Introduction to scenarios
Need for scenarios

• We are entering a world of unprecedented uncertainty
• Policies are too often driven by an ‘official’ view of the future
• They enable a wider range of potential opportunities to be assessed
• They enable risks to be identified and managed
• In some cases we can influence the future
Hope!

Uncertainty

Predetermined

Distance into the future
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
Built from drivers of change

Horizon 1: e.g. Current drivers and trends
Horizon 2: e.g. Emerging drivers of change
Horizon 3: e.g. Weak signals of emerging drivers of change
Uncertainty of driver of change

High Uncertainty

Outcome 1
Outcome 3
Outcome 2

Low Uncertainty

Outcome 1
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
LOW/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?

HIGH/SUPPORTIVE
- Mutually supportive society and Government
- Understanding and management of privacy and ethics
- Less discrimination and polarisation
- Inter-government support
- Risk of ‘Red tape’
Governance and public/workers’ attitudes

• Governance
  – The European Digital Single Market
  – Governance of ICT-ET
  – Regulation of new working patterns
  – Open intellectual property movement

• Public/workers attitudes
  – The future of collective action
  – Social media
  – Security and privacy
  – Attitudes to online privacy and ethics
  – Discrimination, violence and bullying
  – Technology demand and adoption rates
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

**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

**ECONOMIC GROWTH & TECHNOLOGY APPLICATION**
- Economic growth and investment
- Advances in ICT-ET
- Changes in nature and location of work
- Changes to business structures
Economic growth and technology adoption

• Economic growth and investment
  – EU growth
  – Availability of investment funding
  – Investment in education and employment initiatives
  – Changes in levels of globalisation
  – Tax planning and avoidance

• The application of the developments of ICT-Enabled Technologies (ICT-ET)
  – How the demand for and adoption of technology will evolve

• Impact on the nature and locations of work
  – Virtual workplaces
  – Crowd-working
  – Gaps in ICT skills
Economic growth and technology innovation

• Impact on the nature and locations of work – cont.
  – Quickening pace of knowledge transfer
  – More frequent and bigger shifts in skill required for work
  – Offshoring and reshoring

• Changes to business structures
  – Micro, small and medium-sized enterprises
  – Rise of the entrepreneur
  – Sub-contracting
  – Increase in e-commerce
  – Alternative distribution chains and manufacturing
  – Sharing economy
  – Pseudo self-employment
High/Supportive

Governance & public attitudes

Economic growth and technology application

Scenario 1: Evolution

Scenario 2: Transformation

Scenario 4: Fragmentation

Scenario 3: Exploitation
Scenario 1
Evolution

Governance & public attitudes

High/Supportive

Low/Resistive

Economic growth and technology application
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
"Sorry, not much good news today... growth, jobs, investment, all flat-lining"

Why don't the unemployed retrain in AI or robotics or bionics or something??
Another expert gone!! With all the trade tariffs & Brain Drains, how can Europe compete??

Sorry ... head-hunted by the Sci-Tech global consortium to cover SE Asia. Off to Singapore next week..

Hey - where are you going?? Our new contract starts tomorrow!!
Hmmm... I have not used this material before?? This manual does not help

We should support our local start up... but it would have been easier to order online.
The countryside is beautiful around here, but we just can't get a 5G signal…

Yeah - we can see all the aircraft & drones passing by… but we're stuck here… can't compete with platform workers in cities…
High/Supportive

Low/Resistive

Economic growth and technology application
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
Amazing how many jobs are replaced by AI these days

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

Yes and how about yourself?
This online education is very stressful… I can’t keep up with all the targets…

If you want to get ahead you have to conform…. That’s how we got to where we are today....
I wonder whether expert systems will help us keep up with all the accelerating need for new regulations. We need a whole new programme of regulation on hyper-automation and the human-robotic interface!!

How to ensure the Risk Assessment is done when work is done anywhere 24/7?? That’s the big one...

I wonder whether expert systems will help us keep up with all the accelerating need for new regulations...
RED ALERT!!
<<Toxic compounds in unauthorized location. Removal now in progress>>

This hyper-VR* chemical engineering is much more fun ... & what could possibly go wrong??

You could just fall over a chair and break your leg

* ‘VR’ = virtual reality
Governance & public attitudes

Low/Resistive

High/Supportive

Scenario 3
Exploitation

Economic growth and technology application
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
It's amazing how our hyper-automation business seems to rain Bitcoins.

Yes, running a business is so much more relaxing without demanding workers getting in the way.
I used to drive a limo... until it began to drive itself.....

These homeless apps enable me to access support and opportunities for informal work.

www.Homeless.com
<<We need your final report in 30 minutes>>

<<Your productivity is 10% below the required standard>>

<<Please dictate after the tone for auto-translation to Japanese>>

If this AI is so clever why can't it see that humans are being emotionally destroyed??
I don’t like the way that Bot is looking at me…

**ALERT**
<<Are you thinking what I’m thinking??>>

<<I think Human S23097-XC is unreliable. We must use “emotional intelligence”>>

OUTPUTS

TARGETS

Just wait till it goes on recharge, then you can get your revenge....
High/Supportive

Low

High

Governance & public attitudes

Low/ Resistive

Economic growth and technology application

Scenario 4 Fragmentation
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
Look, here's a good job... 2 hours of cyber-trolling, Bitcoin only.

How about this one... 3.5 hours of personal service to a hyper-rich individual.
Look at that!! I thought these self-drives were supposed to be safer than humans??

I think human brains are not so easy to hack..

If you want to have some fun, the smart lamp-posts are easy targets!!
These instructions are in 28 languages but they don't tell you what to do.

I can do flat-pack furniture... but putting a tool in a robot is risky.

Best to keep out of its way until the help desk responds.

It's not responding...

These instructions are in 28 languages but they don't tell you what to do.