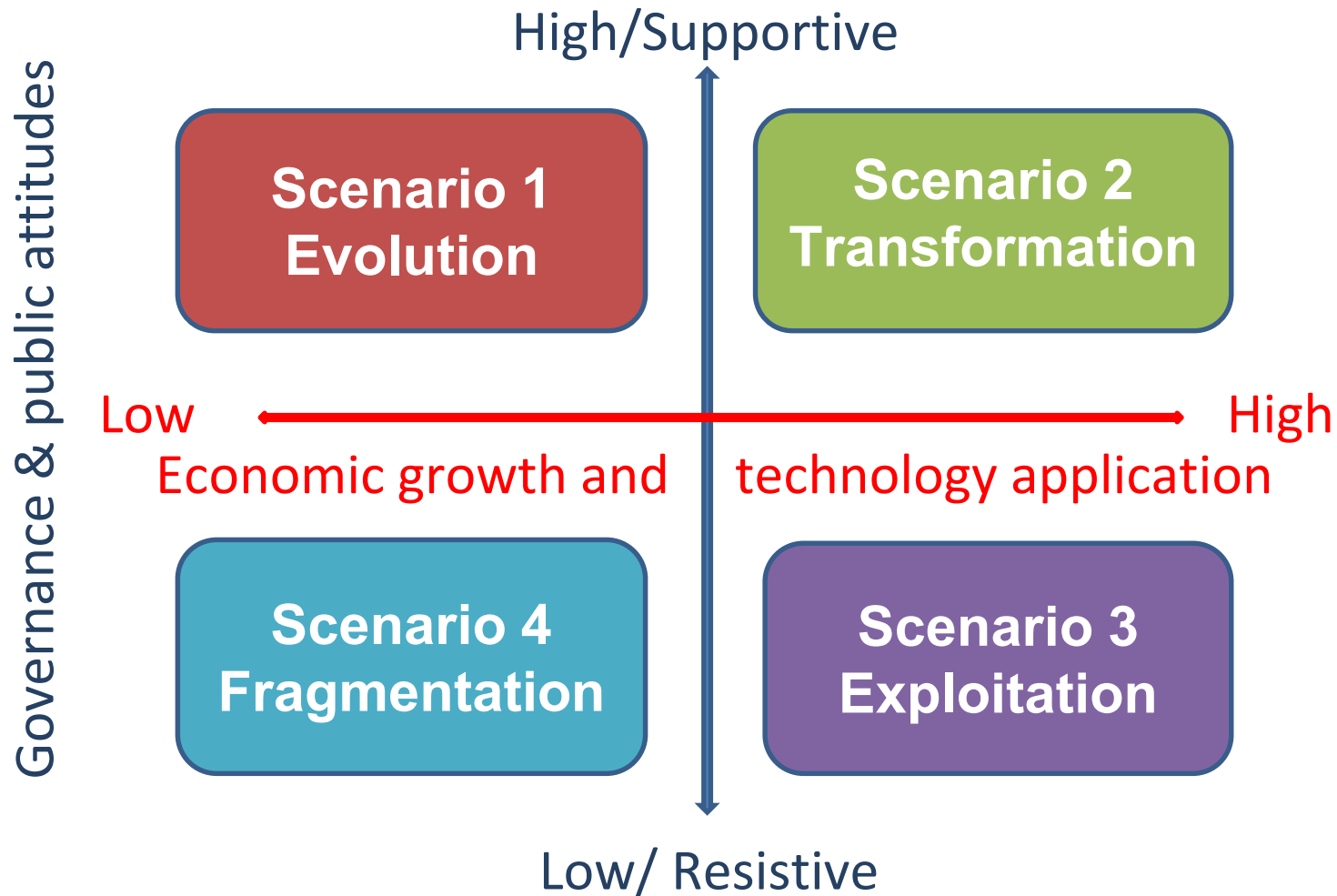
## ECONOMIC GROWTH & TECHNOLOGY APPLICATION

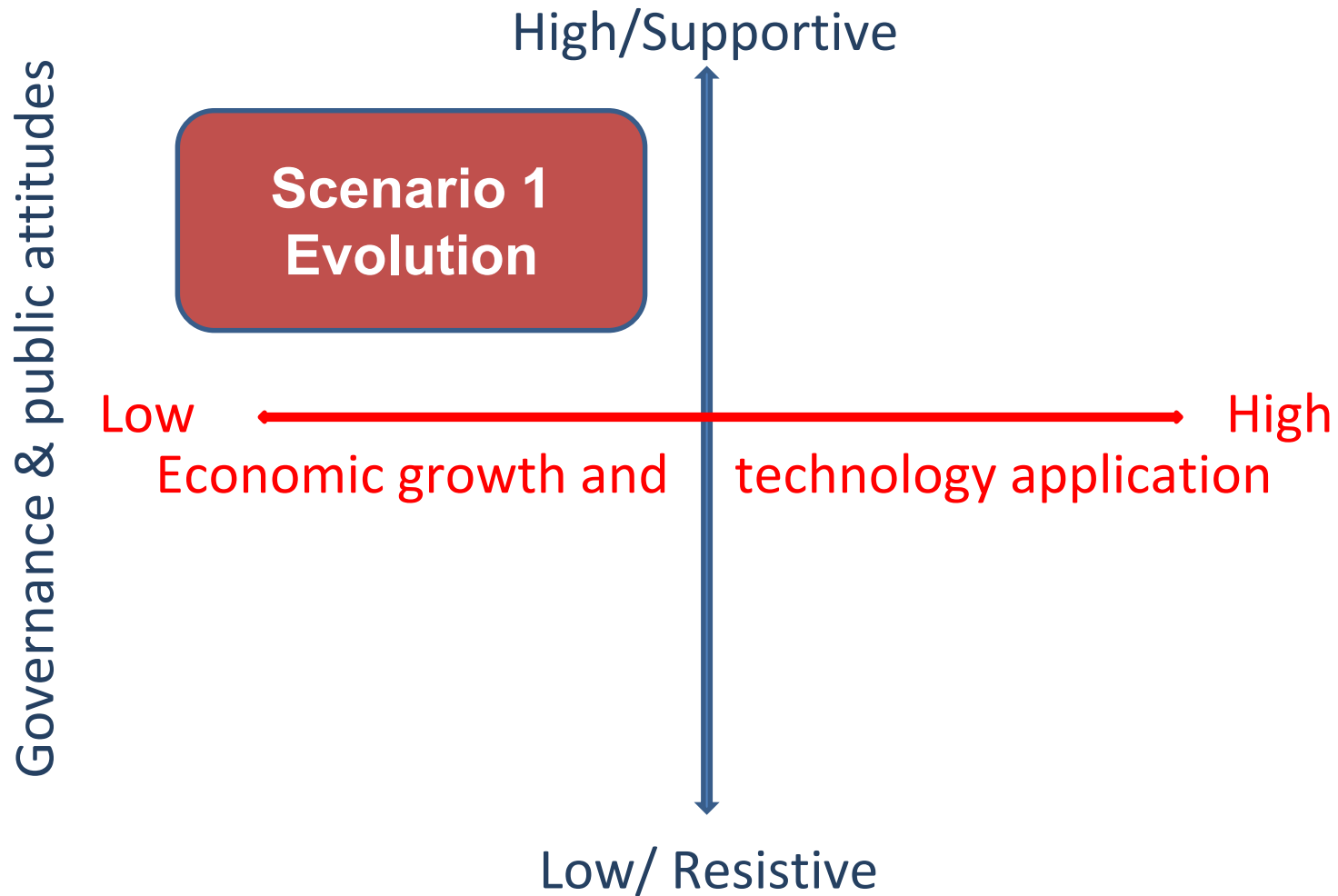
- Economic growth and investment
- Advances in ICT-ET
- Changes in nature and location of work
- Changes to business structures



## HIGH

- High GDP growth
- High investment in infrastructure, research and capital investment
- Many existing jobs lost, but new ones emerge
- Change affects all levels of workforce
- Opportunities for adaptable, skilled workers
- Thriving small start-up sector







## Scenario 1 – ‘Evolution’

- GDP growth about 1%
- Limited investment in research, infrastructure and capital assets
- Slow innovation and technological change
- Moderate investment in skills (variable quality MOOCs)
- Technology exploited by companies to build a more secure future
- **10% of jobs fundamentally changed or lost, 40% moderately changed**

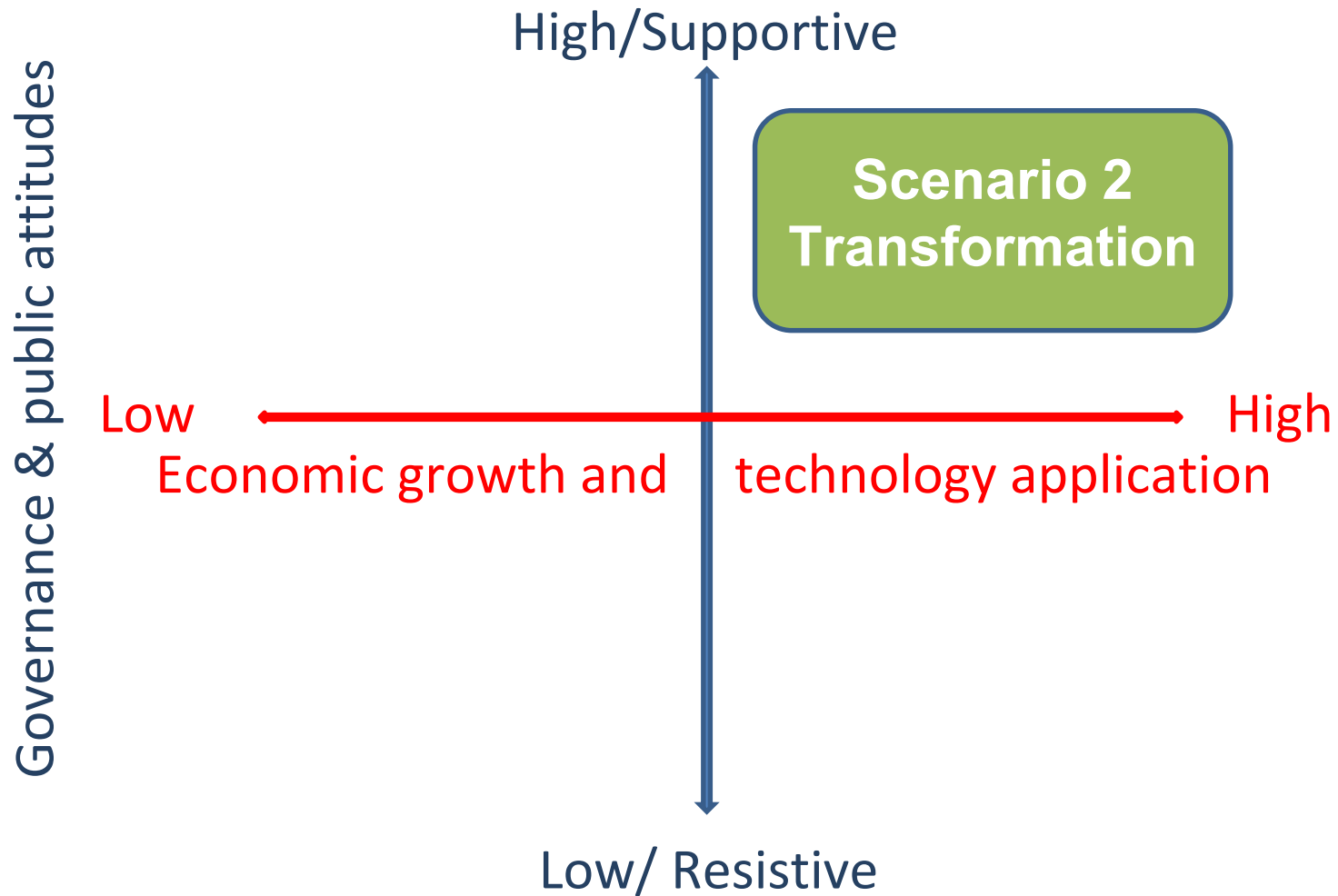


# Scenario 1 – ‘Evolution’

- High level of unemployment and migration across and out of Europe
- Inclusive society with workers’ interests taken into account, accompanied by increased regulation to protect traditional jobs
- Protectionist policies with increasing trade barriers
- Sharing economy with some online labour exchanges owned by workers with shared values
- Increasing pay inequality
- Cyber attacks have remained a serious threat

# FLAT-LINING







## Scenario 2 – ‘Transformation’

- GDP growth of around 4%
- High investment in research, infrastructure capital assets and skills
- Evidence-based and responsive government policy
- High levels of innovation and pace of technological change
- Technology exploited across the economy





## Scenario 2 – ‘Transformation’

- **50% of jobs fundamentally changed or lost, many new types of job created**
- Low level of unemployment
- Workers’ interests increasingly taken into account, accompanied by increased innovative regulation
- Increasingly ethical business models
- Inclusive society with shared values typified by trust, collaboration and consensus

# DIGITAL SINGLE MARKET



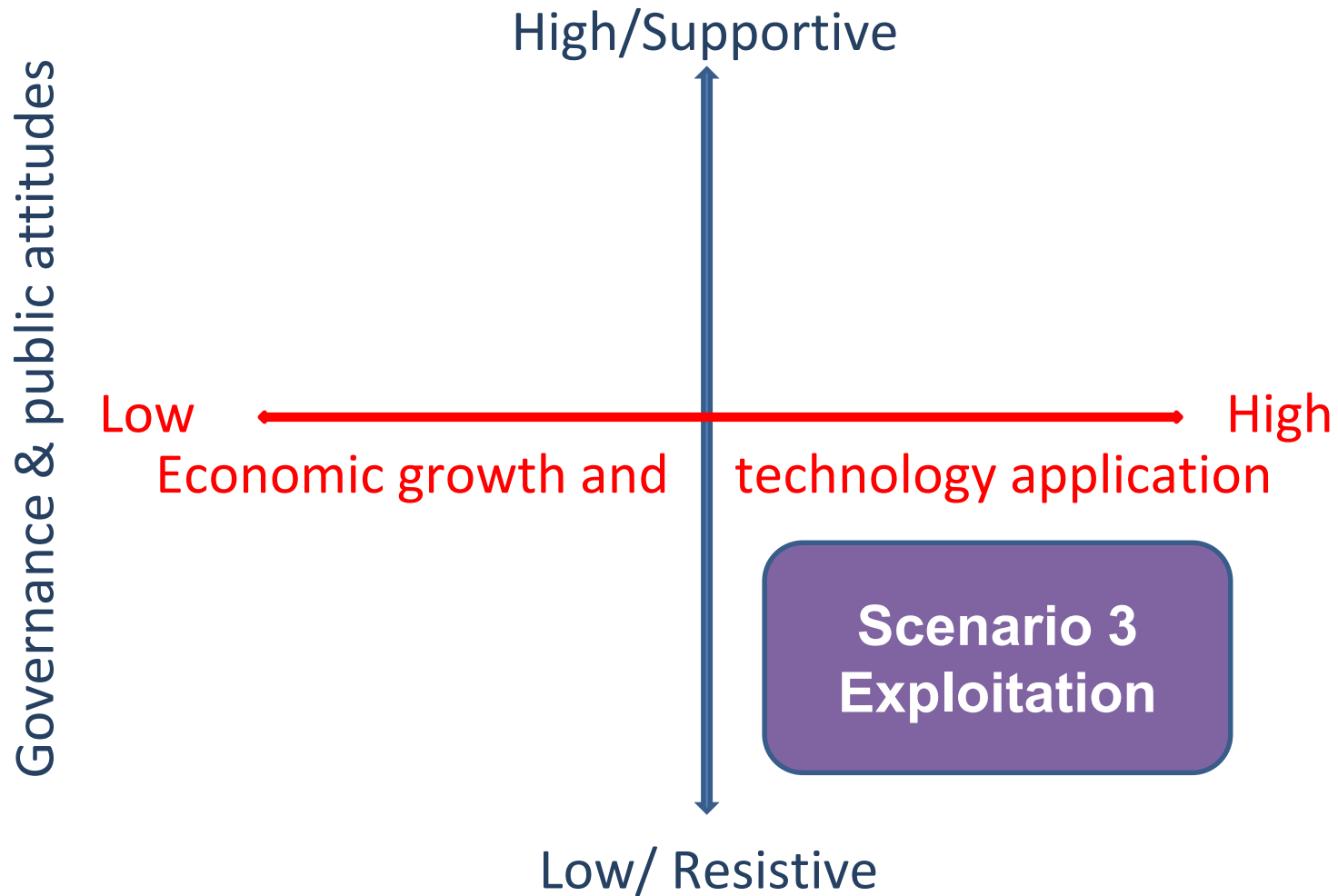
Amazing how many jobs are replaced by AI these days

Yes and how about yourself?

Lucky there's a whole new range of jobs with the Digital Single Market...

Before, I was a lawyer. Now, it's hard to explain... I'm a kind of online strategic evaluation change management facilitator







## Scenario 3 – ‘Exploitation’

- GDP growth 3%
- High but patchy investment in research, infrastructure and capital assets
- Low investment in skills
- High levels of innovation and pace of technological change
- Exploitation of technology uneven and driven by profit

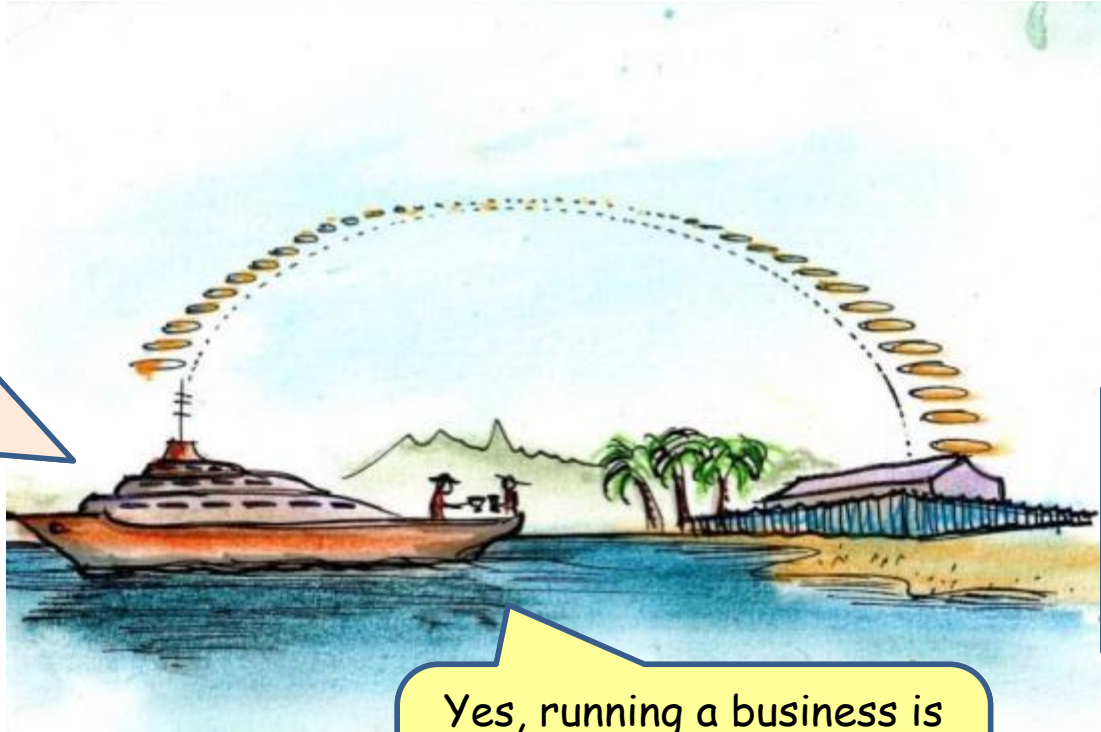


## Scenario 3 – ‘Exploitation’

- **60% of jobs fundamentally changed or lost, some new types of job created (for people)**
- Very high levels of unemployment
- Workers’ interests lower priority and weak regulation
- Increased inequality between high and low paid

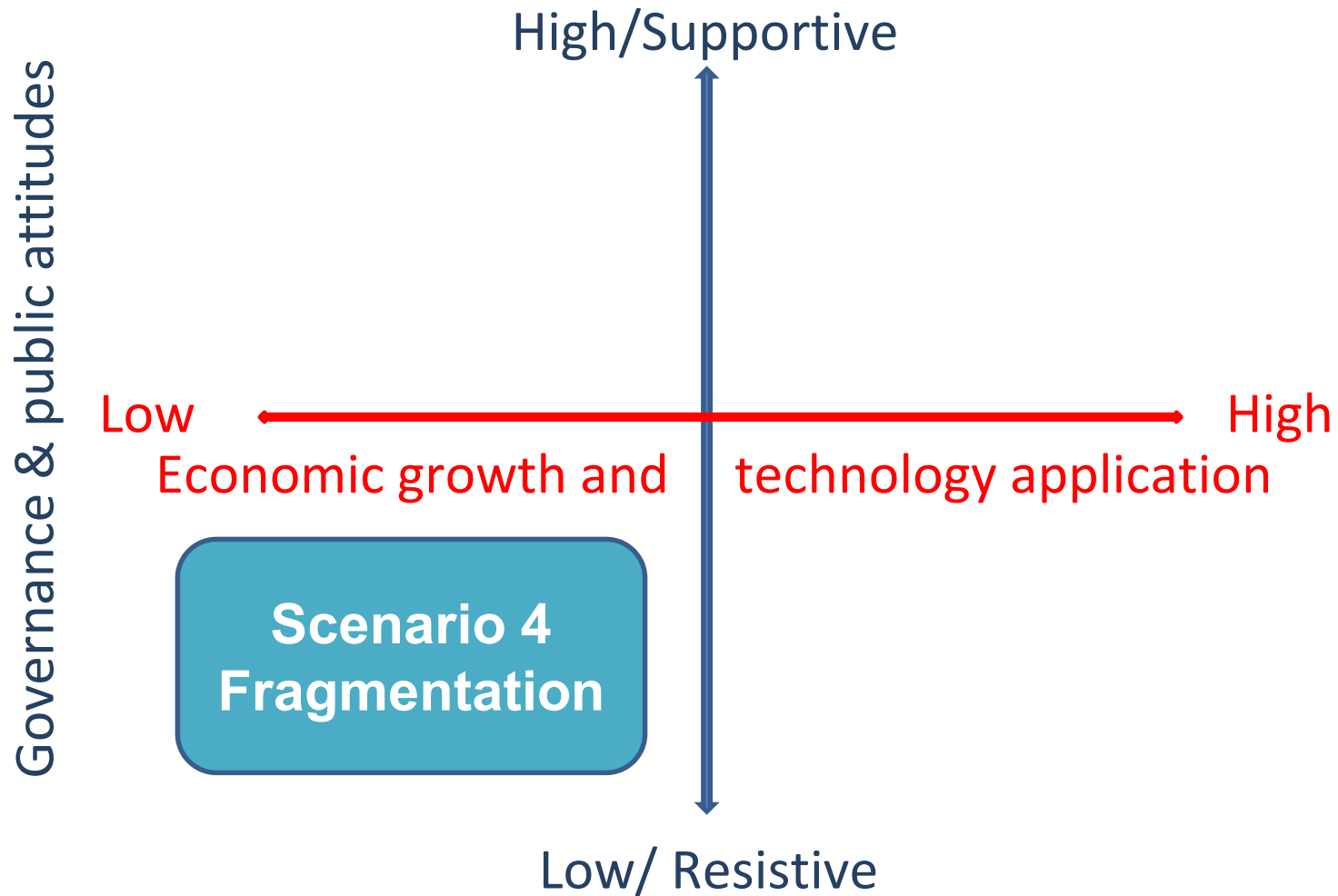
# HUMAN FREE PROFIT

It's amazing  
how our  
hyper-  
automation  
business  
seems to  
rain Bitcoins



**BEWARE:  
HUMAN FREE  
ZONE**

Yes, running a business is  
so much more relaxing  
without demanding  
workers getting in the way





## Scenario 4 – ‘Fragmentation’

- GDP growth about 1%
- Low investment in research, infrastructure, capital assets and skills
- Slow innovation and technological change
- Exploitation of technology uneven and driven by profit





## Scenario 4 – ‘Fragmentation’

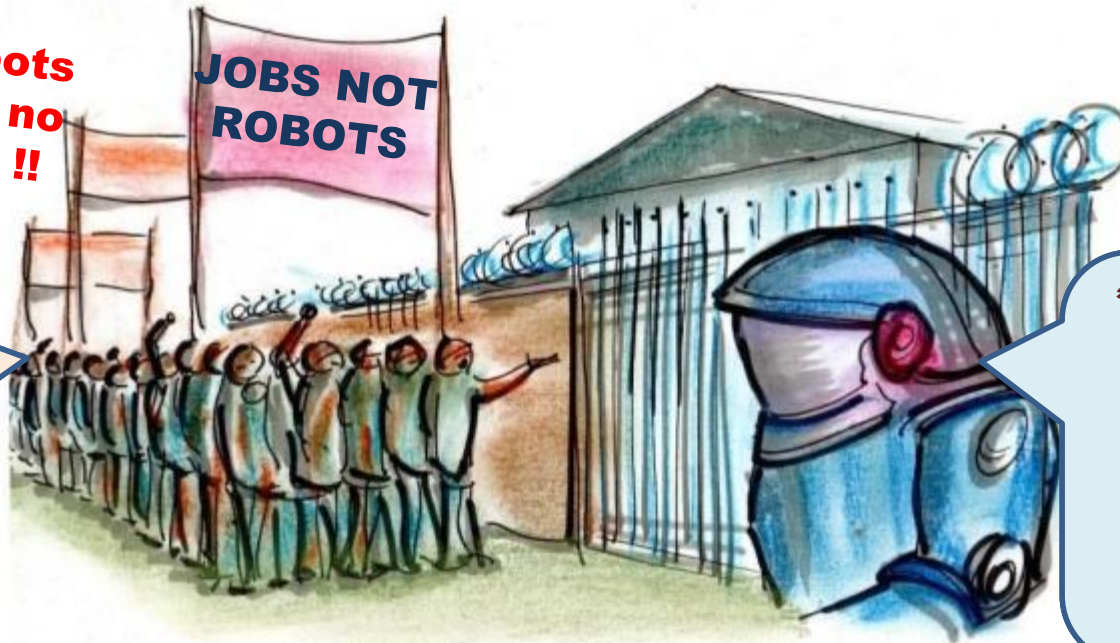
- **30% of jobs fundamentally changed or lost, few new types of job created (for people)**
- Increasing levels of unemployment
- Workers’ interests low priority and weak regulation
- Increased inequality between high and low paid
- Cyber attacks have remained a serious threat

# LOCKED OUT

**Robots  
pay no  
tax !!**

**JOBS NOT  
ROBOTS**

We demand  
human  
rights and  
social  
justice!!



**\*\*RED ALERT\*\***  
**<<Subversive  
humans  
approaching  
the gates.  
Prepare for  
level 3  
response>>**



## Summary of H&S implications

- Opportunities to reduce H&S risks
- Opportunities to better manage H&S
- Existing risks in new contexts / sectors
- Important to recognised emerging risks (e.g. virtual and augmented reality)
- Some new and potential as yet unknown risks
- **Psycho-social and organisational factors very important**



## Presents H&S challenges for

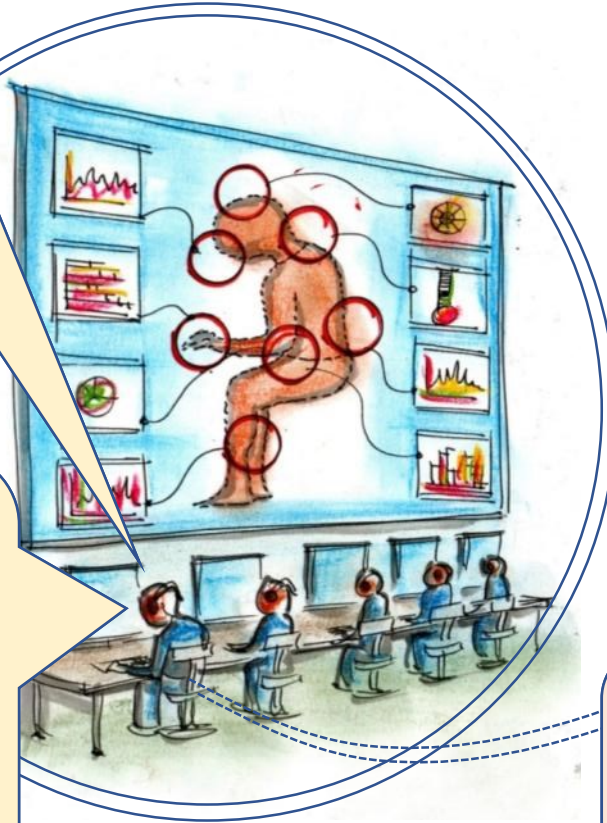
- Business management of OSH
- Education and training
- Regulation
- Inspection
- Health surveillance
- Occupational health services
- Worker representation
- Research

# WATCHING OVER YOU

<<Hi - this is your "full-human"  
OSH\* advisor speaking>>

<<Our "Worker  
Alert" system has  
detected you  
have eye fatigue,  
chronic headache,  
systemic anxiety,  
lower back pain, &  
acute overdose of  
coffee>>

<<We can offer  
you a "free" Level  
3 OSH\* training  
module - when  
complete you get  
20% discount off  
your next worker  
insurance  
payment!! >>



<<Thanks, but this OSH training looks  
too stressful... I'm already worried  
about Deliverables, P2P rankings, open  
benchmarks, Key Performance  
Indicators & network analytics....

\* OSH = "occupational safety & health"



[john.reynolds@samiconsulting.co.uk](mailto:john.reynolds@samiconsulting.co.uk)